MSC SUSTAINABLE FISHERIES CERTIFICATION

Echebastar Indian Ocean Skipjack Tuna Purse Seine Fishery

Final Report (Revised)

February 2018

Changes made to the previously published version of the Final Report are highlighted in Yellow

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Glossary

AM	Acoura Marine
ANABAC	Asociación Nacional de Armadores de Buques Atuneros Congeladores
ASAP	Age structured assessment program
ASPM	Age structured production model
AZTI	Spanish (Basque) fisheries research institute
BET	Bigeye tuna
Blim	Limit biomass reference point
Bmsy	Biomass achieving maximum sustainable yield
CDR	Certifier Desk Review
CEPESCA	Confederaciónón Española de Pesca
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
CPUE	Catch per unit effort
CR	MSC Certification Requirements
dFAD	drifting Fish Aggregating Device
EC	European Commission
EEZ	Exclusive Economic Zone
EIO	Echebastar Indian Ocean
ETP	Endangered, threatened and protected species
EU	European Union
F	Fishing Mortality
FAD	Fish aggregating device
FAM	MSC's Fisheries Assessment Methodology
FAO	Food and Agriculture Organisation of the UN
FAO	United Nations Food and Agriculture Organisation
FCI	Fisheries Certification International
Flim	Limit reference point for fishing mortality
FMC	Fisheries Monitoring Center
FMSY	Fishing mortality achieving maximum sustainable yield
Fpa	Fishing mortality expected to maintain the SSB at the precautionary reference point
FSC	Free School
HCR	Harvest Control Rule
IO	Indian Ocean
IOTC	Indian Ocean Tuna Commission
IPNLF	International Pole and Line Foundation
IUU	Illegal, unreported and unregulated fishing
LL	Longline
LME	Large marine ecosystem
MCS	Monitoring, Control and Surveillance
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
NGO	Non-Governmental Organisation
OPAGAC	Organización de Productores Asociados de Grandes Atuneros Congeladores
P1	MSC Principle 1
P2	MSC Principle 2
P3	MSC Principle 3
PI	MSC Performance Indicator
PNA	Parties to the Nauru Agreement
PRI	Point of Recruitment Impairment
PSA	productivity-susceptibility analysis
RBF	MSC's risk based framework
RFMO	Regional Fisheries Management Organisation

SC	Scientific Committee of the Indian Ocean Tuna Commission
SFA	Seychelles Fishing Authority
SFPA	Sustainable Fisheries Partnership Agreements
SI	Scoring Issue (MSC)
SICA	Scale Intensity Consequence Analysis
SIDS	Small Island Developing States
SKJ	Skipjack tuna
SONAR	Sound navigation and ranging
SS3	Stock Synthesis 3. Length based stock assessment modelling
SSB	Spawning Stock Biomass
SWIOP	Development and Management of Fisheries in the Southwest Indian Ocean
t	Metric tons, Unit of weight used in referring to catch or landings
TAC	Total Allowable Catch
UoC	Unit of Certification
UNCLOS	United Nations Convention on the Law of the Sea
VMS	Vessel Monitoring System
WPB	Working Party on Billfish
WPEB	IOTC Working Party on Ecosystems and Bycatch
WPTT	IOTC Working Party on Tropical Tunas
WWF	World Wide Fund for Nature
YFT	Yellowfin tuna

Executive Summary

In 2013-2015 the Echebastar Indian Ocean tuna (skipjack, yellowfin & bigeye) free school (FSC) purse seine fishery was assessed according to the MSC standard CR1.3. Following an objection and independent adjudication, it was determined that the fishery did not meet the MSC standard assessment (https://fisheries.msc.org/en/fisheries/echebastar-indian-ocean-purse-seine-skipjack-yellowfin-and-bigeye-tuna/@@assessments).

The Echebastar Indian Ocean Skipjack Tuna Purse Seine Fishery (Free school (FSC) and FAD sets) re-entered MSC full assessment in early 2017. The client is Pesqueras Echebastar S.A. (Echebastar)

The assessment has been undertaken as part of the MSC's pilot 'simplification process' (https://improvements.msc.org/database/simplification) that aims to simplify the CR2.0 assessment process. Steps are taken to reduce complexity and cost whilst improving effectiveness of stakeholder engagement and maintaining credibility.

As a first step in the simplification process, the client submitted a 'Client Preparation Assessment Report' and 'Client Document Checklist' that were prepared by AZTI. The assessment team considered this information in preparing a 'Certifier Desk Review' (CDR) containing preliminary findings and conclusions. This was published on the MSC web site for stakeholder review on 23 February 2017. (https://fisheries.msc.org/en/fisheries/echebastar-indian-ocean-purse-seine-skipjack-tuna/@@assessment-documentsets?documentset_name=Certifier+Desk+Review&phase_name=Entry+into+assessment&start_date=2017-02-23&title=Simplification+Pilot+Assessment).

The Acoura assessment team completed a site visit to Bermeo, Spain and Victoria, Seychelles in late March / early April 2017. The team met with Government officials, fishery managers, scientists, other fishermen and NGOs.

Following the site visit, the team prepared a 'First Report' that incorporated significant revisions to the CDR. Under the initial approach proposed by the MSC there was to be a peer review of the report but stakeholders were not given the opportunity to comment. Following comment from stakeholders, this was amended and peer and stakeholder review took place at the same time. The 'Second Report' was published on the MSC web site on 18 August 2017 (https://fisheries.msc.org/en/fisheries/echebastar-indian-ocean-purse-seine-skipjack-tuna/@@assessments).

A substantial number of comments were received from the MSC and stakeholders. These are included in appendix 4 together with specific responses from the team. The comprehensive nature of the comments led to significant edits to the report, which was published as a 'Final Report' on the MSC web site. The main text and scoring rationales underwent significant revision to clarify the assessors' approach and the basis for the recommendation to certify the fishery. The scoring of some performance indicators changed and there were two additional conditions. The wording of all previously drafted conditions was reviewed to ensure compliance with MSC requirements.

Subsequently, Acoura received comments from the MSC on the published final report (Section 12.7). This led to a further revision of the report, with edits to the:

- Text (Sections 7.7, 7.11)
- Scoring tables (2.1.1 SIb; 2.2.1 SIb; 2.3.2 SIa; 2.3.2 SIc; 2.4.1 SIb; 2.4.2 SIa; 2.4.2 SIb; 2.4.2 SIc; and 2.4.3 SIa.

Following review the scores for the individual PIs remained as they were in the initial Final Report.

To facilitate stakeholder review, the redrafted text (including limited other editing) is shaded in yellow.

The revised Final Report was then published with stakeholders provided with 15 working days to respond to the recommendation for certification.

The strengths of the UoA may be identified as:

- The small number of active fishing vessels (5) and the single supply vessel.
- There are no other eligible fishers. This means that any other company wishing to certify its purse seine skipjack fishery in the Indian Ocean must undergo a separate assessment. This will be particularly important in ensuring that successful fisheries fully meet P2 requirements.
- The skipjack stock continues to be healthy and stock assessments are conducted on a regular basis.
- Over recent years, IOTC has considerably strengthened the approach to harvest strategy and related harvest control rules and tools.
- Available data allows an adequate evaluation of the potential ecosystem impacts of the fishery. This includes comprehensive observer coverage that permits evaluation of the UoA impacts on primary species, secondary species and ETP species.
- The bycatch of non-tuna species in both set types is relatively small.
- There is a low bycatch of most ETP bycatch species. The exception is silky sharks; however, in UoA accounts for a very small part of the total catch of this species in the IO.
- Echebastar has been proactive in strengthening its sustainability credentials, taking the lead in:
    - Introducing 100 % observer coverage from 2014 (only achieved in full by all the Spanish IO purse seine vessels in 2017);
    - Having a reduced number of FADs compared to that permitted by IOTC rules (even after considering the lower numbers introduced in 2016);
    - Having a single supply vessel to service its 5 fishing vessels (IOTC allows a supply vessel for every two fishing vessels);
    - The exclusive use of non-entangling FADs that has reduced the catch of silky sharks and marine turtles;
    - Observer inspection of FADs to release entangled marine turtles;
    - Entering a research programme to develop a biodegradable FAD that would reduce the risk of damage by derelict FADs to corals;
    - Working with other Spanish companies in the definition and implementation of a Good Practises Manual;
    - Working with AZTI to train Seychelles observers; and
    - Incorporating two conveyor belts on its newest vessels to facilitate the rapid release of unwanted by catch so as to improve the potential for post release survival.
- The combined approach of the three fishery jurisdictions (IOTC, EU and Seychelles) provides a strong basis for sustainable management.
- The flag states and coastal / island states in whose EEZs Echebastar vessels fish under SFPAs, Private Agreements or vessel licensing are all members of the IOTC.
- There is no evidence to suggest that all Echebastar vessels do not comply with the legal frameworks.
- The main mechanisms governing management of the fishery are reviewed on a regular basis.

A number of weaknesses may be identified that impact all or part of the Echebastar UoA.

- While there has been 100 % observer coverage for the Echebastar fleet since 2015, not all data has been processed, and as a result is not available for analysis. While the proportion of data available for analysis is acceptable, it would be preferable to have all the data available.
- The data is only available for 3 years and this is insufficient to identify trends. This is of particular concern in identifying the potential risk to ETP species.
- The issue of lost FADs is a concern. While the number of Echebastar lost FADs that become derelict on coral reefs is limited in relation to the area of coral reefs in the Indian Ocean which may be affected, the risks accumulate over the years and the continued use of non bio-degradable FADs substantially adds to the potential for adverse effects.
- There is limited information on the potential impact of derelict FADs on coral reefs throughout the Indian Ocean.

- While research has been undertaken, understanding of the potential impact of FADs on key ecosystem elements is incomplete.
- There is concern about the degree and nature of stakeholder consultation in the Seychelles and how any information provided by stakeholders is used in determining required management actions.
- There is lack of defined short and long-term objectives in the Seychelles fishery.
- In the past, there has been lack of transparency on the nature of private agreements.

Specifically, on the three MSC Principles.

Principle 1. The skipjack tuna stock in the Indian Ocean is healthy and is well managed by the IOTC, and stock assessments are regularly conducted to inform management. The stock supports another MSC certified fishery, the Maldives Pole and Line skipjack tuna fishery, and the separate P1 assessments has been harmonized (they were completed by the same expert). PI 1.1.2 was not scored. The weighted score for P1 is 90.0. with no conditions. There is one recommendation: PI 1.2.1 Observers estimate and report on discarded catch and reasons for discarding.

Principle 2. The elemental approach was used to score the PIs and differentiate between FAD and FSC sets. The lower of the two scores for each PI was used to score the fishery as a whole. The average weighted score for P2 was 80.7. Five PIs failed to achieve a score of 80 (2.3.3, 2.4.1, 2.4.2, 2.4.3, and 2.5.3) and this led to the definition of five conditions to certification. In addition, the assessment team made two recommendations: a higher percentage of observer data is available for review each year at annual surveillance audits to better assess impacts on ETP species; and Echebastar maintains a data base of the number of lost FADs by area and date.

Principle 3. The approach to scoring P3 does not use the elemental approach; rather it considers the way the relevant identified elements work together to meet the various guidelines. The team determined that the three jurisdictions to be considered under Component 3.1 and in Component 3.2 are IOTC (RFMO), EU (flag state) and Seychelles (flag state). Fishery specific management related to SFPAs, private agreements and the licensing of individual vessels were taken into consideration in scoring C3.2 PIs. The average weighted score for P3 was 81.9 and three PIs (3.1.2, 3.2.1 and 3.2.2) failed to achieve a score of 80. This led to the definition of three conditions.

The assessment team contracted by Acoura Marine has concluded that the UoA meets the MSC standards, and the draft determination is to certify the fishery.

Traceability is an important part of the MSC approach to ensure there is a low risk of certified product being mixed with non-certified product. Echebastar vessels usually land into Port Victoria and the assessment process has concentrated on that position. Only landings into that port may be covered by the MSC certificate.

After landing, the tuna follows three distinct distribution paths.

1. Part of the landings is unloaded from the fishing vessel directly into containers that are sealed prior to transport for processing in e.g. Mauritius. In common with other fisheries, the fisheries certificate may extend to the point where the container seal is broken.
2. Another part of the landings is transported in reefer vessels to West Africa for processing. Landings from different vessels are separated in the hold of the reefer vessels by nets. Acoura is satisfied that the onboard storage arrangements in transit via reefer are sufficiently robust to prevent mixing.
3. The remainder of the landed catch (a limited quantity) is processed in the Seychelles. The processing companies must be subject to separate chain of custody certification that takes into account the transport between the vessel and the processing facility.

1. Report Details

1.1. Authorship and Peer Review

Audit Team

Joe DeAlteris (P2 and Team leader). Dr. DeAlteris retired from the University of Rhode Island (URI) in May of 2012, and was awarded Professor Emeritus status. In 30 years of service to URI he is taught course work, conducted research, and developed outreach programs in fisheries conservation engineering, fish population dynamics and quantitative ecology, and shellfish aquaculture. He mentored more than 40 graduate students completing MS and PhD degrees. He served on numerous government committees including the National Research Council. He authored more than 35 publications in peer-reviewed journals, and also authored and co-authored numerous books, manuals, non-referred articles, and technical reports in the fields of fisheries biology, stock assessment and fishing gear technology. Dr. DeAlteris has an international reputation as an expert in the field of stock assessment and fishing gear technology. He brings intimate knowledge of finfish and invertebrate fisheries and has considerable experience in MSC fishery evaluations. He has worked for several certifying bodies (CBs). Dr. DeAlteris has worked the full assessment of the Louisiana blue crab and Atlantic red crab fisheries, the Echebastar Indian Ocean tuna fishery, the re-assessment of British Columbia halibut fishery, and annual audits of Dungeness crab, red crab blue crab, Canadian haddock, Full Bay sea scallop and the shrimp fisheries. He has also conducted pre-assessments, and assessment peer reviews. He recently worked as an expert evaluator on the Global Seafood Sustainability Initiative (GSSI).

Kevin Stokes (P1). Kevin is a fisheries science, management, and policy consultant with extensive international and Pacific experience. He has worked at senior management levels in both the public and private sectors as a fisheries scientist, manager, and advisor. Kevin worked for the Ministry, Agriculture, Fisheries and Food and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) in the UK for 15 years. He was responsible for all finfish monitoring, assessment and advice and worked extensively in Europe, serving as chair of the EC Scientific, Technical and Economic Committee for Fisheries (STECF) and as UK representative on the International Council for the Exploration of the Sea (ICES) advisory Committee for Fisheries Management (ACFM), as well as chairing working groups and committees. He served on multiple UK research councils, led the UK scientific delegation to the International Whaling Commission (IWC) and served as UK Alternate IWC Commissioner for many years. He served for many years as an ad hominem member of the UK Special Committee on Seals. Kevin worked as Chief Scientist for the New Zealand Seafood Industry Council (SeafIC) for 9 years, responsible for science policy and process as well as leading a consulting group drawing on diverse international expertise. He has worked on a wide range of marine shellfish and finfish, and environmental issues and has provided advice nationally and internationally at senior governmental and ministerial levels, as well as to fishing, processing and retail industries, and to NGOs. For nine years he chaired the New Zealand National Rock Lobster Management Group (NRLMG). Kevin was for many years a member of the New Zealand Institute of Directors and has worked on governance and strategy development projects, particularly in New Zealand. For the past 6 years, Kevin has worked as a private consultant in the general area of fisheries but extending to governance and wider advisory matters. He has worked extensively across the globe as well as in New Zealand, doing technical reviews; certification programme reviews and design work as well as certification assessment; governance review and design; and sustainability advice to retailers and processors. He has worked on Ecological Risk Assessment (ERA) design and implementation. In 2007 Kevin participated in the MSC Quality and Consistency work, reviewing advice on development of the new P1 CR, and as part of the group that led development of the new P2 and P3 CR. He has undertaken more than 60 MSC pre-assessments as well as acting as an assessor, auditor, and peer reviewer for multiple certification assessments, ranging from prawns to tunas. He has carried out work for a number of Certification Assessment Bodies (CABs). From late 2013 for one year, Kevin worked exclusively to Conservation International, leading development work on the Global Tuna Initiative, with a focus on the Western Central Pacific. Among his current, contracted activities relevant to this assessment, he is involved in MSC certification and surveillance of tuna fisheries in the Indian Ocean. He previously undertook surveillance on the certified PNA non-associated purse seine fishery for skipjack in the WCPO.

Ian Scott (P3). Ian holds a BA degree in Economics and an MA in Labour Economics. He started working in the fishery sector in 1978, since when one of his main specialisations has been fishery management, completing his first Fishery Management Plan in 1980. His work experience is worldwide and includes providing advice on fisheries management to many Governments. Over the years he has gained substantial experience and understanding of many aspects of the fishery sector. This provided the basis for his success in completing a significant number of MSC certifications (as Lead Auditor and Principle 3 expert), pre-assessments and chain of custody audits since 2008. He is trained as a team leader, incl. RBF, according to CR v. 2.

Peer Reviewers

Tristan Southall. Tristan is an experienced fishery industry analyst, with broad experience of industry structures, fishing and fisheries infrastructure, and the legal and fisheries management dimensions of the Common Fisheries Policy. Tristan has participated in a number of MSC full assessments undertaken by FCI both as a team member and as team leader. Tristan holds degrees in Marine Biology from Newcastle University and Marine Resource Development and Protection, from Heriot Watt University both in the UK, and combines these strong academic credentials with extensive experience of real-world practical application. Tristan has a wide range of professional experience in the planning, management and evaluation of aquaculture, fisheries, marine industry and rural development projects, from both socio-economic and environmental perspectives. His consultancy expertise includes project management and evaluation, feasibility studies, economic appraisal, environmental and sustainability assessment, environmental economics, social impact studies, and coastal zone planning and management. In addition, Tristan has coordinated EU fisheries training and promotion activities – covering all aspects of sustainable fisheries management and control.

Rob Blyth-Skyrme. Rob has worked in aquaculture and then in marine fisheries science, management and policy since 1996. Following his PhD which focussed on fisheries management and the environmental effects of fishing, he worked at the Eastern Sea Fisheries Joint Committee, the largest inshore fisheries management organization in England, where he became the Deputy Chief Fishery Officer. He then became a senior advisor to the UK Government on marine fisheries and environmental issues, leading a team dealing with fisheries policy, science and nationally significant fisheries and environmental casework. Rob now runs Ichthys Marine Ecological Consulting Ltd., a marine fisheries and environmental consultancy. As well as working for Government and industry on fisheries science and management issues, he has undertaken all facets of MSC work as a Lead Assessor, expert team member and peer reviewer across a wide range of fisheries.

Sandra Diamond-Tissue. Sandra received her PhD in Fisheries Ecology from North Carolina State University in 1999, after working for the California Department of Fish and Game as a Marine Biologist for 7 years. In 1998, Sandra began working as an academic staff member at Texas Tech University, reaching the level of Associate Professor in 2005. Has worked in UWS since 2007, first as a Research Associate, then as a Lecturer and Senior Lecturer

1.2. MSC CR

Table 1: Version details

Version details	Version Number
Fisheries Standard (S Annexes)	2.0
Reporting Template	Simplification Pilot

Note: Multiple modifications were made by MSC to the Full Assessment Reporting Template V2.0 for the Simplification Pilot

2. Unit Of Assessment And Certification And Results Overview

2.1 Unit of Assessment (UoA) and Scope of Certification Sought

Table 2: UoA and Proposed Unit of Certification (UoC)

Species	Skipjack Tuna (Katsuwonus pelamis)
Stock	Indian Ocean Stock
Geographical area	FAO 51 & 57
Harvest method/gear	Purse Seine including all set types, specifically Fish Aggregating Device (FAD or associated) and free school (FSC or non-associated)
Client group	The five purse seiners owned and operated by the Echebastar Group
Other eligible fishers	There are no other eligible fishers

2.2 Final Unit of Certification (TO BE CONFIRMED)

Species	Skipjack Tuna (Katsuwonus pelamis)
Stock	Indian Ocean Stock
Geographical area	FAO 51 & 57
Harvest method/gear	Purse Seine including all set types, specifically Fish Aggregating Device (FAD or associated) and free school (FSC or non-associated)
Client group	The five purse seiners owned and operated by the Echebastar Group
Other eligible fishers	There are no other eligible fishers

2.3 Scope of Assessment in Relation to MSC program

Table 3: The UoA in Relation to MSC Scope Criteria

Scope Criteria	Met
The fishery is not seeking to certify amphibians, birds, reptiles, or mammals.	☒
The fishery does not use poisons or explosives.	☒
The fishery is not conducted under a controversial unilateral exemption to an international agreement.	☒
The client or client group does not include an entity that has been successfully prosecuted for a forced labour violation in the past 2 years.	☒
The fishery has a mechanism for resolving disputes, or the fishery is not subject to disputes that overwhelm the fishery.	☒
If an enhanced fishery, the fishery meets scope criteria for enhanced fisheries.	☒

The CDR did not identify FADs as an "enhanced fishery". MSC FCR2.0 G7.4.3 states "*the use of man-made structures associated with the capture of fish that are not strictly 'fishing gear' including fish attracting devices*" and "*artificial habitat modifications either enhance the productivity of the fishery or facilitate the capture or production of commercial marine species*". Table 1 of the MSC FCR 2.0 notes that habitat enhanced fisheries can only be considered for MSC certification if they are considered "*in scope*", specifically "*any modifications to the habitat of the stock are reversible and do not cause serious or irreversible harm to the natural ecosystem's structure and function*". FADs enhance fishing operations by aggregating fish to more efficiently capture them.

MSC FCR 7.7.4.1. states "*the CAB shall review and if necessary modify the default tree taking into account the PIs required to assess the enhancements*", and in particular "*the impacts of habitat modification under the habitats and ecosystems components in P2. The CAB shall consider environmental impacts including:*

1. If serious or irreversible harm may be caused to the natural ecosystem's structure and function, including the natural food chains of predator and/or prey species.
2. The types and extent of habitat modifications and the possibility of these causing serious or irreversible impacts".

The assessment team conducted a review and determined that the PIs within the default assessment tree are suitable to address the issues associated with FAD use in the Indian Ocean purse seine fishery. This was confirmed by information gained from the site visit and stakeholder input that were not initially considered in the client submission and the CDR. In particular, the assessment team recognizes that there is ongoing discussion of the "ecological trap hypothesis", but also notes that a recent review of the issue by Dagorn et al (2012) concluded that there was no unequivocal empirical evidence that FADs represent an 'ecological trap' that inherently disrupts tuna biology, although the authors state that further research should focus on this issue. The assessment team also recognizes the concern over lost FADs, and their possible impact on coral reefs. However, the team believes that Echebastar Fisheries is addressing this issue by using less FADs than allowed so as to reduce the potential for lost FADs interacting with coral reefs, by using non-entangling FADs that will cause less damage if they do interact with a reef when lost, and finally by experimenting with biodegradable FADs that will further reduce the impact of lost FADs on reefs These issues have been fully considered in the scoring of the PIs in the default assessment tree contained in this report.

3. Assessment Results Overview

3.1. Determination, Formal Conclusion and Agreement

The assessment team contracted by Acoura Marine has concluded that the UoA meets the MSC standards, and the draft determination is to certify the fishery.

For PCR

The report shall include a formal statement as to the certification action taken by the CAB's official decision-makers in response to the Determination recommendation.

3.2. Principle Level Scores

Table 4: Echebastar Skipjack Fishery: Final Principle Scores

Principle	Score
Principle 1 – Target Species	90.0
Principle 2 – Ecosystem Impacts	80.7
Principle 3 – Management System	81.9

3.3. Summary of PI Level Scores

Table 5a: Echebastar Skipjack Fishery: Summary of PI Scores

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
One	Outcome	0.333	1.1.1	Stock status	1.0	100
	Management	0.667	1.2.1	Harvest strategy	0.25	85
			1.2.2	Harvest control rules & tools	0.25	80
			1.2.3	Information & monitoring	0.25	90
			1.2.4	Assessment of stock status	0.25	85
Two	Primary species	0.2	2.1.1	Outcome	0.333	90
			2.1.2	Management strategy	0.333	85
			2.1.3	Information/Monitoring	0.333	95
	Secondary species	0.2	2.2.1	Outcome	0.333	80
			2.2.2	Management strategy	0.333	85
			2.2.3	Information/Monitoring	0.333	85
	ETP species	0.2	2.3.1	Outcome	0.333	80
			2.3.2	Management strategy	0.333	85
			2.3.3	Information strategy	0.333	70
	Habitats	0.2	2.4.1	Outcome	0.333	70
			2.4.2	Management strategy	0.333	75
			2.4.3	Information	0.333	75
	Ecosystem	0.2	2.5.1	Outcome	0.333	80
			2.5.2	Management	0.333	80
			2.5.3	Information	0.333	75
Three	Governance and policy	0.5	3.1.1	Legal &/or customary framework	0.333	80
			3.1.2	Consultation, roles & responsibilities	0.333	75
			3.1.3	Long term objectives	0.333	100
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.25	75
			3.2.2	Decision making processes	0.25	75
			3.2.3	Compliance & enforcement	0.25	85
			3.2.4	Monitoring & management performance evaluation	0.25	80

For the purposes of clarity, the scores applied to P2 in relation to the FAD and FSC elements is presented in Table 5b. Using the element approach to the scoring of the two purse-seine set types, the FAD set types scored lower than the FSC set types for PI 2.4.1, 2.4.2, 2.4.3 and 2.5.3, and these lower scores are reflected in the overall P2 PI scoring.

Table 5b. P2 Principal Indicators scores for the two set types, FAD and FSC, with the final score being the lower of the two scores.

				Performance Indicator Score		
Principle	Component	Performance Indicator		FAD SET	FSC SET	FINAL
Two	Primary species	2.1.1	Outcome	90	90	90
		2.1.2	Management strategy	85	85	85
		2.1.3	Information/Monitoring	95	95	95
	Secondary species	2.2.1	Outcome	80	80	80
		2.2.2	Management strategy	85	85	85
		2.2.3	Information/Monitoring	85	85	85
	ETP species	2.3.1	Outcome	80	80	80
		2.3.2	Management strategy	85	85	85
		2.3.3	Information strategy	70	70	70
	Habitats	2.4.1	Outcome	70	100	70
		2.4.2	Management strategy	75	80	75
		2.4.3	Information	75	90	75
	Ecosystem	2.5.1	Outcome	80	80	80
		2.5.2	Management	80	80	80
		2.5.3	Information	75	80	75

3.4. Summary of Conditions

Table 6 Summary of Conditions

	Condition	PI
1	By the fourth annual surveillance audit, the client must demonstrate that information is adequate to measure trends and support a strategy to manage impacts on ETP species	2.3.3 ETP species information
2	By the fourth annual surveillance audit, the client must demonstrate that FADs are highly unlikely to reduce structure and function of coral reefs to a point where there would be serious or irreversible harm.	2.4.1 Habitat outcome
3	By the third annual surveillance audit, the client must provide evidence that a partial strategy in place that is expected to result that it will be highly unlikely that derelict FADs could reduce structure and function of the coral reefs to a point where there would be serious or irreversible harm.	2.4.2 Habitats management strategy
4	By the fourth annual surveillance audit, the client must provide evidence that information is adequate to allow for identification of the main impacts of derelict FADs on coral reefs, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.	2.4.3 Habitats information
5	By the fourth annual surveillance audit, the client must provide evidence that the main impacts of the FADs on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.	2.5.3 Ecosystem information
6	By the third annual surveillance audit, the management system in the Seychelles includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained	3.1.2 Consultation, roles and responsibilities
7	By the second annual surveillance audit, short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system	3.2.1 Fishery-specific objectives
8	By the third annual surveillance audit: SId. Information on the fishery's performance and management action relevant to the Seychelles fishery and private agreements is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	3.2.2 Decision-making processes

3.5. Recommendations

The assessment team made three recommendations (Table 7)

Table 7: Recommendations

1	Observers estimate and report on discarded catch and reasons for discarding.	1.2.1 Harvest Strategy
2	• A higher percentage of observer data is available for review each year at annual surveillance audits to better assess impacts on ETP species.	2.3.3 ETP species information
3	• Echebastar maintains a data base of the number of lost FADs by area and date.	2.4.3 Habitats Information

4. Evaluation Results

4.1. Eligibility Date

The Eligibility Date will be the date of publication of the PCR on MSC.org

4.2. Traceability within the Fishery

The catch is not sorted on the vessel. On removal from the purse seine, it is mechanically loaded into large storage tanks filled with super-chilled brine to produce individually frozen tuna. The fish remain in the storage tanks until landing. As such, accurate recording of the species mix is not possible during the fishing operation or while the vessel is at-sea. An approximate breakdown of the landings is made through sorting and sampling at discharge when the fish are unloaded from the tanks. Officers from the Seychelles Fishing Authority (SFA) inspect and sample all landings into Port Victoria (irrespective of vessel flag) to verify the catch breakdown by species.

The major part of the tuna landed in Port Victoria is directly unloaded from the fishing vessel to reefer vessels or containers for transport to the final destination; the remainder is delivered to local processors. At the point of delivery in the destination country, the fish are sorted and weighed to provide accurate landings data by species. The final landing reports are by species are sent by Echebastar to the national authorities, in compliance with EU, SFA and IOTC requirements.

Traceability (Table 8) can be verified by:

- Catch by species and geographical area is estimated during loading and is coded in terms of the holding tank into which it is placed;
- Information in relation to the type of set from which the catch is made is recorded for each set;
- The tank into which individual catches are loaded is coded;
- No at-sea transshipment of catches takes place;
- Any transshipments take place in Port Victoria, Seychelles;
- All transshipments are witnessed by SFA inspectors;
- Landings are sorted by species during final unloading of transshipped containers or reefer vessels, and reporting of landing quantities is based on final weights for each species from unloading;
- There is accurate catch recording and reporting using electronic log books (Spanish and Seychellois);
- All landings are inspected in the Seychelles by SFA officers. Port state sampling is implemented on all landings to verify the breakdown by tuna species;
- Logbook entries are regularly inspected and cross-checked on completion of in-port landings species reporting verification by SFA;
- Echebastar maintain catch logbooks that provide a further means of cross checking landed catches;
- Verified landings data are used for official monitoring of landings and national statistics;
- There is good cooperation between the EU regulatory and enforcement authorities and the SFA;
- Landings are weighed and inspected prior to unloading using officially calibrated weighing systems. The entire unloading process is monitored ; and
- All Echebastar purse seiners use VMS and fleet operations are monitored from FMC in Madrid and by other Coastal States when the vessels operate within their EEZs.

Table 8: Traceability Factors within the Fishery

Factor	Response
Will the fishery use gears that are not part of the Unit of Certification (UoC)?	There is no risk that the fishery will use gears or methods that are not included in the UoC. The vessels are purpose built for fishing with the purse seine, and all techniques for setting the gear have been included in the UoC
Will vessels in the UoC also fish outside the UoC geographic area?	The vessels in the UoC only fish within the IO. Rarely, they transit with catch onboard back to Spain at the end of a fishing season for shipyard service. The vessels operate with VMS, so their movements may be independently monitored.
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea and on-land activities. Please respond to each factor. Transport; Storage; Processing; Landing; or, Auction.	**Transport and storage** The catch is not sorted on the vessel. It is mechanically loaded into large storage tanks filled with super-chilled brine where the fish remain until landing. As such, accurate recording of the species mix is not possible during the fishing operation or while the vessel is at sea. **Processing** There is no at-sea processing. All tuna is landed round frozen. **Landing** The landing port of choice is Port Victoria in the Seychelles. In the past landings have been made at other ports. Officers from the SFA inspect and sample all landings into Port Victoria (irrespective of vessel flag) to provide an estimate of its composition by species. Upon delivery to processors or buyers, the fish are weighed to provide accurate catch data by species. Echebastar final catch reporting records are submitted by species to the national authorities in compliance with EU, SFA and IOTC requirements. **First Hand Sale** through Port Victoria (i) Small amounts may be sent to local tuna processing facilities. (ii) The remainder of the landings are shipped on a reefer vessel to the buyer's destination, for processing. In the reefer vessel holds, the Echebastar catch is labelled and separated from the catch from other vessels by netting. The assessment team is not familiar with the unloading process at the port of destination. Tuna is occasionally unloaded in Mauritius where vessels finish their trips before undertaking major repairs. The processors issue a delivery certificate signed by the company inspector and processing manager. This document is used to issue the catch certificate which is signed by SFA (for Seychelles flagged vessels) or the Spanish Fishing Authorities for Spanish flagged vessels.
Does transshipment occur within the fishery? If so, is it at-sea, in port, or both? Would the transhipment vessel handle product from outside the UoC?	There is no at sea transhipment. Transshipment takes place in Port Victoria directly from purse seiners to reefer vessels. All transshipped loads are verifiable by species and quantity and no transhipment takes place at sea or without the presence of SFA inspectors resulting. This results in minimal risk of mixing Echebastar skipjack catch with non Echebastar skipjack catch. The fish is then transported to final destinations for processing. Tuna transferred into reefer vessel holds are weighed on departure and arrival and are separated with cargo netting and are appropriately labelled and tracked. The shipping manifest also includes the cargo weight.
Are there any other risks of mixing or substitution between certified and non-certified fish?	There are no other risks of mixing certified skipjack tuna with non-certified fish.

4.3. Eligibility to Enter Further Chains of Custody

Chain of custody requires spatial and temporal separation of MSC product from non-MSC product.

The product sent directly from the landing place to the local processor is covered from the point of landing by the processor's own chain of custody certificate that will have considered any issues related to local transport.

The MSC product packed in sealed containers is covered by the fishery certificate until the container is opened at the receiving processing plant.

The responsibility for transhipment via reefer lies with the client and ownership is transferred upon delivery. Catch is weighed on landing and on delivery to the client. Acoura is satisfied that the onboard storage arrangements in transit via reefer are sufficiently robust to prevent mixing.

4.4. Eligibility of Inseparable or Practically Inseparable (IPI) stock(s) to Enter Certified Chains of Custody

Not relevant.

5. Scoring And Rationales

5.1. Harmonization

This assessment must be harmonised with the Pole and Line Skipjack Fishery in the Maldives that was certified in November 2012 using MSC FCR 1.2. The site visit by the team contracted by the CAB DNV GL for the fourth annual surveillance of the fishery and the re-assessment (using MSC CR 2.0) took place in December 2016. The fishery was recertified in October, 2017. Kevin Stokes is the P1 assessor in both the Maldives fishery and the Echebastar fishery.

Completed assessments and most recent surveillance reports:

- Pole and Line Skipjack Fishery in the Maldives. Certified in November 2012. https://fisheries.msc.org/en/fisheries/maldives-pole-line-tuna/@@assessments

Most recent Audit reports:

- Surveillance audit 4. Report for the Maldives pole & line skipjack and yellowfin tuna fisheries.
- https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=ULQUpTCI853cTm0YT0S8s2FjZZGH/SqaWlDd1qBO0w28rMPbqq6ClDnzUJH4SFnS

Since the 2012 Maldives assessment, several MSC notifications and interpretations, and new information (such as the Independent Adjudicator Ruling on Objections to the Echebastar assessment) have led to re-scoring of some of the PIs in the Maldives fishery. The CDR in this MSC simplification process referred to these. As part of the harmonisation process, detailed scoring considerations (see P1 scoring section of this report) drew on information included in the fourth surveillance audit as well as the results of the Maldives re-assessment.

Harmonization was not required for P2 and P3.

5.2. Skipjack tuna stock status

The Principle 1 PI scores for the certified Maldives Pole and Line Skipjack Fishery were used to indicate scoring ranges in the CRR (see quotes below). All P1 conditions were closed at the fourth surveillance. The draft scores for the Maldives re-assessment are not yet public although conditions are not anticipated.

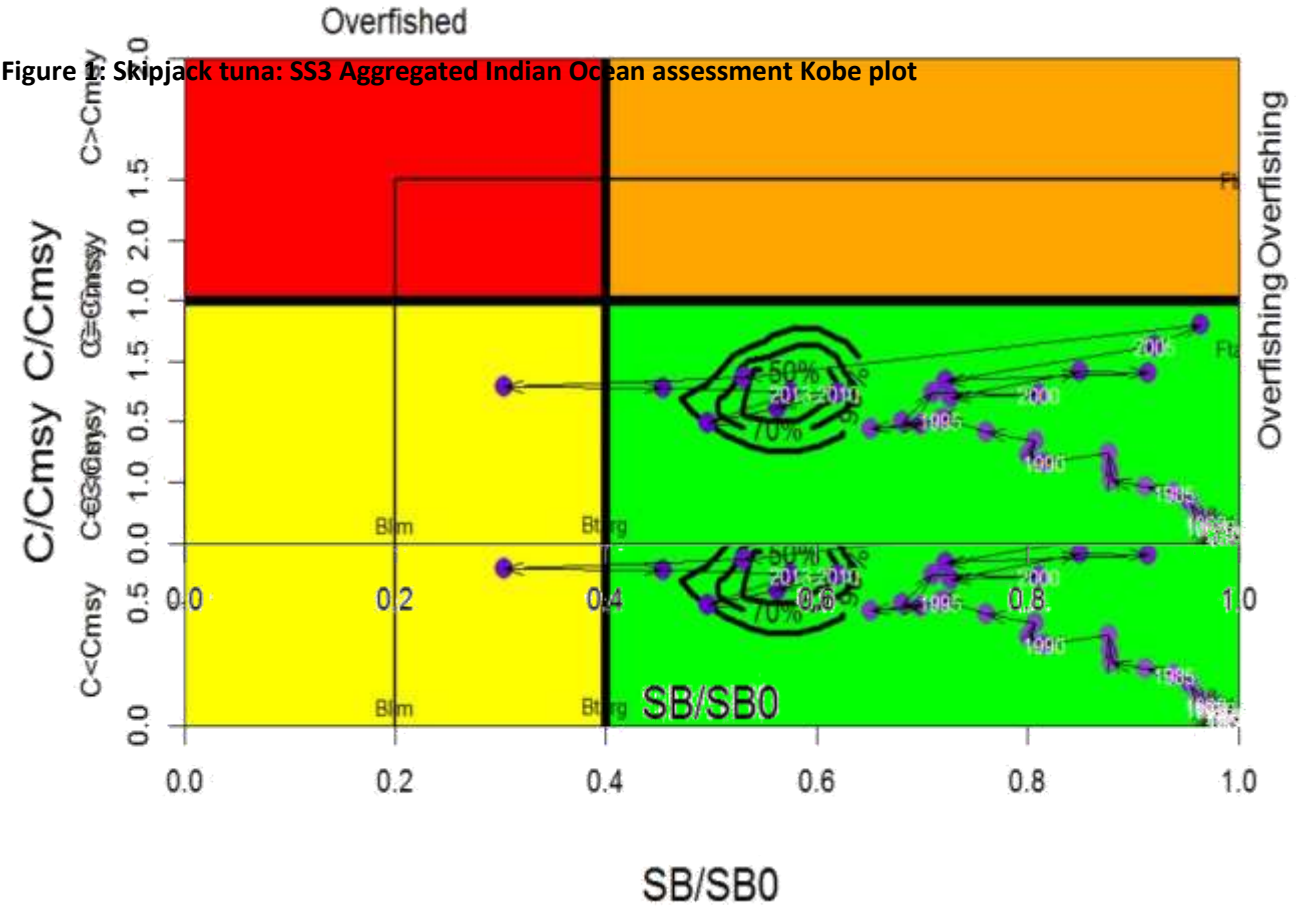
As reported for the Maldives pole and line fishery:

- "*As reported by the latest IOTC Scientific Committee (IOTC-2106-SC19-R[E]) and IOTC Working Party on Tropical Tunas (IOTC-2016-WPTT18-R[E]), there was no new stock assessment for skipjack tuna in 2015. The most recent stock status assessment (IOTC-2014-WPTT16-R), as considered at the Maldives second annual surveillance, indicates the stock is above the biomass level that would produce Maximum Sustainable Yield (MSY). It was reported as: SB2013/SBmsy (80% CI) = 1.59 (1.13 – 2.14).*

Thus, there is a high probability that spawning stock (SB) is above the SBmsy level. Fishing mortality (F) is reported using Catch/Catch msy as a proxy for F/Fmsy. It was reported as C2013/Cmsy (80% CI) = 0.62 (0.49 – 0.75).

- *The 2016 Working Party on Tropical Tunas, and IOTC Scientific Committee, concluded that on the weight of evidence available in 2014, and reviewed in 2016, the skipjack stock is not overfished and not subject to overfishing. This is the same situation as in the previous 10 years; in 2003, there was an apparent dip in spawning stock below MSY (Figure 1).*

Figure 1: Skipjack tuna: SS3 Aggregated Indian Ocean assessment Kobe plot



Note: Contours are the 50, 70 and 90 percentiles of the 2013 estimate. Blue circles indicate the trajectory of the point estimates for the SB/SB0 ratio and F proxy ratio for each year 1950–2013 estimated as C/CMSY. Interim target (Ftarg and SBtarg) and limit (Flim and SBlim) reference points shown are respectively Fmsy and SBmsy, and 1.5Fmsy and 20%B0.

- *"With reference to a new resolution agreed by the IOTC in 2015 (Res 15/10) on target and limit reference points and a decision framework, the IOTC Scientific Committee noted that:*
  - ***"Fishing mortality**: Current fishing mortality is considered to be below the interim target reference point of FMSY, and therefore below the interim limit reference point of 1.5*FMSY. Based on the current assessment there is a very low probability that the interim limit reference points of 1.5*FMSY at the current catch levels will be exceeded in 3 or 10 years.*
  - ***"Biomass**: Current spawning biomass is considered to be above the interim target reference point of SBMSY, and therefore above the interim limit reference point of 0.4*SBMSY. Based on the current assessment, there is a low probability that the spawning stock biomass, at the current catch levels, will be below the interim limit reference point of 0.4*SBMSY in 3 or 10 years.*

- *"It is clear from the stock assessments that the stock is well above both B_{MSY} and the point at which recruitment might be impaired, taken here as 20%B0.* ***At the third surveillance, therefore, it is concluded that the stock status scoring for skipjack does not need to be amended.***

5.3. Final Performance Indicator Scores and Rationales vs. Certifier Desk Review Outcomes

The following scores and rationales those which differ from those indicated in the initial 'scoring range' in the CDR. Further detail can be found in the scoring tables of this report.

2.3.3 Pass with condition

The desk review found:

- Considerable information is available in relation to qualitative and quantitative nature of interactions between ETP species and the purse seine fleet, and in particular the Echebastar fleet. The first three years of 100% observer coverage of the Echebastar vessels is presented in this report. Comprehensive information is available in relation to the fleet operations (spatial effort, temporal activity, overall effort) in order to support a full strategy to manage impacts on ETP species. Some information is available in relation to the status of affected ETP populations e.g. IUCN population status assessment, overall population trends, bio geographical range etc. information however does not support a comprehensive strategy that is specifically designed to manage impacts on the ETP component and minimize mortality and injury of ETP species and evaluate with a high degree of certainty whether a strategy is achieving its objectives.

The assessment team found:

- More than three years of information is needed to measure trends and support a strategy to manage impacts on ETP species and ensure that ETP bycatch levels remain at levels consistent with those for 2014-2016. The MSC FCR recommends a minimum five years of catch data.

2.4.1 Pass with condition

The desk review found:

- SIb: No VME habitats are impacted by the fishery. At no time do purse seine gears make contact with the seabed or any biogenic reef. No vulnerable habitats are impacted during the setting of gears or at any time during the fishing operation or at any other time of the vessels operations in the Indian Ocean tuna purse seine fishery.

The assessment team found:

- While there is evidence that it is unlikely that derelict FADs reduce structure and function of VME habitats to a point where there would be serious or irreversible harm, due to the potential impact over a number of years and lack understanding of the real nature of the issue, it cannot be concluded that this is highly unlikely. More evidence is required.

2.4.2 Pass with condition

The desk review found:

- The operation of the tuna fisheries utilizing purse seine gear to target tuna on the open ocean (normally in the surface layer of very deep waters) ensures that there are never any interactions with the seabed). The typical cost of a tuna purse seine is up to €800,000 – costs associated with damage to the gear which is not reinforced for seabed contact would render even momentary contact with seabed structures a prohibitively expensive occurrence. While Echebastar group have undertaken to reduce the ecological footprint of their tuna purse seine operations, there is no requirement to manage seabed habitat impacts that are normally associated with gears contacting the seabed or

sensitive habitats such biogenic reefs etc. Therefore, there are measures and a partial strategy in place for managing the impact of the fishery on epipelagic habitat types.

The assessment team found:

- While the measures in place are expected to mean that the derelict FADs from the Echebastar vessels are highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm, it must be accepted that local impacts may be significant, especially as a FAD may have negative effects over an extended period. The measures to-date reduce the potential number of interactions. However, as yet, biodegradable FADs have not been introduced into the fishery although development work continues. Until this is the case, it cannot be considered that an important element of a partial strategy is in place as the UoA has not implemented the precautionary measure (MSC FCR SA 3.14.2.2).

2.4.3 Pass with condition

The desk review found:

- Physical impacts of the gear on the pelagic ecosystem are considered to be highly unlikely to occur and no evidence or speculation suggests there are specific risks to the pelagic habitat. However, a precautionary approach to fisheries would suggest that the potential for impacts to occur should be investigated. Specific investigations in this regard may therefore be warranted. Therefore, the information is adequate to understand the nature of the main impacts of the gear on habitat, and that sufficient data is available to allow for the determination of habitat impacts. However, the physical impacts of the gear on the habitat types have not been fully quantified.

The assessment team found:

- SIb, A precautionary approach would suggest that the potential for impacts to occur should be further investigated. There is limited information on the spatial extent, timing and location of FAD interactions with coral reefs, and this is not adequate to understand the nature of the impacts of the gear on coral habitat.

2.5.3. Pass with condition

The desk review found:

- The main consequences of ecosystem impacts associated with the EIO purse seine fishery can be inferred from knowledge in relation to the scale of the fishery i.e. removals of target, retained and ETP species and interactions; together with available information in relation to the sensitivity or vulnerability of species and habitats to fishing interactions. Information in relation to the distribution, abundance and biological/life history characteristics of many species (scoring elements) impacted by the fishery are known at a level that is adequate to allow consequences and impacts on outcome status to be inferred. While available information in relation to the biology some species/scoring elements is significantly greater than for others, general understanding of the likely resilience of species and status and robustness of many affected populations supports determination of the most likely consequences for most. Sources of information in relation to population status for many affected species include www.fishbase.org, IUCN http://www.iucnredlist.org, http://www.iotc.org.

The assessment team found:

- SId. The effects of FADs used in the fishery on tuna behaviour, migration patterns and feeding are a subject of numerous ongoing investigations. Dagorn et al (2012) conclude that there is no unequivocal empirical evidence that FADs represent an 'ecological trap' that inherently disrupts tuna biology, although further research should focus on this issue.

3.1.2 Pass with condition

The desk review found:

- While it is by no means guaranteed, on balance, it would appear that a score of at least 80 may be appropriate when there is a robust justification to satisfy SIa SG80. If this proves to be viable there would a strong possibility that the fishery could achieve a score higher than 80 for PI 3.1.2. The audit team will consider the 3 jurisdictions (see MSC CR 2.0 Para 4.1.3).

The assessment team found:

- Evidence (Welch & Kerrigan (2015), Standing (2016), stakeholder interviews – SFBOA, SFA, MAF & Blue Economy) indicates the limited input of local stakeholders in the Seychelles decision making process. Where local stakeholders have expressed views, it is not clear how these have been taken into account. At the site visit, It was reported that meetings between the Minister and stakeholders are not minuted.

The lack of a mechanism to indicate if and how stakeholder information is used in the management system impacts transparency on how Seychelles fishery managers obtain and consider information and local knowledge.

3.2.2 Pass with condition

The desk review found:

- The assessment team in the 2012 certification of the Maldives skipjack fishery using pole and line provided the rational for the fishery scoring 80 for PI 3.2.2. As component 3.2 is fishery specific, only the jurisdiction of the Republic of Maldives was considered covering the target species and the bait fishery. It was considered that the fishery did not meet SId SG100 as a great part of the reporting in the Maldives was informal. Both peer reviewers agreed with the approach and score; in essentially repeating the scoring rational of the initial assessment process, the client (AZTI 2017) concludes that the fishery achieves a score of 85 for PI 3.2.2; PI 3.2.4 in MSC CR 1.3 was excluded from MSC CR 2.0. However, this issue is in part covered by MSC CR 2.0 PI 3.2.3 SId, where Para SA4.8.5 states "*At the SG60 level, at least a general summary of information on subsidies, allocation, compliance and fisheries management decisions should be available to stakeholders on request*" and "*On the basis of the information available, the audit team considers that the fishery will achieve a score of at least 80 for PI 3.2.2.*"

The assessment team found:

- Limited specific information is available on the fisheries conducted under private arrangements.

3.2.3 Pass.

The desk review found

- In scoring PI 3.2.3, the audit team will closely consider "SA4.9.1 In scoring issue (c) the team will closely "consider whether "fishers cooperate, where necessary, with management authorities in the collection of catch, discard and other information that is of importance to the effective management of the resources and the fishery" as one of the elements that should influence scoring, & SA4.9.2 The team's judgement on this PI shall be informed, to the extent possible, by independent and credible information from relevant compliance and enforcement agencies or individuals and/or stakeholders". MSC CR2.0 GSA 4.9 should also be noted i.e. "an absence of violations (or absence of a record of sanctions and penalties for violations) does not necessarily indicate that compliance and enforcement are effective; it could mean that MCS is in fact ineffective and what is happening is an absence of detection. It seems likely that the score of the fishery for PI 3.2.3 in the new assessment could be less than 80.

The assessment team found

- SIc. Echebastar reports (stakeholder interview) that any company related issues over recent years have related to form rather than substance e.g. due to internal issues, national authorities may not always

have received vessel reports, and changes in policy in individual countries resulting from a change in government. In common with other vessels, Echebastar provides substantial information to scientists, works in conjunction with AZTI and provides data from FADs. The Seychelles authorities acknowledge that Echebastar has been to the fore in cooperating with them. Other fishers work in a similar way e.g. OPAGAC cooperating in identifying the location of derelict FADs. Both OPAGAC and ANABAC are part of the FIP to support sustainable tuna fisheries, including that in the IO. The Echebastar fleet, in common with other EU fleet segments, works without subsidy. Echebastar informs their captains and crew of their obligations and there is a good practices manual. SG60 is met. In addition to the points made in relation to SG60, the lack of any evidence of non-compliance is sufficient evidence to conclude that the fishery responds to this scoring guideline.

6. Principle 1

6.1. Introduction

P1 scoring is based on the most recent 2016 IOTC stock assessment for Indian Ocean skipjack tuna, and as noted in the harmonization section 3.6.2, has been harmonised with the Maldives Pole and Line Skipjack Fishery assessment. Tables 9 – 13 present the scoring rationales for the individual PIs.

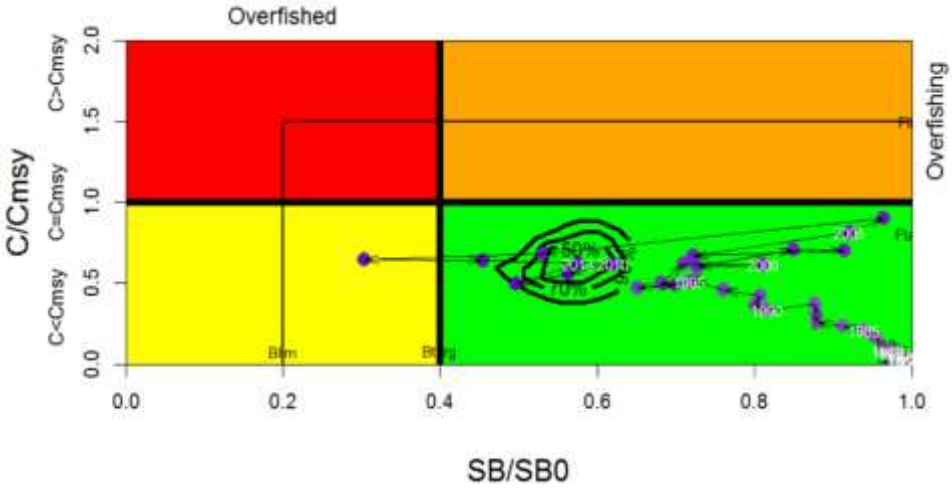
6.2. P1 Scoring Tables

Table 9: PI 1.1.1 – Stock status

Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is likely that the stock is above the point where recruitment would be impaired (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	Yes	Yes	Yes
	Justification	Consistent with GSA2.2.3.1, the PRI is taken as 20%B0 (or 0.2 SB0 in IOTC terminology). As reported by the most recent IOTC Working Party on Tropical Tunas (WPTT) report (IOTC, 2016a) and Scientific Committee (SC) report (IOTC, 2016b), SB2013/SB0 is estimated at 0.58, with 80% confidence intervals of 0.53-0.62. The SC reports uncertainties in the assessment and comments on some concerns related to catch rates. The uncertainties in the assessment are due to poor definition of a best-case formulation and the consequent use of a grid of 81 model formulations from which a median estimate and confidence intervals are drawn. The confidence intervals may be inflated but the median estimate of SB2013/SB0 is poorly defined. However, all analyses, as reflected in the Kobe II Strategy Matrix, suggest that with catches less than MSY since 2013, under all model variants examined, the probability of SB2016 being below SBlim is zero i.e., that the stock is above the PRI with a high degree of certainty. • SG60 is met. • SG80 is met. • SG100 is met.		
b	Stock status in relation to achievement of MSY			
	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		Yes	Yes
	Justification	As reported by the most recent WPTT report (IOTC, 2016a) and SC report (IOTC, 2016b), SB2013/SBmsy is estimated as 1.59, with 80% confidence intervals of 1.13-2.14. The SC reports uncertainties in the assessment and comments on some concerns related to catch rates. The uncertainties in the assessment are due to poor definition of a best-case formulation and the consequent use of a grid of 81 formulations from which a median estimate and confidence intervals are drawn. The confidence intervals may be inflated. The median estimate of SB2013/SBmsy is poorly defined and above the estimates put forward as candidate base case estimates in the stock assessment (IOTC, 2014a). However, analyses, as reflected in the Kobe II Strategy Matrix, suggest that with catches less than MSY since 2013, under all but one of many model variants examined, the probability of SB2016 being		

below SBmsy is zero. The SC noted that "*Current spawning biomass is considered to be above the interim target reference point of SBMSY*".

The IOTC SC and WPPT do not show SB trends through time but the trajectory of SB can be seen in the standard Kobe plot (IOTC, 2016a, b) (below). The plot is based on the aggregation of model outputs from the grid of 81 model formulations.



The SB has been estimated above 0.4SB0 in all but one year (2008) since 1950 and except for that year has fluctuated well above SBmsy and near 0.60Bo since 2000.

- SG80 is met.
- SG100 is met.

References	IOTC (2016a) Report of the 18th Session of the IOTC Working Party on Tropical Tunas IOTC-2016-WPTT18-R IOTC (2016b) Report of the 19th Session of the IOTC Scientific Committee IOTC-2016-SC19-R IOTC (2014c) Indian Ocean Skipjack Tuna Stock Assessment 1950-2013 (Stock Synthesis) IOTC–2014–WPTT16–43 Rev_3

Stock status relative to reference points

	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (SIa)	Proportion of unfished spawning biomass (SB0)	SBlim as 0.2 B0 (IOTC, 2016c)	SB2013/SB0 (80%CI) = 0.58 (0.53-0.62)
Reference point used in scoring stock relative to MSY (SIb)	Proportion of unfished spawning biomass (SB0)	SBtarg as 0.4 B0 (IOTC, 2016c) SBmsy is inferred from IOTC (2016a,b) as 0.365	SB2013/SB0 (80%CI) = 0.58 (0.53-0.62) SB2013/SBmsy (80%CI) = 1.59 (1.13-2.14)
Overall Performance Indicator Score		100	

Table 10: PI 1.2.1 – Harvest strategy

Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	Yes	Yes	No
	Justification	Consideration of the harvest strategy (HS) is made with reference to the newly adopted Res 16/02 setting up the harvest control rule (HCR) for skipjack. The stock management objectives reflected in PI1.1.1 are: i) maintain the stock above the PRI with 80% probability; and ii) ensure the stock is fluctuating around a level consistent with MSY. The agreed HCR, based on MSE work by Bentley and Adam (2016), assumes a flow of data of equal quality to that currently available and that a stock assessment will be undertaken every three years. The HCR then determines an overall catch limit based on a relationship between fishing intensity and the ratio SBcurrent/SB0. The tools for ensuring catch limits are adhered to are covered at PI1.2.2c. Assuming data flows, assessment, and application of tools, the HS is expected to achieve the stock management objectives. Indeed, the expectation is to exceed those objectives by a considerable margin (see PI1.2.2a). • SG60 is met. HS responsiveness is determined primarily through application of a HCR which determines harvesting intensity and hence catch limits dependent directly on the state of the stock relative to SB0. Achievement of the management objectives then depends on the application of tools to ensure catch limits are appropriately set and adhered to. Res 16/02 specifies when an overall catch limit will be set (to be managed using existing effort management measures), and when catch allocations should be set (as well as how depending on progress on formal agreement on allocation). • SG80 is met. The HCR component of the strategy has been developed and chosen to ensure that management objectives are achieved. The rule was filtered through multiple criteria and parameterized to achieve a given performance. It can be said to be designed to achieve, and exceed, the management objectives reflected at PI1.1.1, if implemented as intended. Implementation requires a continuous flow of data as already exists and can reasonably be anticipated, and assumes stock assessment at regular intervals, consistent with previous experience. There is a reasonable expectation that data and assessment components will meet the design criteria. Currently, the weakest part of the HS is the incomplete specification for how catch allocations will be made and adherence ensured, though Res 16/02 does address the issue by specifying at paragraph 11 how this will be dealt with until full allocation decisions have been made under given circumstances of stock status. Nevertheless, without fuller and clearer specification of the implementing tools (allocation, how catch limits will be ensured at national levels) it is not possible to say the whole HS has been designed.		

		• SG100 is not met.		
b	Harvest strategy evaluation			
	Guide post	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	Yes	Yes	No
	Justification	The strategy of: i) collecting data; ii) assessing stock status against clear reference points (previously SBmsy and percentiles of SB0); iii) advising in relation to those reference points and on catch/effort requirements to achieve them (if necessary), and iv) the Commission responding through binding resolutions, has proven successful to date in maintaining skipjack biomass at a high level, as described at PI1.1.1. The general strategy outlined is essentially that now in place except that with Res 16/02 the reference points and advice on catch limits are pre-determined. There is good reason to think the HS is likely to work based on experience. • SG60 is met. The HS has been tested to the extent of data-assessment-HCR through MSE, and experience to date is that it has maintained skipjack at a high level, above Bmsy and well above any PRI. The evidence is that it is achieving its objectives. • SG80 is met. The HCR has been developed using MSE but the performance of the HS has not. Thus far, the MSE has not included explicit assessment formulations, nor any consideration of management implementation error. • SG100 is not met.		
c	Harvest strategy monitoring			
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Yes		
	Justification	Every three to four years, a full stock assessment is undertaken. This includes a review of the catch, fishery dependent indices of abundance, models of historical population size as well as biological data and appropriate reference points. Management measures are reviewed annually by the IOTC and are changed as required. This process provides the monitoring to determine whether the HS is working. The newly agreed Res 16/02 specifies that a new stock assessment will take place in 2017 and again every three years, or sooner under certain conditions. It anticipates that the overall approach of managing according to a clear HCR will be monitored directly through application of that rule, informed by scheduled stock assessments, and with additional		

		rules to ensure precautionary management. Data collection and provision to enable the assessment is provided for through a range of other resolutions (see PI 1.2.3) • SG60 is met.		
d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Yes
	Justification	The IOTC SC reviews the elements of HS annually and provides advice to the Commission on whether it has been successful and whether it needs to be changed (see e.g. IOTC, 2016a, b). The SC has regularly reviewed and conducted stock assessments, re-estimated (re-calculated) and re-evaluated the appropriateness of the reference points, and whether the objectives of the Convention are being met. The Commission takes the advice of the SCRS under consideration and agrees binding Resolutions. Resolutions for the management of skipjack and other stocks under IOTC jurisdiction have generally been in line with the advice from the SC. Most recently, under advice from the SC, the Commission agreed Res 16/02 for skipjack which set/reaffirmed target and limit reference points, a HCR, and a range of accompanying implementing rules and conditions. Resolutions for other stocks and other matters are also relevant. A recent example is the agreement to Res 16/01 on the rebuilding of yellowfin tuna stocks. The resolution has instituted catch limits for yellowfin tuna aimed at rebuilding, though not quite to the extent advised by the SC because of awareness, also through SC advice, of uncertainties. Other examples related to effort control are considered at PI1.2.2c. Overall, while the process is imperfect, the HS for all tropical tuna stocks within the IOTC is periodically reviewed and improved as necessary. • SG100 is met.		
e	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Not Applicable	Not Applicable	Not Applicable
	Justification	N/A		
f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	Not applicable		

	Justification	All skipjack catch is retained.
References		For IOTC Resolutions see: http://www.iotc.org/cmms Bentley, N. and M.S. Adam (2016) Management strategy evaluation for the Indian Ocean skipjack tuna fishery IOTC (2016a) Report of the 18th Session of the IOTC Working Party on Tropical Tunas IOTC-2016-WPTT18-R IOTC (2016b) Report of the 19th Session of the IOTC Scientific Committee IOTC-2016-SC19-R
Score		**85**

Recommendation 1: Observers estimate and report on discarded catch and reasons for discarding.

Table 11: PI 1.2.2 – Harvest control rules and tools

Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	Generally understood HCRs are in place or available that are expected to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, most of the time.
	Met?	Yes	Yes	No
	Justification	Resolution 16/02 on HCRs (IOTC, 2016c) lays out an explicit and well-defined HCRs such that fishing intensity is reduced linearly from a maximum (when at or above 0.4B0, the specified TRP) to zero at 0.1B0. The fishing intensity is 33.3% of the maximum at 0.2B0 (the specified LRP) but with a further rule to review the HCR and implement a rebuilding plan should spawning biomass fall below 0.2B0. The rule was developed using Management Strategy Evaluation (MSE; Bentley and Adam, 2016) with an estimated median performance of maintaining the SB at 0.61SB0 and a 90% probability of maintaining SB above 0.39SB0 (implying a greater than 90% probability of SB being maintained above SBmsy of 0.365SB0). The HCR specifies LRP and TRP, how fishing intensity should be varied depending on status, the frequency of stock assessments and required outputs, how the IOTC SC should advise the Commission in order to implement the HCR, and conditions for review of the HCR (if needed). Resolution 16/02 also specifies that the next skipjack stock assessment will be in 2017 and that the measure (Res 16/02) shall be reviewed in 2019 or earlier if there is any evidence that there is a risk of breaching the LRP. Resolutions are binding on IOTC Members, unless there is a specific objection on the part of a Member, and require a two-thirds majority of members present and voting (see http://www.iotc.org/cmms). No objections have been made to Res 16/02. An Interpretation on HCR by MSC (16 Dec 2016) makes clear that resolutions by RFMO are regarded as active and acceptable as evidence of HCR being in place. Skipjack is not considered to be an LTL species. • SG60 is met. • SG80 is met. The MSE testing provides an expectation that the stock will be maintained well above Bmsy, and close to the current stock size, but no explicit account is taken of the ecological role of the stock in order to set that performance expectation during MSE testing, nor is any considered in IOTC Res 16/02. • SG100 is not met.		
b	HCRs robustness to uncertainty			

	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a wide range of uncertainties including the ecological role of the stock, and there is evidence that the HCRs are robust to the main uncertainties.
	Met?		Yes	No
	Justification	The HCR was developed using MSE (Bentley and Adam, 2016). MSE work was conducted by an independent consultant (Bentley). The work was conducted in an open and consultative manner with iterative input from the IOTC Working Party on Methods (WPM) and the WPTT. The MSE used a simulation model of the skipjack fishery and assessment, with a single species, spatially explicit, age-structured population model similar in structure to that used for stock assessments and with uncertainty in outputs based on statistical fitting to the most recent assessment. No explicit stock assessment was embedded within the MSE. The precision and frequency of stock assessments were considered during evaluations but alternative structural assumptions about the stock and fisheries were not tested. A range of alternative HCR types and parameterizations were evaluated using a large set of performance statistics related to yield and sustainability. While structural (assessment/simulation) model alternatives have not been considered during MSE, IOTC stock assessment processes do consider alternatives and the base assessment model configuration used for MSE has proven robust. The main uncertainties have been taken in to account by the MSE and stock assessment processes and the resulting, selected HCR additionally includes a range of additional rules to ensure robustness. • SG80 is met. The HCR design and selection has considered a range of uncertainties but this has not included multispecies biology/fishery components or issues such as potential use of alternative stock assessment methods/structures, instead relying on relatively simple consideration of assessment precision (but not bias), and frequency. • SG100 is not met.		
c	HCRs evaluation			
	Guide post	There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	Yes	Yes	No
	Justification	Resolution 16/02 lays out a HCR for skipjack tuna which sets catch limits. These have yet to be determined and will depend on IOTC discussions on catch allocation and then on the sum of each Member's approach to ensuring national catch allocations are adhered to. However, Res 16/02 at paragraph 11, sets out how allocations will be made prior to a full allocation model if SB falls below a threshold level of 0.4SB0 (in proportion to current		

		catches). It also specifies that if SB >=0.4SB0 (as now) then the HCR shall be used to establish an overall catch limit. The effectiveness of tools in use or available (as required for MSC scoring) needs to rely on how well exploitation rate has been controlled to date. As noted above, Res 16/02 specifies that catch limits will be set. The IOTC has an ongoing process to develop a catch allocation scheme and has already developed allocation principles. IOTC RES 13/10, together with work on allocation (IOTC-2011-SS4-PropA[E] (IOTC, 2011a), IOTC-2011-SS4-PropB[E] (IOTC, 2011b), IOTC-2013-TCAC02-R[E] (IOTC, 2013)) clearly demonstrates the intent to adopt catch limitation measures for all tunas under IOTC jurisdiction. IOTC Res 14/02 mainly addresses stocks of yellowfin and bigeye, but relates to other tropical tunas and main targeted stocks and thus applies to skipjack. It requires that "*CPCs shall implement the following action plan: a) Establishment of an allocation system (Quota) or any other relevant measures based on the IOTC Scientific Committee recommendations for the main targeted species under the IOTC competence.*" Regarding tools used to date, management of exploitation level has been approached by the limitation of effort/capacity through a series of Resolutions (01/04, 03/01, 06/05, 09/02, and 12/11). The earlier resolutions were aimed at non-members but were extended to all Contracting Parties and Cooperating non-members (CPC). The most recent resolution, IOTC RES12/11, is aimed at determining fishing capacity for all IOTC CPC, to ensure stabilization of the level of fishing capacity active on stocks of high commercial value. The resolution provides for planned fleet development and vessel replacement but is aimed at ensuring no effective increase in capacity from a 2006 baseline plus any agreed Fishery Development Plans for the years 2007-2013. For MSC scoring, CR v2 GSA2.5.6-2.5.7 is relevant. Consideration is needed of tools (e.g., for allocation and setting catch and/or effort limits) but also of the overall history of the effectiveness of tools in achieving the desired exploitation rates and biomass levels, and current status. Following CR v2 GSA on Evaluating the effectiveness of HCRs (SA 2.5.6-2.5.7), boxed example for 60, 80, and 100 SG levels: At least a 60 score may be justified if one proxy indicates that overfishing is not occurring. For skipjack tuna, IOTC (2016a, b) use a proxy of C/Cmsy as a measure of fishing mortality relative to Fmsy. The most recent value available is 0.62 with 80% CI of 0.49-0.75. • SG 60 is met. At least an 80 score may be justified if one or more proxies indicate it is likely that overfishing is not occurring – when a minimum 70% probability can be assigned to the single indicator used. For skipjack tuna, IOTC (2016a, b) use a proxy of C/Cmsy as a measure of fishing mortality relative to Fmsy. The most recent value available is 0.62 with 80% CI of 0.49-0.75. The 70% probability level required for SG80 scoring in the boxed example is met. An MSC Interpretation on HCRs (16 Dec 2016) made clear that F being less than Fmsy should not be used as sole evidence for the existence of an effective harvest control rule. However, taken with the long history of reasonably constant fishing mortality and biomass and IOTC measures related to effort control, it is overall concluded that available evidence indicates tools in place are effective at controlling exploitation rate. • SG 80 is met. The same boxed example in the CR v2 GSA suggests that to meet the 100 level, two proxies are available and that both need to suggest it is highly likely overfishing is not occurring. Only one proxy exists for skipjack tuna. • SG100 is not met.

		[NB. The proxy (C/Cmsy) is used by IOTC because direct measures of F are uncertain – the grid approach is used to estimate status but is not extended to estimating F.]
References		For IOTC Resolutions see: http://www.iotc.org/cmms Bentley, N. and M.S. Adam (2016) Management strategy evaluation for the Indian Ocean skipjack tuna fishery IOTC (2011a) The criteria to use in allocating quotas amongst CPCs of IOTC IOTC-2011-SS4-PropA[E] IOTC (2011b) On establishing a quota allocation system for the main targeted species in the IOTC area of competence IOTC-2011-SS4-PropB[E] IOTC (2013) Report on the availability, completeness and quality of catch data for all fleets in the IOTC database IOTC-2013-TCAC02-R[E] IOTC (2016a) Report of the 18th Session of the IOTC Working Party on Tropical Tunas IOTC-2016-WPTT18-R IOTC (2016b) Report of the 19th Session of the IOTC Scientific Committee IOTC-2016-SC19-R IOTC (2016c) Resolution 16/02 on harvest control rules for skipjack tuna in the IOTC area of competence IOTC–2016–S20–R[E]
Score		**80**

Table 12: PI 1.2.3 – Information and monitoring

Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Yes	Yes	No
	Justification	IOTC (2014a) describes information sources for use in stock assessment of skipjack in the Indian Ocean. A single stock is assumed for the most recent assessment (IOTC, 2014c) but previous assessments have explored multiple area formulations and the WPTT and SC (IOTC, 2016ab) have noted the need for further exploration of spatial complexity. An IOTC Stock Structure Project using genetic and otolith microchemistry markers will start in 2017, focused on several IOTC species including Skipjack. Tagging data are available for spatial model fitting. Stock productivity and fleet composition are well understood and the assessment takes account of both. The information available is considered sufficient to support the HS, itself dependent on the stock assessment and emergent advice, including status reporting against defined reference points. • SG60 is met. • SG80 is met. Fleet composition data are available and used in the stock assessment which fits to a single area, by quarter (of year) for four fleets, including the UoA (Maldives pole and line). Stock abundance indices (CPUE) are available for three fleets (both associated and unassociated purse seine from the EU/Seychelles, and from the UoA). The CPUE analyses draw on some other (environmental) data which are also used to help interpret recruitment patterns. UoA removals are reported annually to the IOTC in accordance with IOTC Res 10/02, now superseded by Res 15/02. While a large range of data is available (ageing, size frequencies, growth, maturity, fleet structure, CPUE, etc.), there is not a clear strategic body of research specific to the long-term UoA-specific management system (SA2.6.3.1) or information yet available fully to explore alternative stock hypotheses (GSA2.6.1) within assessment or further MSE. • SG100 is not met.		
b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least one indicator is	Stock abundance and UoA removals are regularly monitored at a level of	All information required by the harvest control rule is monitored with high

		available and monitored with sufficient frequency to support the harvest control rule.	accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Yes	Yes	Yes
	Justification	Stock abundance is estimated using the stock assessment rather than any direct survey methods, based on a wide range of data from all fisheries, input parameters and assumptions. Amongst the inputs to the assessment are indices of relative abundance in the form of standardized CPUE from three fleets (both associated and unassociated purse seine (of which the UoA is a subset), and Maldives Pole and Line. There are problems associated with all indices. The Maldives Pole and Line fleet operates only within a restricted area of the skipjack distribution, has increasingly fished around FADs, and is a relatively short time-series (because of mechanization changes to the fleet). Purse seine CPUE in principle might better reflect stock abundance given the wider distribution of fishing, but separation of associated (FAD) and unassociated (FSC) purse seine effort is difficult. Also, there have been many technological advances in purse seine fisheries which are difficult to account for. Nevertheless, assessments in recent years, including the most recent in 2014, have explored the indices and have attempted to fit them. Signals from different indices conflict and how the assessment weights each becomes important. The approach taken (see PI1.2.4) of using a grid of assessments overcomes this problem to an extent and attempts to incorporate uncertainty in estimates of management-related metrics that feed in to HCRs and the HS. A spatially resolved assessment might help to resolve conflicts between indices but the current assessment is for a single area. The problem is a modeling one given that no single index can be expected to represent the entire stock. UoA removals (landings) of skipjack for the period 2012-2015 have been of the order of 11,000-15,000 t per year against total removals approaching 400,000 t (i.e., less than 4%). UoA removals are reported as part of the EU, Seychelles and other national statistics to the IOTC according to a range of resolutions (e.g., 10/08, 15/01, 15/02, 15/03). The data collection system (landings and at sea observers) for the UoA is described more fully in the Introduction to P2 scoring section of this report. IOTC (2016d) summarizes the standing of a range of data and statistics received by the IOTC Secretariat for skipjack tuna, in accordance with IOTC Resolution 15/02. No issues are noted for EU-Spain purse seine fisheries (of which the UoA is part) as affects skipjack data. Given the treatment of catch, effort, and size frequency data in the stock assessment, it is clear that UoA removals are monitored regularly and with sufficient coverage and accuracy to support use of assessment estimates, consistent with HCR needs and within the HS. • SG60 is met. • SG80 is met. The information required for the HCR is that required for the stock assessment to estimate spawning biomass in relation to B0. Issues with the data are considered annually		

		(e.g., IOTC (2016d)) and the assessment process takes these in to account (see PI1.2.4). The MSE work used to develop the HCR (see PI1.2.2) allows for uncertainties in assessment process/outputs rather than in input data directly. The WPTT and SC report on assessment quality and uncertainty in relation to the data inputs. • SG100 is met.		
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		Yes	
	Justification	According to IOTC (2016d), the majority of skipjack removals are by purse seine (~39%), gillnet (~26%), and pole and line (~17%). Main removals by country are Indonesia (purse seine, troll, and gillnet, 21%), Sri Lanka (gillnet and longline, 15%), and the EU-Spain (purse seine, 15%). Purse seine catches are dominated by FAD-associated sets of the order of 120,000 t per year over the last decade, compared to less than 10,000 t per year from free-school sets since 2009. The IOTC has agreed a number of resolutions pertinent to improved catch and effort reporting, with Res 15/02 specifying mandatory statistical requirements for IOTC Members & Cooperating Non-Contracting Parties. The secretariat reports annually on the standing of a range of data and statistics reported (e.g., IOTC, 2016d). The latest report covers retained catches and reports these are generally well known for the major industrial fleets, with little need for the secretariat to make estimates or adjustments. Discards are considered to be low, though estimates are not available for most of the industrial fisheries. Catches are less certain for many of the artisanal fisheries with incomplete reporting by species by some fleets, and uncertainty in some of the more significant fleets (e.g., Sri Lanka). The secretariat includes information on data other than removals used in the stock assessment but these are not relevant at SIc which refers only to removals. The stock assessment (see PI 1.2.4) splits removals in to three industrial fleets, all with good quality information on removals, as well as size and effort data: i) Maldives pole and line, ii) FAD purse seine, and iii) FSC purse seine (where the UoA is a subset of ii and iii). It additionally includes all other removals as a single fleet, using data supplied by members with estimates and adjustments as necessary made by the secretariat. Overall, while there are known problems with some of the artisanal fishery reporting, the quality of information on non-UoA removals is considered sufficiently good for stock assessment purposes and hence to inform management. • SG80 is met.		
References		For IOTC Resolutions see: http://www.iotc.org/cmms IOTC (2014a) Report of the Sixteen Session of the IOTC Working Party on Tropical Tunas IOTC–2014–WPTT16–R[E] IOTC (2014c) Indian Ocean Skipjack Tuna Stock Assessment 1950-2013 (Stock Synthesis) IOTC–2014–WPTT16–43 Rev_3 IOTC (2016a) Report of the 18th Session of the IOTC Working Party on Tropical Tunas IOTC-2016-WPTT18-R		

	IOTC (2016b) Report of the 19th Session of the IOTC Scientific Committee IOTC-2016-SC19-R IOTC (2016d) Review of the statistical data and fishery trends for tropical tunas IOTC–2016–WPTT18–07
Score	90

Table 13: PI 1.2.4 – Assessment of stock status

Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		Yes	No
	Justification	NOTE: The most recent stock assessment is summarized in IOTC (2014a). The document cites IOTC–2014–WPTT16–43 Rev_2 (IOTC, 2014b), though online the available stock assessment file is IOTC-2014-WPTT16-43 Rev_3 (IOTC, 2014c) (http://www.iotc.org/meetings/16th-working-party-tropical-tunas). All results shown for skipjack in 2014, 2015, and 2016 IOTC WPPT and SC documents relate to the Rev_3 document, in particular Appendix 3 which shows results from final assessment runs following specified inputs from the WPTT. The next stock assessment is required by IOTC (2016c) in 2017, with a new assessment to be undertaken every three years. The stock assessment used to generate estimates relevant to management is an integrated statistical model implemented using the SS3 framework, providing probabilistic estimates of management-related metrics. It builds on earlier skipjack assessment models developed by Kolody et al (2011) and Sharma et al (2012). The model implemented in 2014 assumes a single area. Four fleets, operating quarterly, are included. The model is age-structured, utilizing length-frequency data and a growth function. Beverton-Holt recruitment dynamics are assumed, with a base case steepness of 0.9. Available data for fitting include two CPUE indices (purse seine and Maldivian Pole and Line), length frequencies, tag recoveries (mostly from purse seine). For any model run, fixed growth (von Bertalanffy or Richards) and maturity curves were assumed. Length-based selectivity was estimated for each fleet using a flexible, non-parametric spline. Model fitting in 2014 did not readily define a clear base case or set of runs and initial results presented status estimates from a candidate base case run with uncertainty also defined from a grid of 141 model formulations and fits. Following input from the WPTT, a final set of 81 runs was used to form a grid, from which medians of management-related quantities and confidence intervals were determined. The results from this grid are shown in IOTC-2014-WPTT16-43 Rev_3, Appendix 3, and have become the standard summary for skipjack status since that time. The assessment grid explored sensitivity to steepness, natural mortality, use of CPUE index, and treatment of recruitment as deterministic or stochastic. Up to and including 2016, advice from the SC based on the assessment has utilized results from the WPTT-defined grid and projections/sensitivity results expressed through the Kobe II Strategy Matrix (IOTC, 2016ab). The advice provided, based on the stock assessment, has been appropriate for the management arrangements in use until adoption of IOTC Res 16/02. For the HCR adopted through IOTC Res 16/02, the key assessment output required is SBcurrent/SB0. The stock assessment provides a probabilistic estimate of this metric and is appropriate for the HCR.		

		• SG80 is met. The assessment takes in to account the growth, mortality, and maturation profile of skipjack tuna in the Indian Ocean, using the most up to date biological information. However, it assumes a single stock while previous assessments have considered 2/3 area models. The WPTT and SC have recognized the need for further consideration of spatial complexity, with complex movement patterns observed through tagging studies. Also, there are inconsistencies between relative abundance trends as seen through CPUE indices for different fleets. • SG100 is not met.		
b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Yes	Yes	
	Justification	The skipjack stock is subject to an integrated, statistical stock assessment which is able to provide estimates of spawning biomass (SB) and a proxy (C/Cmsy) for fishing mortality rate, as well as unfished biomass and other MSY-related reference points against which stock status can be determined and management advice provided. Previously, implicit reference points were used to frame management advice and under IOTC Res 16/02 explicit TRP, LRP and trigger reference points for the HCR have been agreed. All reference points are of standard form as used in multiple fisheries jurisdictions, including tuna RFMOs, and are appropriate to the skipjack stock, taking account of its productivity and resilience. The reference points are appropriate for the stock, can be and have been estimated. • SG60 is met. • SG80 is met.		
c	Uncertainty in the assessment			
	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	Yes	Yes	Yes
	Justification	Major sources of uncertainty are identified. The assessment assumes a single area but recognizes the need to consider more complex spatial aspects of the stock, building on information contained in data from tagging studies. Other uncertainties identified include alternative signals contained in conflicting CPUE indices, productivity (steepness, mortality), growth, etc. • SG60 is met. The assessment takes account of uncertainty both by fitting to a wide range of formulations using a grid of steepness and mortality levels, alternate CPUE indices, and the treatment of recruitment (as deterministic or stochastic), and in the statistical		

		fitting procedures for each formulation. The estimates of management-related metrics include uncertainty estimates derived from the grid of 81 model runs. • SG80 is met. The assessment is an integrated statistical approach which fits parameters given data and multiple assumptions about error distributions, etc. The assessment outputs related to stock status are all estimated and presented probabilistically (see e.g. PI 1.1.1). • SG100 is met.		
d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			No
	Justification	Assessments have developed over some years with the most recent assessment being undertaken in 2014. There has been consideration of simpler catch-based methods to (IOTC, 2014a) to provide confidence in advice from the base case assessment undertaken using SS3. Those methods have provided different status estimates but still suggest the stock was both underfished and not subject to overfishing. The assessment 2014 conducted using SS3 has been subject to a systematic exploration of the interactions among different sets of assumptions, as shown in results from the grid and the Kobe II Strategy Matrix. However, the WPTT and SC (IOTC, 2016ab) has recognized the need for fuller exploration of spatial complexities and of CPUE data, and there is still a need to better define a base case or restricted set of runs; it cannot yet be said that alternative hypotheses and assessment approaches have been rigorously explored. • SG100 is not met.		
e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		Yes	No

	Justification	The stock assessments are carried out by the IOTC secretariat and are reviewed at the WPTT which reports to the SC. For methodological issues, the IOTC Working Party on Methods (WPM) may also be involved. In 2014 the stock assessment (IOTC, 2014c) was presented to the WPTT which specified final requirements for model formulations and a parameter/assumption grid to be used in determining advice. • SG80 is met. The WPTT arguably provides internal review and its effect can be seen, for example, at IOTC (2014c). However, there is a lack of documentation of WPTT technical considerations and decisions. It is notable that the assessment methods and approaches used are common in many fisheries, including tuna RFMOs, with considerable scrutiny by multiple assessors. Additionally, being transparent, the assessments are considered by a wide range of parties. However, there has been no organized, external review of the skipjack assessment, for example by an independent consultant or through consideration of the assessment during MSE work. • SG100 is not met.
References		IOTC (2014a) Report of the Sixteen Session of the IOTC Working Party on Tropical Tunas IOTC–2014–WPTT16–R[E] IOTC (2014b) Indian Ocean Skipjack Tuna Stock Assessment 1950-2013 (Stock Synthesis) IOTC–2014–WPTT16–43 Rev_2 IOTC (2014c) Indian Ocean Skipjack Tuna Stock Assessment 1950-2013 (Stock Synthesis) IOTC–2014–WPTT16–43 Rev_3 Kolody, D., M. Herrera and J. Million. 2011. 1950-2009 Indian Ocean Skipjack Tuna Stock Assessment (Stock Synthesis). IOTC-2011-WPTT-14(Rev1)
Score		85

7. Principle 2

7.1. FAD & FSC Sets

The P2 evaluation in this MSC pilot simplification assessment begins with a detailed evaluation of the catch composition.

Purse seine nets in the Indian Ocean target tuna and are deployed in two ways:

1. Setting the seine on free schooling tuna (FSC), unassociated with any structure or object
2. Setting the seine on tuna that are associated with some structure, such as a natural log or on artificial fish aggregating devices (FAD), or cetaceans such as dolphins and whale sharks.

A detailed description of tuna purse seining gear is provided by the FAO (http://www.fao.org/fishery/fishtech/40/en).

In the CDR the two methods of setting the purse seine were treated as indistinguishable based on stakeholder comments cited in the first unsuccessful assessment of this fishery, (M. Shiham Adam, Adam Baske, and R. Charles Anderson. 2015. The Impossible Task of Free School Verification: Can "unassociated sets" exist in the western Indian Ocean?). In that first assessment stakeholders argued that due to the large number of FADs in the western Indian Ocean, it was impossible to target a purse seine without the tuna being influenced by a nearby FAD. During the site visit for this assessment, the team discussions with the client, the head of the Seychelles observer program, AZTI scientists, and the skipper of an Echebastar purse seine vessel, revealed more information about the different methods of a targeting purse seine. It was clarified to the team that there are multiple ways to distinguish between FAD and FSC sets, and that observers can easily differentiate between the two types of sets when classifying the set type on the observer data forms. If tuna are identified as travelling or swimming in schools, then are captured in a purse seine set, these sets are referred to as Free School (FSC) tuna sets. Tuna that are identified in association with a natural or floating object, natural or artificial, and are stationary with respect to the floating object are referred to as Fish Aggregating Device (FAD) tuna set tuna. The team decided that the two set types should be treated separately, not as two UoAs/UoCs, but as one using an elemental analysis for each targeting method or set type (FAD and FSC). These classifications are based on the basis of how the tuna are identified for the set. Subsequent analysis of the catch composition by species of each set type, as determined from the observer data, can be used to confirm the initial observer classification.

MSC FCR v.2.0 G 7.4.7-7.4.9 requires "*when two gear types are scored together the lower score will determine the result for both gear types*". Therefore, FAD and FSC are considered separately in the scoring of P2, and where a difference is identified , the lower score is applied to the UoA.

The MSC requires consideration of the cumulative impacts of all MSC certified fisheries in PI 2.1.1, 2.2.1, 2.3.1 and 2.4.2. Where required, the team considered the MSC certified Maldives pole and line fishery, and the FAD and FSC set types.

7.2. Echebastar purse seine fishery landed tuna catch (2012-15)

Landings of tuna by Echebastar purse seiners in the period 2012-15 are summarized in Tables 14-17 for all sets (FAD and FSC) combined. Echebastar catch data was provided by AZTI in the Client Preparation Assessment Report, 2016, and this was subsequently used in the CDR for this fishery assessment.https://fisheries.msc.org/en/fisheries/echebastar-indian-ocean-purse-seine-skipjack-tuna/@@assessment-documentsets?documentset_name=Certifier+Desk+Review&phase_name=Entry+into+assessment&start_date=2017-02-23&title=Simplification+Pilot+Assessment Note that official landings data for 2016 were not available when the CDR was published.

Table 14. Echebastar: Tuna landings (t) 2012

Vessel	ALB	YFT	BET	SKJ	Total
Alakrana	24	7,345	886	2,881	11,136
Campolibre Alai	23	3,635	725	2,134	6,517
Demiku	9	3,462	534	1,232	5,237
Elai Alai	2	3,476	503	1,757	5,737
Erroxape	18	4,743	496	2,206	7,462
Xixili	1	1,874	238	1,335	3,449
Total all sets	77	24,535	3,383	11,544	39,538

Source: AZTI

Table 15. Echebastar: Tuna landings (t) 2013

Vessel	ALB	YFT	BET	SKJ	Total
Alakrana	17	8,233	1,520	5,203	14,973
Campolibre Alai	0	3,737	532	2,548	6,817
Demiku	21	4,150	800	2,679	7,650
Elai Alai	2	4,078	768	2,457	7,304
Erroxape	8	4,657	488	1,967	7,120
Xixili	0	0	0	0	0
Total all sets	47	24,855	4,107	14,854	43,864

Source: AZTI

Table 16. Echebastar: Tuna landings (t) 2014

Vessel	ALB	YFT	BET	SKJ	Total
Alakrana	33	5,159	786	4,126	10,104
Campolibre Alai	0	3,904	796	3,585	8,285
Demiku	1	1,731	211	1,499	3,442
Elai Alai	0	3,304	577	2,990	6,872
Izaro	0	2,831	365	1,702	4,899
Total all sets	34	16,930	2,736	13,903	33,602

Source: AZTI

Table 17. Echebastar: Tuna landings (t) 2015

Vessel	ALB	YFT	BET	SKJ	Total by species
Alakrana	10	5,005	769	4,302	10,086
Campolibre Alai	22	1,580	460	2,569	4,631
Elai Alai	3	2,134	278	2,090	4,505
Euskadi Alai	1	1,405	79	696	2,181
Izaro	23	3,694	501	3,624	7,842
Jai Alai	1	2,818	227	1,983	5,029
Total all sets	61	16,635	2,314	15,263	34,274

Source: AZTI

The mean percentage catch of marketable tuna species (by weight) (2012–2015) is shown in Table 18. Skipjack represents 36.7% of the landed catch. Yellowfin and bigeye are targeted species representing 54.8% and 8.3% of the landed tuna catch.

Table 18: Echebastar: Catch by weight (%) of Main Tuna Species 2012–15

Species	%
Albacore	0.1
Yellowfin	54.8
Bigeye	8.3
Skipjack	36.7

Source: AZTI

7.3. SFA Observer Program

The SFA observer programme is described under P3.

7.4. Observed Catch (2014-2016)

MSC CR guidance for scoring PIs 2.1.1, 2.2.1 and 2.3.1 requires the use of quantitative data to determine primary, secondary and ETP species, and the extrapolation of the observed catch to the full UoA fishery to estimate ecosystem impacts. The UoA in this fishery is a single gear (tuna purse seine) with two types of sets: FAD and FSC.

From 2014, all Echebastar fishing activity has 100 % observer coverage. However, delays and errors in the coding and transcription of the data from field data sheets to electronic database files, has meant that only a portion of the total collected data are available in a computer compatible data format for review and analysis.

Available observer data (2014-2016) for Echebastar indicate that FADs account for 86% of total tuna landings, with the remainder from FSC (Table 19). Following MSC CR guidance, the elemental approach to scoring of the PIs for primary, secondary and ETP species considers the projected annual impacts for the current distribution of fishing effort. Cumulative impacts of both set types are also considered. .

Landings data are collected as the fishing vessels unload in Port Victoria, with monitoring by Seychelles government fishery officers. Catches at sea are monitored by independent observers. Analysis covers the processed observer data for 2014 – 2016, as previously observer coverage was less than 5%.

Note also that the nature of the bycatch in the FAD fishery has changed in recent years following the introduction of non-entangling FADs (http://www.iotc.org/documents/issf-guide-non-entangling-fads).

Observed catch by species is recorded by weight and number of individuals for non-tuna species. The observers also check FADs for entangled animals, in particular sharks and sea turtles. Data available on fishing activities by Echebastar purse seiners are:

- The number of Echebastar observed sets with data available, and the total number of sets by year (Table 19);
- The number of Echebastar sets with processed observer data by set-type (2014 – 2016) (Table 20);
- The total number of Echebastar sets by set type (2014–2016) (Table 21);
- The Echebastar observer data (%) available for analysis (for the period 2014-2016 is 29%, 53% and 34% respectively for both types of set) (Table 22);
- Echebastar FADS: estimated annual average catch data & average catch share by species (2014 -2016) & MSC species designation (Table 23) and Echebastar FCS: estimated annual average catch data & average catch share by species (2014 -2016) & MSC species designation (Table 24). These data are used to categorize the catch by species and for scoring the fishery against the MSC standard (primary, secondary, main and minor).

The total catch of all species by weight and number for non-tuna species was expanded using the ratio of observed sets to total sets for each year and set type (Tables 50 – 55). These tables indicate: the percentage of observer data available for estimating fishery impacts; and the percentage of sharks, rays and sea turtles (SRT) released alive as a weighted average by number (i.e. the proportion of all sharks, rays and sea turtles released alive compared to the total number of sharks, rays and sea turtles captured per set type per year).

IOTC considers that 25 % observer coverage or data availability is required to accurately characterize the bycatch of the major species (particularly sharks and billfish) in Indian Ocean purse seine fisheries (Lennert-Cody, 2001; Sánchez, et al. 2007). MSC considers that 20% observer coverage is adequate to characterize shark catches and that coverage greater than 20% offers diminishing returns in terms of the precision of the estimate of the catch of any individual species (MSC CR GSA3.6.3).

A larger sample size would be preferable to more precisely estimate the bycatch of ETP species with substantially lower interaction rates, such as sea turtles. However, when the catch of a species is very low, the precision of the estimated total catch is less important.

Table 19: Echebastar: Percent of observed data available, Processed Observer Set Data & Total Sets by Vessel (2014-2016)

	Number of Observed Sets with Data Available or Processed			Total Sets			Percent of Observed data Available (Observed Data Processed / Total Sets)		
	2014	**2015**	**2016**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Alakrana	148	189	167	299	320	327	49%	59%	51%
Campolibre Alai	51	149		299	181	0	17%	82%	0%
Elai Alai	32	148	89	206	258	354	16%	57%	25%
Euskadi Alai		48	83		125	394	0%	38%	21%
Izaro	0	118	149	215	281	289	0%	42%	52%
Jai Alai		82	95		228	336	0%	36%	28%
Total	231	734	583	804	1,393	1,700	29%	53%	34%

Source: AZTI

Table 20. Echebastar: Number of Sets with Processed Observer Data by Set Type (2014-2016)

YEAR	SET TYPE	NUMBER of SETS	TOTAL SETS	% SETS by SET TYPE
2014	FAD	163	231	71%
	FSC	68		29%
2015	FAD	610	734	83%
	FSC	124		17%
2016	FAD	518	583	89%
	FSC	65		11%

Source: AZTI

Table 21: Echebastar: Number of sets by set type (2014-2016)

YEAR	SET TYPE	NUMBER of SETS	TOTAL SETS
2014	FAD	567	804
	FSC	237	
2015	FAD	1158	1393
	FSC	235	
2016	FAD	1510	1700
	FSC	190	

Source: AZTI

Table 22: Echebastar: Observer data (%) Available for Analysis (FAD & FSC)

YEAR	OBSERVER DATA AVAILABLE (%)
2014	29
2015	53
2016	34

Source: AZTI

Table 23: Echebastar FADS: Estimated Annual Average Catch Data & Average Catch Share by Species (2014 -2016) & MSC Species Designation

Key (Tables 23 & 24)

ETP	UoA	Secondary minor	Primary minor	Primary, main

Common name, (genus species)	Total estimated average annual catch (t)	Total estimated average annual catch of individuals (non-tuna)	Species weight per cent of average annual catch	MSC designation
bullet tuna, (Auxis rochei)	3.0		0.0112	Sec. minor
frigate and bullet tunas, (Auxis sp,)	0.0		0.0000	Sec. minor
frigate tuna, (Auxis thazard)	16.2		0.0592	Sec. minor
kawakawa tuna, (Euthynnus affinis)	1.1		0.0041	Pri. minor
skipjack tunas, (Katsuwonus pelamis)	13788.8		50.4639	UoA
albacore tunas, (Thunnus alalunga)	81.3		0.2975	Pri. minor
yellowfin tunas, (Thunnus albacares)	10616.7		38.8547	Pri., Main
bigeye tunas, (Thunnus obesus)	2130.7		7.7977	Pri., Main
other tunas, (other sp)	208.7		0.7638	Sec. minor
other billfishes, (Istiophoridae)	0.6	12.6	0.0024	Sec. minor
sailfish, (Istiophorus platypterus)	0.2	8.1	0.0008	Pri. minor
black marlin, (Makaira indica)	11.4	103.6	0.0418	Pri. minor
marlin, (Makaira mazara)	0.0	0.6	0.0000	Sec. minor

Common name, (genus species)	Total estimated average annual catch (t)	Total estimated average annual catch of individuals (non-tuna)	Species weight per cent of average annual catch	MSC designation
blue marlin, (Makaira nigricans)	6.4	51.5	0.0233	Pri. minor
shortbill spearfish, (Tetrapturus angustirostris)	0.0	0.6	0.0000	Sec. minor
striped marlin, (Tetrapturus audax)	9.5	23.4	0.0348	Pri. minor
swordfish, (Xiphias gladius)	0.8	5.0	0.0030	Pri. minor
starry triggerfish, (Abalistes stellatus)	3.2	536.5	0.0117	Sec. minor
flat needlefish (Ablennes hians)	0.0	2.5	0.0000	Sec. minor
wahoo (Acanthocybium solandri)	49.2	4403.3	0.1801	Sec. minor
unicorn leatherjack filefish, (Aluterus monoceros)	1.1	1085.1	0.0042	Sec. minor
scribbled leatherjack filefish : (Aluterus scriptus)	0.0	33.2	0.0001	Sec. minor
needlefishes: (Belonidae)	0.0	4.4	0.0000	Sec. minor
ocean triggerfish (Canthidermis maculata)	48.7	46544.3	0.1783	Sec. minor
carangids nei (Carangidae)	0.3	619.6	0.0011	Sec. minor
island trevally, (Carangoides orthogrammus)	0.0	2.5	0.0000	Sec. minor
bigeye trevally (Caranx sexfasciatus)	0.2	399.5	0.0007	Sec. minor
pompano dolphinfish, (Coryphaena equiselis)	0.0	11.0	0.0002	Sec. minor
common dolphonfish, (Coryphaena hippurus)	133.5	12534.9	0.4884	Sec. minor
mackerel scad, (Decapterus macarellus)	0.8	1120.9	0.0031	Sec. minor
Suckerfish, ramoras, (Echeneidae)	0.0	0.8	0.0000	Sec. minor
rainbow runner, (Elagatis bipinnulata)	89.7	24577.8	0.3281	Sec. minor
flying fishes, (Exocoetidae)	0.0	15.3	0.0000	Sec. minor
blue sea chub, (Kyphosus cinerascens)	0.4	797.0	0.0015	Sec. minor
kyphosus sea chubs, (Kyphosus sp,)	0.0	12.6	0.0000	Sec. minor
brassy chub, (Kyphosus vaigiensis)	1.0	377.6	0.0037	Sec. minor
oceanic puffer, (Lagocephalus lagocephalus)	0.0	2.1	0.0000	Sec. minor
triple tail, (Lobotes surinamensis)	4.3	1289.9	0.0157	Sec. minor
batfishes, (Platax sp,)	0.1	55.4	0.0003	Sec. minor
longfin batfish, (Platax teira)	0.1	168.7	0.0004	Sec. minor
chub mackerel (Scomber japonicus)	0.0	24.5	0.0000	Sec. minor
mackerels, (Scombridae)	0.1	20.1	0.0004	Sec. minor
longfin yellowtail (Seriola rivoliana)	0.5	288.0	0.0017	Sec. minor
great barracuda, (Sphyraena barracuda)	2.6	471.8	0.0097	Sec. minor
barracudas, (Sphyraenidae)	0.0	0.1	0.0000	Sec. minor
cottonmouth jack, (Uraspis secunda)	0.3	481.1	0.0010	Sec. minor
other jacks, (Uraspis sp,)	0.0	0.6	0.0000	Sec. minor
requiem sharks, (Carcharhinidae sp,)	1.1	20.4	0.0041	Sec. minor
silky shark, (Carcharhinus falciformis)	101.8	4406.8	0.3725	ETP
bull shark, (Carcharhinus leucas)	0.0	295.8	0.0000	Sec. minor
oceanic whitetip shark, (Carcharhinus longimanus)	5.3	101.4	0.0194	Sec. minor
stingrays, (Dasyatidae)	0.0	2.3	0.0000	Sec. minor
pelagic stingray, (Dasyatys (Pteroplatytrygon) violacea)	0.0	5.9	0.0001	Sec. minor
tiger shark, (Galeocerdo cuvier)	0.2	1.0	0.0006	Sec. minor
shortfin mako shark, (Isurus oxyrinchus)	0.2	1.9	0.0006	ETP
giant manta ray, (Manta birostris)	1.1	5.8	0.0041	ETP
manta rays, (Manta sp,)	0.1	0.6	0.0003	ETP
spinetail mobula ray, (Mobula japanica (rancureli))	0.5	3.6	0.0020	ETP
other mobula rays, (Mobula sp,)	0.8	4.0	0.0031	ETP

Common name, (genus species)	Total estimated average annual catch (t)	Total estimated average annual catch of individuals (non-tuna)	Species weight per cent of average annual catch	MSC designation
blue shark, (Prionace glauca)	0.3	27.7	0.0010	Sec. minor
other sharks, (spp)	0.8	15.7	0.0029	Sec. minor
loggerhead sea turtle, (Caretta caretta)	0.0	2.0	0.0002	ETP
green sea turtle, (Chelonia mydas)	0.0	1.3	0.0002	ETP
hawksbill sea turtle, (Eretmochelys imbricata)	0.0	2.0	0.0000	ETP
olive ridley sea turtle, (Lepidochelys olivacea)	0.1	1.9	0.0002	ETP
other sea turtles, (Tortue non identi)	0.0	0.6	0.0000	ETP

Source: AZTI

Table 24: Echebastar FSC: Estimated Annual Average Catch Data & Average Catch Share by Species (2014 - 2016) & MSC Species Designation

Key (Tables 23 & 24)

ETP	UoA	Secondary minor	Primary minor	Primary, main

Common name, (genus species)	Total estimated average annual catch (t)	Total estimated average annual catch of individuals (non-tuna)	Species weight percent of average annual catch	MSC designation
bullet tuna,(Auxis rochei)	0.0		0.0000	Sec. minor
frigate and bullet tunas, (Auxis sp,)	0.0		0.0000	Sec. minor
frigate tuna, (Auxis thazard)	0.0		0.0000	Sec. minor
kawakawa tuna, (Euthynnus affinis)	0.0		0.0000	Pri. minor
skipjack tunas, (Katsuwonus pelamis)	550.5		14.5532	UoA
albacore tunas, (Thunnus alalunga)	5.7		0.1496	Pri. minor
yellowfin tunas, (Thunnus albacares)	2723.8		72.0021	Pri., Main
bigeye tunas, (Thunnus obesus)	495.4		13.0957	Pri., Main
other tunas, (other sp)	0.0		0.0000	Sec. minor
other billfishes, (Istiophoridae)	0.0	0.0	0.0000	Sec. minor
sailfish, (Istiophorus platypterus)	0.0	0.0	0.0000	Pri. minor
black marlin, (Makaira indica)	0.1	2.2	0.0037	Pri. minor
marlin, (Makaira mazara)	0.0	0.0	0.0000	Sec. minor
blue marlin, (Makaira nigricans)	0.3	3.0	0.0084	Pri. minor
shortbill spearfish, (Tetrapturus angustirostris)	0.0	0.0	0.0000	Sec. minor
striped marlin, (Tetrapturus audax)	1.0	3.9	0.0259	Pri. minor
swordfish, (Xiphias gladius)	0.0	0.0	0.0000	Pri. minor
starry triggerfish, (Abalistes stellatus)	0.0	0.0	0.0000	Sec. minor
flat needlefish (Ablennes hians)	0.0	0.0	0.0000	Sec. minor
wahoo (Acanthocybium solandri)	0.8	177.9	0.0202	Sec. minor
unicorn leatherjack filefish, (Aluterus monoceros)	0.0	0.0	0.0000	Sec. minor
scribbled leatherjack filefish : (Aluterus scriptus)	0.0	0.0	0.0000	Sec. minor
needlefishes: (Belonidae)	0.0	1.0	0.0000	Sec. minor
ocean triggerfish (Canthidermis maculata)	0.6	885.3	0.0165	Sec. minor
carangids nei (Carangidae)	0.0	17.6	0.0003	Sec. minor
island trevally, (Carangoides orthogrammus)	0.0	0.0	0.0000	Sec. minor
bigeye trevally (Caranx sexfasciatus)	0.0	0.0	0.0000	Sec. minor
pompano dolphinfish, (Coryphaena equiselis)	0.0	0.0	0.0000	Sec. minor
common dolphinfish, (Coryphaena hippurus)	0.7	100.7	0.0181	Sec. minor
mackerel scad, (Decapterus macarellus)	0.0	3.9	0.0000	Sec. minor
Suckerfish, ramoras, (Echeneidae)	0.0	0.0	0.0000	Sec. minor
rainbow runner, (Elagatis bipinnulata)	1.6	445.7	0.0428	Sec. minor
flying fishes, (Exocoetidae)	0.0	0.0	0.0000	Sec. minor
blue sea chub, (Kyphosus cinerascens)	0.0	0.0	0.0000	Sec. minor
kyphosus sea chubs, (Kyphosus sp,)	0.0	0.0	0.0000	Sec. minor
brassy chub, (Kyphosus vaigiensis)	0.0	0.0	0.0000	Sec. minor
oceanic puffer, (Lagocephalus lagocephalus)	0.0	0.0	0.0000	Sec. minor
triple tail, (Lobotes surinamensis)	0.0	2.2	0.0002	Sec. minor

Common name, (genus species)	Total estimated average annual catch (t)	Total estimated average annual catch of individuals (non-tuna)	Species weight percent of average annual catch	MSC designation
batfishes, (Platax sp,)	0.0	0.0	0.0000	Sec. minor
longfin batfish, (Platax teira)	0.0	0.0	0.0000	Sec. minor
chub mackerel (Scomber japonicus)	0.0	0.0	0.0000	Sec. minor
mackerels, (Scombridae)	0.0	0.0	0.0000	Sec. minor
longfin yellowtail (Seriola rivoliana)	0.0	2.0	0.0004	Sec. minor
great barracuda, (Sphyraena barracuda)	0.0	4.1	0.0005	Sec. minor
barracudas, (Sphyraenidae)	0.0	0.0	0.0000	Sec. minor
cottonmouth jack, (Uraspis secunda)	0.0	0.0	0.0000	Sec. minor
other jacks, (Uraspis sp,)	0.0	0.0	0.0000	Sec. minor
requiem sharks, (Carcharhinidae sp,)	0.0	0.0	0.0000	Sec. minor
Silky shark, (Carcharhinus falciformis)	1.9	68.2	0.0507	ETP
bull shark, (Carcharhinus leucas)	0.0	9.2	0.0000	Sec. minor
oceanic whitetip shark, (Carcharhinus longimanus)	0.3	4.6	0.0072	ETP
stingrays, (Dasyatidae)	0.0	0.6	0.0000	Sec. minor
pelagic stingray, (Dasyatys (Pteroplatytrygon) violacea)	0.0	0.0	0.0000	Sec. minor
tiger shark, (Galeocerdo cuvier)	0.0	0.0	0.0000	Sec. minor
shortfin mako shark, (Isurus oxyrinchus)	0.0	0.0	0.0000	ETP
giant manta ray, (Manta birostris)	0.0	0.0	0.0000	ETP
manta rays, (Manta sp,)	0.0	0.0	0.0000	ETP
spinetail mobula ray, (Mobula japanica (rancureli))	0.2	1.1	0.0046	ETP
other mobula rays, (Mobula sp,)	0.0	0.0	0.0000	ETP
blue shark, (Prionace glauca)	0.0	0.0	0.0000	Sec. minor
other sharks, (spp)	0.0	0.0	0.0000	Sec. minor
loggerhead sea turtle, (Caretta caretta)	0.0	0.0	0.0000	ETP
green sea turtle, (Chelonia mydas)	0.0	0.0	0.0000	ETP
hawksbill sea turtle, (Eretmochelys imbricata)	0.0	0.0	0.0000	ETP
olive ridley sea turtle, (Lepidochelys olivacea)	0.0	0.0	0.0000	ETP
other sea turtles, (Tortue non identi)	0.0	0.0	0.0000	ETP

Source: AZTI

7.5. UoA

The UoA is skipjack tuna (*Katsuwonus pelamis*) captured by the Echebastar fleet using purse seine gear in the Indian Ocean.
In the FAD sets, skipjack represents an average 50.5% by weight of the total estimated catch in 2014-2016, with an estimated annual average annual catch of 13,788 t. The respective values for FSC sets are 15.6% and 551 t.

The sum of the estimated quantities compares to the reported Echebastar average annual skipjack catch of 14,000 t, or 37% of the total catch (2012-201515). Note that the small difference in the percentage of skipjack in the average catch and the average landings is primarily related to the different time periods for the available data, and secondarily related to the sampling method. Skipjack tuna is considered further in the P1 evaluation.

7.6. Main Primary Species

In general terms, the main primary species are those managed with reference points that comprise more than 5% by weight of the total catch, or more than 2% if the species is considered less resilient. Based on the catch summary for both the FAD and FSC sets, the only primary species to meet the 5% criterion are yellowfin and bigeye tuna. Both are managed by the IOTC and have reference points estimated.

Yellowfin tuna

Based on observer data, the average annual yellowfin tuna catches of 10,617 t (2014 -16) in the Echebastar FAD sets was 38.8% of the estimated total catch; respective figures for the FSC sets are 2,723 t and 72% of the total catch.

The yellowfin stock status is estimated by the IOTC to be above the point of recruitment impairment (PRI taken as 20%B0 or 0.2 SB0), but below SBmsy with an estimate of SB2015/SBmsy = 0.89 (0.79-0.99), and to have been below SBmsy for 6 of the last 8 years. The estimate of SB2015/SB0 = 0.29 implies SBmsy = 0.33SB0 and SB2015/SB0 is in the range 0.26-0.33.

Bigeye tuna

Based on observer data, the average annual bigeye catches of 2,131 t (2014 -16) in the Echebastar FAD sets was 7.8% of the estimated total catch; respective figures for the FSC sets are 495 t and 13.1% of the total catch.

The PRI for the bigeye stock is taken as 20%B0 (or 0.2 SB0)) or 0.5SBmsy. Bigeye was assessed in 2016 with SB2015/SB0 estimated as 0.38 but with no confidence intervals. SB2015/SBmsy is estimated at 1.29 (1.07-1.51).

7.7. Minor Primary Species

Based on the catch summary for the FAD and FSC set types, a number of minor primary species have less than a 5% share of the total catch.

Albacore

In the FAD sets, the estimated annual catch of albacore tuna is about 81 t, or about 0.3% of the total observed FAD catch by Echebastar purse seiners. The estimated annual catch of FSC sets is about 5.7 t or 0.1% of the catch. This stock is managed by the IOTC. The 2013 assessment indicated that the stock was not overfished, but was subject to overfishing. The total annual catch in the Indian Ocean is about 40,000 t. The data indicate that the total albacore catch of the Echebastar tuna purse seine fishery will not hinder rebuilding the stock if it were necessary, as it takes less than 0.3% of the total catch of albacore.

Other Species

Other minor primary species (swordfish, kawakawa tuna, striped marlin, blue marlin, black marlin and sailfish) have a negligible share (less than 0.05%) of the total UoA catch. The status of each of these species is described below based on IOTC 2016 updates (http://www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc):

Swordfish was evaluated in late 2016 by the IOTC and was determined to be not overfished, and not subject to overfishing. The total Indian Ocean catch of this species were slightly greater than the MSY level.

Kawakawa tuna was evaluated in late 2016 by the IOTC and was determined to be not overfished, and not subject to overfishing. The total Indian Ocean catch of this species were near the MSY level. to produce MSY (Bmsy).

Striped marlin was evaluated in late 2016 by the IOTC and was determined to be overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were near the MSY level. In 2014, the estimated Bmsy was 8,400 mt, and PRI is taken to be 1/2 Bmsy or 2,400 mt. The 2014 biomass was 5,500 mt, so while the stock is well below Bmsy it is above PRI.

Blue marlin was evaluated in late 2016 by the IOTC and was determined to be not overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were slightly above the MSY level, in 2015, but the stock remained above the Bmsy level.

Black marlin was evaluated in late 2016 by the IOTC and was determined to be overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were nearly twice the MSY level. However, In 2014, the estimated Bmsy was 47,430 mt, and PRI is taken to be 1/2 Bmsy or 23,715 mt. The 2014 biomass was 38,418 mt, so while the stock is well below Bmsy it is above PRI.

Sailfish was evaluated in late 2016 by the IOTC and was determined to be not overfished, but to be subject to overfishing. The total Indian Ocean catch of this species in 2015 was slightly greater than the MSY level.

7.8. Main Secondary Species

Based on the catch summary (2014-2016), FAD and FSC set types have no main secondary species.

7.9. Minor Secondary Species

Based on the catch summary (2014–2016), more than 45 minor secondary species account for about 2.0% of the total catch in the FAD and FSC set types. The vast majority of the catch of secondary minor species are small bony, pelagic or neritic finfish characterized by high productivity. Because of the extensive number of secondary minor species identified in the observed catch (Tables 23 and 24), the assessment team decided on a cut-off of 0.05% of the total Echebastar catch (GSA3.5.1), so as to reduce the number of species to be addressed in the scoring. The selection of 0.05% is based on the very low proportion of the observed catch, so as to be considered negligible, and that the total estimated catches of these species are insignificant compared to the total catch of these species in the Indian Ocean, and therefore would not hinder the recovery of these species, if required.

The FAD catches of the following secondary species are > 0.05% of the UoA catch: ocean triggerfish, wahoo, frigate tuna, common dolphin, and rainbow runner. The catches of other species are negligible, including other small tuna species, several billfish species, and some sharks and rays including oceanic whitetip sharks and bull sharks. These species are not addressed individually in the scoring due to the very low catch rates. The vast majority of the catch of secondary minor species are small bony, pelagic or neritic finfish that are characterized by high productivity. None of the secondary minor species are managed by IOTC, and their stocks are not assessed. These species are considered further in the P2 scoring, specifically component 2.2.1.

In the FSC sets, no secondary species comprised more than 0.05 % of the total catch.

7.10. ETP species

ETP species taken in the Echebastar fishery include several species of sharks, rays and sea turtles. No marine mammals or whale sharks were recorded in the observed sets (2014-16). Based on the observer data (Tables 50 - 55), about 50% of all ETP species encountered by the FAD and FSC sets are released live.

Silky shark and shortfin mako shark are considered as ETP.

While IOTC is concerned about the status of silky shark and shortfin mako shark and has noted the species are in decline, the species are not managed by IOTC and their status is not assessed.

- Silky shark and shortfin mako shark are not listed in CITES Appendix 1.
- Silky shark is listed as “near threatened” and shortfin mako is listed as "vulnerable" on the IUCN Indian Ocean threat status.
- Silky shark and shortfin mako shark are listed in Appendix II of the Conservation of Migratory Species (CMS), and Annex 1 of the CMS MOU on the Conservation of Migratory Sharks (which identifies shark species that have "unfavourable conservation status").

MSC CR v.2 specifically notes in GSA 3.1.5.2 that species listed by the CMS are to be considered as ETP for an MSC assessment, and this applies to silky sharks and shortfin mako sharks. This is a change from the CDR.

Silky shark

The average annual catch of silky shark in Echebastar FAD sets is estimated to be about 101 t (4,406 individuals) or <0.4% of the total catch. About 50% of the animals were observed to be released alive. The average catch in the FSC sets is estimated to be 2 t (68 individuals) with about 50% released alive. Of the silky sharks that are released alive, between 20% and 40% survive. This implies an overall survival rate of 10% - 20% of those captured (Poisson et al. 2011, Poisson et al. 2014, Hutchinson et al. 2015, and Eddy et al. 2016).

Shortfin mako shark

In the FAD sets, the average annual catch of shortfin mako sharks is 0.2 t (2 individuals) or 0.001% of the total catch. In general, about 50% of the larger sharks captured are observed to be released alive. There was no recorded take of shortfin mako sharks in the FSC sets.

Others

Manta and devil rays and sea turtles listed in Appendix I of the CMS, are treated as ETP species. In the FAD sets, the estimated annual average catch (individuals) of other ETP species is 14 rays, and 8 sea turtles. On average, about 50% of these are released alive. The average annual catch of rays and sea turtles for the FSC sets is 1 and 0 individuals, respectively.

7.11. Impacts of Fishing and the Fishing Gear

As noted previously, there are two methods used in the Indian Ocean to target purse seines when fishing for tuna. In the FSC method, fishermen search for visual signs that tuna are nearby (for example, feeding birds), and then set the seine around the school of fish. The catches in this method are predominately yellowfin tuna and as noted in the previous presentation of catch data there is less diversity and amount of bycatch. However, this method of fishing is not as productive. The FAD method of targeting has evolved from the log method of fishing whereby fishermen found schools for tuna in association with natural floating objects (such as drifting logs), then set the purse seine around that object. To supplement the occurrence of natural logs, fishermen began to place small bamboo rafts with old netting hanging down into the water, as these objects also served to aggregate tuna. These more primitive rafts were replaced with 1.5 x 1.5 m steel frames supported by floats on the corners covered with netting and with netting hanging down, and equipped with GPS transponders (beacons) so each fishing boat could keep track of its FADs. As the number of FADs increased the overall efficiency of fishing operations, the hold capacity of the purse seine vessels was increased from less than 500 t per vessel to more than 2000 t per vessel. Fish echo sounders (sonar) were added to the beacons so that purse seine vessel captains could remotely determine the fish biomass below each FAD. FAD supply or service vessels were added to each fleet with the sole purpose of distributing and maintaining FADs for the fishing vessels in each fleet. In the early 2000s, it was estimated that most purse seine vessels had more than 1000 FADs each, with many more than 500 in the water at any time:

(http://www.seychellesnewsagency.com/articles/5802/FAD+Watch+Seychelles+to+intercept+fishing+devices+to+protect+reefs#sthash.MQDKfGQn.dpuf).

An interesting aspect of this fishery, is that while one vessel may deploy a FAD and place its own beacon on it, any vessel can and will fish the FAD on a first come first arrival basis. Additionally, any fishing vessel or supply vessel can remove and turn off the beacon of the vessel that set the FAD, and then attach its own beacon. Once a beacon is turned off, it cannot be turned back on until it is returned to shore and re-activated by a beacon provider company. As a result of this practice, individual fishing vessels own and carry more FADs than are in the water at any given time, so that they can replace FAD beacons that are turned off by competing fishing vessels. In 2012, the IOTC adopted *Resolution 12/08* setting out requirements that fleets develop FAD management plans. In 2015, the IOTC adopted *Resolution 15/08* that sets the maximum number of active instrumented buoys per vessel at 550 at any one time (and 1100 registered annually). In 2016, *Resolution 16-01* on an *interim plan for rebuilding the Indian Ocean Yellowfin tuna stock in the IOTC area of competence* decreased the limit to no more than 425 daily active instrumented buoys per purse seine vessel (and 850 registered annually). Additionally, *Resolution 16/01* placed a limit on the number of supply vessels per contracting party at 50% of the number of permitted purse seine vessels for that contracting party, this limiting the capacity of the fleet to deploy FADs.

Early design FADs were made with netting hanging in the water column entangled large numbers of sharks and sea turtles. To mitigate this impact, the International Seafood Sustainability Foundation (ISSF) developed a program to promote the use of non-entangling FADs. That is, FADS made with no netting, with a buoyed frame covered with shade material, and with ropes hanging from the buoyed frame (Figure 2, www.iotc.org/sites/.../2014/11/IOTC-2014-WPTT16-18_-_Non-entangling_FADs.pdf). More recently, the use of biodegradable FADs is being experimented with to minimize the life span of FADs that are lost or not recovered. Echebastar Fisheries is working with AZTI on a project to evaluate operational feasibility of biodegradable FADS in the tuna purse seine fishery.

The Echebastar fleet of five purse seine vessels operates with one supply vessel. The company's purse seiners each use about 375 active beacons, with a maximum 750 allocated per vessel. The Echebastar vessels exclusively use non-entangling FADs.

According to Echebastar Fisheries, this self-imposed limitation on the number of FADs per vessel reflects: (i) economic considerations; (ii) the hold capacity of their vessels versus the number of FADS it can reasonably track and use: and (iii) environmental considerations (too many FADs are in use in the Indian Ocean).

As the number of FADs in the Indian Ocean has grown, questions on their impact have been raised. It is estimated that 20% of the active FADs used in the Indian Ocean purse seine fishery are lost annually due to:

breaking up at sea; beacons removed by competing purse seiners; and FADs drifting too close to shore (AZTI, pers comm). It is also estimated that about 50% of the lost FADs (i.e. 10% of the FADs deployed) eventually come ashore, and of these an unknown percentage drift onto a coral reef (AZTI, pers comm). These estimates are confirmed by Maufroy, et al. (2015), as these authors estimate that 9.9% of FADs become beached. These beaching events generally occur due to the FAD drifting outside of the main fishing grounds and malfunction/or loss of the tracking beacon. An unknown portion of the lost FADs that beach, come ashore on coral reefs in the Indian Ocean. In the Seychelles, the Island Conservation Society has initiated a program of monitoring FADs drifting ashore on St. Francois Atoll (Balderson & Martin, 2016), with a cooperative program with OPAGAC to retrieve FADs that are poised to go ashore before they can damage coral reefs.

The Echebastar Fisheries fleet consists of five purse seiners that each use no more than 400 active FADs per vessel. This indicates that the UoA may lose 400 FADs of which about 200 ground, with some unknown number of these arriving on coral reefs, which are considered VME habitats due to their structure, slow recovery time, and their contribution to ecosystem services (MSC CR V2.0 GSA3.13.3.2).

To place this issue in perspective, the assessment team considered the following:

- The area of the Indian Ocean is approximately 73.56 million km² . This would imply that on average there is a derelict Echebastar FAD for every 183,900 km², based on 400 lost Echebastar FADs annually.
- Using data from the World Atlas of Coral Reefs, (Spalding et al 2001), the area of coral reefs in the Indian Ocean is 32,000 km^2. Assuming that half the lost Echebastar FADs go ashore on coral reefs (200 derelict FADs), that would imply one lost FAD for every 160 km^2 of coral reef.
- The combined length of the coasts of Mozambique, Tanzania, Kenya, Somalia, Madagascar, Seychelles and Maldives is about 13,700 km, which accounts for only the western portion of the total Indian Ocean coastline. Therefore, the 200 derelict or lost Echebastar FADs could on average be minimally found every 68 km of coast.
- FADs are small and their potential impact would be on a small area of coast and coral reef.
- At the same time, it has been reported by the World Resources Institute that “more than 65 percent of coral reefs in the Indian Ocean region are at risk from local threats (i.e., coastal development, overfishing/destructive fishing, marine-based pollution, and/or watershed-based pollution), with one-third rated at high or very high risk. Closer examination reveals a sharp focus of threatened areas along continental shores where more than 90 percent of reefs are threatened” http://www.wri.org/resources/maps/reefs-risk-indian-ocean (Figure 3).

Note that MSC FCR 2.0 GSA 3.13.5 states “*where there is reasonable evidence that the habitat distribution extends beyond the “managed area”, the assessment of habitat impacts should be based on this extended distribution*”. As shown by the Malaysian airlines incident, it is extremely difficult to understand the impact of currents on the distribution of debris.

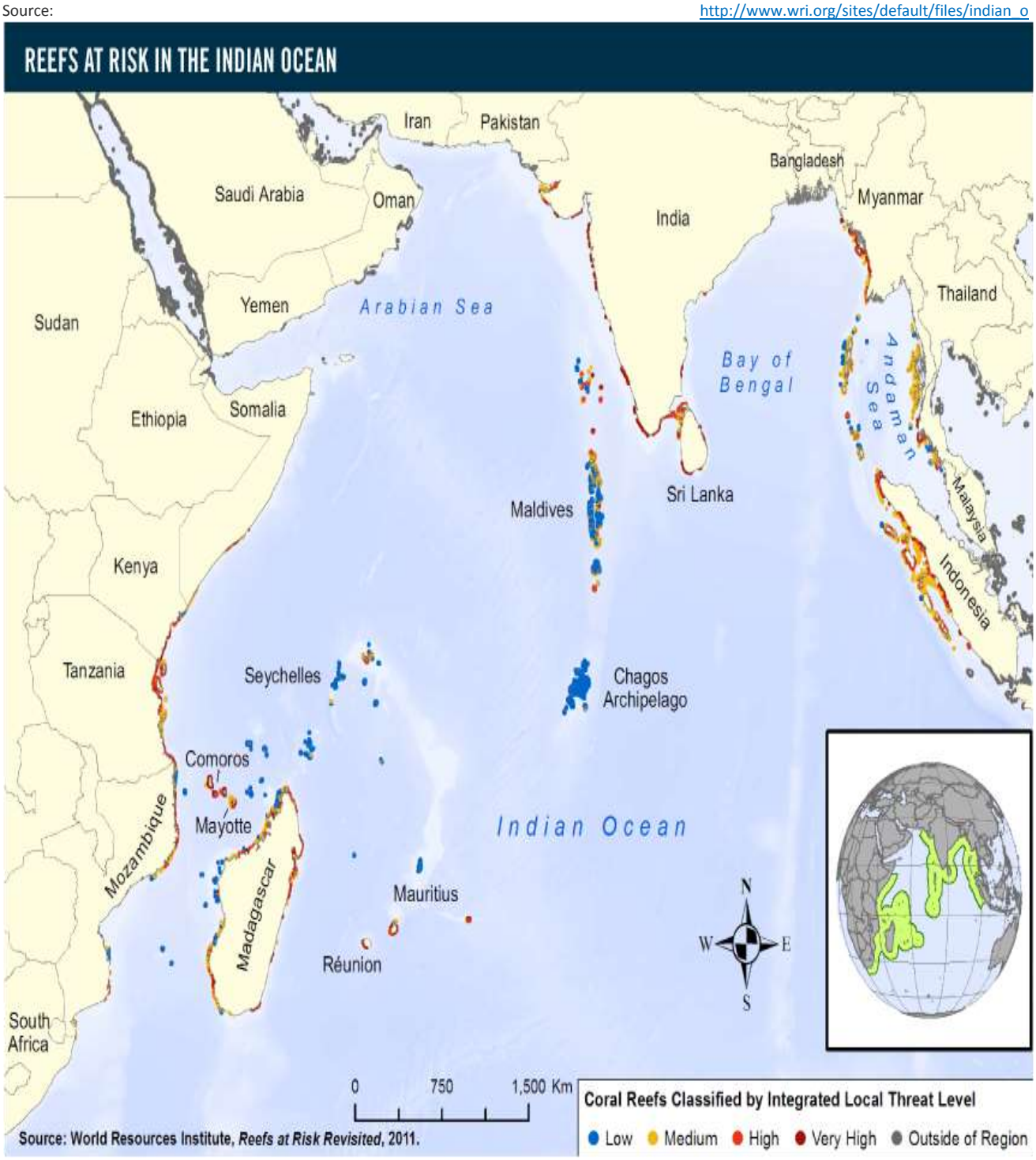
Another concern about potential ecological impacts of FADs relates to the possible effects of FADs on the feeding and migration patterns of tuna and other large pelagic fishes and animals (i.e., the "ecological trap hypothesis'). Dagorn et al (2012) concluded that there was no unequivocal empirical evidence that FADs represent an ‘ecological trap’ that inherently disrupts tuna biology, although further research should focus on this issue.

Figure 2: Indian Ocean FAD types: (A) Non-entangling FAD used by Echebastar (B). Entangling FAD (mesh surface and hanging open) with a tail of nets underneath

Source: Hernández-García, 2014. (www.iotc.org/sites/.../2014/11/IOTC-2014-WPTT16-18_-_Non-entangling_FADs.pdf)

Figure 3. Coral reefs of the Indian Ocean

Source: http://www.wri.org/sites/default/files/indian_o



cean_web_low-res.png

7.12. P2: Scoring Tables

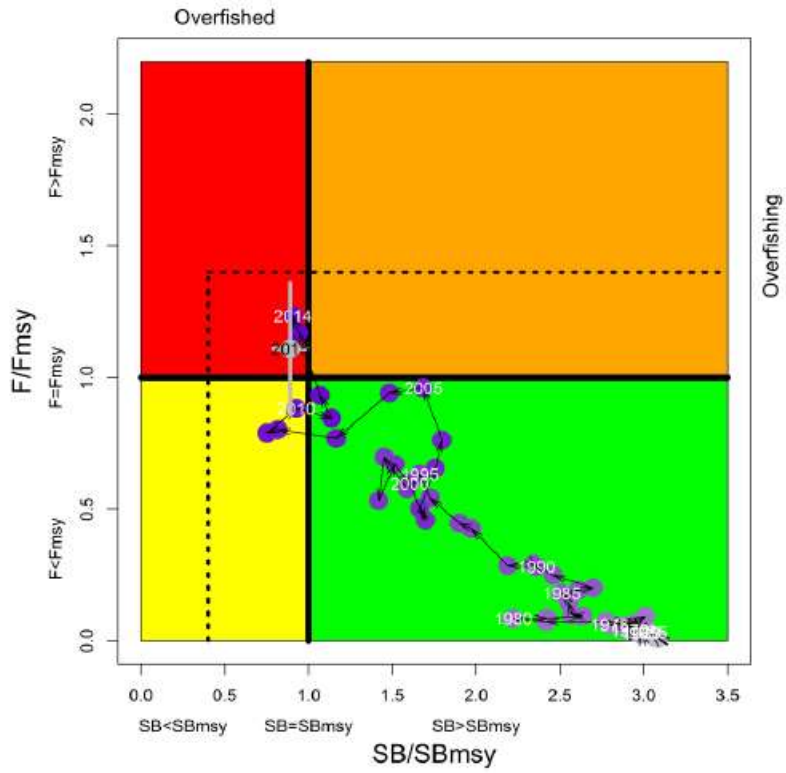
Table 25: PI 2.1.1 – Primary species outcome

Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are likely to be above the PRI OR If the species is below the PRI. the UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are highly likely to be above the PRI OR If the species is below the PRI. there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**FAD set type** Two main primary species are identified: yellowfin and bigeye. Both are assessed and managed by the IOTC with the measures in place expected to achieve management objectives reflected in biological reference points (SA3.1.3.3). As noted above, only three years of observer data has been used in this analysis as previous annual observer coverage was < 5%. Also, in recent years the characteristics of the bycatch in the FAD set type fishery has changed with the use of non-entangling FADs, and previous data is not so relevant to the equipment currently used.. **Yellowfin tuna** The yellowfin catch in the FAD sets is 38.8 % by weight of the overall catch by Echebastar purse seiners based on observer data. The expanded observer estimate is 10,617 t annually. Reported UoA landed catches of yellowfin in the Echebastar fishery in 2012-15 were: 24,535t; 24,855t; 16,930; and 16,635 t respectively. Client data indicates that the annual share of yellowfin in the total Echebastar catch averaged 58%. Consistent with GSA2.2.3.1, the PRI is taken as 20%B0 (0.2 SB0). The most recent stock assessment for yellowfin was in 2016 (IOTC 2016a, b) used the most recent catch data and a new longline CPUE index compared to the one conducted in 2015. The 2015 assessment estimated SB2014/SB0 as 0.23 (0.21-0.36). The 2016 assessment estimated SB2015/SB0 as 0.29, but does not provide any estimate of confidence. In scoring this PI, it is necessary to determine how likely the estimate of 0.29SB0 is above the PRI of 0.20SB0. Some guidance is available from the third annual surveillance audit of the Maldives pole and line fishery (https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=aLTrYdvBxEl1GnRMlN5vn+KLYOESoavXK1PJNzIYIdeRJ+NMD1AjbG0Oz7zAJOHI). At reported in the third annual surveillance of this certified fishery, the previous stock assessment had estimated SB2014/SB0 as 0.23 (0.21-0.36). The IOTC used further analyses to estimate that across a range of model formulations, there was a greater than 80% probability that the 2015 estimate was above 0.2B0. The 2016 estimate is much higher and the model generally more optimistic.		

The interim value of Blim was defined as 0.4SBmsy, or 0.2SB0. The 2016 IOTC estimates of SB2015/SBmsy=0.89 (0.79-0.99) at 80%CI, and SB2015/SB0=0.29, imply that SBmsy=0.33SB0 and SB2015/SB0 is in the range 0.26-0.33.

Based on this, it is concluded that it is highly likely that the yellowfin stock was above the PRI in 2016 (http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Yellowfin%20tuna%20Executive%20Summary.pdf).

Yellowfin tuna is highly likely to be above PRI.



The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of yellowfin tuna in the Indian Ocean

- SG60 is met
- SG80 is met.

It is unclear if there is a high degree of certainty that the stock is above the PRI. The stock is assessed to be currently below SBmsy with an estimate of SB2015/SBmsy of 0.89 (0.79-0.99) and to have been below SBmsy for 6 of the last 8 years.

- SG100 is not met.

Bigeye

In the FAD sets, observer data indicates that the bigeye catch is 7.8 % by weight of the total catch. The expanded observer estimate of annual total bigeye catch is 2,131 t. The annual landed bigeye catch for both types of set in recent years has been about 2,500 t.

The landed catch of bigeye in the UoA have been: 3,383t; 4,107t; 2,736t; and 2,341t in 2012 to 2015 respectively. This represents an annual average share of 8% of the UoA total tuna catch.

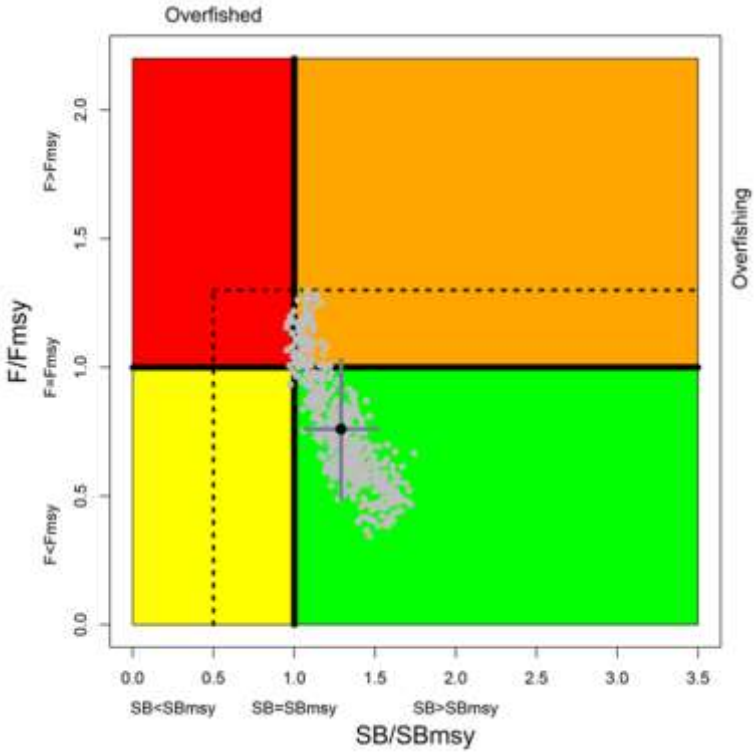
Consistent with GSA2.2.3.1, the PRI is taken as 20%B0 (or 0.2 SB0 in IOTC terminology) or 0.5 SBmsy.

Bigeye was assessed in 2016 (IOTC, 2016ab) with SB2015/SB0 estimated as 0.38 but with no confidence intervals.

SB2015/SBmsy is estimated at 1.29 (1.07-1.51).

The estimates for bigeye are taken from a large array of model runs (500 from six model options).

The Kobe plot showing F/Fmsy vs. SB/SBmsy for 2015 is shown below. The central estimate is that SB2015>SBmsy, with only a small number of 500 model runs falling below SBmsy. It is concluded that the stock is highly likely to be above the PRI using 0.5SBmsy as a proxy.



The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of bigeye tuna in the Indian Ocean

- SG60 is met.
- SG80 is met.

It is not clear if there is a high degree of certainty that the stock is above the PRI.

- SG100 is not met.

FSC set type

Two main primary species are identified: yellowfin and bigeye. Both are assessed and managed by IOTC with the measures in place expected to achieve management objectives reflected in biological reference points.

As noted above, only three years of observer data has been used in this analysis because prior to that the observer coverage was less than 5%. Additionally, the characteristics of the bycatch in the FAD fishery has changed with the use of non-entangling FADs.

Yellowfin

In the FSC sets, the estimated average annual catch is 2,723 t, representing 72% of the total catch. Reported UoA landed catches of yellowfin in the Echebastar fishery for 2012 - 2015 are: 24,535t; 24,855t; 16,930t; and 16,635t respectively. Client data for those years, indicates the catch of yellowfin has averaged 58% by weight of the UoA total catch of tuna.

The analysis of the yellowfin status is as given above (FAD set type).

		The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of yellowfin tuna in the Indian Ocean. • SG60 is met • SG80 is met. The stock is assessed to be below SBmsy with an estimate of SB2015/SBmsy of 0.89 (0.79-0.99) and to have been below SBmsy for six of the last eight years. There is not a high degree of certainty that the stock is above the PRI • SG100 is not met. **Bigeye** The estimated annual catch by the FSC set is 495 t, representing 13.1% by weight of the catch. The annual landed bigeye catches for both set types in recent years have been about 2,500 t. Bigeye landed catches in the UoA in 2012 -2015 were: 3,383t; 4,107t; 2,736t; and 2,341t. respectively. This represents an annual average of 8% of the UoA catch of tuna. B The analysis of bigeye status is as given above (FAD set type). The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of bigeye tuna in the Indian Ocean. • SG60 is met • SG80 is met. There is not a high degree of certainty that the stock is above the PRI • SG100 is not met		
b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI OR If below the PRI. there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species
	FAD			Yes
	FCS			Yes
	Justification	The only minor primary species with a catch >0.05% for both the FAD and FSC set types is albacore. There is a negligible catch of other species: swordfish, kawakawa tuna, striped marlin, blue marlin, black marlin and sailfish. Following MSC v.2 guidance and MSC interpretation 'P2 species: assessing negligible interactions': http://msc-info.accreditation-services.com/questions/p2-species-assessing-negligible-interactions/, these species are assessed. **FAD set type** **Albacore Tuna** The total annual catch of albacore tuna in the Indian Ocean is about 40,000 t. In the FAD sets, the estimated annual catch of albacore tuna is about 81 t, or about 0.3% by weight of the total observed catch by Echebastar purse seiners. This stock is managed by the IOTC. The 2013 assessment indicated that the stock was not overfished, but was subject to overfishing. The 2016 IOTC updated stock assessment summary (http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Albacore%20		

Executive%20Summary.pdf) states that SB2014/SBMSY = 1.80 (1.38–2.23) at the 80% CI. The SBlim is defined as 0.4SBmsy. The estimated SB2014 80% CI is in excess of SBlim.

Accordingly, this stock is highly likely to be above the PRI.

The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are taken into account and do not affect the status of albacore tuna in the Indian Ocean

- SG 100 is met.

Other Species

A number of other species each account for less than 0.05% of the total catch of the FAD sets. This low level of catch is evidence that the UoA would not hinder the recovery and rebuilding of those stocks if it were needed. Additional evidence is provided by the current status of each species as presented in the 2016 IOTC stock status update (http://www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc).

Swordfish was evaluated in late 2016 by the IOTC and was determined to be not overfished, and not subject to overfishing. The total Indian Ocean catch of this species were slightly greater than the MSY level. This species is considered highly likely to be above PRI.

Kawakawa tuna was evaluated in late 2016 by the IOTC and was determined to be not overfished, and not subject to overfishing. The total Indian Ocean catch of this species was near the level needed to produce MSY (Bmsy). This species is considered highly likely to be above PRI.

Striped marlin was evaluated in late 2016 by the IOTC and was determined to be overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were near the MSY level. In 2014, the estimated Bmsy was 8,400 mt, and PRI is taken to be 1/2 Bmsy or 2,400 mt. The 2014 biomass was 5,500 mt, so while the stock is well below Bmsy it is likely above PRI.

Blue marlin was evaluated in late 2016 by the IOTC and was determined to be not overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were slightly above the MSY level, in 2015, but the stock remained above the Bmsy level. This species is considered highly likely to be above PRI

Black marlin was evaluated in late 2016 by the IOTC and was determined to be overfished, and to be subject to overfishing. The total Indian Ocean catch of this species was almost twice the MSY level. However, In 2014, the estimated Bmsy was 47,430 mt, and PRI is taken to be 1/2 Bmsy or 23,715 mt. The 2014 biomass was 38,418 mt, so while the stock is well below Bmsy it is likely to be above PRI.

Sailfish was evaluated in late 2016 by the IOTC and was determined to be not overfished, but to be subject to overfishing. The total Indian Ocean catch of this species in 2015 was slightly greater than the MSY level. This stock is highly likely to be above PRI

The stocks of minor retained species are likely or highly likely to be greater than PRI, while the catches of the UoA are negligible and would not hinder recovery if it were needed.

- SG 100 is met.

FSC set type

Albacore Tuna

The total annual catch of albacore tuna in the Indian Ocean is about 40,000 t.

The estimated annual catch of FSC sets is about 5.7 t or 0.1% by weight of the catch.

This stock is managed by the IOTC. The 2013 assessment indicated that the stock was not overfished, but was subject to overfishing. The 2016 IOTC updated stock assessment summary (http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Albacore%20Executive%20Summary.pdf) states that SB2014/SBMSY = 1.80 (1.38–2.23) at the 80% CI. The SBlim is defined as 0.4SBmsy. The estimated SB2014 80% CI is in excess of SBlim.

		The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of albacore tuna in the Indian Ocean • SG 100 is met. **Other Species** A number of other species each account for less than 0.05% of the total catch of the FAD sets. This low level of catch is evidence that the UoA would not hinder the recovery and rebuilding of those stocks if it were needed Additional evidence is provided by the current status of each species as presented in the 2016 IOTC stock status update (http://www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc). **Swordfish** was evaluated in late 2016 by the IOTC and was determined to be not overfished, and not subject to overfishing. The total Indian Ocean catch of this species were slightly greater than the MSY level. This species is considered highly likely to be above PRI. **Kawakawa tuna** was evaluated in late 2016 by the IOTC and was determined to be not overfished, and not subject to overfishing. The total Indian Ocean catch of this species was near the level needed to produce MSY (Bmsy). This species is considered highly likely to be above PRI. **Striped marlin** was evaluated in late 2016 by the IOTC and was determined to be overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were near the MSY level. In 2014, the estimated Bmsy was 8,400 mt, and PRI is taken to be 1/2 Bmsy or 2,400 mt. The 2014 biomass was 5,500 mt, so while the stock is well below Bmsy it is likely above PRI. **Blue marlin** was evaluated in late 2016 by the IOTC and was determined to be not overfished, and to be subject to overfishing. The total Indian Ocean catch of this species were slightly above the MSY level, in 2015, but the stock remained above the Bmsy level. This species is considered highly likely to be above PRI **Black marlin** was evaluated in late 2016 by the IOTC and was determined to be overfished, and to be subject to overfishing. The total Indian Ocean catch of this species was almost twice the MSY level. However, In 2014, the estimated Bmsy was 47,430 mt, and PRI is taken to be 1/2 Bmsy or 23,715 mt. The 2014 biomass was 38,418 mt, so while the stock is well below Bmsy it is likely to be above PRI. **Sailfish** was evaluated in late 2016 by the IOTC and was determined to be not overfished, but to be subject to overfishing. The total Indian Ocean catch of this species in 2015 was slightly greater than the MSY level. This stock is highly likely to be above PRI The stocks of minor retained species are likely or highly likely to be greater than PRI, while the catches of the UoA are negligible and would not hinder recovery if it were needed. • SG 100 is met.
References		IOTC (2016a) Report of the 18th Session of the IOTC Working Party on Tropical Tunas IOTC-2016-WPTT18-R IOTC (2016b) Report of the 19th Session of the IOTC Scientific Committee IOTC-2016-SC19-R IOTC 2016 assessment reports http://www.iotc.org/science/status-summary-species-tuna-and-tuna-species-under-iotc-mandate-well-other-species-impacted-iotc

FAD	**90**
FSC	**90**
Final Score	**90**

Table 26: PI 2.1.2 – Primary species management strategy

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to above the point where recruitment would be impaired.	There is a partial strategy in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the point where recruitment would be impaired.	There is a strategy in place for the UoA for managing main and minor primary species.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**<u>FAD set type</u>** **Yellowfin** The recovery plan for yellowfin (IOTC Resolution 16/01) has the objective of rebuilding the stock to B>Bmsy with 50% probability by 2024. The plan defined limits on FADs per purse seine and the number of supply vessels. The UoA already operates within the defined limits. However, there is concern about the fleet wide implementation of Res 16/01. Additionally, UoA catch of yellowfin tuna are about 6% of the total yellowfin catches in the Indian ocean. If combined with the Maldives Pole and Line Fishery, which had a 2015 catch of 36,299 t, then the total MSC UoA catch is about 13%. According to the FCR, v.2, GSA 3.4.6, if MSC UoA catches are less than 30% of the overall catches of this stock, then the UoA may not normally be considered to be hindering recovery of a species. This provides evidence that measures and a partial strategy are in place to maintain the yellowfin stock above PRI. • SG60 is met. • SG80 is met. An explicit strategy for managing primary main or minor species is not in place for the UoA. • SG100 is not met **Bigeye** Bigeye tuna, also a main primary species, was assessed in 2016 by the IOTC and is estimated to be highly likely to be above the point where recruitment would be impaired (as described in the rationale for PI 2.1.1), and also above Bmsy. MSC UoA catches of bigeye represent about 3% of total bigeye catches in the Indian Ocean in the last few years. According to the FCR, v.2, GSA 3.4.6, if MSC UoA catches are less than 30% of the overall catches of this stock, then the UoA may not normally be considered to be hindering recovery of a species. IOTC has in place both measures and a partial strategy to maintain this species above PRI. These include a series of resolutions:		

- Resolution 15/01 on the recording of catch and effort by fishing vessels in the IOTC area of competence
- Resolution 15/02 mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPC's)
- Resolution 15/06 On a ban on discards of bigeye tuna, skipjack tuna, yellowfin tuna and a recommendation for non-targeted species caught by purse seine vessels in the IOTC area of competence
- Resolution 15/10 On target and limit reference points and a decision framework
- Resolution 15/11 on the implementation of a limitation of fishing capacity of Contracting Parties and Cooperating Non-Contracting Parties
- Resolution 14/02 for the conservation and management of tropical tunas stocks in the IOTC area of competence.
- Resolution 14/05 concerning a record of licensed foreign vessels fishing for IOTC species in the IOTC area of competence and access agreement information
- Resolution 10/08 concerning a record of active vessels fishing for tunas and swordfish in the IOTC area ((http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Bigeye%20tuna%20Supporting%20Information.pdf)

Therefore, there are measures and a partial strategy to maintain the bigeye tuna stock above PRI, if it was needed.

This provides evidence that measures and a partial strategy are in place to maintain the bigeye stock above PRI.

- SG60 is met.
- SG80 is met.

An explicit strategy for managing primary main or minor species is not in place for the UoA.

- SG100 is not met

Other Primary Species

There is not a strategy in place to manage all minor primary species.

- SG100 is not met

FSC set type

Yellowfin

The recovery plan for yellowfin (IOTC Resolution 16/01) has the objective of rebuilding the stock to B>Bmsy with 50% probability by 2024. The Plan defined limits on FADs per purse seine and the number of supply vessels. The UoA already operates within the defined limits. However, there is concern about the fleet wide implementation of Res 16/01. Additionally, UoA catches of yellowfin tuna are about 6% of the total yellowfin catches in the Indian ocean. If combined with the Maldives Pole and Line Fishery, which had a 2015 catch of 36,299 t, then the total MSC UoA catch is about 13%. According to the FCR, v.2, GSA 3.4.6, if MSC UoA catches are less than 30% of the overall catches of this stock, then the UoA may not normally be considered to be hindering recovery of a species.

This provides evidence that measures and a partial strategy are in place to maintain the yellowfin stock above PRI.

- SG60 is met.
- SG80 is met.

An explicit strategy for managing primary main or minor species is not in place for the UoA.

- SG100 is not met

		Bigeye Bigeye tuna, also a main primary species, was assessed in 2016 by the IOTC and is estimated to be highly likely to be above the point where recruitment would be impaired (as described in the rationale for PI 2.1.1), and also above Bmsy. MSC UoA catches of bigeye represent about 3% of total bigeye catch in the Indian Ocean. According to the FCR, v.2, GSA 3.4.6, if MSC UoA catches are less than 30% of the overall catches of this stock, then the UoA may not normally be considered to be hindering recovery of a species. IOTC has in place both measures and a partial strategy to maintain this species above PRI. These include a series of resolutions: • Resolution 15/01 on the recording of catch and effort by fishing vessels in the IOTC area of competence • Resolution 15/02 mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPC's) • Resolution 15/06 On a ban on discards of bigeye tuna, skipjack tuna, yellowfin tuna and a recommendation for non-targeted species caught by purse seine vessels in the IOTC area of competence • Resolution 15/10 On target and limit reference points and a decision framework • Resolution 15/11 on the implementation of a limitation of fishing capacity of Contracting Parties and Cooperating Non-Contracting Parties • Resolution 14/02 for the conservation and management of tropical tunas stocks in the IOTC area of competence. • Resolution 14/05 concerning a record of licensed foreign vessels fishing for IOTC species in the IOTC area of competence and access agreement information • Resolution 10/08 concerning a record of active vessels fishing for tunas and swordfish in the IOTC area ((http://www.iotc.org/sites/default/files/documents/science/species_summaries/english/Bigeye%20tuna%20Supporting%20Information.pdf) This provides evidence that measures and a partial strategy are in place to maintain the bigeye stock above PRI. • SG60 is met. • SG80 is met. An explicit strategy for managing primary main or minor species is not in place for the UoA. • SG100 is not met **Other Primary Species** As FAD. • SG60 is met. • SG80 is met. • SG100 is not met		
b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	FAD	Yes	Yes	No

	FSC	Yes	Yes	No
	Justification	**<u>FAD</u>** **Yellowfin** Yellowfin tuna is above PRI, but below Bmsy. There are both measures and a partial strategy in place for this species. Additionally, the UoA comprises 6% of the overall yellowfin catches, much less than 30%, and would therefore not normally be considered as influential in hindering recovery to the PRI were it necessary (GSA3.4.6). PI2.1.2a is scored at SG80 for yellowfin tunas. There is no expectation of increasing UoA catches of yellowfin; however, with the adoption of Res 16-01 and anticipated reduction in overall yellowfin catches, the UoA percentage of the total could increase. Given the size of the UoA and increasing focus on FAD fishing for skipjack it is considered unlikely the UoA share could approach the 30% threshold used to for scoring at PI 2.1.2 si(a). There is some concern that the implementation of Res 16/01 has yet to unfold and, in particular, that measures for Seychelles fisheries have not yet been implemented. Nevertheless, given the UoA already meets Re 16-01 limits, it is reasonable to expect the UoA "measures/partial strategy" to continue to work. There has been no testing of the partial strategy/strategy. The measures and arrangements are implicit for the UoA and wider measures under Res 16/01 that might impact the UoA and the context in which it operates have only recently been adopted. • SG60 is met. • SG80 is met. The partial strategy has not been tested. • SG100 is not met. **Bigeye** The bigeye tuna stock in the Indian Ocean is within biologically based limits, and there are no need for measures or a partial strategy. However there are measures/a partial strategy in place as described in SIa. Further, the catch of bigeye by the UoA is 3% of the total catch of bigeye, much less than 30% of the total catches for the stock (GSA3.4.6), so the UoA would not hinder the recovery to the PRI. SG60 is met. • SG80 is met. The partial strategy has not been tested. • SG100 is not met. **Other Primary Species** There is not a strategy in place to manage all minor primary species • SG100 is not met. **<u>FSC set type</u>** **Yellowfin** Yellowfin tuna is above PRI, but below Bmsy. There are both measures and a partial strategy in place for this species. Additionally, the UoA comprises 6% of the overall yellowfin or bigeye tuna catches, much less than 30%, and would therefore not normally be considered as influential in hindering recovery to the PRI were it necessary (GSA3.4.6). PI2.1.2a is scored at SG80 for yellowfin tunas. There is no expectation of increasing UoA catches of yellowfin and bigeye; however, with the adoption of Res 16-01 and anticipated reduction in overall yellowfin catches, the UoA percentage of the total could increase. Given the size of the UoA and increasing focus on FAD fishing for skipjack it is considered unlikely the UoA share could approach the 30% threshold used to for scoring at PI 2.1.2 si(a).		

		There is some concern that the implementation of Res 16/01 has yet to unfold and, in particular, that measures for Seychelles fisheries have not yet been fully implemented. Nevertheless, given the UoA already meets Re 16-01 limits, it is reasonable to expect the UoA "measures/partial strategy" to continue to work. There has been no testing of the partial strategy/strategy. The measures and arrangements are implicit for the UoA and wider measures under Res 16/01 that might impact the UoA and the context in which it operates have only recently been adopted. • SG60 is met. • SG80 is met. The partial strategy has not been tested. • SG100 is not met. **Bigeye** The bigeye tuna stock in the Indian Ocean is within biologically based limits, and there is no need for measures or a partial strategy. However, there are measures/a partial strategy in place as described in SIa. Further, the catch of bigeye by the UoA is 3% of the total catch of bigeye, much less than 30% of the total catches for the stock (GSA3.4.6), so the UoA would not hinder the recovery to the PRI. • SG60 is met. • SG80 is met. • SG100 is not met **Other Primary Species** There is not a strategy in place to manage all minor primary species. • SG60 is met. • SG80 is met. • SG100 is not met		
c	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).
	FAD met?		Yes	No
	FSC Met?		Yes	No
	Justification	**<u>FAD set type</u>** **Yellowfin** Measures and a partial strategy are in place to maintain the yellowfin stock above PRI. Additionally, the UoA takes 6% of yellowfin tuna (much less than 30%). Therefore, there is some evidence that the measures and partial strategy are being implemented successfully. This is supported also by the general declining trend in UoA catches of both yellowfin and bigeye tuna (see Tables 4-7). However, the annual catch data by species are of short duration and the evidence is not clear, nor is there yet a full strategy in place (SI a).		

		• SG80 is met. A strategy in not in place. • SG100 is not met. **Bigeye** The bigeye tuna stock in the Indian Ocean is within biologically based limits, and there are a suite of measures and a partial strategy in place to maintain the bigeye stock above PRI. Further, the catch of bigeye by the UoA is 3% of the total catch of bigeye, much less 30% of the total catches for the stock. However, the annual catch data by species are of short duration and the evidence is not clear, nor is there yet a full strategy in place (SI a). • SG80 is met. A strategy in not in place. • SG100 is not met. **Other Primary Species** There is not a strategy in place to manage minor primary species. SG100 is not met **<u>FSC set type</u>** **Yellowfin** Measures and a partial strategy are in place to maintain the yellowfin stock above PRI. Additionally, the UoA takes 6% of yellowfin tuna (much less than 30%). Therefore there is some evidence that the measures and partial strategy are being implemented successfully. This is supported also by the general declining trend in UoA catches of both yellowfin and bigeye tuna (see Tables 4-7). However, the annual catch data by species are of short duration and the evidence is not clear, nor is there yet a full strategy in place (SI a). • SG80 is met. • SG100 is not met **Bigeye** The bigeye tuna stock in the Indian Ocean is within biologically based limits, and there is a suite of measure and a partial strategy in place to maintain the bigeye stock above PRI. Further, the catch of bigeye by the UoA is 3% of the total catch of bigeye, much less 30% of the total catches for the stock. However, the annual catch data by species are of short duration and the evidence is not clear, nor is there yet a full strategy in place (SI a). • SG80 is met. • SG100 is not met **Other Primary Species** There is not a strategy in place to manage minor primary species. • SG80 is met. • SG100 is not met		
d	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	FAD	Not applicable	Not Applicable	Not Applicable

	FSC	Not Applicable	Not Applicable	Not Applicable
	Justification	**FAD & FSC set types** MSC CR GSA3.5.1 requires SId to be scored where the primary species is a shark. There are no primary shark species in the UoA.		
e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**FAD set type** **All Main & Minor Primary Species** There is no unwanted catch (as defined as SA 3.1.6) of main primary species. The catches of the two main primary species are landed and sold. • SG60 is met. • SG80 is met. Echebastar policy on bycatch reduction encompasses reporting and sustainability (pers. comm. Jose Luis Jauregui, Echebastar Fisheries). This includes: (i) research on the escape of unwanted species from purse seines through technical measures; and (ii) full support for observers who report and account for any catch that is slipped or thrown away, if that were to occur. Echebastar vessels exclusively use non-entangling FADs, consistent with IOTC Resolutions 15/08 and 15/09, so as to minimize unobserved mortality. Echebastar vessel captains attend annual workshops, held by AZTI and ISSF, that present best practices for reducing bycatch and improving the survival of released bycatch. On Echebastar vessels, all unwanted catch is either released before being brailed aboard, or it is released immediately after being placed on board. In the case of the latter, the operation is either manual, or mechanised by use of a second conveyor (3 Echebastar vessels are equipped with one) that returns unwanted catch to the sea. Together, these points provide evidence that there is at least biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species and this has resulted in innovation in the UoA of appropriate measures. • SG100 is met. **FSC set type** **All Main & Minor Primary Species** There is no unwanted catch (as defined as SA 3.1.6) of main primary species. The catch of the two main primary species are landed and sold. • SG60 is met. • SG80 is met.		

		Echebastar policy on bycatch reduction encompasses reporting and sustainability (pers. comm. Jose Luis Jauregui, Echebastar Fisheries). This includes: (i) research on escape of unwanted species from purse seines through technical measures; and (ii) full support for observers who report and account for any catch that is slipped or thrown away, if this were to occur.. Echebastar vessels exclusively use non-entangling FADs, consistent with IOTC resolutions 15/08 and 15/09, so as to minimize unobserved mortality. Echebastar vessel captains attend annual workshops, held by AZTI and ISSF, that present best practices for reducing bycatch and improving the survival of released bycatch. On Echebastar vessels, all unwanted catch is either released before being brailed aboard, or it is released immediately after being placed on board. In the case of the latter, the operation is either manual, or mechanised by use of a second conveyor (3 Echebastar vessels are equipped with one) that returns unwanted catch to the sea. Together, these points provide evidence that there is at least biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species and this has resulted in innovation in the UoA of appropriate measures. • SG100 is met.
References		Anon, 2013. Study of possible mitigation measures in the tropical tuna purse seine fishery. Technical report, September 2013. AZTI Tecnalia. AZTI. 2016. Handbook of observation of good practices onboard ANABAC and OPAGAC tuna purse seiners. Council Regulation (EC) No 520/2007 of 7 May 2007 laying down technical measures for the conservation of certain stocks of highly migratory species and repealing Regulation (EC) No 973/2001 Fisheries (Shark Finning) Regulations 2006, Seychelles Fisheries Act 1987. http://www.iotc.org/documents/compendium-active-iotc-conservation-and-management-measures (Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission) IOTC Resolution 12/01 on the implementation of the precautionary framework IOTC Resolution 12/13 for the conservation and management of tropical tuna stocks in the IOTC area of competence IOTC Resolution 13/06 On a scientific and management framework on the conservation of shark species caught in association with IOTC managed Fisheries Report of the 18th Session of the IOTC Working Party on Tropical Tunas. IOTC-2016-WPTT18-R[E] IOTC Resolution 13/10 On interim target and limit reference points and a decision framework IOTC Resolution 16/01 On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC area of Competence

FAD	**85**
FSC	**85**
Final Score	**85**

Table 27: PI 2.1.3 – Primary species information

Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on main primary species with respect to status.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**<u>FAD set type</u>** The quantitative information used to estimate the impact of the UoA of the main primary species begins with the port sampling of discharged catch carried out by SFA officers as required by IOTC Resolution 10/11 (port state measures to prevent, deter and eliminate IUU fishing). At-sea observation of fishing operations is conducted under IOTC resolution 11/04 (a regional observer scheme). The objective of this scheme is to collect verified catch data. Resolution 10/02 on mandatory statistical requirements for IOTC members provides and outlines requirements for recording and submission of catch and effort data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence. IOTC Resolution 10/02 on mandatory statistical requirements for IOTC members provides and outlines requirements for recording and submission of catch and effort data, thus ensuring accurate and comprehensive data on catch and effort used in the assessment models. In recent years, Echebastar has taken the lead in the Indian Ocean purse seine fisheries by moving to 100% observer coverage of all sets (pers. comm., Jose Luis Jauregui, Echebastar Fisheries). VMS data for all Echebastar fishing vessels is available from AZTI. In assessing this SI, the team has considered: (i) the precision of the estimates from the various sources; (ii) the extent to which the data are verifiable; (iii) potential bias in estimates and data collection methods; (iv) comprehensiveness of data; and (v) continuity of data collection. **Yellowfin** As noted above, the yellowfin stock assessment is summarized in IOTC (2016a and 2016b). The assessment was last updated in 2016, following a new assessment in 2015. The 2016 update used new information (catches and CPUE) and is the best available means of estimating stock status. It is informed by multiple data sources, including from the UoA. The impact of the UoA yellowfin status depends on the proportion of UoA catch relative to total catch.		

		UoA removals of yellowfin in 2014 and 2015 have been of the order of 17,000 t per year against total removals approaching 400,000 t. There is a high degree of certainty that the relative impact of the UoA on the yellowfin stock status is minimal. • SG60 is met • SG80 is met. In accordance with IOTC Resolution 15/02, IOTC (2016) summarises the standing of a range of data and statistics received by the IOTC Secretariat. Overall, the Seychelles skipjack, yellowfin and bigeye catch statistics are regarded as high quality, quantitative data – being precise, verifiable, unbiased, continuous, and comprehensive (SA3.6.3.2) • SG100 is met **Bigeye** Bigeye catches by the UoA are relatively small, averaging 2500 t in 2014 and 2015 (8% of UoA total catch). Data are collected for bigeye as they are for skipjack and yellowfin and there is no reason to think there are any serious biases. The catch of bigeye tuna by the UoA is about 3% of the total catch of bigeye in the Indian Ocean. The quantitative information is more than adequate to assess with a high degree of certainty that impact of the UoA on bigeye stock status is minimal. • SG60 is met • SG80 is met. In accordance with IOTC Resolution 15/02, IOTC (2016) summarises the standing of a range of data and statistics received by the IOTC Secretariat. Overall, the Seychelles skipjack, yellowfin and bigeye catch statistics are regarded as high quality, quantitative data – being precise, verifiable, unbiased, continuous, and comprehensive (SA3.6.3.2). • SG100 is met **FSC set type** The quantitative information used to estimate the impact of the UoA of the main primary species begins with the port sampling of discharged catch carried out by SFA officers as required by IOTC Resolution 10/11 (port state measures to prevent, deter and eliminate IUU fishing). At-sea observation of fishing operations is conducted under IOTC resolution 11/04 (a regional observer scheme). The objective of this scheme is to collect verified catch data. Resolution 10/02 on mandatory statistical requirements for IOTC members provides and outlines requirements for recording and submission of catch and effort data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence. IOTC Resolution 10/02 on mandatory statistical requirements for IOTC members provides and outlines requirements for recording and submission of catch and effort data, thus ensuring accurate and comprehensive data on catch and effort used in the assessment models. In recent years, Echebastar has taken the lead in the Indian Ocean purse seine fisheries by moving to 100% observer coverage of all sets (pers. comm. Jose Luis Jauregui, Echebastar Fisheries). VMS data for all Echebastar fishing vessels is available from AZTI. In assessing this SI, the team has considered: (i) the precision of the estimates from the various sources; (ii) the extent to which the data are verifiable; (iii) potential bias in estimates and data collection methods; (iv) comprehensiveness of data; and (v) continuity of data collection. **Yellowfin** As noted above, the yellowfin stock assessment is summarized in IOTC (2016a and 2016b). The assessment was last updated in 2016, following a new assessment in 2015. The 2016 update used new information (catches and CPUE) and is the best available means of

		estimating stock status. It is informed by multiple data sources, including from the UoA. The impact of the UoA yellowfin status depends on the proportion of UoA catch relative to total catch. UoA removals of yellowfin in 2014 and 2015 have been of the order of 17,000 t per year against total removals approaching 400,000 t. There is a high degree of certainty that the relative impact of the UoA on the yellowfin stock status is minimal. • SG60 is met • SG80 is met. In accordance with IOTC Resolution 15/02, IOTC (2016) summarises the standing of a range of data and statistics received by the IOTC Secretariat. Overall, the Seychelles skipjack, yellowfin and bigeye catch statistics are regarded as high quality, quantitative data – being precise, verifiable, unbiased, continuous, and comprehensive (SA3.6.3.2) • SG100 is met **Bigeye** Bigeye catches by the UoA are relatively small, averaging 2500 t in 2014 and 2015 (8% of UoA total catch). Data are collected for bigeye as they are for skipjack and yellowfin and there is no reason to think there are any serious biases. The catch of bigeye tuna by the UoA is about 3% of the total catch of bigeye in the Indian Ocean. The quantitative information is more than adequate to assess with a high degree of certainty that impact of the UoA on bigeye stock status is minimal. • SG60 is met • SG80 is met. In accordance with IOTC Resolution 15/02, IOTC (2016) summarises the standing of a range of data and statistics received by the IOTC Secretariat. Overall, the Seychelles skipjack, yellowfin and bigeye catch statistics are regarded as high quality, quantitative data – being precise, verifiable, unbiased, continuous, and comprehensive (SA3.6.3.2). • SG100 is met		
b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	FAD			Yes
	FSC			Yes
	Justification	**<u>FAD set type</u>** The annual observer data available for the 2014-16 period exceeds 25% of all sets and are considered representative of the Echebastar fishery. The observer data have been expanded to provide estimates for the entire UoA fishery. The information used in this evaluation is considered adequate to support the evaluations. The tuna catches estimated in the expanded observer data have a good fit with the landed tuna catches both in relative proportions and in amount. There is only one minor primary species above the 0.05% of the total catch threshold, so as to not be considered a negligible catch. Catches of other species are considered negligible, and therefore are not considered.		

		Albacore Tuna (Thunnus alalunga): The estimated annual catch of albacore tuna is about 81 t, or about 0.3% of the total observed catch by Echebastar purse seiners. The 2013 IOTC albacore tuna stock assessment indicated that the stock was not overfished, but was subject to overfishing. The total annual catch of albacore tuna in the Indian Ocean is about 40,000 t, therefore the very low catches of the Echebastar tuna purse seine fishery (UoA) suggest it would have negligible impact on albacore status or rebuilding. The estimated total catch of albacore tuna based the observer data is so small that the information is considered adequate to estimate the impact of the UoA on minor primary species. Thus, there is thus some quantitative information available to estimate the impact of the UoA on minor species (albacore tuna) status. Other minor primary species with catches less than 0.05% of the total UoA catch have are not considered. • SG100 is met. **FSC set type** The tabulated aannual observer data available for 2014-16 exceeds 25% of all sets and are considered representative of the UoA fishery. The data have been expanded to provide estimates for the entire fishery. The information used in this evaluation is considered adequate to support the evaluations. The tuna catches estimated in the expanded observer data have a good fit with the landed tuna catches both in relative proportions and in amount. There is only one minor primary species with catch above the 0.05% of the total catch threshold. Catches of other species are considered negligible, and therefore are not considered. Albacore Albacore Tuna (Thunnus alalunga): In FAD sets, the estimated annual catch of albacore tuna is about 81 t, or about 0.3% of the total observed catch by Echebastar purse seiners. The 2013 IOTC albacore tuna stock assessment indicated that the stock was not overfished, but was subject to overfishing. The total annual catch of albacore tuna in the Indian Ocean is about 40,000 t, therefore the very low catches of the Echebastar tuna purse seine fishery (UoA) suggest it would have negligible impact on albacore status or rebuilding. The estimated total catch of albacore tuna from the observer data is so small that the information is considered adequate to estimate the impact of the UoA on minor primary species. Thus, there is thus some quantitative information available to estimate the impact of the UoA on minor species (albacore tuna) status. Other minor primary species with catches less than 0.05% of the total UoA catch have are not considered. • SG100 is met.		
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main primary species.	Information is adequate to support a partial strategy to manage main Primary species.	Information is adequate to support a strategy to manage all primary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No

	Justification	**FAD set type** The implementation and effectiveness of the measures/partial strategy depend on the veracity of UoA data collected on a timely basis. The catch recording system in place (see above) is adequate for this purpose. Information on the operation of the vessels, changes in regulations (and their adoption) and stock status provide the means to detect any changes in risk level to main species. • SG60 is met • SG80 is met. While available information may support a strategy, one has not been defined and it is uncertain if this would allow evaluation of its effectiveness with a high degree of certainty. • SG100 is not met. **FSC set type** The implementation and effectiveness of the measures/partial strategy depend on the veracity of UoA data collected on a timely basis. The catch recording system in place (see above) is adequate for this purpose. Information on the operation of the vessels, changes in regulations (and their adoption) and stock status provide the means to detect any changes in risk level to main species. • SG60 is met • SG80 is met. While available information may support a strategy, one has not been defined and it is uncertain if this would allow evaluation of its effectiveness with a high degree of certainty. • SG100 is not met.
References		Amande, M.J., Ariz, J., Chassot, E. et al. (2008) Bycatch and discards of the European purse seine tuna fishery in the Indian Ocean: Characteristics and estimation for the 2003-2007 period. Indian Ocean Tuna Commission document, IOTC-2008-WPEB-12, 23 pp. Anon, 2013. Study of possible mitigation measures in the tropical tuna purse seine fishery. Technical report, September 2013. AZTI Tecnalia. Chavance, P., Amande, J.M., Pianet, R., Chassot, E. and Damiano, A. 2011. Bycatch and Discards of the French Tuna Purse Seine Fishery during the 2003-2010 Period estimated from Observer data IOTC-2011-WPEB07-23 Rev_1 Delgado de Molina A., Ariz J., Sarralde R., Pallarés P. and J. C. Santana, 2005. Activity of the Spanish purse seine fleet in the Indian Ocean and by-catch data obtained from observer programmes conducted in 2003 and 2004. IOTC-2005-WPBy-13 Garcia, V.H., Hernandez, J.J.C. and Ortega, A.T.S 2013. Analysis of incidental catches in the tuna fishery developed by Pesqueras Echebastar on free schools or tuna associated with FADs in the Indian Ocean: quantification and prevention actions. Technical Report from the University of Las Palmas Gran Canaria to Echebastar group. http://ec.europa.eu/research/bioeconomy/pdf/ebfmtuna2012_boa_draft26092012.pdf (Mitigating impacts of fishing on pelagic ecosystems: towards ecosystem-based management of tuna fisheries Draft book of Abstracts 15-18 October 2012 Montpellier – France) IOTC Report of the Ninth Session of the Working Party on Ecosystems and Bycatch IOTC–2013–WPEB09–R[E] IOTC Resolution 11/04 on a regional observer scheme. IOTC Resolution 13/03 on the recording of catch and effort data by fishing vessels in the IOTV area of competence

	IOTC Resolution 10/11 on port state measures to prevent, deter and eliminate IUU fishing IOTC Resolution 13/06 On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries IOTC Resolution 10/02 Mandatory statistical requirements for IOTC members IOTC Resolution 12/03 On the recording of catch and effort by fishing vessels in the IOTC area of competence IOTC 2016. Review of the statistical data and fishery trends for tropical tunas IOTC–2016–WPTT18–07 Pianet R., 2006. Analysis of data obtained from observer programmes conducted in 2005 and 2006 in the Indian Ocean on board of French purse seiners. IOTC, WPBE Romanov E. V., 2002. By-catch in the tuna purse-seine fisheries of the western Indian Ocean. Fish. Bull.100(1): 90-105 Sarralde R., Delgado de Molina A., Ariz J. and J. C. Santana, 2006. Data obtained from purse-seine observers carry out by the Instituto Español de Oceanografía from the National Database Plan between 2003 and 2006. IOTC-2006-WPTT-07
FAD	**95**
FSC	**95**
Final Score	**95**

Table 28: PI 2.2.1 – Secondary species outcome

Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	Main Secondary species are likely to be within biologically based limits. OR If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are highly likely to be above biologically based limits OR If below biologically based limits, there is either evidence of recovery or a demonstrably effective partial strategy in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that also have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	There is a high degree of certainty that main secondary species are within biologically based limits.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**FAD set type** Available observer data show that no individual secondary species accounts for more than 0.5% of the total catch, and they are below the MSC defined threshold to be considered as main secondary species (5%, 2%). Nor are any "out of scope' species that are not classified as ETP species impacted by the fishery. Accordingly, there are no main secondary species in the UoA and no consideration of cumulative impacts is required. As there are no main species defined, all SG are met by default. • SG60 is met • SG80 is met • SG100 is met **FSC set type** Available observer data show that no individual secondary species accounts for more than 0.5% of the total catch, and they are below the MSC defined threshold to be considered as main secondary species (5%, 2%). Nor are any "out of scope' species that are not classified as ETP species impacted by the fishery. Accordingly, there are no main secondary species in the UoA and no consideration of cumulative impacts is required. As there are no main species defined, all SG are met by default. • SG60 is met • SG80 is met		

		• SG100 is met		
b	Minor secondary species stock status			
	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	FAD			No
	FSC			No
	Justification	A complete list of the 45 minor secondary species is provided in Introduction to the P2 scoring section of this report by set type. There are no main secondary species. RBF has not been used to score minor secondary species, meaning that the fishery cannot score more than 80 for PI 2.2.1. Following MSC interpretation: 'P2 species: assessing negligible interactions': http://msc-info.accreditation-services.com/questions/p2-species-assessing-negligible-interactions/, and 'Minor species and scoring element approach': http://msc-info.accreditation-services.com/questions/minor-species-and-scoring-element-approach-at-sg100/. This scoring rational is limited to a description of the minor secondary species taken in each set type, and concludes that the catches of these species would not hinder their recovery. The UoA is not scored at the SG100 level for either set type **<u>FAD set type</u>** The minor secondary species identified in the FAD set type fishery have a total share of less than 2% of the FAD set type total catch (based on available observer data). The following species have catches greater than 0.05% of the total catch: wahoo (0.18%), common dolphinfish (0.49%), and rainbow runner (0.32%). There are also some sharks species captured in FAD set type: bull, tiger, oceanic whitetip and requiem, but the catches of these species are considered negligible due to their very low proportion of the total catch, and relative to overall catches in the Indian Ocean. The average annual total catch in FAD set type is: (296 individuals for bull sharks, 1 for tiger shark, 101 for oceanic whitetip sharks and 20 for requiem sharks). . The low catches of these species in the EIO tuna purse seine fleet have negligible impacts on their stocks. While there is no evidence that all these species are highly likely to be above biologically based limits, the low catches provided by the expanded observer catch data are considered sufficient evidence to conclude that the UoA does not hinder their recovery or rebuilding. The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of these minor secondary in the Indian Ocean • SG100 is not met		

		FSC set type The minor secondary species identified in the fishery have a total share of about 0.5% of the FSC total catch (based on observer data). There are also some shark species captured in the FSC set type: bull and oceanic whitetip, but the catches of these species are considered negligible due to their very low proportion of the total catch, and relative to overall catches in the Indian Ocean. The estimated average annual catch in the FSC set type is 9 individuals for bull sharks, and 5 for oceanic whitetip shark. The low catches of these species in the EIO tuna purse seine fleet have negligible impacts on their stocks. While there is no evidence whether all these species are highly likely to be above biologically based limits, evidence based on the low catches provided by the expanded observer catch data are considered sufficient to conclude that the UoA does not hinder their recovery or rebuilding. The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of these minor secondary species in the Indian Ocean • SG100 is not met.
References		Catch data summaries provided by AZTI.
FAD		**80**
FSC		**80**
Final Score		**80**

Table 29: PI 2.2.2 – Secondary species management strategy

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a partial strategy in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a strategy in place for the UoA for managing main and minor secondary species.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**<u>FAD set type</u>** As there are no secondary main species, neither measures nor a partial strategy are necessary. and the SG 60 and SG 80 guideposts do not need to be scored (MSC FCR v.2 GSA 3.5.1), • SG60 is met • SG80 is met However, there is a wide range of secondary minor species for which the catch rate of the UoA is very low overall and extremely so for any one species. Measures implemented by the EU, Seychelles and Echebastar include: • **SFA**: scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries. • **Echebastar**: policy on bycatch reduction, reporting and sustainability which includes research on the escape of unwanted species from purse seines through technical measures, with monitoring through full cooperation with the SFA observer programme. • Research into bycatch in the purse seine fishery was carried out by Echebastar in collaboration with Grupo de Investigacion en Biodiversidad y Conservacion, Universidad de Las Palmas de Gran Canaria in 2013 (Garcia et al, 2013). The technical report was based on observer data for bycatch in 168 hauls (7 of which FSC).One objective of the study was to train crew in good practices to reduce the mortality of sharks and other animals captured incidentally by purse seiners (Poisson et al 2012). A further study in which the Echebastar group was a partner (Anon, 2013) investigated possible bycatch mitigation measures in the tropical tuna purse seine fishery. • Echebastar has written guidelines covering on-board procedures to minimise the unwanted catch and ensure that sharks, mantas and turtles are removed from the purse seine or brailer at the earliest opportunity. • **EU**: a comprehensive system of management measures covers vessel licensing and permits, catch reporting, landings restrictions, observer coverage, ban on shark finning, VMS and spatial limitations/temporal restrictions. • Council Regulation (EC) No 520/2007 lays down technical measures for the conservation of certain stocks of highly migratory species. Under Article 19 Member States shall do their utmost to encourage the release of live sharks		

		caught accidentally, in particular juveniles. Member States shall also encourage the reduction of discards of sharks. However, these measures do not represent a cohesive and strategic arrangement (MSC FCR ver. 2 Table SA8), as gear loss or other incidental impacts are not considered. • SG100 is not met **FSC set type** As there are no secondary main species, neither measures nor a partial strategy are necessary. and the SG 60 and SG 80 guideposts do not need to be scored (MSC FCR v.2 GSA 3.5.1), • SG60 is met • SG80 is met Measures implemented by the EU, Seychelles and Echebastar include: • **SFA**: scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries. • **Echebastar**: policy on bycatch reduction, reporting and sustainability which includes research on the escape of unwanted species from purse seines through technical measures, with monitoring through full cooperation with the SFA observer programme. • Research into bycatch in the purse seine fishery was carried out by Echebastar in collaboration with Grupo de Investigacion en Biodiversidad y Conservacion, Universidad de Las Palmas de Gran Canaria in 2013 (Garcia et al, 2013). The technical report was based on observer data for bycatch in 168 hauls (7 of which FSC). • One objective of the study was to train crew in good practices to reduce the mortality of sharks and other animals captured incidentally by purse seiners (Poisson et al 2012). • A further study in which the Echebastar group was a partner (Anon, 2013) investigated possible bycatch mitigation measures in the tropical tuna purse seine fishery. • Echebastar has written guidelines covering on-board procedures to minimise the unwanted catch and ensure that sharks, mantas and turtles are removed from the purse seine or brailer at the earliest opportunity. • **EU**: a comprehensive system of management measures covers vessel licensing and permits, catch reporting, landings restrictions, observer coverage, ban on shark finning, VMS and spatial limitations/temporal restrictions. Council Regulation (EC) No 520/2007 lays down technical measures for the conservation of certain stocks of highly migratory species. Under Article 19 Member States shall do their utmost to encourage the release of live sharks caught accidentally, in particular juveniles. Member States shall also encourage the reduction of discards of sharks. These measures do not represent a cohesive and strategic arrangement (MSC FCR ver. 2 Table SA8) and such issues as gear loss or other incidental impacts are not considered. • SG100 is not met		
b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.

	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**<u>FAD set type</u>** As there are no secondary main species, the fishery meets SG 60 and SG 80 (MSC FCR v.2 GSA 3.5.1). • SG60 is met • SG80 is met There are some measures and a partial strategy in place, that have resulted in lower bycatch levels. The measures include: the use of non-entangling FADs, reduced number of FADs and reduced effort. The historical non-tuna bycatch levels for the tuna purse seiners in the Indian Ocean were slightly less than 5%, and are now estimated to be around 3.5% of the total catches, probably related to the introduction of non-entangling FADs. The Echebastar bycatch rates for secondary, non-tuna species for the FAD set type are 2.5%. The measures include the use of non-entangling FADs, reduced number of FADs and reduced effort. Therefore these measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species), and further, there is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved. There has been no testing that supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved. • SG 100 is not met. **<u>FSC set type</u>** As there are no secondary main species the fishery meets SG 60 and SG 80 (MSC FCR v.2 GSA 3.5.1). • SG60 is met • SG80 is met The historical non-tuna bycatch levels for the tuna purse seiners in the Indian Ocean were slightly less than 5%, and are now estimated to be around 3.5% of the total catches, probably related to the introduction of non-entangling FADs. The Echebastar bycatch rates for secondary, non-tuna species for the FSC set type are 0.5%.. The measures are primarily related to reduced effort. Therefore, there is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved. There has been no testing that supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved. • SG100 is not met		
c	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	FAD		Yes	No
	FSC		Yes	No

	Justification	**FAD set type** As there are no secondary main species the fishery meets SG 60 and SG 80 (MSC FCR v.2 GSA 3.5.1). • SG60 is met • SG80 is met There are some measures and a partial strategy in place, described in 2.2.1a and 2.2.1b, that have resulted in lower bycatch levels. The evidence that these measures and partial strategy have been implemented successfully are that the historical non-tuna bycatch levels for the tuna purse seiners in the Indian Ocean were slightly less than 5%, and are now estimated to be around 3.5% of the total catches, probably related to the introduction of non-entangling FADs. The Echebastar bycatch rates for secondary, non-tuna species for the FAD set type are 2.5%.. Further evidence that measures are being implemented is that 14 skippers and crew members of Echebastar group attended an ISSF Bycatch reduction workshop in tuna purse seine FAD fisheries. While the workshop focused on reduction of bycatch in FAD fisheries, participation is seen as demonstration of commitment to reducing bycatch at fleet level. In addition, members of Echebastar group participated in the EU funded Sukarrieta GAP2 meeting held during 2012 to promote sustainability in Indian ocean tuna fisheries, as well as participating in a further bycatch mitigation workshop for purse seine skippers held in November 2012. A strategy has not been implemented. • SG 100 is not met. **FSC set type** As there are no secondary main species the fishery meets SG 60 and SG 80 (MSC FCR v.2 GSA 3.5.1). • SG60 is met • SG80 is met There are some measures and a partial strategy in place, described in 2.2.1a and 2.2.1b, that have resulted in lower bycatch levels. The evidence that these measures and partial strategy have been implemented successfully are that the historical non-tuna bycatch levels for the tuna purse seiners in the Indian Ocean were slightly less than 5%, and are now estimated to be around 3.5% of the total catches, probably related to the introduction of non-entangling FADs. The Echebastar bycatch rates for secondary, non-tuna species for the FSC set type are 0.5%.. Further evidence that measures are being implemented is that 14 skippers and crew members of Echebastar group attended an ISSF Bycatch reduction workshop in tuna purse seine FAD fisheries. While the workshop focused on reduction of bycatch in FAD fisheries, participation is seen as demonstration of commitment to reducing bycatch at fleet level. In addition, members of Echebastar group participated in the EU funded Sukarrieta GAP2 meeting held during 2012 to promote sustainability in Indian ocean tuna fisheries, as well as participating in a further bycatch mitigation workshop for purse seine skippers held in November 2012. A strategy has not been implemented. • SG 100 is not met.		
d	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.

	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**<u>FAD set type</u>** Several shark species in the catch are classified as secondary minor species in both the FAD and FSC set types. Shark finning is illegal on EU registered vessels. In the Seychelles, the Fisheries (Shark Finning) Regulations 2006 forbids the practice of finning by foreign vessels licensed to operate in Seychelles EEZ by requiring vessels to land fin to the quantity of no more than 5% of the mass of dressed shark carcass. The feasibility/effectiveness of the enforcement of this regulation has yet to be assessed. Echebastar company policy is explicit; "If possible, the larger sharks are released alive from the nets before they are brought on board" and shark finning is not permitted. Observer coverage of 100% introduced by Echebastar in 2014 would detect whether shark finning is occurring. In practical terms, there are limited opportunities for shark finning at sea. Usually, sharks are returned to the sea from the brailer before the catch enters the hopper. Once retained catches have entered chill tanks, no further access is possible until catch is discharged from the tanks on landing. On that basis, it is considered highly likely that shark finning is not taking place. • SG60 is met • SG80 is met The potential to fin sharks afforded by Seychelles regulations prevents the conclusion that there is a high degree of certainty that shark finning does not take place on non-EU flagged vessels. • SG100 is not met **<u>FSC set type</u>** Several shark species in the catch are classified as secondary minor species in both the FAD and FSC set types. Shark finning is illegal on EU registered vessels. In the Seychelles, the Fisheries (Shark Finning) Regulations 2006 forbids the practice of finning by foreign vessels licensed to operate in Seychelles EEZ by requiring vessels to land fin to the quantity of no more than 5% of the mass of dressed shark carcass. The feasibility/effectiveness of the enforcement of this regulation has yet to be assessed. Echebastar company policy is explicit; "If possible, the larger sharks are released alive from the nets before they are brought on board" and shark finning is not permitted. Observer coverage of 100% introduced by Echebastar in 2014 would detect whether shark finning is occurring. In practical terms, there are limited opportunities for shark finning at sea. Usually, sharks are returned to the sea from the brailer before the catch enters the hopper. Once retained catches have entered chill tanks, no further access is possible until catch is discharged from the tanks on landing. On that basis, it is considered highly likely that shark finning is not taking place. • SG60 is met • SG80 is met		

		The potential to fin sharks afforded by Seychelles regulations prevents the conclusion that there is a high degree of certainty that shark finning does not take place on non-EU flagged vessels. • SG100 is met		
e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**<u>FAD & FSC set types</u>** There are no main secondary species. • SG60 is met for both set types • SG80 is met for both set types Echebastar policy on bycatch reduction, encompasses reporting and sustainability aims includes research on facilitating the escape of unwanted species from purse seines; 100 % observer coverage (achieved from 2014 on) to identify discards and entanglement in FADs; and exclusive use of non-entangling FADs (IOTC resolutions 15/08 and 15/09) to minimize unobserved mortality. All Echebastar vessel captains attend annual workshops run by AZTI and ISSF on best practices for reducing bycatch and improving the survival of released bycatch (evidence includes attendance records). All unwanted catch is either released before being brailed aboard or is released immediately after being placed on the catch conveyor belt, either manually carried overboard, or placed on a second conveyor that is available on three Echebastar vessels. Other management measures in place relate to recording of catch and effort data by fishing vessels in the IOTC area (Resolution 13/03); Resolution 13/11 on a ban on discards of bigeye, skipjack and yellowfin tuna. Therefore, there is at least biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species and they are implemented as appropriate. The above provides evidence that the UoA meets the MSC FCR 2.0 SA 3.5.3. • SG 100 is met for both set types		
References		Anon, 2013. Study of possible mitigation measures in the tropical tuna purse seine fishery. Technical report, September 2013. AZTI Tecnalia. Amandè M. J., Ariz J., Chassot E., Delgado de Molina A., Gaertner D., Murua H., Pianet R., Ruiz J. and P. Chavance. 2010. Bycatch of the European purse seine tuna fishery in the Atlantic Ocean for the 2003–2007 period. Aquatic Living Resources 23 (4): 353-362. COUNCIL REGULATION (EU) No 40/2013 of 21 January 2013 fixing for 2013 the fishing opportunities available in EU waters and, to EU vessels, in certain non- EU waters for certain		

	fish stocks and groups of fish stocks which are subject to international negotiations or agreements/ Council Regulation (EC) No 520/2007 of 7 May 2007 laying down technical measures for the conservation of certain stocks of highly migratory species and repealing Regulation (EC) No 973/2001 Garcia, V.H., Hernandez, J.J.C. and Ortega, A.T.S 2013. Analysis of incidental catches in the tuna fishery developed by Pesqueras Echebastar on free schools or tuna associated with FADs in the Indian Ocean: quantification and prevention actions. Technical Report from the University of Las Palmas Gran Canaria to Echebastar group. IOTC http://www.iotc.org/documents/compendium-active-iotc-conservation-and-management-measures (Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission.) IOTC 12/01 on the implementation of the precautionary framework IOTC Resolution 12/12 on the implementation of a limitation on of fishing capacity IOTC Resolution 12/13 for the conservation and management of tropical tuna stocks in the IOTC area of competence IOTC Resolution 13/10 On interim target and limit reference points and a decision framework IOTC Resolution 13/11 on a ban on discards of bigeye, skipjack and yellowfin tuna and a recommendation for non-target species caught in the IOTC area by purse seine vessels IOTC Report of the 18th Session of the IOTC Working Party on Tropical Tunas IOTC-2016-WPTT18-R[E] IOTC-2008-WPEB-12. By-catch and discards of the European purse seine tuna fishery in the Indian ocean. Estimation and characteristics for the 2003-2007 period. ECOSYSTEM AND BY-CATCH WORKING GROUP. BANGKOK, THAILAND 20-22 OCTOBER 2008. Poisson F., Vernet A. L., Séret B., Dagorn, 2012. Good practices to reduce the mortality of sharks and rays caught incidentally by tropical tuna purse seiners. a PPT presentation for training purposes.
FAD	**85**
FSC	**85**
Final Score	**85**

Table 30: PI 2.2.3 – Secondary species information

Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and adequate to assess the impact of the UoA on main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and adequate to assess with a high degree of certainty the impact of the UoA on main secondary species with respect to status.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**FAD & FSC set types** The observer catch monitoring program is adequate to characterize the FAD and FSC catch composition. There are no main secondary species, that is species approaching 5% of the catch for either set type, and no single secondary species even makes up more than 1% of the catch. There is a high degree of certainty that there would not be any new data that would indicate that any single secondary species would reach more than 5% of the catch, and therefore there is quantitative evidence available and adequate to assess with a high degree of certainty the impact of the UoA on the main secondary species with respect to status, because it is highly unlikely that there will ever be main secondary species. • SG60 is met • SG80 is met • SG 100 is met.		
b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	FAD			No
	FSC			No
	Justification	**FAD and FSC set types** While there is 100 % coverage of all vessel sets, a large part of the resulting data has not been tabulated. However, the data that are available have been expanded to represent the entire fishery. This provides evidence that “some quantitative data” is available.		

		Some minor secondary species caught in the FAD sets (frigate tuna, wahoo, common dolphinfish, and rainbow runner) individually account for more than 0.05% of the total FAD catch. These species are highly fecund and there is no known concern for their stock status, but there stock status is unknown. Therefore there is not available quantitative information sufficient to estimate the impact of the UoA on the species with respect to status. • SG100 is not met.		
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main secondary species.	Information is adequate to support a partial strategy to manage main secondary species.	Information is adequate to support a strategy to manage all secondary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**FAD and FSC set types** As noted in the justification to PI 2.2.1 SI a, there are no secondary main species and therefore no measures or partial strategy are necessary (MSC FCR v.2 GSA 3.5.1). The fishery effectively retains all species encountered by the purse seine gear with the exception of large sharks, rays and sea turtles . Data from focused bycatch studies, EU data collection programmes and a recently implemented IOTC observer program provides a basis for supporting and evaluating the effectiveness of the partial strategy. However, the fact that the data is not fully available (only about 50% of the collected observer data is available at the time this report is being drafted) on the catches of non-target species means that information cannot be considered adequate to manage impacts or to evaluate with a high degree of certainty whether the strategy is achieving its objective. Instances of slippage, although likely to be rare, may not be recorded in the vessel logs, but are noted in the observer data if that occurs. Many species that are taken as bycatch are not assessed and while all of these are currently considered as retained catch, there remains associated uncertainty in respect of the impact of the fishery on incidentally captured species. • SG60 is met • SG80 is met A strategy that manages all secondary species has not been implemented. • SG100 is not met.		
References		Amande, M.J., Ariz, J., Chassot, E. et al. (2008) Bycatch and discards of the European purse seine tuna fishery in the Indian Ocean: Characteristics and estimation for the 2003-2007 period. Indian Ocean Tuna Commission document, IOTC-2008-WPEB-12, 23 pp. Chavance, P., Amande, J.M., Pianet, R., Chassot, E. and Damiano, A. 2011. Bycatch and Discards of the French Tuna Purse Seine Fishery during the 2003-2010 Period estimated from Observer data IOTC-2011-WPEB07-23 Rev_1 Garcia, V.H., Hernandez, J.J.C. and Ortega, A.T.S 2013. Analysis of incidental catches in the tuna fishery developed by the Pesqueras Echebastar on free schools or tuna associated with FADs in the Indian Ocean: quantification and prevention actions. Technical Report from the University of Las Palmas Gran Canaria to Echebastar group.		

	http://ec.europa.eu/research/bioeconomy/pdf/ebfmtuna2012_boa_draft26092012.pdf (Mitigating impacts of fishing on pelagic ecosystems: towards ecosystem-based management of tuna fisheries Draft book of Abstracts 15-18 October 2012 Montpellier - France) IOTC Report of the Ninth Session of the Working Party on Ecosystems and Bycatch IOTC–2013–WPEB09–R[E]	
FAD		**85**
FSC		**85**
Final Score		**85**

Table 31: PI 2.3.1 – ETP species outcome

Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/stock are known and likely to be within these limits.	Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population/stock are known and highly likely to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a high degree of certainty that the combined effects of the MSC UoAs are within these limits.
	FAD	Not Applicable	Not Applicable	Not Applicable
	FSC	Not Applicable	Not Applicable	Not Applicable
	Justification	National and international limits on ETP species are not set in the Indian Ocean		
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not hinder recovery of ETP species.	Direct effects of the UoA are highly likely to not hinder recovery of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	The designation of ETP species status in this assessment is based on CITES Appendix 1 species. The convention does not set specific limits on the take of listed species; however, it does require to the extent feasible and appropriate, the prevention, reduction or control of factors that are endangering, or are likely to further endanger, ETP species. In addition to CITES, Annex 1 of the MOU on the Conservation of migratory Sharks has been used to identify ETP shark species. This list identifies sharks that have an unfavorable status rating. The expanded catch data indicates that several species of sharks, rays and sea turtles are among the ETP species taken in the fishery No marine mammals or whale sharks were recorded in the observed sets 2014 - 2016. Tabulated annual observer data ranges from 29% to 53% of all sets. This compares to the 25% of observed sets that is considered sufficient to accurately estimate the shark bycatch with the required precision. The required proportion to allow estimates with the precision required is, however for those ETP species (e.g. sea turtles) with a low frequency of fishery interaction. **<u>FAD set type</u>** **Sea Turtles** The capture of sea turtles in purse seine tuna fisheries is overwhelmingly associated with FADs sets. The estimated annual average catch of individual sea turtles for the period 2014-2016 in FAD sets is: loggerhead turtles, 2; green turtles, 1.3; hawksbill turtles, 2; and olive ridley. 1.9 , and on average about 50% of these sea turtles are released alive. Observed catches of sea turtles in individual years are more or less that these averages, and there appears to be some disagreement between the IOTC compliance report data and these observed data as noted by WWF in their comments.		

		Clermont *et al* (2012) analysed interactions between the EU purse seine fleet and marine turtles in the Atlantic and Indian Oceans over a 15-year period. Over the study period, 597 turtles were caught in 9,398 FSC sets and 6,515 FAD sets (15,913 total sets) with 86% released alive. Amande *et al* (2008) report that EU observers recorded interactions with 4 turtle species – green turtle (IUCN endangered), loggerhead turtle (IUCN endangered), Olive ridley (IUCN vulnerable) and hawksbill (IUCN critically endangered) during onboard monitoring of Indian ocean tuna purse seine catches. Nel et al. (2013) reported that, annually, about 3,500 marine turtles are caught by longline vessels with about 250 marine turtles are observed in purse seine sets. The authors also estimated gillnet impacts on marine turtles; based on limited data they concluded that about 30,000 sea turtles are captured annually in those fisheries. Bourjea et al. (2014) investigated the catch of sea turtles by Spanish purse seine vessels in the Indian Ocean during the 1995-2011 period. The reported interaction rate for FAD sets was 0.047 per set. Given an average of 1,200 Echebastar FAD sets in 2015 - 2016, the expected annual interaction rate would be 56 sea turtles based on the Bourjea et al analysis. The actual Echebastar interaction rate is much lower, about 8 sea turtle captured annually in FAD set types, suggesting that they have successfully implemented measures to reduce sea turtle bycatch. The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of sea turtles in the Indian Ocean Echebastar FAD sets are not considered to be a risk to sea turtles due to the low observed catch. • SG60 is met • SG80 is met The lack of sufficient available observer data prevents the same conclusion being reached with a high degree of confidence. • SG100 is not met. **Sharks and rays** **Silky shark** While the IOTC has expressed concerned about the declining abundance of silky shark, it does not manage the species and has not carried out a stock assessment. Silky shark is not recognized as an ETP species by the IOTC and is not listed in CITES Appendix 1, it is listed as near-threatened under the IUCN Indian Ocean threat status. Also, it is listed in Appendix II of the Conservation of Migratory Species (CMS), and Annex 1 of the MOU of the Conservation of Migratory Sharks. MSC CR v.2 GSA 3.1.5.2 requires that any species listed in the CMS is ETP IOTC reports that the average annual catch of silky shark is about 3,200 t, and about 55,000 t total of all shark (unidentified species). Murua et al. (2013) reports that in 2000 - 2010, the average annual catch of silky sharks in the longline and gillnet fisheries of the Indian Ocean was about 20,000 t. The average annual catch of silky shark in the Echebastar FAD sets is estimated to be about 101 t, comprising 4,406 individuals, or less than 0.4% of the UoA total catch and less than 0.01% of the total estimated Indian Ocean catch of silky sharks by other fisheries. This is unlikely to hinder recovery of silky shark. • SG60 is met. About 50% of the animals are observed to be released alive and of these 20-40% are thought to survive (Poisson et al. 2011, Poisson et al. 2014, Hutchinson et al. 2015, and Eddy et al. 2016), i.e. there is a 10% -20% survival rate for the captured silky sharks.

		Accordingly, the impact of the Echebastar FAD sets (less than 0.01% of the total Indian Ocean catch (100t/20,000t) on this species is considered minimal and highly unlikely to hinder recovery of silky shark. The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of silky sharks in the Indian Ocean • SG80 is met. More available observer data would be needed to provide a high degree of confidence that the FAD sets don't have a significant detrimental direct effect. • SG100 is not met. **Shortfin mako shark** Shortfin mako shark is not recognized as an ETP species by the IOTC and is not listed in CITES Appendix 1, it is listed as near-threatened under the IUCN Indian Ocean threat status. Also, the species is listed in Appendix II of the Conservation of Migratory Species (CMS), and Annex 1 of the MOU of the Conservation of Migratory Sharks (the latter identifies shark species that have "unfavourable conservation status"). MSC CR v.2 GSA 3.1.5.2 requires that any species listed in the CMS must be considered as ETP. While the IOTC is concerned about the shortfin mako shark, and has noted that the species is in decline, it does not manage the species or require by the IOTC a stock assessment. IOTC reports that the average annual catch of shortfin mako shark is about 1,200 t, and 55,000 t of shark (unidentified species). Murua et al. (2013) reports that in 2000 - 2010, the average annual catch of shortfin mako sharks in the longline and gillnet fisheries in the Indian Ocean was about 990 t. The average annual catch on shortfin mako sharks in Echebastar FAD sets is 0.2 tons (comprising about 2 individuals) or about 0.0006% of the total UoA catch. This is unlikely to hinder recovery of the species. • SG60 is met. About 50% of the larger sharks captured are observed to be released alive. Accordingly, the impact of the EIO skipjack tuna purse seine fishery on this species is minimal (0.2 t compared to about 1,000 t total catch in the Indian Ocean). The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of shortfin mako sharks in the Indian Ocean This is highly unlikely to hinder recovery of shortfin mako shark. • SG80 is met. More tabulated observer data would be needed to provide a high degree of confidence that the FAD sets don't have a significant detrimental direct effect. • SG100 is not met. **Rays** The estimated annual average catch of individuals of other sharks in FAD sets is: giant manta rays 5.8; spinetail mobula rays 3.6, and other mobula rays 4.6. The Indian Ocean gillnet and longline fisheries are reported to take about 2,000 t of manta rays annually (Maura et al. 2013). The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of rays in the Indian Ocean Echebastar FAD sets are not considered to be a risk to rays due to the low observed catch.

- SG60 is met

The exclusive use of non-entangling FADs leads to the conclusion that the fishery is highly unlikely to hinder recovery of these ETP species.

- SG80 is met

More available observer data would be needed to provide a high degree of confidence that the FAD sets don't have a significant detrimental direct effect.

- SG100 is not met.

Marine mammals

Fin whales, and some dolphins) are vulnerable to purse seine fishing interactions. However, there were no recorded interactions between the Echebastar FAD set types and marine mammals, including whales and dolphins in the observer data..

Amande *et al* (2008) report that two species of cetaceans were recorded during purse seine fishing – fin whale and false killer whale. Fin whales were only recorded in FSC sets, but it is likely that these sets were associated with the presence of whales and were thus in practice "associated sets" or FAD sets.

Sufficient evidence has been available to the assessment to conclude that the Indian Ocean Echebastar fishery does not set nets on whales or dolphin schools, and it is considered highly likely that any interactions that do occur would not hinder recovery of Indian Ocean whale or dolphin populations.

The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of marine mammals in the Indian Ocean

- SG60 is met
- SG80 is met

More available observer data would be needed to provide a high degree of confidence that the FAD sets don't have a significant detrimental direct effect.

- SG100 is not met.

<u>FSC set type</u>

Sea Turtles

The capture of sea turtles in purse seine tuna fisheries is overwhelmingly associated with FADs sets. The estimated annual average catch of individual sea turtles for the period 2014-2016 in FSC sets was 0.

The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of sea turtles in the Indian Ocean.

Echebastar FSC sets are not considered to be a risk to sea turtles due to the extremely low observed catch.

- SG60 is met
- SG80 is met

The lack of sufficient available observer data prevents the same conclusion being reached with a high degree of confidence.

- SG100 is not met.

Sharks and Rays

Silky shark

		The average catch in a FSC fishery is estimated to be 2 t, 68 individuals and again about 50% would be released alive. The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of silky sharks in the Indian Ocean **Shortfin mako shark** There are no shortfin mako sharks taken in the FSC set type. The average annual catch of rays in the FSC set type is 1 individual. The cumulative impacts of catch of the FSC and FAD set types, and the catch in the Maldives pole and line fishery, are accounted for and do not affect the status of sharks and rays in the Indian Ocean • SG60 is met • SG80 is met The lack of sufficient available observer data prevents the same conclusion being reached with a high degree of confidence. • SG100 is not met. **Marine Mammals** There were no observed interactions between marine mammals and the FSC set type. • SG60 is met • SG80 is met The lack of sufficient available observer data prevents the same conclusion being reached with a high degree of confidence. • SG100 is not met		
c	Indirect effects			
	Guide post		Indirect effects have been considered and are thought to be highly likely to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	FAD		Yes	No
	FSC		Yes	No
	Justification	**<u>FAD and FSC set type</u>** The ETP species that interact with the EIO tuna purse seine fishery include two species of shark, several species of rays, and several species of sea turtles. Possible indirect effects of the EIO skipjack tuna purse seine fishery on ETP species include reduced availability of forage species due to the removal of the UoA species and destruction or disturbance of habitat due to the fishing operations. The manta and devil rays are primarily planktonic feeders, and it is highly unlikely that the Echebastar fishery would impact them. The two shark species may consume some small skipjack tuna, but since the skipjack tuna stock is above Bmsy, it is highly unlikely that the Echebastar fishery affects the availability of tuna to sharks. Some sea turtles are vegetarians, others eat jellyfish, and some eat bottom dwelling crustaceans, and it is highly unlikely that the fishery affects the availability of food for sea turtles.		

		Because this fishery does not impact low trophic level species, and does not destroy or disturb seabed habitats, the team believes that it is highly unlikely to create unacceptable impacts. There is some concern about the effects of FADs on the migratory patterns of tuna (this is a subject of ongoing research) as well as the effects of lost FADs on coral reefs. These concerns are addressed in Components 2.4 and 2.5. • SG80 is met It may be the case that other indirect effects have not been identified, in particular, there may be issues related to the effects of FADs on feeding behaviour and migration ETP species, especially some shark species that have demonstrated a high affinity for FADs, • SG100 is not met.
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	IOTC Report of the Ninth Session of the Working Party on Ecosystems and Bycatch IOTC–2013–WPEB09–R[E] IOTC Resolution 15/08 Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of interactions. IOTC-2015-WPDCS11-INF03. Murua, H., F. J. Abascal, J. Amande, J. Ariz, P. Bach, P. Chavance, R. Coelho, M. Korta, F. Poisson, M. N. Santos, and B. Seret. 2013. Provision of scientific advice for the purpose of the implementation of the EUPOA sharks. Final Report. European Commission, Studies for Carrying out the Common Fisheries Policy (MARE/2010/11 - LOT 2) Poisson F., Vernet A.L., Filmalter J.D., Goujon M., Dagorn L. 2011. Survival rate of silky sharks (Carcharhinus falciformis) caught incidentally onboard French tropical purse seiners. IOTC-20110WPEB07-28 Poisson, F., Filmalter, J.D., Vernet, A.L., Dagorn, L., 2014. Mortality rate of silky sharks (Carcharhinus falciformis) caught in the tropical tuna purse seine fishery in the Indian Ocean. Can. J. Fish. Aquat. Sci. 71, 1–4. OPAGAC-ANABAC. Buenas prácticas para una pesca de cerco responsable. Romanov E. V., 2002. By-catch in the tuna purse-seine fisheries of the western Indian Ocean. Fish. Bull.100(1): 90-105 Wild Animals (Whale Shark) Protection Regulations, 2003
FAD	**80**
FSC	**80**
Final Score	**80**

Table 32: PI 2.3.2 – ETP species management strategy

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are measures in place that minimise the UoA-related mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**FAD and FSC set types:** Both Spain and the Seychelles are signatories of the Convention on international trade in Endangered species of wild flora and fauna (CITES). The present assessment includes 2 EU registered vessels and 3 Seychellois registered vessels. CITES regulations apply to both nations. For all practical purposes Echebastar group apply EU legislation in respect of vessel operations where this is permissible and where no Seychellois legislation or other international convention takes precedent for Seychellois registered vessels. Outside of CITES, there are limited EU and Seychellois regulations with respect to ETP species impacted by the fishery. The designation of ETP species status in this assessment is based on the List of Appendix 1 species in the Conservation of Migratory Species of Wild Animals Convention document that are considered endangered. This convention does not set specific limits on the taking of these species, however it does state that to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species. In addition to this list, Annex 1 of the MOU on the Conservation of migratory Sharks has also been used to indentify ETP shark species, and this list only identifies shark that have an unfavourable status rating. A range of species may be impacted by the fishery, including turtles, sharks, rays and cetaceans. **Silky Sharks** Silky shark is the ETP species with the highest catch in the Echebastar purse seine fishery. The average annual catch by the FSC and FAD set types is about 103 t or 4,500 individuals. The IOTC has issued periodic status updates (2013 and 2016) for the species, but there is no assessment or determination of stock status. The IOTC has in place a series of conservation and management measures that address silky sharks, and these taken together comprise a strategy to manage this ETP species in the Indian Ocean. The Echebastar fleet is in compliance with these IOTC resolutions. • Resolution 13/03 *on the recording of catch and effort by fishing vessels in the IOTC area of competence* sets out the minimum logbook requirements for purse seine, longline, gillnet, pole and line, handline and trolling fishing vessels over 24 metres length overall and those under 24 metres if they fish outside the EEZs of their flag States within the IOTC area of competence. As per this Resolution, catch of all sharks must be recorded (retained and discarded).		

- Resolution 13/06 *on a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries* prohibits, as an interim pilot measure, the retention onboard, transshipment, landing or storing any part or whole carcass of oceanic whitetip sharks (*Carcharhinus longimanus*) (and requests for all other species) by all vessels on the IOTC record of authorized vessels or authorized to fish for tuna or tuna-like species, with the exception of observers who are permitted to collect biological samples (vertebrae, tissues, reproductive tracts, stomachs) from oceanic whitetip sharks that are dead at haul-back and artisanal fisheries for the purpose of local consumption, and will conduct a review and an evaluation of the interim measure in 2016.
- Resolution 11/04 *on a Regional Observer Scheme* requires data on shark interactions to be recorded by observers and reported to the IOTC within 150 days. The Regional Observer Scheme (ROS) started on 1st July 2010.
- Resolution 05/05 *Concerning the conservation of sharks caught in association with fisheries managed by IOTC* includes minimum reporting requirements for sharks, calls for full utilization of sharks and includes a ratio of fin-to-body weight for shark fins retained onboard a vessel.
- Resolution 10/02 *Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)* indicated that the provisions, applicable to tuna and tuna-like species, are applicable to shark species.

Turtles

Amande et al (2008) reports that EU observers recorded interactions with 4 turtle species – green turtle (IUCN endangered), loggerhead turtle (IUCN endangered), Olive ridley (IUCN vulnerable) and hawksbill (IUCN critically endangered) during onboard monitoring of Indian ocean tuna purse seine catches. Bourjea et al (2014) stated that purse-seine fishery has a very low impact on marine turtles. In addition, the IOTC Resolution 15/08 Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence requires the use of non-entangling FADs that reduce the interaction with turtles and leads to hardly any turtle mortality. There is also a "Good Practice Code" signed by OPAGAC and ANABAC where if incidental catches of turtles occur, they must be returned to the sea.

Of the range of international conservation agreements directly or potentially applying to sea turtles, only the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) makes specific provisions to protect sea turtles from international trade. CITES has effectively curbed international trade in sea turtles by prohibiting primarily commercial international trade in all species of sea turtles and their parts. As reported by Amande et al (2008) observations in relation to turtles were occasional and almost exclusively made on log-sets (95%). Captures of turtles are overwhelmingly associated with FADs and floating object related sets. Despite this level of encounter in FAD sets, 90% of turtles were recorded as being released alive. Over the period (2003-2007) less than 300 turtles are estimated to have been killed in EU tuna purse seine fisheries in the Indian Ocean. This is less than 60 individuals per year. As previously indicated, the overwhelming majority of this bycatch is associated with log or FAD sets.. Clermont et al (2012) analysed interactions between the EU purse seine fleet and marine turtles in the Atlantic and Indian Oceans over a 15-year period. Over the study period, 597 turtles were caught in 9,398 sets on free schools and 6,515 sets related to FADs (15,913 total sets). 86% of all turtles were released alive into the sea.

Cetaceans

Amande et al (2008) reports that two species of cetaceans were recorded during purse seine fishing – fin whale (IUCN endangered) and false killer whale (IUCN data deficient).

		Only fin whales were recorded during so-called free-school sets, but in reality these sets were more/most likely made because of the presence of a whale (hence they are considered associated sets – which are not included under any UoC). It is however likely that the latter were recorded during sets made on whales (so called associated sets). Fin Whales are listed on Appendix I of the Convention on Trade in Endangered Species (CITES). Fin whales are also listed on Appendices I and II of the Convention on Migratory Species (CMS). Romanov (2002) also reports on interaction of IO purse seine fisheries with cetaceans – however these relate to associated sets also. Sufficient evidence has been available to the assessment to conclude that the Echebastar fishery does not make sets that are associated with dolphin schools in the IO. Accordingly, it is considered highly unlikely that the fishery interacts significantly with or causes direct or indirect impacts on IO dolphin populations. Few specific data have been available to the assessment team in relation to encounters with whale sharks during purse seine fisheries. However whale sharks are most likely encountered during sets deliberately made on them. Whale sharks are listed on CITES Appendix II. In Seychelles waters, the Wild Animals (Whale Shark) Protection Regulations, 2003 declares the whale shark (Rhincodon typus) protected throughout Seychelles at all times. It is normal practice for these animals to be released from the gear prior to bringing catches aboard and there is no direct evidence to suggest that animals are directly harmed or killed in such encounters although clearly there is potential for such events to occur. Echebastar Fisheries has a policy of not setting on marine mammals or large sharks, however they have been included under the ETP component as fin whales, whalesharks and some dolphins meet with ETP qualifying criteria and these species are undoubtedly vulnerable to fishing interactions. **Other ETP Species** Other species that may be encountered during FAD and FSC sets exceptionally include giant manta. Giant manta are considered ETP species on account of the prohibition on their retention onboard EU vessels in all waters, as given in EU Regulation (EC) 40/2013. While it is possible that manta rays are captured and may suffer harm during their release from fishing gears, it is a sufficiently rare event so as to be considered negligible in its overall impact. The Echebastar vessels are highly likely to be compliant with EU regulations preventing the retention onboard of manta rays. In this context then the fishery is considered to meet with national and international requirements for the protection of giant manta rays. As for whale sharks, it is normal practice for these animals to be released from the gear prior to bringing catches aboard and there is no direct evidence to suggest that animals are directly harmed or killed in such encounters although clearly there is potential for such events to occur. The frequency with which this may happen is likely to be very low and possible population level impacts are therefore considered negligible. **Findings** Based on the ETP interaction data presented above and in the justification for PI 2.3.1 SIb, the overall impact of Echebastar purse seine tuna fishery on ETP species is considered to be very low. This is especially true when compared to the past performance of the IO purse seine fleet as described by Amande et al (2008) for the period 2003-2007, and to other fisheries in the Indian Ocean, also as described by Amande et al (2008). There is a strategy in place to ensure the fishery continues to improve its performance in relation to ETP interaction management.

		The strategy comprises a range of measures, some of which are designed specifically to manage impacts of the fishery on non-target bycatch species (releasing large specimens from nets by dropping the float line, releasing large sharks from the deck where they are taken aboard, training for staff in bycatch reduction and impact mitigation, bycatch reduction research). At the corporate level for Echebastar fisheries, there is a commitment to ensuring the sustainability of the fishery and this is evidenced by the number and nature of research undertakings Echebastar have commissioned or are involved in with respect to reduction of impacts on unintended bycatch species. Minimization of impacts on bycatch species is at the core of the adoption of a new design by Echebastar for a vessel that has been commissioned. The last three vessels that Echebastar has entered into service, IZARO, JAI ALAI and EUSKADI ALAI, are equipped with a double conveyor belt in the fishing deck that allows for the sorting of catch and the return to the sea of specimens that are unwanted once the fish has been put on the conveyor. This has not been possible before given the design of vessels that used to make up the fleet. This undertaking, combined with initiatives that the company are involved in to enhance escape and removal of unwanted species from gears, clearly demonstrates the Echebastar commitment to minimizing all bycatch, especially ETP species. Higher-level initiatives aimed at ensuring the fishery complies with national and international requirements for ETP species protection also exist. Within the IOTC a number of resolutions have been adopted that means flag nations are required to take initiatives with respect to their own fleets. Resolutions that are relevant in this regard include: • 13/04 on the conservation of cetaceans; • 13/05 on the conservation of whale sharks; • 12/04 on the conservation of marine turtles; • 12/09 on the conservation of thresher sharks; • 11/04 on a regional observer scheme. Resolutions contain a range of important measures that are designed to manage impacts and that are also intended to generate data in relation to interactions. The detail of the resolutions has been reviewed by the assessment team and it is considered that these represent important milestones in the overall Indian Ocean tuna fishery ETP management strategy development. IOTC resolutions compliment more general measures contained in EU and Seychellois primary and secondary fishery legislation and which also play a role in management of fisheries interactions. • SG60 is met • SG80 is met A comprehensive strategy in not in place for managing the UoA's impact on ETP species. • SG100 is not met		
b	Management strategy in place (alternative)			
	Guide post	There are measures in place that are expected to ensure the UoA does not hinder the recovery of ETP Species.	There is a strategy in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a comprehensive strategy in place for managing ETP species, to ensure the UoA does not

				hinder the recovery of ETP species
	FAD	Not Applicable	Not Applicable	Not Applicable
	FSC	Not Applicable	Not Applicable	Not Applicable
c	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**FAD and FSC set types** Available data indicate that a limited number of ETP species are affected by the Echebastar fishery and that the recorded rate of interactions is relatively low compared to historic data covering the purse seine fishery in general (Amande et al, 2008). Echebastar observer data indicate that about 50% of captured ETP species are released alive. The Echebastar fleet has in place policies that forbid shark finning, and require the use of best practices to release alive all captured ETP species. There are multiple lines of evidence that demonstrate the effectiveness of the measures/strategy taken to reduce the impact of the UoA on ETP species. The first is the reduced interaction of FAD sets with sea turtles in 2014 to 2016 compared with 1995-2011 (a reduction from 1 sea turtle captured per 25 sets to 1 sea turtle per 150 sets). This reduction is most likely due to the use of non-entangling FADs rather than a decline in the abundance of sea turtles in the Indian Ocean as there has been a 5 fold increase in loggerhead nesting sites in the southwest Indian Ocean in the last 50 years, and a two fold increase in loggerhead nesting sites in the northwest Indian Ocean in the last 25 years (Hamman et al 2013). Another is the fact there have been no recorded interaction with large whales or whale sharks by the Echebastar fleet. With regard to silky sharks, the Echebastar fleet has adopted the exclusive use of non-entangling FADs to reduce entanglement bycatch of sharks and sea turtles associated with FADs. The bycatch rate of the Echebastar fleet for sharks in general in the 2014-2016 period is about 3.6 t shark/1000 t of landed tuna. This rate remains consistent with the rate reported by Amande et al 2012 for the European purse seine fleet in the Indian Ocean for the 2003-2009 period of 3.9 t shark/1000 t of landed tuna, so there is no evidence that non-entangling FADs have impacted the overall shark bycatch rate, as yet. However, based on the observer data by set type for the Echebastar fleet for the 2014-2016 period (Tables 51-57), there is an increase in the mean weight of individual silky sharks captured by the purse seine, almost doubling from 10-15 kg per individual in 2014 (FAD-FSC respectively) to 20-55 kg per individual in 2016 (FAD-FSC, respectively), and this may indicate that the silky shark stock is improving.		

		The range of measures/strategy in place to limit impacts has reduced impacts, and covers all species commonly encountered. Echebastar has demonstrated commitment to reducing and mitigating adverse impacts on ETP species. • SG60 is met. • SG80 is met. A comprehensive strategy is not in place. • SG100 is not met		
d	Management strategy implementation			
	Guide post		There is some evidence that the measures/strategy is being implemented successfully.	There is clear evidence that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).
	FAD		Yes	No
	FSC		Yes	No
	Justification	**FAD and FSC set types** The recorded rate of interactions with ETP species for the UoA is low, and where there are interactions, 50% of the animals are released alive. Additionally, the evidence that best demonstrates the effectiveness of the recent measures to reduce the impacts on ETP species, is the reduced interaction rate that the FAD fishery has with sea turtles now (based 2014-2016 catch data), as compared to the interaction rates reported in the1995-2011 period (Bourjea et al. 2014). The sea turtle interaction rate in the 1995-2011 period was about 1 sea turtle captured per 25 sets, and the Echebastar observer data indicated a rate of 1 sea turtle per 150 sets. This reduction is most likely due to the introduction and use of non-entangling FADs. Further, a limited number of species are affected. Published data in relation to interactions with unwanted non-tuna bycatch including ETP species given by Amande et al (2008) also shows that the rate of interactions is very low. The results of research by Amande et al (2008), Bourjea et al (2014), Poisson et al. (2011), Poisson et al. (2014), and Eddy et al. (2016), that the consequence of instances of capture of unwanted species are frequently non-lethal and captured specimens of sharks, turtles, whales and /or manta rays survive the encounter. Based on the observer data presented previously for the Echebastar fleet in the 2014-2016 period, the Echebastar purse seine fleet has achieved substantially lower interaction rates with ETP species than indicated in the historical fleet wide data and reports. Therefore the assessment team concludes that the available observer data supports the understanding that the rates of interaction of the Echebastar purse seine gear fleet (UoA) do not result in unsustainable levels of impact or interaction with ETP species, and that the measures/strategy is being implemented successfully. • SG80 is met. Due to the lack of 100% available observer data, there is not clear evidence that the strategy is being implemented successfully. Note that while 25% observer data is adequate to characterize the catch of most species, it is most likely not adequate to characterize the catch of infrequently caught ETP species. • SG100 is not met.		
e	Review of alternative measures to minimize mortality of ETP species			

	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**FAD and FSC set types** Both Echebastar and IOTC conduct at least biennial review of measures and strategies to minimize bycatch, mortality and unobserved mortality of ETP species. This includes analysis of unobserved mortality associated with FADs such as ghost fishing and impacts from gear loss. Ghost fishing by a lost purse seine is highly unlikely as the gear is always retrieved. The IOTC has annual meetings where it scientific committees meet to review current bycatch issues, and consider measures to reduce bycatch in the purse seine fishery. The recent IOTC Resolution 15/08 Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of interactions, is an example to the measures that result from the annual reviews of alternative measures to minimize mortality of ETP species With regard to evidence of implementation of measures to minimize UoA related mortality on ETP species, since 2015 Echebastar exclusively uses non-entangling FADs to reduce this risk. The older FADs with hanging netting could catch sharks and sea turtles, including those that were lost (ghost fishing). Other annual actions by Echebastar related to minimizing the mortality of ETP species include: • Annual workshops for vessel Captains covering best practices in the fishery. These are conducted by AZTI with the participation of ISSF. • Support for research to understand and minimize entanglements of ETP species in FADs. This evidence demonstrates that the review process is on-going and at least biennial, and that measures are implemented as appropriate. • SG60 is met • SG80 is met • SG100 is met		
References		Amande, M.J., Ariz, J., Chassot, E. et al. 2008 Bycatch and discards of the European purse seine tuna fishery in the Indian Ocean: Characteristics and estimation for the 2003-2007 period. Indian Ocean Tuna Commission document, IOTC-2008-WPEB-12, 23 pp. Bourjea J., S. Clermont, A. Delgado, H. Murua, S. Ciccione, P. Chavance, J. Ruiz. 2014. Marine turtle interaction with purse-seine fishery in the Atlantic and Indian Oceans: lessons for management. Biological Conservation, 178, 74-87. http://dx.doi.org/10.1016/j.biocon.2014.06.020 Hamann M., Kamrowski, R. L., and Bodine, T. (2013). Assessment of the conservation status of the loggerhead turtle in the Indian Ocean and South-East Asia. IOSEA Marine Turtle MoU Secretariat, Bangkok. http://www.ioseaturtles.org/UserFiles/File/Loggerhead_Assessment_LQ-FINAL-Sept2013.pdfhttp://		

	http://ec.europa.eu/research/bioeconomy/pdf/ebfmtuna2012_boa_draft26092012.pdf (Mitigating impacts of fishing on pelagic ecosystems: towards ecosystem-based management of tuna fisheries Draft book of Abstracts 15-18 October 2012 Montpellier - France) IOTC Resolution 13/04 on the conservation of cetaceans IOTC Resolution 13/05 on the conservation of whale sharks IOTC Resolution 12/04 on the conservation of marine turtles IOTC Resolution 12/09 on the conservation of thresher sharks IOTC Resolution 11/04 on a regional observer scheme IOTC Resolution 13/06 On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries IOTC Resolution 15/08 Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of interactions. IOTC-2015-WPDCS11-INF03. IOTC Report of the 12th Working Party on Ecosystems and Bycatch. IOTC-2016-WPEB12-R[E] Poisson F., Vernet A.L., Filmalter J.D., Goujon M., Dagorn L. 2011. Survival rate of silky sharks (Carcharhinus falciformis) caught incidentally onboard French tropical purse seiners. IOTC-20110WPEB07-28 Poisson, F., Filmalter, J.D., Vernet, A.L., Dagorn, L., 2014. Mortality rate of silky sharks (Carcharhinus falciformis) caught in the tropical tuna purse seine fishery in the Indian Ocean. Can. J. Fish. Aquat. Sci. 71, 1–4.
FAD	**85**
FSC	**85**
Final Score	**85**

Table 33: PI 2.3.3 – ETP species information

Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is adequate to estimate the UoA related mortality on ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for ETP species.	Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status of ETP species.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**<u>FAD and FSC set types</u>** Echebastar Fisheries has provided 3 years of observer data (derived from 29 to 53 % of all sets from the EIO tuna purse seine fishery for both the FAD and FSC set types). The data has been summarized, and expanded to the full fishery for impact assessment. While 25% of all observed sets is considered sufficient to accurately estimate the shark bycatch with sufficient precision, an estimate of ETP species bycatch with a high degree of certainty would require a larger sample size as the frequency of these ETP interactions is considerably lower than shark interactions.. The catch summary based on the available data demonstrates that overall there is a low level of interaction with ETP species and where there are interactions that about 50% of the captured animals are released alive to the sea. The FAD fishery has a greater ETP interaction rate than the FSC fishery, but the lack of accuracy and precision in the estimate of ETP interactions is particularly important with both set types. The result of recent research on the survival of silky sharks suggests that about 20-40% of live releases survive, and that overall about 10-20% of those captured survive (Poisson et al. 2011, Poisson et al. 2014, Hutchinson et al. 2015, and Eddy et al. 2016). The results of recent research on sea turtles indicates that live releases have a high probability of survival (Bourjea, et al. 2014). The capture rate of manta and devil rays is very low, and at least 50% are released alive. There were no observed interactions between the EIO skipjack tuna fishery with either the FAD or FSC set types with whale sharks and cetaceans in the 2014-2016 period. Additionally, there is also published information available in relation to the rate of interaction with ETP species of EU purse seine fleets operating in the Indian Ocean for the period 1995 to 2010. These allow for a good understanding of the ETP species involved as well as a general understanding of levels of interaction and to a lesser extent the likely fate (outcome) for species from capture events. Examples of such data include a review of EU purse seine fleet observer data from 2003-2007 (Amande, 2008). Other sources of data include Echebastar group records of bycatch, results of investigations conducted by Echebastar group as well as a		

		wide range of published studies e.g. Romanov (2002), Pianet (2006), Sarralde et al (2006) and Delgado de Molina et al (2005). The reports of the Working Party on Ecosystems and Bycatch of the IOTC (WPEB) provide a useful annually updated source of information in relation to bycatch of all types of species and interactions with ETP species in Indian Ocean tuna fisheries. • SG60 is met • SG80 is met A larger observer data sample size providing greater precision in the estimated bycatch rates is needed to conclude that the information available provides a high degree of certainty about the magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status of ETP species. • SG100 is not met.		
b	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage the impacts on ETP species.	Information is adequate to measure trends and support a strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	FAD	Yes	No	No
	FSC	Yes	No	No
	Justification	**<u>FAD and FSC set types</u>** Considerable qualitative and quantitative information is available in relation to the nature of interactions between ETP species and the purse seine fleet, and particularly the Echebastar fleet. Data from the first three years of 100% observer coverage is presented in this report, however the observer data available for analysis of impacts is on average less than 50% of the data collected, and this limits confidence in the conclusions. Comprehensive information is available in relation to the fleet operations (spatial effort, temporal activity, overall effort) in order to support a full strategy to manage impacts on ETP species. Some information is available in relation to the status of affected ETP populations e.g. IUCN population status assessment, overall population trends, bio geographical range etc. • SG60 is met. More than three years of information is needed to measure trends and support a strategy to manage impacts on ETP species. and ensure that ETP bycatch levels remain at levels consistent with those for 2014-2016. The MSC FCR GSA3.4.2 recommends that the catch composition used to classify the MSC species designation be include the last five years of catch data. • SG80 is not met. • SG100 is not met.		
References		Amande, M.J., Ariz, J., Chassot, E. et al. 2008 Bycatch and discards of the European purse seine tuna fishery in the Indian Ocean: Characteristics and estimation for the 2003-2007 period. Indian Ocean Tuna Commission document, IOTC-2008-WPEB-12, 23 pp. Bourjea J., S. Clermont, A. Delgado, H. Murua, S. Ciccione, P. Chavance, J. Ruiz. 2014. Marine turtle interaction with purse-seine fishery in the Atlantic and Indian Oceans: lessons for management. Biológica Conservacion, 178, 74-87. http://dx.doi.org/10.1016/j.biocon.2014.06.020.		

	Delgado de Molina A., Ariz J., Sarralde R., Pallarés P. and J. C. Santana, 2005. Activity of the Spanish purse seine fleet in the Indian Ocean and by-catch data obtained from observer programmes conducted in 2003 and 2004. IOTC-2005-WPBy-13 Eddy, C., Brill, R., Bernal, D. 2016. Rates of at-vessel mortality and post-release survival of pelagic sharks captured with tuna purse seines around drifting fish aggregating devices (FADs) in the equatorial eastern Pacific Ocean. Fisheries Research 174 (2016) 109–117 http://ec.europa.eu/research/bioeconomy/pdf/ebfmtuna2012_boa_draft26092012.pdf (Mitigating impacts of fishing on pelagic ecosystems: towards ecosystem-based management of tuna fisheries Draft book of Abstracts 15-18 October 2012 Montpellier – France) IOTC Resolution 15/08 Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of interactions. IOTC-2015-WPDCS11-INF03. IOTC Report of the 12th Working Party on Ecosystems and Bycatch. IOTC-2016-WPEB12-R[E] Pianet R., 2006. Analysis of data obtained from observer programmes conducted in 2005 and 2006 in the Indian Ocean on board of French purse seiners. IOTC, WPBE Poisson F., Vernet A.L., Filmalter J.D., Goujon M., Dagorn L. 2011. Survival rate of silky sharks (Carcharhinus falciformis) caught incidentally onboard French tropical purse seiners. IOTC-20110WPEB07-28 Poisson, F., Filmalter, J.D., Vernet, A.L., Dagorn, L., 2014. Mortality rate of silky sharks (Carcharhinus falciformis) caught in the tropical tuna purse seine fishery in the Indian Ocean. Can. J. Fish. Aquat. Sci. 71, 1–4. Romanov E. V., 2002. By-catch in the tuna purse-seine fisheries of the western Indian Ocean. Fish. Bull.100(1): 90-105 Sarralde R., Delgado de Molina A., Ariz J. and J. C. Santana, 2006. Data obtained from purse-seine observers carry out by the Instituto Español de Oceanografía from the National Database Plan between 2003 and 2006. IOTC-2006-WPTT-07
FAD	**70**
FSC	**70**
Final Score	**70**
Condition number	**1**

Recommendation 2: A greater percentage of observer data should be available for review each year at the annual surveillance audits to better assess impacts on ETP species

Table 34: PI 2.4.1 – Habitats outcome

Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide Post	The UoA is unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	FAD	Yes	Yes	Yes
	FSC	Yes	Yes	Yes
	Justification	**FAD set type** The purse seine fishery (FAD & FSC): (i) takes place entirely in the epipelagic ecosystem; (ii) operates at less than 200 m depth; and (iii) is always deployed in waters considerably deeper (>200m water depth) than where the net is deployed. Accordingly, the purse seine does not make contact with the seabed or any biogenic reef. Vulnerable habitats are not impacted: (i) in the setting of the seine; (ii) during the fishing operation: (iii) in the movements of the vessels. The purse seine is exclusively set in deep water and pelagic waters are defined as the commonly encountered habitat. There is no contact with the benthos. In the FAD set type fishery, AZTI estimates that about 20% of the total number of active, authorized FADs that are released into the Indian Ocean are lost. and that 50% of those lost FADs eventually reach a shoreline or shallow water and ground, somewhere in the Indian Ocean. These estimates are confirmed by Maufroy, et al., (2015), as these authors estimate that 9.9% of FADs become beached. These beaching events generally occur due to the FAD drifting outside of the main fishing grounds and malfunction/or loss of the tracking buoy. An unknown portion of the lost FADs that beach, come ashore on coral reefs in the Indian Ocean. The UoA consists of 5 seiners, that utilize less than 400 active FADs per vessel, per season. The estimated number of FADs lost annually by the UoA is about 400 annually and the number that may reach a shoreline, including coral reef or grounding in shoal water is about 200 annually. SIa of PI 2.4.1 addresses commonly encountered habitats, and in terms of the habitat impact of the FADs impacting shallow rock, sand or mud bottom and coral reefs, this is not considered a commonly encountered habitat, as the fishing operation and gear itself does not impact the coral reef. Only a small portion of the FADs released are lost, and of those an unknown portion reach shallow near shore bottoms and coral reefs. The impacts of FADs on VME habitats specifically coral reefs are considered in SIb, and on other shallow benthic habitats in SIc. Therefore, because the purse seine gear used by the UoA only interacts with the epipelagic habitat, it is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. • SG60 is met. • SG80 is met. • SG100 is met **FSC set type** The purse seine fishery (FAD & FSC): (i) takes place entirely in the epipelagic ecosystem; (ii) operates at less than 200 m depth; and (iii) is always deployed in waters considerably deeper (>200 m) than where the net is deployed. Accordingly, the purse seine does not make contact with the seabed or any biogenic		

		reef. Vulnerable habitats are not impacted: (i) in the setting of the seine; (ii) during the fishing operation: (iii) in the movements of the vessels. The purse seine is exclusively set in deep water and pelagic waters are defined as the commonly encountered habitat. There is no contact with the benthos. • SG60 is met. • SG80 is met. • SG100 is met

b	VME habitat status			
	Guide post	The UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	FAD	Yes	No	No
	FSC	Not Applicable	Not Applicable	Not Applicable
	Justification	**FAD set type** As noted in the Scope of the Assessment in Relation to the MSC program, MSC has identified FADs as a habitat enhancement; the Echebastar fishery enhance fishing operations by aggregating fish to make capture more efficient. The impact on the ecosystem from aggregating fish is addressed in Component 2.5. The potential impact of derelict FADs on coral reefs is addressed here. Coral reefs are considered VME habitats due to their structure, slow recovery time, and their contribution to ecosystem services (MSC CR V2.0 GSA3.13.3.2). Note that MSC FCR 2.0 GSA 3.13.5 states "*where there is reasonable evidence that the habitat distribution extends beyond the "managed area", the assessment of habitat impacts should be based on this extended distribution*". As shown by the Malaysian airlines incident, it is extremely difficult to understand the impact of currents on the distribution of debris. To place the issue of potential damage to coral reefs in perspective, the assessment team considered: • The area of the Indian Ocean is 73.56 million km² (https://www.google.cl/search?q=area+of+indian+ocean+in+square+miles&oq=area+of+Indian+Ocean+&aqs=chrome.1.69i57j0l5.7898j0j7&sourceid=chrome&ie=UTF-8). • Using data from the World Atlas of Coral Reefs, (Spalding et al 2001), the area of coral reefs in the Indian Ocean is 32,000 km². • The combined length of the coasts of Mozambique, Tanzania, Kenya, Somalia, Madagascar, Seychelles and Maldives is about 13,700 km, which accounts for the western portion of the total Indian Ocean coastline. • FADs are small and their potential impact would be on a small area of coast and coral reef. It seems reasonable to assume that the area of coral reef impacted by a single non-entangling FAD (complete with beacon, floats and ropes) is less than a 100 m². This is less than the early design FADs with hanging netting were more likely to interact with and damage structural components of a coral reef • At the same time, it has been reported that "*more than 65 percent of coral reefs in the Indian Ocean region are at risk from local threats (i.e., coastal development, overfishing/destructive fishing, marine-based pollution, and/or watershed-based pollution), with one-third rated at high or very high risk. Closer examination reveals a sharp focus of threatened areas along continental shores where more than 90 percent of reefs are threatened*" http://www.wri.org/resources/maps/reefs-risk-indian-ocean (Figure 3).		

Annually, about 20% of the total number of FADs are lost and become derelict. It is estimated that about half ground on-shore or in shallow water and ground, of which an unknown proportion ground coral reefs in the Indian Ocean.

The UoA has a total of 2,000 active FADs (5 vessels each with 400 FADs). On the basis of the data above:

- Annually, the UoA may lose a total of 400 FADS. This would imply that on average each year there is a derelict Echebastar FAD for every 183,900 km^2 of the Indian Ocean.
- Of those, about 200 will ground, or an average of one grounded FAD for every 68 km of coast. However, a proportion of these become derelict on coral reefs. If 100 FADs ground on coral reef, on average this would represent one FAD for every 320 km^2 of coral reef annually, or 1 per 64 km^2 over a 5 year period.

Other points to be taken into account when considering the capacity of coral to recover from damage are:

- It has been demonstrated that coral may recover from bleaching (Connell,1997, Gilmore et al., 2013 Marshall and Schuttenberg. 2006, Zahir et al., 2016), and from physical damage caused by hurricanes (Shinn, 1976). The recovery time is slow, and depending on the scale of the damage, sometimes on the decadal time scale.
- Although there is currently not an active fishery for coral, under the Seychelles Fisheries Act (2014) , coral reefs are considered a renewable fishery resource that may be harvested.

MSC requires that the assessment team consider "serious and irreversible harm" as reductions in habitat structure and function below 80%.

If 1,000 lost FADs impact Indian Ocean coral reefs over a five year period, the estimated total area of impact would be 100,000 m^2 or 0.1 km^2 based on an estimated individual impact area of 100m^2 per FAD.. With a total area of coral reefs in the Indian Ocean of 32,000 km^2 the proportion of coral reefs impacted by FADs in a 5 year certification period is less than 0.001% of the total coral reef area. Accordingly, while FAD impact on coral reefs is important on a localized basis, overall it is not a significant issue in terms of coral reef ecosystem impacts in the Indian Ocean. Other large scale impacts on coral reefs such as bleaching, pollution, and overfishing are significantly more important.

While the above data are crude, they provide sufficient quantitative insight (following on GSA3.13.1.1) that: i) the distribution and extent of corals and ii) gear (FAD) loss and impact to conclude that the UoA is unlikely to reduce structure and function of coral reefs or have "*significant adverse impacts*" on the coral community as a whole.

Therefore, it is considered unlikely that the FAD set type will reduce the structure and function of VME habitats to a point where there would be serious or irreversible harm.

- SG60 is met.

While there is evidence that it is unlikely that derelict FADs reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm, due to the potential impact over a number of years and limited understanding of the nature of the issue, it cannot be concluded that this is highly unlikely. More evidence is required.

- SG80 is not met.
- SG100 is not met.

FSC set type

The FSC set type does not interact with VME habitats. SIb is not applicable.

c	Minor habitat status			
	Guide post			There is evidence that the UoA is highly unlikely to reduce structure and function of the

				minor habitats to a point where there would be serious or irreversible harm.
	FAD			No
	FSC			Yes
	Justification	**FAD set type** A proportion of the derelict FADs may come ashore on rocky, sandy or muddy shoreline, which are considered minor habitats, and it is not likely that a derelict FAD would cause serious or irreversible harm to these habitats. However, there is no evidence that the derelict FADs are highly unlikely to reduce the structure and function of this minor habitat to a point where there would be serious or irreversible harm. • SG100 is not met. **FSC set type** No minor habitats interact in the FSC set type operations • SG100 is met.		
References	Balderson, S.D. and L. Martin. 2016. Environmental impacts and causation of 'beached' Drifting Fish Aggregating Devices around Seychelles Islands: a preliminary report on data collected by Island Conservation Society, Seychelles. Connell, J.1997. *Disturbance and recovery of coral assemblages*. Coral Reefs 16, S101–S113. Gilmour, JP, Smith, LD, Heyward, AJ, Baird, AH and Pratchett, MS (2013). Recovery of an isolated coral reef system following severe disturbance. Science 340: 69-71. Marshall, P. and H. Schuttenberg. 2006. A Reef Manager's Guide to Coral Bleaching. Townsville, Australia, Great Barrier Reef Marine Park Authority.) Pisapia, C., D. Burn, R. Yoosuf A. Najeeb, K. D. Anderson & M. S. Pratchett, 2016. Coral recovery in the central Maldives archipelago since the last major mass-bleaching, in 1998 Scientific Reports 6, Article number: 34720 doi:10.1038/srep34720 IOTC WPEcosystem and Bycatch Meeting 2016 http://www.iotc.org/sites/default/files/documents/2016/09/IOTC-2016-WPEB12-RE_-_FINAL.pdf IOTC Resolution 15/08 Procedures on a FADs management plan, including a limitation on the number of FADs, more detailed specs of catch reporting from FAD sets, & the development of improved FAD designs to reduce incidence of entanglement of non-target species which implements the use of Non-Entangling FADs IOTC Resolution 16/01 on the YFT and limitations on FADs Seychelles, 2014. Fisheries Act (Act 20 of 2014), [27th October 2014] Supplement to Official Gazette Shinn. E. A. 1976. Coral reef recovery in Florida and the Persian Gulf. Environmental Geology, 1:241. doi: 10.1007/BF)2407510. Zahir, H., Quinn, N. & Cargillia, N. 2010. Assessment of Maldivian coral reefs in 2009 after natural disasters. Marine Research Centre, Male, Republic of Maldives.			

FAD	**70**
FSC	**100**
Final Score	**70**
Condition number	**2**

Table 35: PI 2.4.2 – Habitats management strategy

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	FAD	Yes	No	No
	FSC	Yes	Yes	No
	Justification	**<u>FAD set type</u>** **Commonly Encountered Habitats** The purse seine fishery for tuna as a whole does not have an impact on commonly encountered habitats. Neither measures or a partial strategy are necessary. The cumulative impacts of the FSC and FAD set types, and the Maldives pole and line fishery, are accounted for and do not affect the status of commonly encountered habitats in the Indian Ocean. • SG60 is met. • SG80 is met. A strategy is not in place. • SG100 is not met. **VMEs** The main variable that influences the potential of derelict FADs to reduce the global structure and function of coral reefs to a point where there would be serious or irreversible harm is their number. A number of IOTC regulations limit the number of FADs used by vessels. • Resolution 16/01 on an interim plan for rebuilding the Indian Ocean yellowfin tuna stock, that includes further limits of the number of active FADS (425) per vessel and limits on supply vessels of one per two licensed seiners; • Resolution 15/09 establishing a FAD working group with a mandate to consider reducing the ecological impacts of FADs through improved design, such as non-entangling FADs and biodegradable material; • Resolution 15/08 procedures on a FAD management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, & the development of improved FAD designs to reduce incidence of entanglement of non-target species, and at the same time will reduce the impacts of FADs on coral reefs. • Resolution 13/08 procedures on a FAD management plan, including more detailed specification of catch reporting from FAD sets, and the development of improved FADs designs to reduce the incidence of entanglement of non-target species. Also to be taken into account are: the potential for significant localized impacts; the number of lost FADs interacting with corals over the 5 years certification period; and the potential for negative impacts over an extended period. The existing related measure is to test the use of biodegradable materials in FAD construction. The combined effects of these measures will reduce the potential number of derelict FADs and together with better design should reduce the potential for damage. Also, important is the AZTI research project to recover lost FADs before they become derelict.		

The UoA is of a limited scale. It consists of 5 seiners that utilize up to than 400 active FADs per vessel. The estimated number of FADs lost annually by the UoA is about 400 of which 50% may reach a shoreline, including coral reef or grounding in shoal water.

These points together with the analysis of the low potential for spatial impact on coral reefs (above), provide evidence that the measures are expected to reduce the footprint of the fishery and lower risk. This supports the conclusion that the measures make it highly unlikely that the derelict FADs from the Echebastar vessels reduce the structure and function of coral reefs to a point where there would be serious or irreversible harm.

The cumulative impacts of the FSC and FAD set types, and the Maldives pole and line fishery, are accounted for and do not affect the status of VME habitats in the Indian Ocean.

- SG60 is met.

The partial strategy in place consists a number of elements or measures: the potential impact of the Echebastar fishery being indirect (lost FADs) rather than direct (i.e. vessel or gear impacts); the limited scale of the Echebastar fishery with a low number of FADs compared to the sea area covered and the area of coral reefs that could potentially be affected; the regulations to limit the number of FADs; the mandate to improve FAD design (including the use of biodegradable materials); and trials to reduce the number of lost FADs that become derelict on coral reefs.

However, pending the introduction of FADs constructed with biodegradable material, it cannot be concluded that biodegradable FADs will lead to the habitat outcome being achieved in specific locations.

- SG80 is not met.

A strategy is not in place.

- SG100 is not met.

Minor Habitats

As explained above, the FAD sets do not have an impact on minor habitats. Neither measures or a partial strategy are necessary.

The cumulative impacts of the FSC and FAD set types, and the Maldives pole and line fishery, are accounted for and do not affect the status of minor habitats in the Indian Ocean.

- SG60 is met.
- SG80 is met.

A strategy is not in place.

- SG100 is not met.

<u>FSC set type</u>

Commonly Encountered Habitats

As explained above, the purse seine fishery for tuna as a whole does not have an impact on commonly encountered habitats. Neither measures or a partial strategy are necessary.

The cumulative impacts of the FSC and FAD set types, and the Maldives pole and line fishery, are accounted for and do not affect the status of commonly encountered habitats in the Indian Ocean.

- SG60 is met.
- SG80 is met.

A strategy is not in place.

- SG100 is not met.

VMEs

		As explained above, the FSC sets do not have an impact on VMEs. Neither measures or a partial strategy are necessary. The cumulative impacts of the FSC and FAD set types, and the Maldives pole and line fishery, are accounted for and do not affect the status of VME habitats in the Indian Ocean. • SG60 is met. • SG80 is met. A strategy is not in place. • SG100 is not met. **Minor Habitats** As explained above, the FSC sets do not have an impact on minor habitats. Neither measures or a partial strategy are necessary. The cumulative impacts of the FSC and FAD set types, and the Maldives pole and line fishery, are accounted for and do not affect the status of minor habitats in the Indian Ocean. • SG60 is met. • SG80 is met. A strategy is not in place. • SG100 is not met.

b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some objective basis for confidence that the measures/partial strategy will work, based on information directly about the UoA and/or habitats involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or habitats involved.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**<u>FADs</u>** **Commonly Encountered Habitats** As explained above, the purse seine fishery for tuna as a whole does not have an impact on commonly encountered habitats. Neither measures or a partial strategy are necessary, • SG60 is met. • SG80 is met. A strategy is not in place. • SG100 is not met. **VMEs** Echebastar implemented a limit of one supply vessel to serve 5 their purse seiners as well as a cap of 400 FADs per vessel. This exceeds and pre-empted IOTC Resolution 16/01, the number of FADs permitted in the fishery has been reduced by more than 20% in general, and the number of supply vessels to service FADs has also been reduced. The measures in place to reduce the number of FADs used in the fishery should reduce the potential for derelict ones to negatively impact coral reefs. The Echebastar fleet has moved to 100% non-entangling FADs, so as to minimize impact with fish, sea turtles and on coral reefs.		

These measures are considered likely to work as the potential number of lost FADs will be reduced and reduce potential impact if they become derelict on corals.

- SG60 is met.

The IOTC FAD working group has supported several studies of the use of biodegradable material in FADs, and the results of these investigations were reported at the IOTC 2017 meeting.

Currently underway are efforts to develop methods to retrieve lost FADs before they encounter on coral reefs. Echebastar is following the project.

As noted above, a number of measures are in place that will address the FAD impact on coral reefs. The relatively limited area of coral reefs impacted by lost Echebastar FADs; the restricted number of Echebastar FADs (company policy); improved FAD design; and initiatives to prevent lost FADs reaching coral reefs provide an objective basis for confidence that the partial strategy will work.

- SG80 is met.

A strategy is not in place.

- SG100 is not met.

Minor Habitats

As explained above, the FAD sets do not have an impact on minor habitats. Neither measures or a partial strategy are necessary,

- SG60 is met.
- SG80 is met.

A strategy is not in place.

- SG100 is not met.

FSC

Commonly Encountered Habitats

As explained above, the purse seine fishery for tuna as a whole does not have an impact on commonly encountered habitats. Neither measures or a partial strategy are necessary,

- SG60 is met.
- SG80 is met.

A strategy is not in place.

- SG100 is not met.

VMEs

As explained above, the FSC sets do not have an impact on VMEs. Neither measures or a partial strategy are necessary,

- SG60 is met.
- SG80 is met.

A strategy is not in place.

- SG100 is not met.

Minor Habitats

As explained above, the FSC sets do not have an impact on minor habitats. Neither measures or a partial strategy are necessary,

- SG60 is met.
- SG80 is met.

		A strategy is not in place. • SG100 is not met.		
c	Management strategy implementation			
	Guide post		There is some quantitative evidence that the measures/partial strategy is being implemented successfully.	There is clear quantitative evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	FAD		Yes	No
	FSC		Yes	No
	Justification	**<u>FAD set type</u>** **Commonly Encountered Habitats** As explained above, the purse seine fishery for tuna as a whole does not have an impact on commonly encountered habitats. Neither measures or a partial strategy are necessary. • SG80 is met. A strategy is not in place. • SG100 is not met. **VMEs** Echebastar pre-empted and exceed the requirement to implement of the IOTC measures to reduce the number of FADs and supply vessels. Also, the company FAD sets exclusively use 100% non-entangling FADs, so as to minimize impact on fish, sharks, sea turtles and coral reefs. Research on biodegradable FADs is well advanced. The project to stop lost FADS becoming derelict on corals has had some positive results and Echebastar is monitoring the approach. This provides some quantitative evidence that the measures/partial strategy are being implemented successfully. • SG80 is met. A strategy is not in place. • SG100 is not met. **Minor Habitats** As explained above, the FAD sets do not have an impact on minor habitats. Neither measures or a partial strategy are necessary, • SG80 is met. A strategy is not in place. • SG100 is not met. **<u>FSC set type</u>** **Commonly Encountered Habitats** As explained above, the purse seine fishery for tuna as a whole does not have an impact on commonly encountered habitats. Neither measures or a partial strategy are necessary, • SG80 is met. A strategy is not in place. • SG100 is not met.		

		VMEs As explained above, the FSC sets do not have an impact on VMEs. Neither measures or a partial strategy are necessary, • SG80 is met. A strategy is not in place. • SG100 is not met. **Minor Habitats** As explained above, the FSC sets do not have an impact on minor habitats. Neither measures or a partial strategy are necessary, • SG80 is met. A strategy is not in place. • SG100 is not met.

d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guide post	There is qualitative evidence that the UoA complies with its management requirements to protect VMEs.	There is some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is clear quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	FAD	Yes	Yes	Yes
	FSC	Not Applicable	Not Applicable	Not Applicable
	Justification	**<u>FAD set type</u>** Coral reefs are the only VME identified in relation to the FAD fishery, and in reality there are no specific government or regulatory management requirements related to coral reef VMEs in the western Indian Ocean, or protection measures afforded to coral reef VMEs by other MSC UoAs/non-MSC fisheries in the western Indian Ocean. However, as noted previously,, there have been numerous measures implemented for other purposes that are resulting in reduced impacts of the FAD set type fishery on VME coral reefs. . There has been a significant reduction in the number of FADs in use in the Indian Ocean. During a recent meeting of the Indian Ocean Tuna Commission (IOTC), it was decided to reduce fishing allowances (quotas) of the yellowfin tuna by 15% beginning in 2017, it was also agreed that fishing gear and devices such as FADs will also be reduced from 550 to 425 per ship. According to Glenn Savy, the chief executive of the Island Development Company (IDC), this represents a significant improvement from 3,000 to 4,000 FADs being deployed by purse seiners before the reduction in their quota for such fishing devices. (http://www.seychellesnewsagency.com/articles/5802/FAD+Watch+Seychelles+to+intercept+fishing+devices+to+protect+reefs#sthash.MQDKfGQn.S7J7pjdL.dpuf.) Note: • The Echebastar fleet already uses less than the total allowable number of active FADs (375 vs. 425), and fishery wide the number of active FADs has been reduced by as much as 50%. • There has been a reduction in the number of supply vessels to 50% of the number of licensed seiners (2 purse seiners to 1 supply vessel). The Echebastar fleet has a single supply vessel for it 5 seiners.		

		• Echebastar is monitoring the ICS project on the rate of FADs going on the coral reef of St Francois atoll and the pilot FAD retrieval program (with OPAGAC support). Additionally: • Resolution 15/09 establishing a FAD working group with a mandate to consider reducing the ecological impacts of FADs through improved design, such as non-entangling FADs and biodegradable material. The Echebastar fleet has moved to 100% non-entangling FADs and is moving towards the use of biodegradable material. The above provides qualitative and some quantitative evidence that Echebastar complies with management requirements to protect coral reefs. • SG60 is met. • SG80 is met. The quantitative evidence on the use of non-tangling FADs and a reduced number of FADs and supply vessels below the IOTC requirement provides clear quantitative evidence that Echebastar complies with management requirements to protect coral reefs. • The SG 100 requirements are met. **FSC set type** For the FSC fishery, this issue is not scored as the UoA does not impact VME (Not Applicable)
References		Balderson, S.D. and L. Martin. 2016. Environmental impacts and causation of 'beached' Drifting Fish Aggregating Devices around Seychelles Islands: a preliminary report on data collected by Island Conservation Society, Seychelles. IOTC WP Ecosystem and Bycatch Meeting http://www.iotc.org/sites/default/files/documents/2016/09/IOTC-2016-WPEB12-RE_-_FINAL.pdf

FAD	**75**
FSC	**80**
Final Score	**75**
CONDITION	**3**

Table 36: PI 2.4.3 – Habitats information

Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide Post	The types and distribution of the main habitats are broadly understood. OR If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	Yes
	Justification	**<u>FAD set type</u>** The main habitat types are those that are commonly encountered by the fishing gear, and in this case the purse seine interacts with epi-pelagic waters. Coral reefs are considered VME habitats.. **Commonly Encountered Habitats** Fishing with FAD sets takes place in the epipelagic habitat, the distribution of which is known over the spatial range of the fishery from widely available sea charts and bathymetric maps of the Indian Ocean. There are no sensitive habitats in the pelagic ecosystem that could be damaged or impacted through the use of purse seine gears. • SG60 is met. • SG80 is met **VMEs** The wide-ranging nature of purse seine operations as they follow tuna migrations is known. The nature of coral reefs and their vulnerability is well researched. As described previously (PI2.4.1 SIa) the distribution of coral reefs in the Indian Ocean is broadly understood (Figure 3) with an estimated total area of 32,000 km^2 (based on data from the World Atlas of Coral Reefs - Spalding et al 2001). • SG60 is met. The evaluation of overall impacts of derelict FADs on coral reefs must be considered at the scale of the fishery and the scale of all coral reefs in the Indian Ocean. The interaction of an individual grounded FAD on a coral reef is localized, and would not exceed 100 m^2 of impact, if conservatively estimated. The annual number of FADs that each Echebastar vessel may lose and that ground somewhere in the Indian Ocean is about 200. It is estimated that about 50% of these will become derelict on coral reefs. Over a five year MSC certification, it is estimated that the Echebastar fleet would lose about 1,000 FADs. The worst case scenario is that all of these would ground on coral reefs in the Indian		

		ocean, potentially affecting 0.1 km^2 within a total area of coral reefs in the Indian Ocean, estimated at 32,000 km^2. The relatively low number of FADs lost by the UoA in the context of the fishery area and the relatively limited area of coral reefs impacted provides the basis for rational argument that knowledge on the nature, distribution and vulnerability of the main habitats is appropriate to the scale and intensity of the Echebastar FAD set fishing operations. • SG80 is met. **All habitats** The distribution of all habitats is not known over their range with particular attention to the occurrence of vulnerable habitats. • SG100 is not met **<u>FSC set type</u>** As commonly encountered habitats above. • SG60 is met. • SG80 is met. The distribution of all habitats impacted by the fishery is not known over their range with particular attention to the occurrence of vulnerable habitats. • SG100 is not met		
b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	FAD	Yes	No	No
	FSC	Yes	Yes	Yes
	Justification	**<u>FAD set type</u>** **Commonly Encountered Habitats** Given the characteristics of the fishery and the habitat, it is highly unlikely that there will be any main impacts of the gear on the pelagic ecosystem. VMS and comprehensive observer coverage effectively track vessel movements and fishing activity provide reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. As such, the physical impacts of the gear on all habitats have been quantified fully, and are understood		

		• SG60 is met. • SG80 is met. **VMEs** The information available from VMS and knowledge of the distribution of coral reefs provides evidence on the potential, extensive spatial overlap of habitat with the drifting lost FADs. Research completed in the Seychelles provides a broad understanding of the potential impact of derelict FADs on local coral reefs (Balderson et al. 2015). • SG60 is met. The information available from projects, including in the Seychelles, is adequate to allow for identification of the main impacts of the UoA on the main habitats (http://www.greenpeace.org/international/en/news/Blogs/makingwaves/fishing-fads-floating-atoll-destroyers/blog/54112/?fb_action_ids=685883004846411&fb_action_types=og.likes%20%3E%3E%3E). There is good information on the timing and use of FADs (VMS and observers). While the article cited above provides good information on the spatial extent of interaction in the Seychelles, similar data are not available for other countries. A precautionary approach would suggest that the potential for impacts to occur should be further investigated. There is limited information on the spatial extent, timing and location of FAD interactions with coral reefs, and this is not adequate to understand the nature of the impacts of the gear on coral habitat. • SG80 is not met. **All Habitats** The physical impacts of their gears on all habitats have not been quantified fully. • SG100 is not met. **FSC Set type** **Commonly Encountered Habitats** Given the characteristics of the fishery and the habitat, it is highly unlikely that there will be any main impacts of the gear on the pelagic ecosystem. VMS and comprehensive observer coverage effectively track vessel movements and fishing activity provide reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. As such, the physical impacts of the gear on all habitats have been quantified fully, and are understood • SG60 is met. • SG80 is met. • SG100 is met		
c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in habitat distributions over time are measured.
	FAD		Yes	No
	FSC		Yes	No

	Justification	**FAD set type** **Commonly Encountered Habitats** Changes in distributions of all marine habitats over time within the oceanic areas that the fishery operates in are not measured. In particular there is little monitoring of coastal and deep-ocean habitats around the Indian Ocean, however the EIO tuna purse seine fishery is pelagic and does not take place in these parts of the ocean. The main habitat within which the fishery operates is entirely pelagic. Subtle physical and or chemical changes in pelagic habitat may occur over time. Some of these e.g. temperature, turbidity and salinity are subject to seasonal variation and can be easily monitored and changes detected using remote sensing (e.g. satellite imagery). Other changes such as water movement (density and wind driven ocean currents, tidal currents and ocean swell) require more direct techniques for measurement. , The area of pelagic habitat available to and suitable for making sets on schools of tuna does vary according to oceanographic conditions as well as changing security and geopolitical circumstances. Information in relation to such changes is available and is updated regularly. • SG80 is met. **VMEs** Seychelles Island Conservation Society (ICS) has a program in place that is monitoring FADs going ashore on the coral reefs, and AZTI is initiating a study to track FADs using GPS information to evaluate FADs trajectories heading to coral reefs, but that of course is dependent on operations GPS buoys. Any changes to the risk of main habitat impacts increasing would be related to changes in fishing effort, and the effort is well documented by the IOTC. **Recommendation 3: Echebastar should maintains a data base of the number of lost FADs by area and date, and that it be noted which FAD beacons are returned to port by other purse seine vessels. This data will assist in the evaluation of the reasons for lost FADs.** • SG80 is met. **All Habitats** Changes in all habitat distributions over time are not measured. • SG100 is not met. **FSC set type** **Commonly Encountered Habitats** As above. • SG80 is met. **All Habitats** Changes in all habitat distributions over time are not measured. • SG100 is not met.
References		Balderson, S.D. and L. Martin. 2016. Environmental impacts and causation of 'beached' Drifting Fish Aggregating Devices around Seychelles Islands: a preliminary report on data collected by Island Conservation Society, Seychelles. IOTC WP Ecosystem and Bycatch Meeting http://www.iotc.org/sites/default/files/documents/2016/09/IOTC-2016-WPEB12-RE - FINAL.pdf

FAD	**75**
FSC	**90**

Final Score	**75**
Condition number	**4**

Table 37: PI 2.5.1 – Ecosystem outcome

Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**FAD set type** As noted in the Scope of the Assessment in Relation to the MSC program, MSC has identified FADs as qualifying as a habitat modification. The Echebastar fishery enhances fishing operations by aggregating fish to make capture more efficient. The impact on the ecosystem from aggregating fish is addressed here. A secondary issue that must be considered is the effects of FADs that are lost at sea, and eventually ground in shallow water or come ashore, these impacts are addressed in PI 2.4 scoring. The tuna purse seine is used in epipelagic waters. The key ecosystem elements of the Indian Ocean include abiotic and biotic factors, such as sea surface temperature, stratification, phytoplankton abundance, zooplankton bio-volume, total fish biomass, the ratio of pelagic to demersal fish biomass, size distribution of fish in the ocean, epipelagic oceanic food webs (trophic structure including predator/prey relationships), abundance of predators and availability of forage species, etc. Normal function within an ecosystem is dependent on relative stability in relation to key underlying biotic and abiotic elements. The EIO skipjack tuna purse seine fishery has no impact on abiotic factors. Impacts of the fishery on biotic elements of the ecosystem (retained species, bycatch, endangered, threatened and protected species and habitats) have been considered in previous P2 scoring components. This PI considers potential UoA impacts at the whole system level. Few published studies examine the overall health of the Indian Ocean ecosystem. Sherman et al (1998) describe the conditions of marine resources of the large marine ecosystems of the Indian Ocean and review assessment, management and sustainability. Tomczak & Godfrey (2003) and Longhurst (2007) both provide robust reviews on the structure of the Indian Ocean ecosystem as well as the underlying biotic and abiotic elements and oceanography of the region. Some depletion of higher level predators in the Indian Ocean has been documented. Preliminary results of an analysis of abundance trends of several elasmobranch and teleost fish in the ocean's pelagic ecosystem using data from research longline cruises were presented to IOTC's WPEB meeting in 2009. This demonstrated: (i) a widespread decline in the abundance of top predators such as large pelagic sharks and tunas, and (ii) the emergence of several mid-sized, lower-trophic-level species such as crocodile shark and lancetfish. The relative abundances of lancetfish and tuna showed a dramatic shift between 1960-1990 and 2000-2008, with tuna being replaced by lancetfish. From 1960 to 1990, there were 5 tunas per lancetfish; this moved to 1 tuna per 5 lancetfish. It was considered likely that this was related to the removal of large numbers of top predators in directed shark fisheries as well as bycatch of sharks in tuna fisheries. The decline in top predators was also likely due, in part, to declines in large pelagic tunas, especially southern bluefin, bigeye and yellowfin.		

		The imposed reductions in yellowfin catch and likely maintenance of most tuna stocks within biologically based limits is expected to prevent further reductions in abundance of large tunas. Thus, consequential further changes in Indian Ocean fish community structure through removal of tuna are not anticipated and it is concluded that the UoA is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. • The SG60 is met In a seminal review paper, Dagorn et al. (2013) consider the evidence for FADs causing negative impacts on marine ecosystems. They may increase the catch of juveniles of yellowfin and bigeye (Fonteneau et al.2000; Brodhead et al. 2003). However, any increase of juvenile catch of primary species is assessed by IOTC WPTT and SC to assure that the species are exploited within safe biological limits and measures are implemented as required (as noted above). The UoA average annual catch of yellowfin tuna is about 20,000 t, being 5% of total Indian Ocean removals, and therefore it is considered highly unlikely to disrupt underlying ecosystem function. • Modify the natural behaviour of tropical tunas (Hallier and Gaertner, 2008; Marsac et al., 2000; Sempo et al., 2013). The hypothesis that FADs may modify the natural behaviour of tropical tunas has not been proven. The tagging information available from IOTC-RTTP does not suggest any behaviour modification of tuna species. This is an ongoing area of research. • Increase bycatch and discards (Amandè et al., 2011, 2012). Echebastar vessels follow the code of conduct on making all possible effort to release alive megafauna such as sharks, marine turtles, etc. This issue is covered in the Secondary minor species and ETP species section. Additionally, non-entangling FADs are used exclusively in the Echebastar fleet and they are also working on the evaluation of the use of biodegradable material in the FADs so as to reduce the garbage and contamination on the sea. Therefore, it is concluded that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. • SG80 is met. SG60 and SG80 requirements are met based on reasoned consideration of information available. However, due to the lack of specific research, there is no evidence that the UoA is highly unlikely to disrupt underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. • SG100 is not met. **<u>FSC set type</u>** The FSC set type fishery is unlikely to disrupt the key elements of the underlying ecosystem structure and function to a point where there would be a serious or irreversible harm based on the evidence presented for the FAD set type SG60. . • SG60 is met. The FSC set type fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.. • SG80 is met. Due to the lack of specific research there is no evidence that the FSC set type fishery is highly unlikely to disrupt elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. • SG100 is not met.

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FAD	**80**
FSC	**80**
Final Score	**80**

Table 38: PI 2.5.2 – Ecosystem management strategy

Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary which take into account the potential impacts of the fishery on key elements of the ecosystem.	There is a partial strategy in place, if necessary, which takes into account available information and is expected to restrain impacts of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a strategy that consists of a plan, in place which contains measures to address all main impacts of the UoA on the ecosystem, and at least some of these measures are in place.
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	There is no need at this time to have measures or a partial strategy to achieve the Ecosystem Outcome of 80 level, as there is no evidence of the purse seine fishery negatively impacting key elements of the ecosystem as evidenced in PI 2.5.1. However, with regard to the possible impacts in the future, a partial strategy is defined as "a cohesive arrangement which may comprise one or more measures, an understanding of how they work to achieve an outcome and an awareness of the need to change the measure/s should they cease to be effective. It may not have been designed to manage impacts on the specific component". A number of measures constitute a partial strategy to restrain the potential impact of the UoA on the ecosystem, although the various measures may not be intended to be directly related to this issue and relate to all fisheries, not just the UoA. • The IOTC co-ordinates and provides a unified approach to management of Indian Ocean fisheries. • Limitation on the number of vessels, supply vessels, and FADs. • Spatial and temporal closures. • Implementation of full catch reporting and elimination of IUU fisheries • Measures to reduce the bycatch of vulnerable species such as pelagic sharks, turtles, cetaceans and whale sharks • Mandatory reporting requirements. • Strengthened observer requirements. • Ongoing research and investigations into impacts of tuna fisheries on the Indian Ocean ecosystem. **<u>FAD set type</u>** FADs constructed using loose hanging nets could entangle species including sea turtles and reef fish. The introduction of non-entangling FADs was a response to the identified issue and its success by the reduced bycatch in Echebastar FAD sets. Measures are in place which take into account potential impacts of the fishery on key elements of the ecosystem.. • SG60 is met. There is a partial strategy in place which takes into account available information and is expected to restrain impacts. • SG80 is met. A clear strategy consisting of a plan which contains measure to address all main impacts of the UoA on the ecosystem has not been defined. • SG100 is not met		

		FSC set type Measures are in place which take into account potential impacts of the fishery on key elements of the ecosystem.. • SG60 is met. There is a partial strategy in place which takes into account available information and is expected to restrain impacts. • SG80 is met. A clear strategy consisting of a plan which contains measure to address all main impacts of the FSC on the ecosystem has not been defined. • SG100 is not met		
b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or ecosystem involved
	FAD	Yes	Yes	No
	FSC	Yes	Yes	No
	Justification	**FAD and FSC set types** The partial strategy comprises a number of measures that indirectly touch upon a number of issues related to the potential of the fishery to impact the ecosystem of the Indian Ocean i.e. the removal of the target species, risks associated with the level of bycatch and discard of non-target species, and IUU. • The IOTC co-ordinates and provides a unified approach to management of Indian Ocean fisheries. Echebastar, through ANABAC, the EU and Seychelles, is strongly involved in the IOTC decision making process and has taken a lead in taking a more precautionary approach in their harvest policy. • Limitation on the number of vessels (Resolution 12/12 on the implementation of a limitation on of fishing capacity) • The UoA fleet consists of only 5 purse seine vessels and 1 supply vessel. This is a small fraction of the total Indian Ocean purse seine fleet. • Limitations on the numbers of FADs and the design of FADs (Resolution 15/08 Procedures on a fish aggregating devices (FADs) management plan, including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of interactions. IOTC-2015-WPDCS11-INF03, Resolution 16/01 On an Interim Plan for Rebuilding the Indian Ocean Yellowfin tuna Stock in the IOTC area of Competence, and limitations on FADs. As noted previously, Echebastar has taken the lead here by voluntarily reducing the number of FADs it uses to less than the IOTC limit. • Spatial and temporal closures . Echebastar fully complies with any closures that are required. • Implementation of full catch reporting and elimination of IUU fisheries. Echebastar fully complies with reporting requirements and holds valid licenses for all its fishing		

		activities. This fishing activity is fully monitored by the EU and the Seychelles and there has been no suggestion that it is engaging in any IUU fishing. • Measures to reduce the bycatch of vulnerable species such as pelagic sharks, turtles, cetaceans and whale sharks (Resolution 12/04 on the conservation of marine turtles, Resolution 12/09 on the conservation of thresher sharks, Resolution 13/04 on the conservation of cetaceans, Resolution 13/05 on the conservation of whale sharks Echebastar exclusively uses non-entangling FADs and does not set on dolphins and whale sharks. • Mandatory reporting requirements. Echebastar complies. • Strengthened observer requirements. From 2015 Echebastar has 100 % observer coverage with the a substantial proportion of the collected data processed • Ongoing research and investigations into impacts of tuna fisheries on the Indian Ocean ecosystem. Echebastar collaborates with and funds specific projects at AZTI and other research entities to improve knowledge and understanding of the impacts of their fishery on the ecosystem in pursuit of the company policy of ensuring catch possibilities in the long term. The foregoing provides an objective basis of confidence that the approach of Echebastar in implementing many measures that comprise the partial strategy will work. • SG60 is met. • SG80 is met. There has been no testing and there is not a strategy. • SG100 is not met		
c	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully.	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	FAD		Yes	No
	FSC		Yes	No

	Justification	**FAD and FSC set types** There is some evidence that the measures comprising the partial strategy to manage the ecosystem impacts of the FAD and FSC set types on the epipelagic ecosystem are being implemented successfully. Most IOTC managed tuna stocks are believed to be within biologically based limits and above interim limit reference points (skipjack, bigeye, albacore, and kawakawa tuna). Only yellowfin has recently been determined to be overfished, and IOTC has taken action to reduce effort and catches, so as to allow stock rebuilding. Other evidence that the partial strategy is working include the many resolutions that the IOTC has recently passed to limit the ecosystem impacts of the fisheries (see list provided in justification to PI 2.5.2, SI b.). This is demonstrated by: • the substantial reduction of IUU within the IOTC area of competence, • by the updating of stock assessments, • increased sharing of information and co-operation amongst members and co-operating non-contracting parties, • the increased levels of research undertaken by IOTC members in the Indian Ocean fisheries, • agreement over new and expanded management initiatives (such as adoption of the PA and commitment to MSE) through adoption of IOTC resolutions. As shown by the analysis and evidence presented at PI 2.4.2(b), Echebastar is successfully implementing the measures and partial strategy by using a lower number of FADs and supply vessels than permitted, the exclusive use of non-entangling FADs. These measures have resulted in a lower overall bycatch rate than in other purse seine fisheries, a lower interaction rate with ETP species, and a limited impact on the most commonly encountered habitat. Recall that that comparative data for overall bycatch and sea turtles specifically was previously presented in the justifications for secondary and ETP species. • SG60 is met. • SG80 is met. There has been no testing and there is not a strategy. • SG100 is not met
References		Southwest Indian Ocean Fisheries Project http://www.swiofp.net Indian Ocean Tuna Commission http://www.iotc.org

FAD	**80**
FSC	**80**
Final Score	**80**

Table 39: PI 2.5.3 – Ecosystem information

Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to identify the key elements of the ecosystem.	Information is adequate to broadly understand the key elements of the ecosystem.	
	FAD	Yes	Yes	
	FSC	Yes	Yes	
	Justification	**<u>FAD & FSC set types</u>** Significant quantities of regularly updated data are available on the abiotic ecosystem elements from a wide range of sources that monitor and carry out research into environmental (physical and chemical) parameters in the Indian Ocean. This includes: • International scientific organizations including UN Food and Agriculture Organization (FAO), UN Environmental Program (UNEP), US NOAA, US NASA, WWF, ICLARM and others. The results of the research of these organizations are publically available, such as the World Atlas of Coral Reefs that was referenced in this report. • Most coastal states in the western Indian Ocean carry out some scientific research and /or monitoring of environmental conditions within their EEZs, such as the Island Conservation Society, that is investigating the impacts of FADs on coral reefs. • Over the years, a range of organizations with interests in research and monitoring global environmental conditions complete significant research in the Indian Ocean e.g. Sherman conducted research and published research papers on large marine ecosystems including the Indian Ocean (Sherman et al 1998); this was updated by Tomczak and Godfrey (2003) and Longhurst (2007) (see above). • Considerable information relevant to the management of fishery impacts is available from the IOTC, through working Party on tropical tunas, ecosystems and bycatch, billfish, and data collection and statistics. This available information on the Indian Ocean provides: an understanding of key abiotic and biological elements of the ecosystem; describes the status of tuna stocks; describes environmental factors that influence the abundance and migration of tuna; identifies the possible impacts of climate change on tuna; assesses the possible effects of FADs on tuna feeding, migrations and behaviour in the Indian Ocean (Dagorn et al 2014), and the possible effects of lost FADs on coral reefs (Balderson and Martin 2016). In sum, this information is adequate to broadly identify and understand the key elements of the ecosystem. • SG60 is met. • SG80 is met.		
b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and have been investigated in detail.
	FAD	Yes	No	No

	FSC	Yes	Yes	No
	Justification	**FAD set type** The impacts of the fishery on some biological elements of the ecosystem have been investigated in detail, or can be inferred, including status of tuna stocks, levels of bycatch (specifically for Echebastar group vessels as well as at EU fleet level in respect of major species groups), impacts on habitats and ETP species. However, given that the fisheries are industrial scale, not all interactions have been investigated in the detail needed to support an ecosystem based approach to fisheries management. Possible changes in trophic structure of pelagic oceanic ecosystems have not been investigated in sufficient detail and there is ongoing uncertainty in relation to the role of tuna fisheries in reduction of top-level predators in the Indian Ocean as well as an observed increase in the prevalence of lower trophic level pelagic species (Hallier and Gaetner, 2008). • SG60 is met. The effects of FADs used in the fishery on tuna behaviour, migration patterns and feeding are a subject of numerous ongoing investigations. Dagorn et al (2012) conclude that there is no unequivocal empirical evidence that FADs represent an 'ecological trap' that inherently disrupts tuna biology, although further research should focus on this issue. Therefore, the main impacts of the UoA on these key ecosystem elements cannot be inferred from existing information, and some have not been investigated in detail • SG80 is not met. All main interactions have not been investigated in detail. • SG100 is not met. **FSC set type** The impacts of the fishery on some biological elements of the ecosystem have been investigated in detail, or can be inferred, including status of tuna stocks, levels of bycatch (specifically for Echebastar group vessels as well as at EU fleet level in respect of major species groups), impacts on habitats and ETP species. However, given that the fisheries are industrial scale, not all interactions have been investigated in the detail needed to support an ecosystem based approach to fisheries management. Possible changes in trophic structure of pelagic oceanic ecosystems have not been investigated in sufficient detail and there is ongoing uncertainty in relation to the role of tuna fisheries in reduction of top-level predators in the Indian Ocean as well as an observed increase in the prevalence of lower trophic level pelagic species (Hallier and Gaetner, 2008). • SG60 is met FSC set types are not thought to impact tuna behaviour etc. • SG80 is met All main interactions have not been investigated in detail. • SG100 is not met		
c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are known.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are understood.
	FAD		Yes	No

	FSC		Yes	No
	Justification	**FAD and FSC set types** The main functions of the components of the ecosystem (P1 target species, primary, secondary and ETP species and Habitats) are known as related to the FAD and FSC sets types. Sufficient information is available to identify the range of species that are impacted and know their respective roles e.g. as key low trophic level species, higher trophic level prey species, forage species, predators and potential roles in transfer of energy and nutrients between various pelagic habitats (epipelagic, mesopelagic, bathy-pelagic) or between pelagic and demersal habitats. Additionally the habitats functions are known. • SG80 is met. The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are understood with the exception of the impacts of FADs on coral reefs and the behaviour of fish and ETP species with regard to FADs. • SG100 is not met.		
d	Information relevance			
	Guide Post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components and elements to allow the main consequences for the ecosystem to be inferred.
	FAD		No	No
	FSC		Yes	No
	Justification	**FAD set type** FAD impact on the epipelagic ecosystem can be inferred from available information; removals and interactions related to target, retained and ETP species; and the sensitivity or vulnerability of species and habitats. Information available on the distribution, abundance and biological/life history characteristics of the various elements impacted by the UoA to allow the consequences and impacts on outcome status to be inferred. Available information on the biology for some species/scoring elements is significantly greater than for others. Sources of information in relation to population status for many affected species include www.fishbase.org, IUCN http://www.iucnredlist.org , http://www.iotc.org . A general understanding of the likely resilience, status and robustness of the various elements supports understanding of the most likely consequences on them from interaction with the UoA. However, the impact of FADs on tuna behaviour, feeding and migration, and any consequent impacts on ecosystem function, is not fully understood. Therefore, adequate information is not available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred. • SG80 is not met. • SG100 is not met. **FSC set type**		

		FSC impact on the epipelagic ecosystem can be inferred from available information; removals and interactions related to target, retained and ETP species; and the sensitivity or vulnerability of species and habitats. Information available on the distribution, abundance and biological/life history characteristics of the various elements impacted by the UoA to allow the consequences and impacts on outcome status to be inferred. Available information on the biology for some species/scoring elements is significantly greater than for others. Sources of information in relation to population status for many affected species include www.fishbase.org, IUCN http://www.iucnredlist.org , http://www.iotc.org . A general understanding of the likely resilience, status and robustness of the various elements supports understanding of the most likely consequences on them from interaction with the UoA. • SG80 is met. Information of the impact of FSC operations is not considered adequate to allow the main consequences for the various elements in the ecosystem to be inferred. • SG100 is not met.		
e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	FAD		Yes	No
	FSC		Yes	No
	Justification	**<u>FAD & FSC set types</u>** A wide range of fishery, biological and environmental data continue to be collected by many different organisations with an interest in the Indian Ocean, including Spain, other EU nations, Seychelles and most other coastal states that are members of IOTC or which are co-operating non-contracting IOTC parties. Data are collected in relation to: • The number and characteristics of the Echebastar vessels; • All catch by Echebastar; • Interactions with ETP species; • The spatial and temporal operation of the fishery (VMS); • Catch by area; • Catch per unit effort; • The status of vulnerable species potentially impacted by the fishery • The number of FADs deployed; • The number of FADs lost. These data are adequate to detect any increase in risk level posed by the UoA. • SG80 is met. There are shortcomings in the availability of information to support the development of management strategies for specific ecosystem impacts or risks. Data in relation to ETP encounters have only recently begun being systematically collected onboard vessels, and while there is a reasonable degree of understanding about rates of impact, better information would allow for development of more targeted and specific measures aimed at reducing /minimizing impacts. • SG100 is not met		

References	Amande, M.J., Ariz, J., Chassot, E. et al. (2008) Bycatch and discards of the European purse seine tuna fishery in the Indian Ocean: Characteristics and estimation for the 2003-2007 period. Indian Ocean Tuna Commission document, IOTC-2008-WPEB-12, 23 pp. Balderson, S.D. and L. Martin. 2016. Environmental impacts and causation of 'beached' Drifting Fish Aggregating Devices around Seychelles Islands: a preliminary report on data collected by Island Conservation Society, Seychelles Chavance, P., Amande, J.M., Pianet, R., Chassot, E. and Damiano, A. 2011. Bycatch and Discards of the French Tuna Purse Seine Fishery during the 2003-2010 Period estimated from Observer data IOTC-2011-WPEB07-23 Rev_1 Dagorn, L., K.N. Holland, V. Restrepo, and M. Gala. 2013. Is it good or bad to fish with FADs?, What are the real impacts of the use of drifting FADs on pelagic marine ecosystems?.Fish and Fisheries 14(3):391-415. EU and Seychellois tuna fleet monitoring (VMS) records Hallier, J.P. and Gaertner, D. (2008) Drifting fish aggregation devices could act as an ecological trap for tropical tuna species. Marine Ecology Progress Series 353, 255–264. http://ec.europa.eu/research/bioeconomy/pdf/ebfmtuna2012_boa_draft26092012.pdf (Mitigating impacts of fishing on pelagic ecosystems: towards ecosystem-based management of tuna fisheries Draft book of Abstracts 15-18 October 2012 Montpellier - France) IOTC Reports of the WPTT, IOTC www.iotc.org Poisson F., Vernet A.L., Filmalter J.D., Goujon M., Dagorn L. 2011. Survival rate of silky sharks (Carcharhinus falciformis) caught incidentally onboard French tropical purse seiners. IOTC-20110WPEB07-28 Sherman, K., Okemwa, E.N. and Ntiba, M.J. (eds.) 1998. Large marine ecosystems of the Indian Ocean: Assessment, sustainability and management. Published by Blackwell Science Inc.

FAD	**75**
FSC	**80**
Final Score	**75**
Condition number	**5**

8. Principle 3

8.1. Background

The intent of Principle 3 (P3) is to ensure that the institutional and operational framework is: (i) appropriate to the size and scale of the UoA for implementing Principles 1 and 2; and (ii) is capable of delivering sustainable fisheries in accordance with the outcomes articulated in those Principles.

P3 is divided into two components.

- Component 3.1 "captures the broad, high-level context of the fishery management system within which the UoA is found". The MSC description of this includes (but is not limited to) "the overarching legal and/or customary framework for the UoA". This covers "the consultation processes and policies; the articulation of the roles and responsibilities of people and organisations within the overarching management system; and other overarching policies supporting fisheries management".
- Component 3.2 "Focuses the team on the management system directly applied to the fishery. The focus should be on the management system of the fishery, which for some fisheries will include both national and international components".

P3 takes into consideration the wider fleet of fishers fishing for the same biologically distinct stock, using the same method, under the same or similar management system or arrangements i.e. Component 3.2 is not limited to consideration of Echebastar; rather the purse seine fleet fishing skipjack in the IO. Special or additional management arrangements or features unique to the vessels in the UoA may, however, be considered and reflected in the scores for C3.2.

The scoring of P3 PIs is not based on an average score achieved by the identified individual elements, rather it is based on analysis of how the collective of individual elements work together.

8.2. Fishery Jurisdictions

MSC CR 2.0 SA4.1.1 States "*Teams shall determine and state which jurisdictional category or combination of jurisdictional categories apply to the management system of the UoA, including consideration of formal, informal and / or traditional management systems when assessing performance of UoAs under Principle 3*".

The IOTC is the regional fisheries management organisation (RFMO) that manages the fishery for skipjack and other highly migratory species (HMS) in the IO.

The Echebastar fleet in the IO comprises two elements:

- 2 Spanish flagged fishing vessels and 1 supply vessel that operate under the terms of the Common Fisheries Policy (CFP) of the EU; and
- 3 Echebastar Seychelles flagged fishing vessels that operate within the Seychelles legal framework.

The fishing area of the Echebastar fleet in the IO is divided into:

- International waters; and
- The EEZs of coastal and island nations.

The latter group may be divided:

- **Sustainable Fisheries Partnership Agreements (SFPAs)**: These are negotiated between the EU and individual countries to provide fishing rights for EU flagged vessels;
- **Private agreements**: These are negotiated between fishing companies (or their representative organisations) and individual coastal / island states that operate within the framework of the IOTC; and
- **Vessel Licenses**: Individual vessels are licensed in accordance with the fisheries law of individual coastal states.

Also to be taken into consideration is Echebastar itself.

Data provided by the client (Tables 40 – 42), indicate the source of the total Echebastar catch of skipjack in 2016:

- International waters – 65.4%; Seychelles – 21.6%; Madagascar – 4.0 %; Tanzania – 4.0%; Comoros – 2.0 %; Eparses - 1.4%; Mayotte – 0.6 %; Kenya – 0.6%; and Mauritius 0.3%.

Coastal / island states with established catching capacity, e.g. the Maldives, prohibit foreign fishing effort in their EEZs.

In contrast, those countries with limited domestic tuna fishing capacity increase the benefit from the harvest of the tuna resources in their EEZs through the licensing of foreign fishing vessels either: (i) directly; (ii) through fishing agreements with Governments (e.g. the EU); or (iii) fishing agreements with private companies / representative organisations (e.g. Echebastar / ANABAC).

These agreements allow purse seiners and other tuna catching vessels to follow the migratory patterns of tuna by fishing within the EEZs of individual coastal / island states. Benefits to the coastal / island states vary according to the type of agreement but may include income from license fees and support for the development of the domestic industry including research, policy and enforcement.

The legal framework for coastal / island states to permit foreign fishing activity within their EEZs is UNCLOS[1] Convention Articles 62 and 64,[2] particularly

> "*Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements and pursuant to the terms, conditions, laws and regulations… give other States access to the surplus of the allowable catch*".

Each of the coastal / island states is an IOTC Contracting Party (CP) / covered by the EU (France) as a CP and the three types of fishery operating within their EEZs. This ensures they "*cooperate to ensure effective conservation and management of the resources*". As indicated by GSA 4.1.1, the assessment team has considered which jurisdictional levels apply to the management system for Echebastar and concluded that the Echebastar fishing activities within individual EEZs do not impact directly on the delivery of P1 and P2 outcomes, and as such should not be individually assessed as jurisdictional categories under C3.1, rather they should be considered under the fishery specific analysis within C3.2.

On that basis, the combination of jurisdictional categories that apply to the management of the Echebastar purse seine fishery for skipjack tuna considered under Component 3.1 are:

- IOTC;
- EU; and
- Republic of Seychelles.

[1] http://www.un.org/depts/los/convention_agreements/texts/unclos/part5.htm

[2] Article62 - Utilization of the living resources
1. The coastal State shall promote the objective of optimum utilization of the living resources in the exclusive economic zone without prejudice to article 61.
2. The coastal State shall determine its capacity to harvest the living resources of the exclusive economic zone. Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements and pursuant to the terms, conditions, laws and regulations referred to in paragraph 4, give other States access to the surplus of the allowable catch, having particular regard to the provisions of articles 69 and 70, especially in relation to the developing States mentioned therein
Article64 - Highly migratory species
1. The coastal State and other States whose nationals fish in the region for the highly migratory species listed in Annex I shall cooperate directly or through appropriate international organizations with a view to ensuring conservation and promoting the objective of optimum utilization of such species throughout the region, both within and beyond the exclusive economic zone.

Table 40: Echebastar: Seychelles Flagged Vessels Tuna Catch in tonnes by Jurisdiction 2014 - 16

SEYCHELLES: EUSKADI ALAI (2015/16); JAI ALAI (2015/16); IZARO (2014/15/16)											
2016	SEYCHELLES	MAURITIUS	MAYOTTE	COMORES	MOZAMBIQUE	KENIA	EPARSES	MADAGASCAR	TANZANIA	INTERNATIONAL	TOTAL
YELLOWFIN	2,108	-	40	225	-	59	143	333	182	6,811	9,901
BIGEYE	119	-	3	5	-	1	2	10	23	509	672
ALBACORE	-	-	-	-	-	-	-	-	-	31	31
SKIPJACK	2,971	-	103	460	-	52	269	878	217	7,741	12,691
TOTAL	5,198	-	146	690	-	112	414	1,221	422	15,072	23,295
2015	SEYCHELLES	MAURITIUS	MAYOTTE	COMORES	MOZAMBIQUE	KENIA	EPARSES	MADAGASCAR	TANZANIA	INTERNATIONAL	TOTAL
YELLOWFIN	505	-	53	52	49	21	82	108	-	6,566	7,436
BIGEYE	72	-	39	4	11	-	4	-	-	434	564
ALBACORE	-	-	-	-	-	-	-	-	-	6	6
SKIPJACK	1,845	-	16	121	110	11	157	102	-	4,390	6,752
TOTAL	2,422	-	108	177	170	32	243	210	-	11,396	14,758
2014	SEYCHELLES	MAURITIUS	MAYOTTE	COMORES	MOZAMBIQUE	KENIA	EPARSES	MADAGASCAR	TANZANIA	INTERNATIONAL	TOTAL
YELLOWFIN	494	26	-	-	-	-	-	-	17	1,984	2,521
BIGEYE	91	-	-	-	-	-	-	-	3	198	292
ALBACORE	-	-	-	-	-	-	-	-	-	18	18
SKIPJACK	272	25	-	-	-	-	-	-	37	1,559	1,893
TOTAL	857	51	-	-	-	-	-	-	57	3,759	4,724

Table 41: Echebastar: Spanish Flagged Vessels Tuna Catch in tonnes by Jurisdiction 2014 - 16

SPANISH: ALAKRANA & ELAI ALAI (2014/15/16)											
2016	SEYCHELLES	MAURITIUS	MAYOTTE	COMORES	MOZAMBIQUE	KENIA	EPARSES	MADAGASCAR	TANZANIA	INTERNATIONAL	TOTAL
YELLOWFIN	1,408	40	16	24	-	62	43	139	714	4,351	6,797
BIGEYE	356	40	8	6	-	17	20	37	130	1,179	1,793
ALBACORE	-	-	-	-	-	-	-	-	-	2	2
SKIPJACK	**1,553**	**55**	**86**	**60**	**-**	**45**	**65**	**198**	**329**	**5,164**	**7,555**
TOTAL	3,317	135	110	90	-	124	128	374	1,173	10,740	16,147
2015	SEYCHELLES	MAURITIUS	MAYOTTE	COMORES	MOZAMBIQUE	KENIA	EPARSES	MADAGASCAR	TANZANIA	INTERNATIONAL	TOTAL
YELLOWFIN	648	-	40	97	-	-	82	235	10	5,682	6,794
BIGEYE	208	-	10	19	-	-	48	13	-	1,124	1,422
ALBACORE	-	-	-	1	-	-	-	-	-	7	8
SKIPJACK	**1,041**	**-**	**50**	**119**	**-**	**-**	**274**	**44**	**5**	**4,967**	**6,500**
*TOTAL	1,897	-	100	236	-	-	404	292	15	11,780	14,724
2014	SEYCHELLES	MAURITIUS	MAYOTTE	COMORES	MOZAMBIQUE	KENIA	EPARSES	MADAGASCAR	TANZANIA	INTERNATIONAL	TOTAL
YELLOWFIN	894	56	-	-	-	93	-	6	-	6,822	7,871
BIGEYE	196	3	-	-	-	16	-	1	-	1,670	1,886
ALBACORE	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK	**1,248**	**103**	**-**	**-**	**-**	**50**	**-**	**8**	**-**	**5,693**	**7,102**
TOTAL	2,338	162	-	-	-	159	-	15	-	14,185	16,859

Table 42: Echebastar: All Vessels Tuna Catch in tonnes by Jurisdiction 2016

COMBINED												
2016	SEYCHELLES		MAURITIUS		MAYOTTE		COMORES		MOZAMBIQUE		KENIA	
YELLOWFIN	3,516	21.1%	40	0.2%	56	0.3%	249	1.5%	-	0.0%	121	0.7%
BIGEYE	475	19.3%	40	1.6%	11	0.4%	11	0.4%	-	0.0%	18	0.7%
ALBACORE	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
SKIPJACK	4,524	22.3%	55	0.3%	189	0.9%	520	2.6%	-	0.0%	97	0.5%
TOTAL	8,515	21.6%	135	0.3%	256	0.6%	780	2.0%	-	0.0%	236	0.6%
2016	EPARSES		MADAGASCAR		TANZANIA		INTERNATIONAL		TOTAL		SPECIES % TOTAL	
YELLOWFIN	186	1.1%	472	2.8%	896	5.4%	11,162	66.8%	16,698	100.0%	42.3%	
BIGEYE	22	0.9%	47	1.9%	153	6.2%	1,688	68.5%	2,465	100.0%	6.2%	
ALBACORE	-	0.0%	-	0.0%	-	0.0%	33	100.0%	33	100.0%	0.1%	
SKIPJACK	334	1.6%	1,076	5.3%	546	2.7%	12,905	63.7%	20,246	100.0%	51.3%	
TOTAL	542	1.4%	1,595	4.0%	1,595	4.0%	25,812	65.4%	39,442	100.0%	100.0%	

In addition to those jurisdictions, Component 3.2 takes into consideration vessels licensed under:

- SFPAs;
- Private agreements; and
- Fisheries Law of individual countries (individual vessel licenses).

The validity of this approach i.e. not taking account of the private / SFPA / vessel licenses under Component 3.1 is justified due to the non-permanent nature of these agreements which means that they should not be considered within "*the broad, high-level context of the fishery management system within which the UoA is found*" (MSC CR 2,0 Table GSA 9). Any future annual surveillance audits would consider changes in the management approach and the implications for the continued certification of the fishery.

ANABAC is one of two Spanish organisations (the other is OPAGAC) that represent the interests of 9 Bermeo-based purse seine tuna fishing companies, including Echebastar.

IOTC

IOTC is the intergovernmental organisation charged with the conservation and management of tuna and tuna-like species in the IO, covering both international waters and the fishery areas of coastal states.

The 31 contracting parties (CP) and 4 cooperating non-contracting parties (NCP) comprise coastal states and out-of-region countries (e.g. China) and regional organisations (e.g. EU). This includes Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles and Tanzania in whose EEZs Echebastar vessels may have fished. Eparses and Mayotte are covered by the membership of the EU (France).

The IOTC management framework is consistent with international laws and standards (e.g. UNCLOS). The IOTC management framework is incorporated into the legal frameworks of CPs.

IOTC's objective is to promote co-operation among its Members to ensure, in a broad sense, the sustainable harvest of Highly Migratory Species (HMS) through sustainable development and effective management. IOTC assesses the status of individual stocks; gathers, analyses and disseminates relevant data and information; undertakes research on a wide number of issues related to the fisheries and the associated ecosystems and; reviews economic and social factors.

At its annual meeting, IOTC CPs adopt Resolutions and Recommendations to define Conservation and Management Measures (CMMs) for tuna and tuna-like species and the fisheries which target them. Resolutions are binding on Commission Members (unless there is a specific objection on the part of a Member) and require a two-thirds majority of Members present and voting to adopt them. Recommendations are not binding but rely on voluntary implementation. They are adopted by a simple majority of the Members present and voting (IOTC 2016). As of 26 November 2016, 50 Resolutions and 3 Recommendations were in force (IOTC 2016).

The annual meetings facilitate consultation and conciliation between individual CPs/NCPs. While these may be informal, external stakeholders (such as environmental bodies) who attend meetings as observers are able to review the outcomes presented in resolutions, associated justifications and related voting procedures. Technical disputes are referred to expert panels that consider the issues and report back to the Commission. Ultimately, if disputes cannot be resolved internally they may be referred to independent international arbitration through the International Court of Justice or the International Tribunal for the Law of the Sea. Powers & Medley note that the lack of judicial disputes means the validity of this approach has not been tested in the IOTC. There is, however, experience (albeit limited) in other jurisdictions but the approach has proven valid in other RFMOs e.g. Southern Bluefin Tuna (New Zealand-Japan, Australia-Japan (http://legal.un.org/riaa/cases/vol_XXIII/1-57.pdf)

The defined objectives of Res. (IOTC) 16/02 on HCRs for skipjack tuna are:

- To maintain the Skipjack stock in perpetuity, at levels not less than those capable of producing MSY as qualified by relevant environmental and economic factors including the special requirements(of

Developing Coastal States and Small Island Developing States in the IOTC area of competence and considering the general objectives identified in Res. (IOTC) 15/10[3] (or any subsequent revision); and

- To use a pre-agreed HCR to maintain the Skipjack tuna stock at, or above, the TRP and well above the LRP, specified in Res. (IOTC) 15/10 (or any subsequent revision).

The regular Skipjack tuna stock assessments recommend the total annual catch limit on the basis of:

- Estimated current spawning stock biomass (Bcurr);
- Estimated unfished spawning stock biomass (B0); and
- Estimated equilibrium exploitation rate (Etarg) associated with sustaining the stock at Btarg.

Five control parameters (threshold level; fishing intensity; safety level; maximum catch limit; a maximum recommended catch limit of 900,000t) have the objective of reducing the risk of adverse effects of potentially inaccurate stock assessments. The maximum change in the annual catch limit of 30%.

The main activities of the IOTC Compliance Committee are:

- Review all aspects of CPCs individual compliance with IOTC CMMs;
- Review information relevant to compliance from IOTC subsidiary bodies and from Reports of Implementation submitted by CPCs,
- Identify issues related to effective implementation and compliance with IOTC CMMs, and to recommendations how to address these issues.

CPs must present a Report of Implementation (at least 60 days prior to the annual meeting of the Commission) to describe the actions they have taken under national legislation, in the previous year to implement CMMs adopted by the Commission (including the imposition of adequate penalties for violations).

IOTC evaluates all parts of the management system through committees and working groups that meet regularly and report to the Commission.

In addition, in recent years two performance review panels (PRP) have evaluated all parts of the management system.

IOTC (2016) endorsed the recommendations of the second review panel (2014) and agreed to prepare a work programme to establish, by October 2019,

> "*concrete actions on the recommendations, including priorities, proposed timelines, budgets, and a possible text of a new agreement*"

This work will be

> "*reviewed by the Scientific Committee, Compliance Committee and the Standing Committee of Administration and Finance. After this review, the Commission will consider the Work Plan*".

Furthermore

> "*a performance review of the IOTC shall be carried out every 5 years in line with the recommendations of the Kobe process*"

Inter alia, Reg (IOTC) 16/02 requires the HCR, including the control parameters noted above, to be reviewed through further Management Strategy Evaluation (MSE), no later than 2021 (i.e. five years from its implementation). Subject to the result of that review the current HCR may be refined or replaced with an alternative HCR.

A significant number of specific areas were covered by the 2014 review.[4]

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[3] On target and limit reference points http://www.iotc.org/cmm/resolution-1510-target-and-limit-reference-points-and-decision-framework

[4] Analysis of the IOTC Agreement against other international instruments; Status of living marine resources; Data collection and re-porting; Compliance with data collection and reporting requirements; Capacity building;

EU

Reg. (EU) No 1380/2013 (the Common Fisheries Policy)[5] provides the EU with an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.

As a contracting party to UNCLOS and UNSFA, the EU has assumed obligations related to:

- The implementation of conservation and management measures aimed at maintaining or restoring fish stocks in EU waters and international waters to levels commensurate with MSY;
- Cooperation with other States;
- The wide application of the precautionary approach to the conservation, management and exploitation of fish stocks;
- The compatibility of conservation and management measures where marine resources occur in sea areas of different jurisdictional status; and
- Due regard to other legitimate uses of the seas.

Reg. (EU) 1380/13 requires:

- Sustainable exploitation of marine resources based on the precautionary approach taking into account available scientific data;
- The protection of the marine environment, the sustainable management of all commercially exploited species, and the achievement of good environmental status by 2020; and
- That EU fishing activities in external waters are based on the same principles and standards as those applicable under Union law. *Inter alia*, this requires the EU to seek to lead the process of strengthening the performance of regional and international organisations.

Further:

- Respect for democratic principles and human rights, as laid down in the Universal Declaration of Human Rights and other relevant international human rights instruments, and for the principle of the rule of law, should constitute an essential element of sustainable fisheries partnership agreements, which should contain a specific human rights clause. The introduction of a human rights clause in sustainable fisheries partnership agreements should be fully consistent with the overall Union development policy objectives.

EC (2016) reports that: (i) the EU continued to implement the CFP (EU 2013) that applies to all EU fishing vessels operating in IOTC; and (ii) as a CP to IOTC, the EU is bound to ensure that IOTC measures are effectively implemented by EU vessels operating in the IOTC area of competence, including:

- (EU) Council Reg. 520/2007 that defines technical measures for the conservation of certain stocks of highly migratory species transposed all IOTC technical measures adopted prior to and including 2006.
- (EU) Council Reg.1936/2001 amended by the Council Reg. (EC) 869/2004 transposed all IOTC control and surveillance measures adopted prior to and including 2003.
- (EU) Council Regulation 2015/104, and similar (EU) Council Regulations adopted in previous years, fixing for the fishing opportunities available in EU waters and, to EU vessels, in certain non-EU waters for certain fish stocks and groups of fish stocks which are subject to international negotiations or agreements transposed in particular the Res. (IOTC) 12/11, and related previous resolutions as well as

(Data Collection); Non-target specie Non-target species; Quality and provision of scientific advice; Adoption of Conservation and Management Measures; Fishing capacity management; Compatibility of management measures; Fishing allocations and opportunities; Flag State duties; Port State measures; Monitoring, control and surveillance (MCS Follow-up on infringements; Cooperative mechanisms to detect and deter non-compliance); Market-related measures; Fishing capacity; Decision-making; Relationship to Non-Cooperating Non-Members (Non-CPCs);Cooperation with other RFMO; Special requirements of developing States; Availability of resources for IOTC activities; & Efficiency and cost-effectiveness

[5] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R1380

other instruments to freeze fishing effort in the IOTC area of competence and protection of IOTC species or other species caught in association with IOTC fisheries.

- The main IOTC Resolutions for vessel recording, port inspections, IUU fisheries, driftnets, transhipments, vessels monitoring system, shark finning, precautionary approach, discards and recording of catches and logbooks are transposed into EU legislation through the EU legal framework of fisheries.

The 2017 compliance report (IOTC-2017-CoC14-CR05_Rev1 [E] IOTC Compliance Report for EU) identified a number of issues:

- Has not fully reported catch and effort for the longline fisheries (data reported for target species only), (Resolution 15/02).
- Has not reported size frequency for the coastal fisheries for the fleet of Mayotte (Resolution 15/02).
- Has not reported size frequency to IOTC Standard for the longline fisheries (less than 1 fish per metric ton of catch per species) (Resolution 15/02).
- Has not reported days at sea for all flag vessels (Resolution 15/02).
- Has not reported nominal catch, catch and effort and size frequency on sharks to IOTC Standard (Resolution 05/05).
- Has not reported on import, landing and transhipment of tuna and tuna-like fish products in ports (Resolution 10/10).

Reg. (EU) 1380/13 established Regional Management Advisory Councils (RMAC) to promote a balanced representation of all stakeholders in defined areas. These stakeholder-led organisations comprise industry representatives (60 %) and other interest groups (40%) e.g. environmental organisations and consumers. They provide the EC and member states with recommendations on fisheries management including *inter alia* advice on:

- Conservation and socio-economic aspects of management; and
- The simplification of rules.

Also, they contribute data to support fisheries management and conservation measures.

The EU and / or the Member State (MS) must reply to any recommendation, suggestion or information received from an RMAC within 2 months. Where the adopted final measures diverge from RMAC opinions, recommendations or suggestions, the EU and / or MS must detail the reasons for the discrepancy.

One of the RMACs is the Long-Distance Fleet Advisory Council (LDAC). This covers fishing activity in the Atlantic, the Indian Ocean, and the Pacific. Key aspects are:

- The 50 + members represent stakeholders in the fishing sector (catching, processing and marketing sectors, and trade unions), and other interest groups (environmental NGOs, consumers and civil society).
- LDAC provides advice to European Institutions (Commission, Council and Parliament) and EU MS on matters related to fisheries agreements with third countries, and relations with RFMOs in which the EU is a CP, and international organizations in whose waters the Community Fleet operates; and
- It covers business relations and the international market for fishery products.

The LDAC position on FAD management http://ldac.chil.me/download-doc/97602 is an example of the type of advice provided see. Examples of EU responses may be found in http://ldac.chil.me/publications.

Seychelles

The base of the legal framework in the Seychelles is the Fisheries Act (2014) (https://www.seylii.org/sc/legislation/act/2014/20-). It's objective is

"to provide for efficient and effective management and sustainable development of fisheries in accordance with international norms, standards and best practice and an ecosystem approach to fisheries; to provide

for the licensing of fishing vessel, to regulate sport fishing, fishing activities; and to provide for offences and penalties."

This is achieved through the application of:

- Internationally recognised norms, standards and best practice including UNCLOS, the FAO Code of Conduct for Responsible Fisheries, and the IOTC Conservation and Management measures; and
- An ecosystem approach to fisheries which ensures that the development and management of fisheries addresses the multiple needs and desires of the society without jeopardising the options for future generations to benefit from the full range of goods and services provided by marine ecosystems.

Of note are:

- "The Minister may enter into arrangements or agreements with other States or territories, either directly or through an international organisation, providing for the exchange, in a standardised format, and in a manner consistent with applicable confidentiality requirements, of fisheries information, including evidentiary information relating to breaches of national fisheries legislations and international fisheries conservation and management measures.
- The Minister may enter agreements with other states, intergovernmental organisations or associations representing foreign fishing vessel owners, allocating fishing rights in Seychelles waters to vessels of those states, organisations or associations.
- The total fishing rights allocated by agreements … shall be in accordance with any applicable plan for the management of a fishery or international fisheries conservation and management measures, and where such plan or measures do not exist, a precautionary approach shall be applied".

The Fisheries Law requires all IOTC legally binding resolutions to be incorporated into the Seychelles legal framework.

Seychelles was compliant with IOTC requirements in 2015 (IOTC 2015).

The Seychelles Report of Implementation for the year 2016 (IOTC-2017-CoC14-IR22(E)) was submitted on 3 April 2017, 2 - 3 weeks after the deadline. The 2017 compliance report (IOTC-2017-CoC14-CR22 [E] IOTC Compliance Report for: Seychelles) identified a number of issues.

The Seychelles had failed to comply with a significant number of requirements.

- Provide all the mandatory information on the fleet development plan (missing: capacity & origin of vessels) (Resolution 12/11);
- Report size frequency for the coastal fisheries and longline fisheries to IOTC standard (Resolution 15/02);
- Report nominal catch on sharks to IOTC Standard, catch and effort on sharks to IOTC, and size frequency on sharks to IOTC Standard (Resolution 05/05);
- Fully implement the observer scheme, observer coverage unknown at sea for vessel > 24m, no observer coverage at sea for vessel < 24m and fully implement the observer scheme for artisanal landings (Resolution 11/04);
- Provide observer report to IOTC standard (Resolution 11/04);
- Provide the mandatory annual report on BET to IOTC Standard (Resolution 01/06);
- Inspect at least 5% of landing or transhipment (Resolution 10/11);
- Provide a complete implementation report, 4 sections not completed (IOTC Agreement);
- Provide a response to the letter of feedback, as requested by the Commission;
- Provide information on the implementation of the FAO guideline to reduce mortality of sea turtles (Resolution 12/04);
- Provide data on interactions with cetaceans (Resolution 13/04);
- Provide data on interactions with whale sharks (Resolution 13/05);
- Fully implement\ the observer scheme, vessels monitored and coverage by set type (Resolution 11/04);

- Provide the mandatory report on landings of foreign vessels in ports (Resolution 05/03).

The National Parks and Nature Conservancy Act (1969), establishes the framework for the declaration of different categories of protected area. Fishing is prohibited in 3 marine special reserves and 6 marine national parks.

As reported by the SFA in its 2014 annual report

> "*the co-management approach introduced in the new law will allow stakeholders (including NGOs, local fishers) participation, involvement and ownership of fisheries management regime. The new Act provides for stakeholders' consultation in the decision making of management plans and its implementation, monitoring and reviewing*".

Blue Economy is an emerging concept led by the FAO and embraced by the Government of Seychelles. It fosters an integrated approach to sustainable development based on an ocean-based economy. The implementation process has defined a roadmap for the definition of short, medium, and long-term actions across a broad range of sectors. The ultimate goals of the policy include: economic diversification; food security; sustainable management of the marine environment; and job creation, especially those of high value.

Blue Economy acknowledges that fundamental changes to the existing traditional approach to management of marine sectors and resources in Seychelles are needed. Among the expected outcomes of the policy are: the recovery and protection of ocean ecosystems and biodiversity; improved protective measures and greater use of surveillance and enforcement tools; improved fisheries management through equitable, non-subsidized and sustainable practices; and capacity building.

The Fisheries Act (2014) establishes an Appeals Board. Any person whose interests are adversely affected by an order, direction or other decision of the Authority, and who is dissatisfied with the decision, may appeal against the decision to the Appeals Board on the following grounds: (i) the decision of the Authority was contrary to provisions of the Act; or (ii) the decision of the Authority was manifestly unfair. However, no appeal is possible for: (i) any policy of the Authority; (ii) a decision of the Authority about an officer or employee of the Authority in the person's capacity as an officer or employee; (iii) a decision of the Minister about making a management plan or regulations for measures or plans for the management of fisheries; or (iv) a decision of the Minister on appointment or removal of a person or an authorised fishery **o**fficer.

Response to an appeal is required within a reasonable time. Those who are dissatisfied with the decision of the Appeals Board may appeal to the Supreme Court and the Supreme Court may make such order as the justice of the case requires.

The Fisheries Act (2014) introduces the concept of Fishery Management Plans, which are based on stakeholder participation i.e.

> "*In the preparation or review of the plan for the management of a fishery, the Authority shall consult the fisheries industry, local fishermen and such other persons engaged in fishing and fishing related activities as appear to the Authority to be appropriate*".

The Fisheries Act (2014) defines enforcement and sanctions. No infractions were reported for Spanish purse seiners in 2016 (IOTC 2017).

The vision of the Plan of Action (SFA 2016) for shark is effective conservation and management to enable the fulfilment of their ecological role and optimal long-term sustainable use, with shark mortality reduced and critical habitats managed such that shark populations are in recovery and special measures are in place for endangered / heavily depleted populations.

At the site visit, a main stakeholder, FBOA, commented that while the preparation of FMPs allows for stakeholder consultation, to-date (April 2017) there had been no indication of how stakeholder comments had been used. FBOA considers:

- The current consultation process to be cosmetic; and
- The lack of reporting on the decision-making process leads to a lack of transparency.

The IOTC 2016 meeting in La Reunion was the first in which the domestic fishery had been represented as an observer as part of the Seychelles delegation. FBOA prepared a paper for discussion with the intention of promoting a National position at the meeting.

Welch & Kerrigan (2015) note "*Stakeholders were particularly concerned with transparency in government and specifically requested that the word "transparent" be included in the goal, and that it also should appear in capital and bold letters to emphasise its importance*".

Amongst the findings of the Standing (2016) report assessing obstacles to implementing the Fisheries Transparency Initiative (FiTI) were:

- The Seychelles, through the SFA, provides quite comprehensive data on fisheries and can be considered strong in terms of transparency compared to other African States.
- Comprehensive information on fisheries is published in an Annual Report, although the publication of this has experienced some delays (the most recent report is for 2013).[6] However, more in-depth and up-to-date analysis has been provided through the 2015 Fisheries Statistical Report published by SFA. SFA were also able to provide a list of offences and penalties/fines in the fisheries sector.
- Transparency has improved over recent years. This has been influenced by the conditions agreed by the Government of the Seychelles through the World Bank's '*Sustainability and Competitiveness Development Policy Loan*',
- The objective of the World Bank programme was to support the SFA with an improved Fisheries Information System (FIS), and to disclose data on fish licenses and access agreements to the public. Also, the SFA should address confidentiality clauses in its access agreements that inhibit transparency, and that the Government undertakes to gain consent from necessary foreign partners to disclose information in existing agreements, and that all new access agreements contain a provision for mandatory disclosure of the contents of the agreement on the SFA's website.
- The SFA established an improved FIS and began publishing data on fishing licenses and agreements. A full list of fishing licenses for the industrial sector, including information on the owner of the vessel, vessel characteristics and dates of fishing authorisations, was published in a national newspaper, and is now accessible on the SFA website.
- However, difficulty remains in publishing the texts and contents of all access agreements. The Japanese, Taiwanese and Top Fortune agreements remain confidential and the texts of these agreements are not on the SFA website. Only the text of the bi-lateral agreement with Mauritius is on the SFA website. The EU agreement is not published by the SFA either, but this can be found through the EC website.
- Certain stakeholders (civil society organizations, as well as by staff in other Ministries) interviewed for the feasibility study claimed information on fisheries is still hard to obtain, leading to a perception that the SFA is not entirely transparent or efficient in sharing information. However, while the SFA's website is somewhat difficult to navigate, it is hard to agree that the information is not available.
- While the Seychelles has made progress on transparency in fisheries, there are some obstacles. The Fisheries Act mandates the SFA to collate comprehensive information on licensed operators, thereby satisfying the requirements of the key reporting elements identified by the FiTI Advisory Group. However, there is nothing in the Fisheries Act that clarifies public access to this information.
- The Constitution of the Seychelles (Article 28) provides for freedom of information, which could be applied to a range of data on fisheries. However, the country lacks legislation that would make this right available to citizens in practice, i.e. there is no Act on Access to Information.
- However, an important obstacle to achieving transparency at the level aspired to through FiTI lies with confidentiality clauses contained in access agreements, as well as the confidentiality policy used by the IOTC for tuna fisheries. Article 10 of the SFPA with the EU states: "*Both Parties shall ensure that only aggregated data related to fishing activities in the Seychelles' waters shall be made available to the public domain, in conformity with the provision of the appropriate IOTC resolution. Data which*

[6] The 2014 Annual Report was published in April, 2017.

may be considered as otherwise confidential shall only be used exclusively for the implementation of the Fisheries Partnership Agreement and for the purposes of fisheries management, monitoring, control and surveillance with the relevant competent authorities."

- The confidentiality clause contained in all EU SFPAs is likely to become redundant if the EU finalises the proposed Fisheries Authorisation Regulation (see above). This requires EU flagged vessels to report detailed information on an annual basis about catches and payments in third country's waters to the EC. It is likely that this data will be published, or at least obtained by civil society through access to information requests. This will have a knock-on effect for RFMOs who will come under pressure to develop policy that provides an even playing field. Nevertheless, for the time being, data confidentiality as regulated by the EU and RFMOs does pose an obstacle to achieving the levels transparency aspired to through the FiTI for the Seychelles

During the site visit, the head of Blue Economy and Chairman of the SFP (Michaud) indicated that the Government acknowledges previous shortcomings with stakeholder involvement in the decision-making process and that steps were being taken to remedy the identified deficiencies. This is most notable in the preparation of the FMPs (sea cucumber, lobsters and demersal on Mahe Plateau).

Reflecting its importance to the national economy, several government ministries, departments and agencies are involved in the fisheries sector:

- **Ministry of Investment, Natural Resources and Industry**: MINRF promotes sustainable, responsible fisheries development and optimizing the benefits from the sector.
- **Seychelles Fishing Authority:** SFA is the executive body responsible for: assessment and management of the fisheries resources; assistance in conducting negotiations with foreign fishing fleet operators; coordination and support of fishing ventures and owner/operators; management of the fishing port; development of gear technology; and coordination of manpower training in the fishing sector.
- The Monitoring and Control Unit is composed of the Fisheries Monitoring Centre and the Fisheries Control Unit. The main objectives of the Units are to: ensure compliance to the Fisheries Act and regulations, fisheries agreement and protocols; provide supports to local partners such as the Seychelles Coastguard and the National Drug Enforcement Agency; work with countries of the region to improve MCS implementation in a regional effort to eliminate IUU fishing activities; ensure compliance to the Licensing Act and Regulations; and ensure compliance to international legal framework plus the IOTC resolutions that has been endorsed by the Seychelles.
- **Ministry of Foreign Affairs**: MFA negotiates on fishing access and developing economic and trade relations with third countries and regional bodies.
- **Ministry of Finance, Trade and Investment**: MFTI covers taxation, trade and commerce and fiscal planning and control.
- **Ministry of Environment**: MOE is responsible for spatial planning.
- **Department of Defence (through the Seychelles Coastguard)**: The responsibilities relate to deterring maritime offences, environmental protection and development of regional cooperative strategies to deal with illegal activities.
- **Seychelles Bureau of Standards:** SBS covers quality standards for export of fish and issues health certificates for export.
- **Seychelles Ports Authority:** SPA is the responsible body for the operation of fishing ports.
- **Seychelles Maritime Safety Authority**: SMSA covers vessel registration.
- **Seychelles Licensing Authority:** SLA covers fishing authorisations.
- **Department of Transport:** DoT registers certificates and endorsements for seafarers.
- **National Assembly:** The national legislature defines Laws and Regulations to implement policy.

Seychelles is a member / signatory of:

- **IOTC:** (see above).
- **SADC**: The SADC fisheries protocol (2006) "emphasizes the responsibilities of Member States, international relations as well as the effective management of shared resources …. the Member States

agree to harmonise their domestic legislation with particular reference to fisheries and the management shared resources (and) to take adequate measure to optimize fisheries law enforcement resources" (http://www.sadc.int/documents-publications/show/801).

- **FISH-i Africa**.[7] Since 2012, FISH-i has worked to counter illegal activities and to increase compliance. The objectives of the Task Force are to: improve cooperation and information sharing; develop tools for the strategic gathering and use of information and for assessing risks; build national capacity to utilise information and tools; and strategize to improve targeted enforcement actions that increase compliance and provide a deterrence against illegal activities in the fisheries sector. In a recent publication, Fish-i (2017) reports on several investigations. One of these includes a Spanish flagged vessel. [8]
- **SmartFish**. This is a regional fisheries programme managed by the Indian Ocean Commission, funded by the EU and co-implemented by the FAO. It operates in 20 countries throughout the IO covering fisheries governance, management, MCS, trade, and food security
- **South-West Indian Ocean Fisheries Commission.** SWIOFC provides guidance to its members with the objective to promote the sustainable utilization of the living marine resources within the countries' EEZs by addressing common problems of fisheries management and development.
- **The South Indian Ocean Fisheries Agreement (SIOFA).**
- **UNCLOS.**
- **Straddling and Highly Migratory Fish Stocks Agreement.**
- **CITES.**

As reported by NFDS *et al* (2013) the Seychelles had 12 active 'private agreements' for purse seiners; 7 Seychelles-flagged but European-owned vessels and 5 non-Seychelles, non-EU vessels. The Seychelles has an active fisheries agreement for longline vessels with a Taiwanese Association and 'private agreements' for locally flagged vessels. In 2012, a total of 137 longline vessels were authorised to fish under these agreements.

Standing (2016) reports "*Alongside the EU FPA are several other fisheries agreements: bi-lateral reciprocal agreement between the Seychelles and Mauritius, which the current agreement is dated 2005 and is automatically renewed every 2 years; a private agreement with two Japanese fishing associations with members owning long line vessels (the Japan Agreement); a private agreement with the Taiwanese Deep Sea and Tuna Boat Owners and Exporters Association (the Taiwan Agreement); and a private agreement with the Chinese Company Top Fortune for long line vessels*".

In 2004, an agreement was signed with the EU allowing 8 Seychelles flagged vessels to fish in Mayotte[9] waters. Since 2014, vessels flying the Mayotte flag have been incorporated into the EU agreement after Mayotte's entry into the EU. The agreement (L167/4) establishes the principles, rules and procedures governing: economic, financial, technical and scientific cooperation in the fisheries sector with a view to ensuring responsible fishing in EU waters to guarantee the conservation and sustainable exploitation of fisheries resources, the conditions governing access by Seychelles fishing vessels to EU waters; the arrangements for policing fisheries in EU waters with a view to ensuring that the above rules and conditions are complied with, the measures for the conservation and management of fish stocks are effective, and that illegal, unreported and unregulated fishing is prevented.

[7] Comprises the Southeast African coastal states of Comoros, Kenya, Madagascar, Mauritius, Mozam-bique, Seychelles, Somalia and the United Republic of Tanzania

[8] "The Spanish flagged and owned purse seiner TXORI ARGI was fined for fishing without a licence in Mozambique waters and failing to report its catch. The vessel was detained whilst a settlement of USD 1.2 million was agreed and a bank guarantee was given. Upon release of the vessel, authorities in Mozambique were informed the fine would not be paid. Mozambique responded by proposing to place the TXORI ARGI on the IUU fishing list of the IOTC. In addition, fishing licences of other vessels owned by the same company were suspended by Mozambique. In the end, a settlement of USD 700 000 was agreed, the IUU listing of the vessel was dropped and the suspension of the fishing licences was lifted".

[9] Mayotte is an internal department of France to the NE of Madagascar.

The agreement between the EU and Seychelles covering fishing access around Mayotte provides for a joint committee, the duties of which include "*acting as a forum for the amicable settlement of any disputes regarding the interpretation or application of this Agreement*".

The bilateral 'Agreement between the Government of the Republic of Mauritius and the Government of the Republic of Seychelles on Fishing in Mauritian Waters' and the companion 'Agreement between the Government of the Republic of Seychelles and the Government of the Republic of Mauritius on Fishing in Seychelles Waters' were signed in 2005 and are automatically renewed for two years. The agreement permits up to 10 purse seiners and 20 longliners registered to Seychelles to fish for tuna in Mauritian waters.

Standing (2016) reports that several subsidies are provided to the fisheries sector in Seychelles; including: (i) preferential interest rates on loans for the purchase of fishing vessels and gears; (ii) fuel subsidy, operated through a voucher system, provided to fishers registered with the SFA; (iii) preferential trade tax and duty free fuel for semi-industrial boats targeting tuna and swordfish;(iv) rebates and non-payment of import duties for fishing bait, equipment and fishing gears; (v) subsidised ice; and (vi) exemptions for companies registered with the SFA for purchasing work permits for foreign employees.

ANABAC / Echebastar

Fishing Areas

Echebastar vessels fish for skipjack tuna in the IO through four main mechanisms: rights in international waters subject to the IOTC and flag state regulations; the Spanish flagged vessels operate under the terms of individual SFPAs; the Seychelles vessels operate under the terms of bilateral agreements; the Seychelles and Spanish flagged vessels operate under the conditions of private agreements; and the Seychelles and Spanish flagged vessels operate under the licensing conditions of individual coastal states according to the national fisheries laws of those states.

The situation for Echebastar varies from year-to-year according to national policies and the validity of agreements. There are different arrangements for the Spanish and Seychelles flagged vessels. The status of the various mechanisms as of April 2017 is shown in Table 43.

At that time, Spanish flagged vessels were licensed to fish in the EEZs of Seychelles, Madagascar, Kenya, Tanzania, Mayotte and Eparses. Seychelles flagged vessels were licensed to fish in the EEZs of Seychelles, Madagascar, Comoros, Kenya (2 vessels), Tanzania (2 vessels), Mauritius, Mayotte (1 vessel) and Eparses.

Table 43: Echebastar: Validity of Vessel Licenses April 2017.

	SPANISH FLAG			SEYCHELLES FLAG		
	ALAKRANTXU	ALAKRANA	ELAI ALAI	IZARO	JAI ALAI	EUSKADI ALAI
SEYCHELLES	17-ene.-18	17-ene.-18	17-ene.-18	31-ene.-18	19-mar.-18	27-jul.-18
MOZAMBIQUE	31-dic.-14	31-dic.-14	31-dic.-14	31-dic.-16	31-dic.-16	31-dic.-16
MADAGASCAR	31-dic.-17	31-dic.-17	31-dic.-17	30-jul.-17	1-may.-17	1-may.-17
COMORES	31-dic.-16	31-dic.-16	31-dic.-16	31-dic.-17	31-dic.-17	31-dic.-17
MAURICIO		27-ene.-17	27-ene.-17	8-nov.-17	8-nov.-17	8-nov.-17
KENIA	14-may.-17	22-abr.-17	22-abr.-17	31-mar.-17	14-may.-17	6-oct.-17
TANZANIA	5-may.-17	1-may.-17	1-may.-17	27-may.-17	16-abr.-17	13-sep.-16
CHAGOS						
MAYOTTE	8-sep.-17	25-ene.-18	25-abr.-19	31-dic.-16	31-dic.-16	31-dic.-17
EPARSES	31-dic.-17	31-dic.-17	31-dic.-17	31-dic.-17	31-dic.-17	31-dic.-17
LICENSES OPEN AT THE TIME OF THE SITE VISIT						

SFPAs

SFPAs aim to provide a sustainable and equitable framework for access of EU flagged vessels to fishing grounds of the coastal states in several oceanic areas including the IO. EU policy requires that EU flag vessels only catch that part of the available resources that is surplus to the domestic catching capacity of the coastal state's own fishing fleet.

The EU must conduct its external fleet in accordance with the objectives and principles set out in Articles 2 and 3 of the CFP.

- The CFP shall ensure that fishing and aquaculture activities are environmentally sustainable in the long-term and are managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies.
- The CFP shall implement the ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimised, and shall endeavour to ensure that aquaculture and fisheries activities avoid the degradation of the marine environment, including inter alia:

- Gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed;
- Where necessary, make the best use of unwanted catches, without creating a market for such of those catches that are below the minimum conservation reference size; and
- Be coherent with the Union environmental legislation, in particular with the objective of achieving a good environmental status by 2020 as set out in Article 1(1) of Directive 2008/56/EC, as well as with other Union policies.

Parts of the Preamble relevant to SFPAs and P2 elements are:

- Sustainable fisheries partnership agreements with third countries should ensure that Union fishing activities in third country waters are based on the best available scientific advice and relevant information exchange, ensuring a sustainable exploitation of the marine biological resources, transparency as regards the determination of the surplus and, consequently, a management of the resources that is consistent with the objectives of the CFP. Those agreements, which provide for access to resources commensurate with the interests of the Union fleet in exchange for a financial contribution from the Union, should contribute to the establishment of a high quality governance framework to ensure, in particular, efficient data collection, monitoring, control and surveillance measures. (52) Under a fishery protocol, the EU's financial contribution to a partner country comprises: (i) access fees for EU vessels to fish in the EEZ of a coastal state, which are paid directly to the country's national exchequer; and (ii) funds to support the sustainable development of the coastal state's fishing industry.

Reg (EU) 1380/2013 requires SFPAs to :

- Ensure that Union fishing activities in third country waters are based on the best available scientific advice and relevant information exchange and contribute to the establishment of a high-quality governance framework to ensure, in particular, efficient data collection, monitoring, control and surveillance measures; and
- Establish a legal, environmental, economic and social governance framework for fishing activities carried out by EU fishing vessels through: development and support for scientific and research institutions; strengthening MCS capabilities; and other capacity building activities related to the development of a sustainable fisheries policy.

As of April 2017, the EU had three active SFPA protocols with third countries in the IO: Madagascar (until 2018), Seychelles (until 2020) and Mauritius (from April 2017). The protocols with Mozambique (from 2015) and Comoros (from 2016) are dormant.

The signatories share responsibility for the effective implementation of SFPA protocols. A Joint Committee comprising representatives of both parties monitors the application of the SFPA and acts as the mediator in any dispute.

As reported in European Parliament 2017, http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/603933/EPRS_BRI(2017)603933_EN.pdf

> *"All (SFPAs) include an exclusivity clause which prevents EU vessels from fishing in waters covered by the agreements outside the framework of an associated protocol. Only two agreements are active: with Seychelles (protocol in force until 17 January 2020) and with Madagascar (until 31 December 2018)"*.

Poseidon et al (2014) report

> "*According to the Article 27(4) of the Financial Regulation and Article 21 of its Implementing Rules, Commission Services have to ensure that the spending activities they manage are subject to an ex post and/or ex ante evaluation in terms of the human and financial resources allocated and the results obtained to verify consistency with the set objectives… The Commission requires the evaluation and analysis of impacts to support its focus on improving the quality and coherence of the policy development process*"

Reg. (EU) 1380/13 establishes the need for independent ex-ante and ex-post evaluations of each SFPA protocol. These measure the protocols according to effectiveness, efficiency, sustainability, coherence and relevance.

The confidentiality clause included in all EU FPAs is likely to become redundant if the EU finalises the proposed Fisheries Authorisation Regulation.[10] [11]

Details on the SFPAs is included in the country sections below.

Vessels Licensing in the EEZs of Other Coastal / Island States

OPAGAC (2017) highlights:

> "*In the countries where the EU does not have a SFPA, and to ensure access of EU vessels to the EEZs of coastal countries, OPAGAC/ANABAC establish private agreements. The Spanish government …checks the authenticity of fishing licenses obtained privately and validates them through diplomatic channels; the (partner) governments receive copies of the (vessel) licenses; and (IOTC) requests the parties to notify them when agreements or fishing permits exist to fish in their waters with vessels flagged elsewhere*".

The Echebastar Seychelles flagged vessels must fish under bilateral agreements or licenses.

As noted by IPNLF quoting from the Oceana document (EJF *et al* 2016)

> "*The strict standards established for SFPAs do not currently extend to vessels fishing under private agreements established directly between EU companies and coastal States... Even though vessels fishing under these agreements fly the flags of EU member states – and their catches have the same EU market access as catches under SFPAs – there are no common procedures to ensure that activities under these agreements comply with EU laws and adhere to CFP standards. A major gap that limits the effective oversight of vessels fishing under private agreements is the lack of requirements for details of these agreements to be reported to the EU flag State and the European Commission, or for key information to be made publicly available. The lack of public information on these agreements makes it extremely difficult to determine the number of EU vessels fishing under such agreements, where these vessels are fishing and for which species, in order to assess the impact on local fish stocks*".

EJF *et al* (2016) go on to recommend that key information should be made publicly available to improve transparency and accountability, and to facilitate oversight of fishing activities under private arrangements.

Res (IOTC) 14/05 requires

> "*Private agreement. All CPCs which issue licenses to foreign flag vessels to fish in their EEZ for species managed by the IOTC in the IOTC area of competence …. shall submit to the IOTC Executive Secretary, by 15 February every year, a list of all foreign flag vessels to which such licences have been issued during the previous year*".

Client Earth (2017) reports

> "*In December 2015, the (EC) issued a proposal for a regulation on the sustainable management of external fishing fleets. This proposal sets the conditions that must be fulfilled by fishing operators before they can be authorised to fish outside EU waters. It is comprehensive as it covers all possible situations: operations in*

[10] http://ec.europa.eu/dgs/maritimeaffairs_fisheries/consultations/far/index_en.htm The aim of this consultation was the possible revision of the Council Regulation (EC) No 1006/2008, of 29 September 2008, concerning authorisations for fishing activities of Community fishing vessels outside Community waters and the access of third country vessels to Community waters, amending Regulation (EEC) No 2847/93 and (EC) No 1627/94 and repealing Regulation (EC) No 3317/94. The main objective of this revision was to strengthen and simplify the existing legal framework, in consistency with control and IUU policies, and address key issues such as repetitive reflagging and regulating private fishing arrangements of the EU fleet outside EU waters. Therefore, the update of the framework for EU vessels fishing outside European waters would ensure better coherence between the EU Common Fisheries Policy and its external dimension. Some key concrete objectives in the revision of this legal framework: Comprehensive: Completing the scope of the FAR to cover all cases which may require fishing authorisations, for EU vessels outside EU waters, and thus setting a level-playing field and creating transparency. Simpler: The current system is complex. Simplifying and clarifying the distribution of tasks between the Commission and Member States' authorities with the intention to cut red tape and administrative burden and costs, where possible. Consistent: Ensuring full consistency with the EU legal framework regarding the fight against IUU and control of fishing activities.

[11] As of May 2017, no action appears to have been taken. http://ec.europa.eu/dgs/maritimeaffairs_fisheries/consultations/far/index_en.htm

third countries' waters under (SFPAs) or through direct authorisations; chartering under a third country flag and subsequent reflagging in the EU; fishing under the auspices of a (RFMO), whether on the high seas or in areas under national jurisdiction; and fishing operations in the high seas, including for fisheries not regulated by an RFMO".

Client Earth (2017) recommends:

"*The following amendments from the European Parliament are of particular importance and should be maintained in the final agreement: ◦ Article 5 (1)(d) – Eligibility criteria: Amendment 78 on the obligation for masters and fishing vessels to demonstrate a clean record of compliance for a 12 month period prior to their application for a fishing authorisation to operate outside EU waters; ◦ Article 39 – Union fishing authorisation register: Amendment 69 on the obligation to include information on beneficial ownership in the Union fishing authorisation register; ◦ Recital 17, Articles 25(1)(a) and 26(1) – Fishing activities by Union fishing vessels on the high seas: Amendments 19, 56 and 57 on the obligation for operators to provide to their flag (MS) a scientific evaluation assessing the sustainability of proposed fishing activities that will take place on the high seas*".

FIP

In April 2017, a FIP for the tuna fishery was formally established (ANABAC 2017) "it will focus in key areas such as the development of robust harvest strategies for tuna, management measures to maintain primary and secondary species above biological limits and providing a framework to manage ecosystem effects associated with purse seine fishing. Moreover, this FIP will emphasise on supporting the recovery plan of the yellowfin stock in the Indian Ocean, will work closely with the IOTC to improve fisheries governance in the region. The plan covers catches of skipjack, yellowfin and bigeye tuna species from around 40 industrial purse seine fishing vessels owned by Spanish, French, Italian, Mauritian and Seychelles flagged companies".

Code of Practice

ANABAC and OPAGAC signed in February 2012 a Code of Good Practices for responsible tuna purse-seine fishing. This code, in force in all the OPAGAC-AGAC and ANABAC-OPTUC fleets, aims to:

- Improve the operations performed in the tuna purse-seine fleet by both organizations;
- Improve the selectivity of fishing with FADs; and
- Minimize the impact of fishing on the ecosystem.

Rules were established regarding the design of FADs and the release of the fauna that can be found associated with the FADs. Specific objectives are the total replacement of non-conforming FADs by non-entangling FADs, and the release of incidentally caught or FAD-associated fauna, ensuring the safety of the crew and maximizing the survival of released animals.

Observers

When IOTC required 5% observer coverage, Echebastar committed to the goal of 100% with effect from the 2014 fishing season, and the assessors have received confirmation from SFA that was implemented.

In 2014, the National Observer Training Programme of SFA was conducted in part by Oceanic Développment using a standardized scientific on-board observer knowledge package and skills. About 44 on-board observers received training at each of two different 10-day courses in Seychelles in 2014 and 2015. The programme coordinator programme supervisor received additional training in SFA and France.

A number of subjects were covered in the training courses.[12]

[12] General aspects in fisheries management, Description of tuna fishing on purse seiners: equipment and techniques, Programme outlines, observer's duties, calendar, Best Practices: sharks, rays and sea turtles release modes; non-entangling DFAD, Target and bycatch species identification, Sampling protocol, on site data gathering (paper forms), Digital data entry (ObServe DB). Visit to a purse seiner, Knowledge test

The SFA uses a software package (Observer) developed by IRD to record scientific observation data. Other countries in the region use a different database developed by SWIOFP.

A manual prepared by Oceanic Développment and IRD for use by on-board observers was published in March 2015.

The Seychelles national programme forwards the data and/or observer reports to the national fisheries management division at SFA which ensures that observer data complies with IOTC resolution 11/04. This requires data to cover at least 5% of the number of operations/sets while fishing in the IOTC area of competence.

SFA has also coordinated 4 other scientific on-board observer programmes on tropical tuna purse seiners in the past 3 years: OCUP, ANABAC, OPAGAC and Dongwon Industrial (Korea). The coverage of these programmes has varied: from 25% in OCUP during 2015 to 100% on ANABAC and OPAGAC programs during the first six months of 2015.

SFA is working with AZTI to improve the capacity of the SFA Observer Programme. In May 2016, AZTI established a Permanent Office in Victoria, Mahé. The two main objectives at the outset were: to increase the proportion of reporting by the Spanish owned fleet which had been lower than expected due the rapid expansion of the observer program and the recently trained observers; and to increase the number of trained observers and the quality of training.

Since 2016, AZTI training courses in the Seychelles have led to new training or refresher training of 60 observers

AZTI supports SFA to implement the ANABAC and OPAGAC observer programmes. [13]

This process has led to the achievement of 100% observer coverage of all purse seiners in 2017, with processed data reaching 96.2%.

IUU Fishing

The EU has been to the forefront in the fight against illegal, unreported and unregulated fishing (IUU).

- The EU Regulation to prevent, deter and eliminate IUU fishing entered into force on 1 January 2010. The EU works actively with all stakeholders to ensure coherent application of the IUU Regulation.
- Only marine fisheries products validated as legal by the competent flag state or exporting state can be imported to or exported from the EU.
- An IUU vessel list is issued regularly, based on IUU vessels identified by RFMOs.
- The Regulation allows steps to be taken against countries that turn a blind eye to IUU fishing: if there is not a response to a preliminary warning, a country may be identified and black listed for not acting against IUU fishing.
- EU operators who fish illegally anywhere in the world, under any flag, face substantial penalties proportionate to the economic value of their catch.

In 2014, ANABAC filed a motion aimed at strengthening the fight against illegal fishing and reinforce the definition IUU fishing. Also, in 2013 ANABAC coordinated a workshop on the issue of transparency in fishing (http://anabac.org/index.php/en/newsmenu/84-transparency-in-fishing).

In 2012, the Spanish flagged and owned purse seiner Txori Argi was fined for fishing without a licence in Mozambican waters and failing to report their catch https://fish-i-africa.org/wp-content/uploads/2017/03/12-Avoidance-of-penalties-the-TXORI-ARGI.pdf. The vessel is owned by a Bermeo company which, until recently was a member of ANABAC (http://europa-azul.es/inpesca/). The Mozambiquen authorities requested that the vessel be placed on the IUU register; in turn the EU requested that this not be

[13] Plan and coordinate the deployment of observers; standardize criteria within the international observer tropical tuna programs; training of observers and advice de-briefers, coordinator and program manager; establish observer's on-board priorities, always dependent on the program main objective; standardize the manual and other documents used by the Best Practice programme; define data and procedures for observation data sharing; develop minimum observer certification criteria; and set up an observer certification process

done (see IOTC–2013–CoC10–R[E] Report of the Tenth Session of the Compliance Committee Mauritius 2–4 May, 2013. The case was resolved in 2013 (https://www.undercurrentnews.com/2013/07/23/spanish-tuna-vessel-settles-iuu-case-with-mozambique/) with the payment of a fine and the vessel was able to continue fishing.

Prior to the site visit, the assessors were aware of concern in the Maldives about potential IUU fishing by an Echebastar vessel. Echebastar informed the assessors of the circumstances (the health of a fisher about Christmas 2016 that led to the vessel in question requesting permission to enter the Maldives EEZ and arrange for hospital / medivac in Mahe). Subsequently, there has been publicity about alleged IUU fishing (http://www.fis.com/fis/worldnews/worldnews.asp?monthyear=10-2017&day=9&id=94146&l=e&country=&special=&ndb=1&df=0) to which Echebastar is responding http://gepa.globallycool-dev.nl/market-news/tuna-fishing-group-echebastar-refutes-iuu-claims/. As the issue remains to be resolved and at this stage is an allegation, the assessors have not considered this in the scoring of the fishery.

The IOTC reviews information on IUU fishing and confirmed instances leading to a vessel being included on the "*List of Vessels Presumed to have conducted illegal, unregulated and unreported fishing*" (IUU list). The process is described in Resolution 17/03 that replaced Resolution 11/03 (http://www.iotc.org/cmm/resolution-1703-%E2%80%A8on-establishing-list-vessels-presumed-have-carried-out-illegal-unreported-and). The Resolution describes the definition of IUU fishing activities, submission of information on IUU fishing activities, the vessel list (draft, provisional and confirmed, actions against IUU Vessels, vessel delisting procedures, and publication of the list.

Countries

Comoros

Background. In identifying Comoros as a non-cooperating third country https://ec.europa.eu/fisheries/question-and-answers-eus-fight-against-illegal-unreported-and-unregulated-iuu-fishing-5_en reports:

> "*The Comoros is a typical flag of convenience, i.e. registering a ship in a sovereign state different from that of the ship's owners. Registration is partly outsourced to natural and legal persons outside the Comoros. Most of the Comorian fleet operates in breach of the Comorian law and requirements in the eastern Atlantic (approximately 20 vessels). The Commission has also collected evidence of suspected illegal at-sea transhipments and joint operations. The Comoros has failed to address its problems in reviewing the management of its fishing and fishing-related register; adopt an adequate legal framework and robust registration and licensing procedures; take appropriate measures against its vessels operating illegally; reinforce its Monitoring Control and Surveillance capacities; effectively cooperate with the Commission and the States in whose territorial waters Comorian vessels operate; and address the issue of lack of cooperation between national bodies in charge of registration of vessels and those in charge of fisheries*".

Echebastar Spanish Flagged Vessels**.** In 2016 Spanish flagged vessels harvested 60 t of skipjack, with an overall catch of tuna of 90 t. in the Comoros EEZ. The vessels were active under a SFPA. Fishing cooperation between Comoros and the EU was first established in 1988, there was a fisheries partnership agreement between 2005 and 2016. A protocol has not been in force since the end of 2016.[14] A new protocol was initialled in March 2016, however its signature depends on progress on illegal, unreported and unregulated (IUU) fishing matters, as Comoros was warned with a yellow card in October 2015 (European Parliament 2017).

Echebastar Seychelles Flagged Vessels. In 2016 Seychelles flagged vessels harvested 460 t of skipjack, with an overall catch of tuna of 690 t. in the Comoros EEZ.

The vessels fished under the terms of an agreement between the Union of Comoros and ANABAC that was signed in October, 2014 with a duration until end-2017 (Annex 12 – 20.1).

[14] (https://ec.europa.eu/fisheries/cfp/international/agreements/comoros_en

- Article 5 covers mandatory vessel position and catch reporting.
- Article 6 does not allow fishing within 12 nm of the baseline or within 3 nm of a stationary FAD.
- Article 7 requires any catch of Latimeria chalumnae to be presented to Comoros.
- Article 8 requires ANABAC to promote Spanish / Comoros cooperation in training.
- Article 9 requires the use of VMS.
- Article 11 facilitates the at-sea verification of catches by Comoros.
- Article 13 covers the dispute mechanism.
- Article 14 requires an annual evaluation of the agreement.

IOTC. The 2017 compliance report (IOTC-2017-CoC14-CR03 [E] IOTC Compliance Report for: Comoros) found that Comoros had not provided any information on the ban on oceanic whitetip sharks, as required by Resolution 13/06. However, these issues are not related to the UoA

Eparses

Background. Îles Éparses comprises 4 small coral islands, an atoll (Glorieuses, Juan de Nova, Bassas de India Europa and Tromelin), and a reef in the Indian Ocean, all within 450 km of Madagascar. They have been part of the French Southern and Antarctic Lands (TAAF) since February 2007. They have never had a permanent population. France claims an EEZ of 200 nautical miles around each of the islands. It is administered by the Government of France from Réunion. (https://en.wikipedia.org/wiki/Scattered_Islands_in_the_Indian_Ocean).

Echebastar Spanish Flagged Vessels. In 2016, Spanish flagged vessels harvested 65 t of skipjack, with an overall catch of tuna of 128 t. in the Eparses EEZ. The vessels fished under the terms of the CFP.

Echebastar Seychelles Flagged Vessels**.** In 2016 Seychelles flagged vessels harvested 269 t of skipjack, with an overall catch of tuna of 414 t. in the Eparses EEZ.

The vessels fished under an agreement signed between the French Antarctic Territories and the Republic of Seychelles that was renewed in February, 2017 (Annex 12 20.2).

- Art 1. Licenses are renewable annually.
- Art 3. Refers to prohibited catch of defined species.
- Art 6. Supply vessels must be named.
- Art.7. No transshipment in the EEZ.
- Art.8. VMS requirements.
- Art 9 & 10. Observer requirements.
- Art 11. Suspension of license for not complying with Art. 9 & 10.
- Art. 12 covers sanctions.
- Annex II: Covers measures related to the protection of the environment – including the catch of specified species and ETP species. Purse seiners cannot discard tunas, with exceptions for bigeye, skipjack and albacore as specified.
- Annex III: Covers observer requirements.

IOTC. The 2017 compliance report (IOTC-2017-CoC14-CR06 [E] IOTC Compliance Report for: France (OT)) did not identify significant non-compliance issues for discussion.

Kenya

Background**.** As reported in European Parliament (2017)

> *"In July 2016, the Council adopted a decision authorising the Commission to begin negotiations, on behalf of the EU, for the conclusion of a fisheries agreement and protocol with Kenya.*
>
> *A major strategic objective is the transformation of its artisanal tuna fisheries into modern commercially-oriented fishing activities both in coastal areas and in the EEZ. This is based on upgrading and restructuring the artisanal tuna fisheries, attracting increased landings from foreign vessels – including through*

negotiation of an SFPA, increasing investment in the tuna industry (e.g. by developing a domestic tuna offshore fleet by means of leasing, flagging and joint ventures), and securing access for Kenya's tuna products to world markets.

The strategy also intends to develop an effective governance system for tuna fisheries that takes into account national, regional and international requirements".

The Fisheries Act (2016) replaced the one dating from 1991.

- Section 5 requires the long-term sustainable use, conservation and management of fisheries resources and habitat, and adoption and implementation of management measures in such a manner as to ensure that the fisheries resources and habitat are not overexploited, threatened or endangered. The precautionary approach at no less standard than set out in any international agreement is required. The Law provides for effective implementation of international agreements and relevant international laws in conformity with the Treaty Making and Ratification Act, 2013
- Para. 46 covers the protection of marine mammals
- Part XII allows the licensing of foreign fishing vessels License renewal after 1 year would depend on a number of issues including compliance with the laws of Kenya and the terms of the access agreement, arrangement, right, licence or authorization.
- Part XIII covers MCS.

Echebastar reports that due to a change in Kenyan requirements their vessel licenses have not been renewed and they are not fishing Kenyan waters; nor is it likely that activity will be resumed in 2018

Echebastar Spanish Flagged Vessels**.** In 2016, Spanish flagged vessels harvested 45 t of skipjack, with an overall catch of tuna of 124 t. in the Kenya EEZ. The fishing was authorised through individual vessel licensing in accordance with the Kenyan fisheries law (see above).

Echebastar Seychelles Flagged Vessels**.** In 2016, Seychelles flagged vessels harvested 52 t of skipjack, with an overall catch of tuna of 112 t. in the Kenya EEZ. The fishing was authorised through individual vessel licensing in accordance with the Kenyan fisheries law (see above).

IOTC**.** The 2017 compliance report (IOTC-2017-CoC14-CR12_Rev2 [E] IOTC Compliance Report) concluded: general lack of compliance with IOTC measures and response from Kenya; and not presenting reports and information as required by IOTC Resolutions and the Commission. However, these issues are not related to the UoA.

Madagascar

Background**.** The legal framework is based on *Ordonnance n°93-022 du 4 mai 1993, portant réglementation de la pêche et de l'aquaculture* and *Décret n° 94-112 du 18 février 1994, portant organisation générale des activités de pêche maritime*. (http://www.fao.org/fishery/facp/MDG/en).

Randria-Nariso[15] found that Madagascar is bounded of the pillars of the international fishery law and other instruments and/or arrangements including incorporation into tuna management in the regional level, valorization / use / promotion of EEZ to open the Maritime Zone for EEZ to foreign fishing vessels by bilateral and/or multilateral agreements; application of instruments defined as principles and norms of international fishery treaties; and including fisheries activities in national policy of development and management using the coastal zone management integrated approach.

Echebastar Spanish Flagged Vessels**.** In 2016, Spanish flagged vessels harvested 198 t of skipjack, with an overall catch of tuna of 374 t. in the Madagascar EEZ.

[15] Implementation of International Fisheries Management Policy and Law by Madagascar L. Ylénia Randria-Narisoa
Http://www.un.org/depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/randrianarisoa_0607_madgascar_PPT.pdf

The vessels fished under the terms of the current protocol to the fisheries partnership agreement between the EU and Madagascar covering the period 1 January 2015 – 31 December 2018. (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22014A1219(02)&from=EN)

Echebastar Seychelles Flagged Vessels**.** In 2016, Seychelles flagged vessels harvested 878 t of skipjack, with an overall catch of tuna of 1,221 t. in the Madagascar EEZ.

The vessels fished under the terms of the agreement between ANABAC and the Republic of Madagascar (Annex 12 20.3) signed in June 2015 and in force for a period of 3 years.

- Art 1: Defines the fishery zone (no fishing within 20 miles of baseline and defined fishing banks that have demersal resources).
- Art 2. By catch on non-tuna species is limited to a maximum of 5% and no shark finning is allowed. ETP species must be returned to the water.
- Art. 3. The agreement only covers purse seiners that are not EU flagged. All vessels must be registered with the IOTC.
- Art. 4. Covers VMS and observers.
- Art. 5. Covers vessel inspection by national authorities.
- Art. 6. The license is renewable annually.
- Art. 8. Licenses may not be renewed if the resources are considered over exploited.
- Art. 11. Covers data reporting.
- Art. 12. Covers vessel movements.
- Art. 13. Requires a Malagasy observer.
- Art. 14. Requires 2 Malagasy fishers.
- Art. 15. Covers vessel inspection.
- Art. 19. Concerns dispute resolution (conversation and if that fails arbitration).
- Art. 20. All licensed vessels must respect all IOTC regulations.

IOTC. The 2017 compliance report (IOTC-2017-CoC14-CR14 [E] IOTC Compliance Report for: Madagascar) found: non-compliances with the reporting on coastal fisheries; non-report of size frequency for sharks; and has not finalized the designation of competent authorities in its ports. However, these issues are not related to the UoA.

Mauritius

Background. The Fisheries and Marine Resources Act 2007 allows for fishing by licensed foreign vessels (Art 34) and bilateral and private agreements (Art 35).

Echebastar Spanish Flagged Vessels**.** In 2016, Spanish flagged vessels harvested 55 t of skipjack, with an overall catch of tuna of 135 t. in the Mauritius EEZ.

The vessels fished under the terms of the fisheries protocol concluded between the EU and Mauritius for the period 28.1.2014 – 27.1.2017 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014D0146&from=EN).

The new protocol signed in April 2017 will come into force after completion of adoption procedures on both sides (EU Parliament 2017).[16]

Echebastar Seychelles Flagged Vessels. In 2016, Seychelles flagged vessels did not fish in Mauritius waters. In 2014, they fished 25 t of skipjack out of a total tuna catch of 51 t.

The bilateral 'Agreement between the Government of the Republic of Mauritius and the Government of the Republic of Seychelles on Fishing in Mauritian Waters' and the companion 'Agreement between the Government of the Republic of Seychelles and the Government of the Republic of Mauritius on Fishing in Seychelles Waters' were signed in 2005 and are automatically renewed for two years ((Annex 12 20.3).

[16] http://www.europarl.europa.eu/oeil/popups/ficheprocedure.do?lang=&reference=2017/0223(NLE)#basicInformation

The agreement permits up to 10 purse seiners and 20 longliners registered to Seychelles to fish for tuna in Mauritian waters. The framework for this access includes: the requirement for vessels to hold a valid licence, to have a transmitting VMS on board, to complete a fishing logbook, to report entry and exit, to not trans-ship at sea, and that ship owners endeavour to trans-ship the catch in a Mauritian port and permit a Mauritian observer on-board if requested by the Mauritian authorities. The agreement also provides a framework for parties to coordinate actions directly or within international organisations to ensure the management and conservation of the living resources in the Indian Ocean, particularly highly migratory species (HMS). The companion agreement is similar but permits up to 10 purse seiners and 20 longliners registered to Mauritius access to fish for tuna in Mauritian waters. At the 11th Session of the Mauritius–Seychelles Commission on Bilateral Cooperation held in Victoria, Seychelles in October 2015, in respect to fisheries it was agreed to: collaborate on MCS and to eventually have joint patrols in the combined waters to reduce IUU fishing; cooperate on developing aquaculture in particular mariculture; and reciprocally exchange officers in seafood quality control and inspection. It was also proposed (by Mauritius) to find a mechanism to share bycatch for value addition and local consumption and to work towards addressing the issue of retaining bycatch on board at IOTC.

IOTC**.** The 2017 compliance report (IOTC-2017-CoC14-CR17 [E] IOTC Compliance Report for: Mauritius) identified a number of issues. However, these issues are not related to the UoA.

Mayotte

Background**:** Mayotte is an insular department and region of France.

Echebastar Spanish Flagged Vessels**.** In 2016 Spanish flagged vessels harvested 86 t of skipjack, with an overall catch of tuna of 110 t. in the Mayotte EEZ.

Echebastar Seychelles Flagged Vessels**.** In 2016 Seychelles flagged vessels harvested 103 t of skipjack, with an overall catch of tuna of 146 t. in the Mayotte EEZ.

The vessels fished under the terms of Decision (EU) 2015/238 that covered the agreement between the EU and the Republic of Seychelles on access of Seychelles flagged fishing vessels to the EEZ of Mayotte (https://normativapesquera.files.wordpress.com/2015/03/dec-2015-238.pdf). The vessels are subject to the rules and regulations of the CFP and the conservation and management measures of the IOTC.

IOTC. The 2017 compliance report (IOTC-2017-CoC14-CR06 [E] IOTC Compliance Report for: France (OT)" concluded "*having reviewed the 2017 Compliance Report for France (OT), the Chair of the Compliance Committee has not identified significant non-compliance issues for discussion".*

Mozambique

Echebastar Spanish Flagged Vessels. In 2014 - 2016 Spanish flagged vessels did not fish the Mozambique EEZ. The latest protocol between the EU with Mozambique expired in January 2015 and negotiations for a new one are currently suspended owing to divergences between the parties (EU Parliament 2017).

Echebastar Seychelles Flagged Vessels. In 2016 Seychelles flagged vessels did not fish the Mozambique EEZ. In 2015, they caught 110 t of skipjack in a total tuna catch of 170 t.

IOTC. The 2017 compliance report (IOTC-2017-CoC14-CR18 [E] IOTC Compliance Report for: Mozambique) identified failure to report: nominal catch on sharks to IOTC Standard, catch and effort on sharks and size frequency on sharks. These issues are not related to the UoA.

Seychelles

Echebastar Spanish Flagged Vessels**.** In 2016 Spanish flagged vessels harvested 1,553 t of skipjack, with an overall catch of tuna of 3,317 t. in the Seychelles EEZ. The vessels fished under the terms of the Protocol between the EU and Seychelles (EU 2014) incorporates extensive provisions on sustainable fisheries, scientific advice, information and data sharing and MCS. The EU states (http://ec.europa.eu/dgs/maritimeaffairs_fisheries/magazine/en/policy/sustainable-fishing-future-home-

and-abroad) "*The new agreements are … science-based, fair and sustainable, governed by enforceable regulations, strengthened in their monitoring and control framework, (and) fully transparent*".

In relation to the Seychelles SFPA, the report by NFDS *et al* (2013) includes the following findings:

- The EU plays a significant role in promoting best practice. It works with the Seychelles and regional partners to ensure sustainability and responsibility in fishing. The SFPA provides a transparent framework which ensures that all EU vessels fishing in the Seychelles waters are authorised and that they respect the provisions of the Protocol controlling key areas such as; catch recording; landing and transhipment; the use of VMS; and inspections and enforcement.
- The SFPA framework has been the basis for mutually beneficial agreements and an alliance that has consolidated both partners' positions within the WIO. It has also provided extra safeguards, beyond those provided by the IOTC or under Seychelles' legislation, that contribute to the long-term sustainability and responsibility of fishing in the Seychelles' EEZ and the WI.
- For the Protocol to be coherent with the CFP it must be coherent with IOTC management measures e.g. through managing fishing capacity and effort, and controlling catches and minimising by-catch. In terms of regional policy there is coherence between the SFPA and key SADC fisheries instruments on issues such as VMS, observers, local employment and the promotion of IOTC. However, the application of these, and especially the sharing of information is not as coherent as it could be, nor is the promotion of regional harmonisation a condition for access. The Seychelles SFPA is coherent with the IOC's fishery programmes and is consistent with the FAO's Code of Conduct for Responsible Fisheries.

Echebastar Seychelles Flagged Vessels. In 2016 Seychelles flagged vessels harvested 2,971 t of skipjack, with an overall catch of tuna of 5,198 t. in the Seychelles EEZ.

Tanzania

Background. The Deep-Sea Fishing Authority Act (2009) (Article 6) the licensing of foreign fishing vessels. Echebastar reports that due to a change in Tanzanian requirements their vessel licenses have not been renewed and they are not fishing Tanzanian waters; nor is it likely that activity will be resumed in 2018.

Echebastar Spanish Flagged Vessels. In 2016 Spanish flagged vessels harvested 329 t of skipjack, with an overall catch of tuna of 1,173 t. in the Tanzania EEZ. The fishing was authorised through individual vessel licensing in accordance with the Tanzanian fisheries law (see above).

Echebastar Seychelles Flagged Vessels**.** In 2016 Seychelles flagged vessels harvested 217 t of skipjack, with an overall catch of tuna of 422 t. in the Tanzania EEZ. The fishing was authorised through individual vessel licensing in accordance with the Tanzanian fisheries law (see above).

IOTC. The 2017 compliance report (IOTC-2017-CoC14-CR28 [E] IOTC Compliance Report for: Tanzania) identified a large number of non-compliances. However, these issues are not related to the UoA.

8.3. P3: Scoring Tables

Table 44: PI 3.1.1 – Legal and/or customary framework

Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	Yes	Yes	No
	Justification	IOTC provides a framework for cooperation between the various parties managing the UoA, with the legal framework in Seychelles and EU (the two flag states) governing the fishing effort by their flagged fishing vessels incorporating IOTC regulations. The legal system of the two, in the context of the IOTC. provides an effective basis to deliver management outcomes consistent with the MSC standard. The IOTC, with members including those coastal and island states with EEZs where Echebastar fishes, provides the required framework for cooperation with procedures for data collection, stock analysis, scientific advice (UNSFA Art. 10) and management tools. Other parties involved in the IOTC process are a range of interested stakeholders that participate as observers. • SG60 is met. IOTC resolutions are incorporated into EU and Seychelles legislation. The main functions of IOTC include: (i) the collection, sharing and dissemination of scientific data; (ii) the scientific assessment of stock status and development of management advice; (iii) the agreement and delivery of management actions consistent with the advice; and (iv) monitoring and control. The result of the work is shown by the number of IOTC regulations and the progress that has been made in establishing sustainable fisheries. This provides evidence of organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2. • SG80 is met The IOTC system allows for formal cooperation, with resolutions that are binding unless and individual CPs elects opt out. The EU and Seychelles regulations establish the detail required to implement the regulations e.g. vessel licensing and fishery agreements with other countries. Together the jurisdictions establish: (i) when and where people can fish; (ii) who can fish; (iii) how they may fish;(iv) how much they can catch; (v) what they can catch; (vi) regulations; (vii) responsibilities for the gathering and analysis of information; and (viii) enforcement and sanctions. The country and compliance committee reports indicate a large number of issues in the implementation of the resolutions by many CPs and NCPs, including Seychelles & EU. In effect, this provided evidence that the resolutions are binding. To-date cooperation has not demonstrably and effectively delivered UNFSA Article 10 i.e. agreement and compliance with conservation and management measures, to ensure the		

		long-term sustainability of straddling fish stocks and highly migratory fish stocks. For example, it would be possible for individual CPs not to apply Reg (IOTC) 16/01 and Reg (IOTC) 16/02 which are key for the management of yellowfin, bigeye and skipjack. • SG100 is not met		
b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.
	Met?	Yes	Yes	No
	Justification	As evidenced in the main text above, each jurisdiction has a mechanism for dealing with disputes: IOTC: meetings, expert panels, potential intervention through the ICJ; EU: application of IOTC procedures; and Seychelles: application of IOTC procedures, appeals board, amicable settlement. • SG60 is met The basis for dispute resolution in the IOTC is the annual meetings, which provide the framework for a proactive approach to dispute resolution. Issues may be dealt with before they become major. Meeting attendance and related reporting indicates that the process is transparent. Dispute resolution procedures (e.g. ICJ and expert panels) provide confidence that should issues escalate an effective response will be found. In the EU, the LDAC acts as a conduit for the proactive resolution of issues. A proactive approach is adopted in the Seychelles with the emphasis on avoiding disputes. Stakeholders (Blue Economy, MAF) pointed to the lack of legal disputes. • SG80 is met As there is no evidence of legal disputes related to the 3 jurisdictions, it may be concluded that the proactive approach is appropriate. However, this also means that the mechanisms have not been tested. • SG100 is not met		
c	Respect for rights			
	Guide post	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Yes	Yes	No

	Justification	The IOTC considers the legal rights of individual countries with emphasis on the needs of developing states (see, for example, the preamble IOTC Res. 16/02). The specific issue of the legal rights of people in the CMs dependent on fishing for food or livelihood is the responsibility of the individual countries. The CFP that is applicable to SFPAs has a human rights clause. The EU LDAC provides for a mechanism to observe the legal rights of EU fishers. EU policy requires, that EU flag vessels only catch that part of the available quota that is surplus to the domestic catching capacity of the coastal state's own fishing fleet. The UoA vessels are subject to all IOTC regulations and requirements. The Seychelles Fisheries Law requires a co-management approach and has established fisheries management planning for a number of fisheries. Increased consultation with local stakeholders leading to an FMP provides the basis to respect legal rights. Marine reserves protect stocks from industrial fishing. The UoA vessels are subject to all IOTC regulations and requirements. • SG60 is met The scoring of SG60 provides evidence of formal arrangements to observe the legal rights and long-term interests of people dependent on fishing for food or livelihood. • SG80 is met As the Seychelles approach to co-management and FMPs has been recently established, it is too early to conclude there is a mandated legal basis where rights are fully codified within the fishery management system and/or its policies and procedures for managing fisheries. • SG100 is not met
References		AZTI 2017. Client Preparation Assessment Report. Echebastar Indian Ocean Purse Seine Skipjack Tuna Fishery EU 2013. Reg (EU) No 1380/2013 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC FISH-i Africa Task Force Terms of Reference Government of Seychelles. 2014 Supplement to Official Gazette 547 FISHERIES ACT, 2014 (Act200/2014) IOTC 2016 Compendium of Active Conservation and Management Measures for the Indian Ocean Tuna Commission IOTC 2016 Resolution 16/02 on Harvest Control Rules for Skipjack Tuna in the IOTC Area of Competence MSC 2014 MSC Fisheries Certification –Requirements v2.0 Powers J.E & P.A.H. Medley. 2016. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 4). ISSF Technical Report 2016-19. International Seafood Sustainability Foundation, Washington, D.C., USA SMARTFISH 2015 Supporting the improvement of marine fisheries governance and management in Seychelles. Economic study on major trends in the tuna industry and its impact on the Seychelles economy over the 5-year period, 2009-2013
Score		**80**

Table 45: PI 3.1.2 – Consultation, roles and responsibilities

Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	Yes	Yes	No
	Justification	A wide range of organisations and individuals are involved in the overarching management process in the three jurisdictions. The IOTC has CPs, NCPs, various committees, working groups and a large number of observers. In the EU, the plethora of actors is supported by others with specific roles in the management of IO tuna; e.g. SMARTFISH, FISH-I Africa and SADC. In addition, international non-governmental organisations, such as WWF, have a strong role in bringing about change in management practises. The activities of each of these actors are well known, and their role in the management process is documented and understood. • SG60 is met Most of the key areas of responsibility and interaction are vested in the IOTC with its CPs, NCPs and various committees. Except for enforcement, the roles and responsibilities of other identified actors are ancillary to, and dependent on, what happens in the IOTC, especially as IOTC regulations are automatically incorporated into legislation. In that sense, the roles of the various actors are well defined and understood, even of some CPCs are not as efficient as others. Cooperative and collaborative work within the IOTC identifies and investigates key issues related to stock status and other elements of the ecosystem, with the related decision-making process defining regulations and roles. Review of the extensive IOTC documentation (rules, reports, meetings etc.) indicates that the key management areas are explicitly defined and well understood. The enforcement of the regulations and rules is largely the responsibility of individual countries and the fishers. The response of fishers in implementing the regulations is monitored through vessel lists, observers, VMS, logbooks and catch reports. Due to their limited resources, individual coastal states in the IO are supported by international projects such as SMARTFISH. • SG80 is met To-date there has been a lack of any meaningful involvement of local stakeholders in the decision-making process of Seychelles. While the position may be changing, there is evidence to conclude that the roles and responsibilities of stakeholders has not been well understood by the Seychelles authorities. • SG100 is not met.		

b	Consultation processes			
	Guide post	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.
	Met?	Yes	No	No
	Justification	MSC v2.0 guidelines state "*The main point of scoring issue (b) is that the management system is open to stakeholders and that any information that is viewed as important by those parties can be fed into and be considered by the process in a way that is transparent to the interested stakeholders*". The main affected parties are national fishery managers and scientists responsible for broad policy development and associated research who are involved in the IOTC process. Their participation introduces local knowledge for consideration in the response many issues that are raised within the IOTC. • SG60 is met Various parts of the IOTC (e.g. scientific committees and working parties) seek information on a continuous and, in some cases, permanent basis (statistics). Interested stakeholders may present evidence. The reports indicate how the information is used. The interests of EU stakeholders are well represented through the established processes and have the benefit of strong funding and experienced managers. Evidence (Welch & Kerrigan (2015), Standing (2016), stakeholder interviews – SFBOA, SFA, MAF & Blue Economy) indicates the limited input of local stakeholders in the Seychelles decision making process. Where local stakeholders have expressed views, it is not clear how these have been taken into account. At the site visit, it was reported that meetings between the Minister and stakeholders are not minuted. The lack of a mechanism to indicate if and how stakeholder information is used in the management system impacts transparency on how Seychelles fishery managers obtain and consider information and local knowledge. • SG80 is not met. • SG100 is not met.		
c	Participation			
	Guide post		The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?		Yes	No
	Justification	The IOTC process provides the opportunity for all countries with a fishery interest to be involved as either a CP or an NCP. The IOTC also provides the opportunity for interested		

		stakeholders to be involved through observer status. While Taiwan is not a CP it is involved in the consultation process. In the EU, stakeholders are strongly involved in the consultation process, mainly, in relation to tuna fisheries, through the LDAC and the representative organisations. In the Seychelles, the Fishery Law (2014) provides for stakeholder consultation in the design, implementation, monitoring and review of FMPs. Increasingly, stakeholders are involved in the decision-making process for tuna, although the tuna FMP remains a proposal. • SG80 is met Substantial evidence supports the conclusion that there is encouragement and opportunity for stakeholder input in the IOTC and EU. Effective engagement is facilitated by the established processes (e.g. local EU representative associations, LRAC, contacts with EU representatives and observer status). However, it is questionable whether the effective engagement of Seychelles stakeholders has, thus far, been facilitated. While recent changes have led to the involvement of local fishers in the consultation process, there is no evidence that their involvement has been effective i.e. that their point of view has been taken into consideration in the management of the Seychelles tuna fishery. • SG100 is not met
References		Acoura Marine 2015. MSC Sustainable Fisheries Certification Echebastar Indian Ocean Purse Seine Skipjack, Yellowfin and Bigeye Tuna Fishery. Public Certification Report November 2015 Anderson C., T. Huntington, G. Macfadyen, J. Powers, I. Scott, M. Stocker. 2012 Pole and Line Skipjack Fishery in the Maldives Job Number 82105 Version 5 Public Certification Report. Intertek. AZTI 2017. Client Preparation Assessment Report. Echebastar Indian Ocean Purse Seine Skipjack Tuna Fishery EU 2014 L 167/4 EN Official Journal of the European Union 6.6.2014 IOTC 2017 IOTC CIRCULAR 2017-004 / CIRCULAIRE CTOI 2017-004 Medley P. & J.E. Powers. 2015. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 3). ISSF Technical Report 2015-04. International Seafood Sustainability Foundation, Washington, D.C., USA MSC 2014 MSC Fisheries Certification –Requirements v2.0 SFA 2011 Tuna Bulletin 2011 Welch D & B. Kerrigan 2015. GOS-UNDP-GEF Programme Coordination Unit Biodiversity Mainstreaming Project to support the formulation of an operational fishery management plan for the plateau fishery for demersal fish resources. FINAL REPORT, May 2015
Score		**75**
Condition number		**6**

Table 46: PI 3.1.3 – Long term objectives

Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC fisheries standard and the precautionary approach, are implicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach, are explicit within and required by management policy.
	Met?	Yes	Yes	Yes
	Justification	IOTC resolutions are included in the legal frameworks of the EU and Seychelles. IOTC's objective is to promote co-operation among its Members to ensure the sustainable harvest of highly migratory fish stocks through sustainable development and effective management. Resolution 12-01 requires application of the precautionary approach to adopt stock-specific BRPs and associated HCRs. Res. (IOTC) 13/05 covers the conservation of whale sharks (*Rhincodon typus*). Res 13/01, Res 15/09, Res 15/08, Res 13/09, Res 13/04, Res. 13/05, Res 12.04, Res 12/09 (see above) are further examples of the long-term objectives with a precautionary approach. Reg. (EC) 1380/13 requires: (i) sustainable exploitation of marine resources based on the precautionary approach taking into account available scientific data; (ii) the protection of the marine environment; (iii) the sustainable management of all commercially exploited species; and (iv) the achievement of good environmental status by 2020. EU fishing activities in external waters are based on the same principles and standards as those applicable under the CFP. The base of the legal framework in the Seychelles is the Fisheries Act (2014). The objective of this act is "*to provide for efficient and effective management and sustainable development of fisheries in accordance with international norms, standards and best practice and an ecosystem approach to fisheries; to provide for the licensing of fishing vessel, to regulate sport fishing, fishing activities; and to provide for offences and penalties.*" • SG60 is met The wording of relevant IOTC, EU and Seychelles documentation is clear in terms of the long-term objectives and the need for the precautionary approach and they are explicit. In addition, in the Seychelles, where the bulk of the tuna resources available to the country are harvested by purse seiners, the Law explicitly states that "*The total fishing rights allocated by agreements … shall be in accordance with any applicable plan for the management of a fishery or international fisheries conservation and management measures, and where such plan or measures do not exist, a precautionary approach shall be applied*". • SG80 is met IOTC 12-01 states "*In the determination of appropriate reference points and harvest control rules, consideration must be given to major uncertainties, including the uncertainty about the status of the stocks relative to the reference points, uncertainty about biological, environmental and socio-economic events and the effects of fishing activities on non-target and associated or dependent species*".		

		The evidence available for IOTC, EU and Seychelles leads to the conclusion that the long-term objectives and the need for the precautionary approach are explicit. This is evidenced by Resolution 17/01 on yellowfin. • SG100 is met
References		AZTI 2017. Client Preparation Assessment Report. Echebastar Indian Ocean Purse Seine Skipjack Tuna Fishery IOTC RESOLUTION 17/01 On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence ../FISHING AGREEMENTS/IOTC-2017-WPDCS13-INF01_-_Res_1701.pdf Medley P. & J.E. Powers. 2015. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 3). ISSF Technical Report 2015-04. International Seafood Sustainability Foundation, Washington, D.C., USA MSC 2014 MSC Fisheries Certification –Requirements v2.0 Seychelles Fishing Authority, 2017. Annual Report 2014, Victoria, Mahe, Seychelles, 108pp.
Score		**100**

Table 47: PI 3.2.1 Fishery-specific objectives

Scoring Issue		SG 60	SG 80	SG 100
A	Objectives			
	Guide post	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery-specific management system.	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.
	Met?	Yes	Partial	No
	Justification	The objective of IOTC management is to maintain the skipjack stock at MSY over the long term, within the context of a healthy ecosystem. This objective governs the IOTC approach to management of the stock and the associated fleets. As articulated in the CFP and applicable to external waters and thus SFPAs, the objective of the EU is based on the sustainable exploitation of marine resources based on the precautionary approach, taking into account: (i) available scientific data; (ii) the protection of the marine environment; (iii) the sustainable management of all commercially exploited species; and (iv) the achievement of good environmental status. In addition, the EU is a CP that incorporates IOTC regulations into its own legislation. The approach in Seychelles is tempered by the importance of the fishery sector and especially the harvest of tunas by foreign owned vessels to the overall economy. MSC CR 2.0 notes that while social needs may in some cases be consistent with achieving sustainability these should not take precedence and priority over ecological considerations. In the case of Seychelles, while social considerations are important, the overriding interest is in the sustainable harvest of the resources as fisheries, along with tourism, are the two pillars of the national economy. Thus, the aims of the Blue Economy initiative are important in understanding that objectives consistent with P1 and P2 are in place. The approach to private agreements / vessel licensing is within the context of the IOTC. The coastal / island states with agreements / licensing are all members of the IOTC. • SG60 is met There is strong evidence to show that short and long-term objectives related to P1 and P2 outcomes are explicit in the IOTC. IOTC 16/02 states: "*To maintain the Indian Ocean Tuna Commission Skipjack tuna stock in perpetuity, at levels not less than those capable of producing maximum sustainable yield (MSY) as qualified by relevant environmental and economic factors including the special requirements of Developing Coastal States and Small Island Developing States in the IOTC area of competence and considering the general objectives identified in Resolution 15/10 (or any subsequent revision)*". Short term objectives are encapsulated within IOTC 16/02 i.e. total annual catch limit, maximum change in annual catch limit, and "*In the case that the estimated spawning biomass falls below the limit reference point, the HCR will be reviewed, and consideration given to replacing it with an alternative HCR specifically designed to meet a rebuilding plan as advised by the Commission*". In relation to P2, two IOTC resolutions are relevant.		

		IOTC Resolution 16/01 relates to the rebuilding of the yellowfin stock (this is considered in detail under C2.1. IOTC Resolution 17/08 includes a number of relevant points: • "MINDFUL of …. the United Nations General Assembly Resolution 67/79 on Sustainable fisheries to collect the necessary data in order to evaluate and closely monitor the use of large-scale fish aggregating devices and others, as appropriate, and their effects on tuna resources and tuna behaviour and associated and dependent species, to improve management procedures to monitor the number, type and use of such devices and to mitigate possible negative effects on the ecosystem, including on juveniles and the incidental bycatch of non-target species, particularly sharks and marine turtles" • All gears deployed to target resources under the competence of IOTC should be managed to ensure the sustainability of fishing operations • The Commission should consider the recommendations of the IOTC Scientific Committee as regards the development of improved FAD designs to reduce the incidence of entanglement of marine turtles, including the use of biodegradable materials, together with socio-economic considerations, with a view to adopting further measures to mitigate interactions with marine turtles in fisheries covered by the IOTC Agreement. • It establishes procedures on a FAD management plan, including more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of entanglement of non-target species; • Only non-entangling FADs, both drifting and anchored, should be designed and deployed to prevent the entanglement of sharks, marine turtles and other species The first meeting of the FAD working group was held in April 2017. The objectives of the WG can be considered to be short term and fishery specific; including • To collect and compile information about past and present numbers of buoys and FADs, changes in FAD-related technology and activities of supply vessels; • To assess the effect of FAD's density and spatial distribution on the behaviour, distribution and species composition of the tuna schools; • To assess the developments in FAD-related technology notably with regards to: changes in catchability due to technological improvement; using FAD and buoys marking and identification as a tool for monitoring, tracking and control of FADs; • Reducing FAD's ecological impacts through improved design, such as non-entangling FADs and biodegradable material. • Through an active exchange of views, to identify management options, including the regulation of deployment limits and characteristics of FADs, and activities of support vessels; • To assess the consequences of these management options, in conjunction with other fleets fishing mortality components, on IOTC-managed species and on the pelagic ecosystems" (Resolution 15/08). The EU FAD management plan highlighted the following objectives: • Improving information collection for scientific advice purposes. • Contributing to enhanced knowledge of catch composition in FAD sets.

		• Increasing knowledge of these devices with regard to their technical features and their possible impact on ecosystems. • Establishing information-sharing mechanisms among operators, scientists and administrations, in order to achieve better knowledge of progress made in this field and the implications thereof. ANABAC and OPAGAC signed in February 2012 a Code of Good Practices for responsible tuna purse-seine fishing. This code, in force in all the OPAGAC-AGAC and ANABAC-OPTUC fleets, aims to: • Improve the operations performed in the tuna purse-seine fleet by both organizations; • Improve the selectivity of fishing with FADs; and • Minimize the impact of fishing on the ecosystem. These are translated into short term objectives with, for example, the research into bio-degradable FADs and OPAGAC work in the Seychelles to reduce the impact of derelict FADs on coral reefs. In the Seychelles, explicit short and long-term objectives for the Seychelles tuna fishery will not be available until the planned FMP is drafted and implemented. One of the objectives of an EU SFPA "*is to contribute towards resource and environmental sustainability through rational and sustainable exploitation of living marine resources of the partner country*".[17] While specific long and short-term objectives are not well defined in the private agreements, the vessel licenses (Kenya and Tanzania) are more explicit especially for Kenya. • SG80 is partially met Given that the fishery in all waters of the Indian Ocean are subject to the IOTC which does pass 80, the specific approach to FADs, and the approach of the EU that covers the activities of 2 of the Echebastar vessels, it is concluded that a score of 75 is appropriate. This reflects the gaps identified for Seychelles and the issues with private agreements.
References		ANABAC-OPAGAC Handbook of Observation of Good Practices Onboard Anabac & Opagac Tuna Purse Seiners Code of Good Practices. IOTC RESOLUTION 17/08 Procedures on a FADS Management Plan including Limitation on Number of FADS, More Detailed Specifications of Catch Reporting from FAD Sets, & Development of Improved Designs to Reduce Incidence of Entanglement of Non-Target Species EU European Union (Spain) FADs Management Plan (NON OFFICIAL TRANSLATION) MANAGEMENT PLAN FOR FISH AGGREGATING DEVICES (FAD) v1 IOTC-2014-CoC11-12_Rev1E_-_FAD_management_plans.pdf Powers J and P.A.H. Medley. 2016. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 4). ISSF Technical Report 2016-19. International Seafood Sustainability Foundation, Washington, D.C., USA MSC 2014 MSC Fisheries Certification –Requirements v2.0 AZTI 2017. Client Preparation Assessment Report. Echebastar Indian Ocean Purse Seine Skipjack Tuna Fishery
Score		**75**
Condition number		**5**

[17] http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/603933/EPRS_BRI(2017)603933_EN.pdf

Table 48: PI 3.2.2 – Decision-making processes

Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Yes	Yes	
	Justification	The well-established IOTC decision making process has led to the definition of measures and strategies to achieve the fishery specific objective for the IO skipjack stock to be maintained at a sustainable catch level. While many resolutions and rules could be used as evidence, Reg (IOTC) 16/01 (on an interim plan for rebuilding the IO yellowfin tuna stock) and Reg (IOTC) 16/02 (on HCRs for skipjack tuna) are the best recent examples. Also relevant is the FAD working group (Reg (IOTC) 15/09). The EU, Seychelles and coastal / island states relevant to the specific fishery incorporate IOTC regulations and both are represented in the decision-making process at the IOTC level. • SG60 is met Prior to 2015, absence of concern about the status of the skipjack stock meant there was limited consideration about the need for direct measures and strategies for the skipjack fishery. There was, however, the indirect impacts of the measures adopted to protect the yellowfin and bigeye stocks. The situation is now changing (e.g. Reg (IOTC) 16/02) and management of skipjack fits within the established IOTC process. An additional facet is the FAD working group. The established decision-making process led to the decision to establish the WG which may be considered as part of a strategy. In the EU, the decision-making process applied to the skipjack fishery falls within the overall approach to fisheries (CFP), the SFPA process and the incorporation of IOTC resolutions into the EU legal framework. A variety of EU stakeholders are involved in the process. The Seychelles decision-making process has an impact on the livelihoods of domestic fishers (see MSC CR GSA 4.8). This is considered under 3.1.2. Countries involved in private agreements and direct vessel licensing are members of IOTC who participate in the established decision-making processes. The UoA vessels are subject to all IOTC regulations and requirements. On the basis of the scores for P3 PIs not being based on an elemental approach, the role and importance of the IOTC processes provides the basis for considering that the UoA has established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. • SG80 is met		
b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take

		adaptive manner and take some account of the wider implications of decisions.	account of the wider implications of decisions.	account of the wider implications of decisions.
	Met?	Yes	Yes	No
	Justification	The most serious issues are dealt with by the IOTC which incorporates the other jurisdictions. It is generally acknowledged that the IOTC process is transparent and that the involvement of a wide range of stakeholders ensures that the decision-making process takes some account of the wider implications of the decisions. • SG60 is met. The evidence presented for SG60 is also applicable to consideration of IOTC at SG80. The Rules of Procedure set mechanisms for dealing with resolutions made based on scientific evidence and designed to maintain tuna populations at IOTC target levels. Examples are Resolutions 15/08, 16/02 and 17/01 are evidence of the response of IOTC. The LDAC process in the EU presents a forum for Spanish stakeholders to raise serious and other important issues in presentations and reports that are sent to the EC and the MS. The EU and / or the MS must reply to any recommendation, suggestion or information received from an RMAC within 2 months. Where the adopted final measures diverge from RMAC opinions, recommendations and suggestions, the EU and / or the MS must detail the reasons for the divergence. The Seychelles decision process is covered under 3.1.2. Serious and important issues in fisheries under private agreements and vessel licensing are covered by the IOTC. All parties are fully informed of the issues under consideration and this facilitates their active participation in the decision-making process. • SG80 is met Concern has been expressed about the decision-making process in such as private agreements. As such, it cannot be considered that all issues are covered, • SG100 is not met		
c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Yes	
	Justification	The use of the precautionary approach is explicit within decision making process within the IOTC, the EU and Seychelles. All the coastal / island states with private agreements or direct vessel licensing are members of IOTC or represented in IOTC (French OT) While the skipjack stock remains healthy, Res (IOTC) 16/02 together with a range of other resolutions provides the evidence of a precautionary approach to the management of the fishery. • SG80 is met		
d	Accountability and transparency of management system and decision-making process			
	Guide post	Some information on the fishery's performance and management action is	Information on the fishery's performance and management action is available on request, and explanations are provided for	Formal reporting to all interested stakeholders provides comprehensive information on the fishery's performance and

		generally available on request to stakeholders.	any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	Yes	No	No
	Justification	A wealth of information is available on the performance of the purse seine skipjack fishery, mainly through IOTC reports and statistics but also from the SFP web site. • SG60 is met All information is published by the IOTC and available to stakeholders, although, as highlighted by Powers & Medley (2016), it is not always clear as to how available information has been used or why it has not been used. The LMAC and the need for explicit responses from the EC and MS satisfies SG80 for the EU jurisdiction. However, limited specific information is available on the fisheries conducted under private arrangements. • SG80 is not met		
e	Approach to disputes			
	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Yes	Yes	Yes
	Justification	There is no evidence to suggest that the IOTC, EU, Seychelles and other countries with private agreements for the UoA and the wider purse seine skipjack fishery in the Indian Ocean have shown disrespect for the law and there are no reports indicating that individual jurisdictions and coastal / island states have repeatedly violated any law or regulation that has implications for the sustainability of the skipjack fishery. • SG60 is met There is no evidence to suggest that any of the jurisdictions or the private agreements / licenses have faced legal challenges that have implications for the sustainability of the skipjack fishery and the purse seine fishery • SG80 is met The range of consultation, including the improved approach in the Seychelles, within the embrace of the IOTC, indicates that there is a strong proactive approach (including the opt-out clause) to avoiding legal disputes. This is emphasised by the acceptance of the recommendations of the second review panel and the decision to undertake a quintenial performance review. As with the certified Maldives fishery, the fact that no legal disputes		

		have arisen provides sufficient evidence that the management system is acting proactively to avoid legal disputes • SG100 is met
References		MSC 2014 MSC Fisheries Certification –Requirements v2.0 Powers J. and P.A.H. Medley. 2016. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 4). ISSF Technical Report 2016-19. International Seafood Sustainability Foundation, Washington, D.C.

Score	**75**
Condition number	**6**

Table 49: PI 3.2.3 – Compliance and enforcement

Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guide post	Monitoring, control and surveillance mechanisms exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Yes	Yes	No
	Justification	Apart from the IOTC compliance committee, a large number of tools have been introduced at the international level to support extensive monitor and surveillance – vessel licensing and registration, VMS, electronic logbooks, 100 % observer coverage (since 2014) and the monitoring of landings. Given the prospect that non-compliant vessels will lose their licence and be considered as IUU fishers, there is more than a reasonable expectation that Spanish and Seychelles flagged vessels will comply with requirements. Simply stated, given the high level of investment and the potential losses stemming from infringements, it is not in the interests of the vessel owners to be non-compliant. • SG60 is met The various MCS mechanisms constitute a system. The specific IOTC regulations are reinforced, in the case of the EU vessels, by the adoption of IOTC measures and specific requirements for EU flagged vessels, and, in the case of SFPAs by the explicit definition of MCS requirements in the individual protocols (e.g. daily reporting, entry and exit reports, transhipments and landings, VMS, areas to be fished and observers). Such requirements are also explicit in the private fishing agreements. The lack of compliance issues over recent years indicates observance of and compliance by UoA vessels and other purse seiners (with one exception – see below). • SG80 is met The approach to enforcement, including the involvement of national and international agencies (e.g. SMARTFISH and FISH-I), has been considerably strengthened over recent years. However, weaknesses in individual countries prevent a conclusion that the system is comprehensive and has shown a consistent ability to enforce relevant management measures, strategies and / or rules in the purse seine fleet. • SG100 is not met		
b	Sanctions			
	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	Yes	Yes	No

	Justification	Any Echebastar vessel that does not comply with the regulations is open to being listed on the IUU list. The number of vessels on that list prove that it is a sanction that is applied. The SFPA contain articles related to non-compliance and sanctions (e.g. see Madagascar Section 7). In the Seychelles, offences and sanctions are covered under the Fisheries Law (2014). While no sanctions have been applied to purse seiners, there is evidence that they have been applied to other fishers (see IOTC-2017-CoC14-08b Add_2[E] Response to 2016 possible infractions from Seychelles under the regional observer programme). Infractions and sanctions are covered to some degree in the private agreements, but in relation to Echebastar the main issues are covered by IOTC and the requirements of the flag state. • SG60 is met SG60 provides evidence that sanctions exist and that they have been applied. The lack of reports of non-compliance (confirmed by stakeholders – Echebastar, Blue Economy, MAF) by the UoA and purse seiners may, at SG80, provide evidence that the sanctions provide effective deterrence. • SG80 is met Given that the strengthening of MSC capacity in the Indian Ocean is a work in process and that capacity may vary between countries, it cannot be concluded that the sanctions demonstrably provide an effective deterrence. • SG100 is not met		
c	Compliance			
	Guide post	Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Yes	Yes	Yes
	Justification	Echebastar reports (stakeholder interview) that any company related issues over recent years have related to form rather than substance e.g. due to internal issues, national authorities may not always have received vessel reports, and changes in policy in individual countries resulting from a change in government. In common with other vessels, Echebastar provides substantial information to scientists, works in conjunction with AZTI and provides data from FADs. The Seychelles authorities acknowledge that Echebastar has been to the fore in cooperating with them. Other fishers work in a similar way e.g. OPAGAC cooperating in identifying the location of derelict FADs. Both OPAGAC and ANABAC are part of the FIP to support sustainable tuna fisheries, including that in the IO. The Echebastar fleet, in common with other EU fleet segments, works without subsidy. Echebastar informs their captains and crew of their obligations and there is a good practices manual. • SG60 is met In addition to the points made in relation to SG60, the lack of any evidence of non-compliance is sufficient evidence to conclude that the fishery responds to this scoring guideline. • SG80 is met		

		There is no evidence whatsoever that Echebastar does not comply with management. Recently, there was a potential issue with the Echebastar supply vessel in the Maldivian EEZ but this was related to the need to repatriate a crew member due to a medical emergency (Jauregui' (Echebastar) personal comment). The TXORI ARGI issue (FISH-I) took place in 2012. The work of SMARTFISH and FISH-I has considerably improved MCS capability in the region. Stakeholder comments (AZTI, MAF, Blue Economy) emphasise the degree of cooperation by purse seiners, especially Echebastar, in providing information of importance to the management of the fishery. • SG100 is met		
d	Systematic non-compliance			
	Guide post		There is no evidence of systematic non-compliance.	
	Met?		Yes	
	Justification	The analysis above indicates there is no evidence of systematic non-compliance. • SG80 is met		
References		AZTI 2017. Client Preparation Assessment Report. Echebastar Indian Ocean Purse Seine Skipjack Tuna Fishery FISH-I (2017) Stop Illegal Fishing Illegal Fishing? Evidence and Analysis. Gaborone, Botswana MSC 2014 MSC Fisheries Certification –Requirements v2.0 Powers J and P.A.H. Medley. 2016. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 4). ISSF Technical Report 2016-19. International Seafood Sustainability Foundation, Washington, D.C., USA		
Score			**85**	

Table 50: PI 3.2.4 – Monitoring and management performance evaluation

Scoring Issue		SG 60	SG 80	SG 100
A	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate some parts of the fishery-specific management system.	There are mechanisms in place to evaluate key parts of the fishery-specific management system	There are mechanisms in place to evaluate all parts of the fishery-specific management system.
	Met?	Yes	Yes	No
	Justification	The IOTC review panel evaluated all parts of the fishery specific management system. This evidence also relates to the other jurisdictions. • SG60 is met The key parts of the fishery specific management system are related to IOTC activities. The evidence is as provided for SG60. This evidence also relates to the other jurisdictions. The EU reviews the potential for SFPAs before they are signed (ex ante) and evaluates their success (ex post) including mid-term reviews. • SG80 is met Mechanisms to evaluate the fishery management system and local stakeholder concerns for Seychelles and private agreements are lacking. • SG100 is not met		
B	Internal and/or external review			
	Guide post	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	Yes	Yes	No
	Justification	Various committees and working groups in the IOTC evaluate all parts of the management system. This evidence also relates to the other jurisdictions. The CFP is regularly subject to review. In the Seychelles, the fishery specific management system is under constant review as part of the country's input into the IOTC process. • SG60 is met The various committees and working groups in the IOTC that evaluate all parts of the management system are regular and could be considered both internal and external. The two performance review panels in 2009 (IOTC-2009-PRP-R[E].pdf http://www.iotc.org/documents/report-iotc-performance-review-panel) and 2016 (IOTC-2016-PRIOTC02-R http://www.iotc.org/documents/report-2nd-iotc-performance-review) may be considered as occasional. IOTC 16/02 states "*The Commission shall review this measure at its annual session in 2019, or before if there is reason and/or evidence to suggest that the Skipjack tuna stock is at risk of breaching LRP*". The CFP is regularly subject to review. The LDAC may be considered as an external review with stakeholders able to request information on the performance of the fishery specific management system.		

		The ex-ante and ex post evaluations (see above) of the SFPAs are completed by independent consultants contracted by the EU. The current work being undertaken by the Blue Economy with the input of independent consultants and the advice from such as the World Bank and FiTI (Standing, 2016) constitutes an occasional external review of the Seychelles management system. Res (IOTC) 14/05 requires the list of all fishing vessels operating under private agreements to be submitted to IOTC. Vessel licenses must be renewed annually. This indicates a review of the vessel performance. • SG80 is met As yet, there is not a regular formal external review of private agreements. • SG100 is not met
References		MSC 2014 MSC Fisheries Certification –Requirements v2.0 COFREPECHE, NFDS, MRAG and POSEIDON, 2015. Ex post and ex ante evaluation of the protocol to the Fisheries Partnership Agreement between the EU and the Republic of Mauritius (Framework contract MARE/2011/01 – Lot 3, specific contract 16). Brussels, 141 p IOTC 2016 Resolution 16/03 on the second performance review follow-up. Powers J and P.A.H. Medley. 2016. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 4). ISSF Technical Report 2016-19. International Seafood Sustainability Foundation, Washington, D.C., USA
Score		**80**

9. APPENDIX 1: ASSESSMENT METHODOLOGIES AND EVALUATION PROCEDURE

9.1. Assessment Methodologies

The assessment methodology and reporting follow the MSC defined requirements for the simplification process - https://improvements.msc.org/database/simplification.

9.2. Previous Assessments

The "Echebastar Indian Ocean Free School Purse Seine Skipjack, Yellowfin and Bigeye Tuna Fishery" completed an unsuccessful MSC assessment process in March 2015

(https://fisheries.msc.org/en/fisheries/echebastar-indian-ocean-purse-seine-skipjack-yellowfin-and-bigeye-tuna/@@assessments).

The reason the fishery failed the assessment was the lack of a clear harvest control rule being in place.

9.3. Catch Data Used to Characterize the Fishery

Observed and estimated total catches, and observed weight distribution by species for EIO tuna FAD and FSC sets in 2014-2016. All data provided by AZTI to the ACOURA MSC assessment team

Table 51: Echebastar: FADs - Observed Catch and Total Estimated Catch 2014

Year	2014
Set type	FAD
Number of observed sets	163
Total number of sets	567
Observed sets (%)	29
SRT released alive (%)	55

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Tunas : (Auxis thazard)	6.0	0	0.13	21	
Tunas : (Euthynnus affinis)	0.0	0	0.00	0	
Tunas : (Katsuwonus pelamis)	2,507.2	0	52.28	8,726	
Tunas : (Thunnus albacares)	1,746.0	0	36.41	6,077	
Tunas : (Thunnus obesus)	448.4	0	9.35	1,560	
Tunas : (other sp)	1.0	0	0.02	3	
Billfishes : (Istiophoridae)	0.0	1	0.00	0	3
Billfishes : (Makaira indica)	1.2	19	0.03	4	66
Billfishes : (Makaira nigricans)	0.2	3	0.00	1	10
Other bony fishes : (Abalistes stellatus)	2.8	5,550	0.06	10	19,317
Other bony fishes : (Acanthocybium solandri)	17.2	2,636	0.36	60	9,175
Other bony fishes : (Aluterus monoceros)	0.1	90	0.00	0	313
Other bony fishes : (Canthidermis maculata)	16.8	23,668	0.35	59	82,377
Other bony fishes : (Caranx sexfasciatus)	0.0	3	0.00	0	10
Other bony fishes : (Coryphaena hippurus)	23.3	2971	0.49	81	10,341
Other bony fishes : (Decapterus macarellus)	0.1	112	0.00	0	390
Other bony fishes : (Echeneidae)	0.0	2	0.00	0	7
Other bony fishes : (Elagatis bipinnulata)	18.5	4,703	0.38	64	16,369
Other bony fishes : (Kyphosus cinerascens)	0.0	35	0.00	0	122

Other bony fishes : (Kyphosus vaigiensis)	0.0	53	0.00	0	184
Other bony fishes :(Lag. lagocephalus)	0.0	2	0.00	0	7
Other bony fishes : (Lobotes surinamensis)	0.5	161	0.01	2	560
Other bony fishes : (Platax spp.)	0.0	76	0.00	0	265
Other bony fishes : (Platax teira)	0.0	45	0.00	0	157
Other bony fishes : (Seriola rivoliana)	0.3	619	0.01	1	2,154
Other bony fishes : (Sphyraena barracuda)	0.3	51	0.01	1	178
Other bony fishes : (Sphyraenidae)	0.0	1	0.00	0	3
Other bony fishes : (Uraspis secunda)	0.0	62	0.00	0	216
Sharks : (Carcharhinidae spp.)	0.1	2	0.00	0	7
Sharks : (Carcharhinus falciformis)	5.1	525	0.11	18	1827
Sharks : (Carcharhinus leucas)	0.0	197	0.00	0	686
Sharks : (Carcharhinus longimanus)	0.2	9	0.01	1	31
Sharks : (Dasyatidae)	0.0	1	0.00	0	3
Sharks : (Pteroplatytrygon) violacea)	0.0	2	0.00	0	7
Sharks : (Mobula spp.)	0.3	2	0.01	1	7

Table 52: Echebastar: FADs - Observed Catch and Total Estimated Catch 2015

Year	2015
Set type	FAD
Number of observed sets	610
Total number of sets	1,158
Observed sets (%)	53
SRT released alive (%)	52

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Tunas : (Auxis rochei)	0.0		0.00	0	
Tunas : (Auxis thazard)	3.4		0.02	7	
Tunas : (Euthynnus affinis)	1.6		0.01	3	
Tunas : (Katsuwonus pelamis)	7,005.0		47.79	13,294	
Tunas : (Thunnus alalunga)	1.1		0.01	2	
Tunas : (Thunnus albacares)	6,004.5		40.96	11,395	
Tunas : (Thunnus obesus)	1,048.1		7.15	1,989	
Tunas : (other spp.)	330.0		2.25	626	
Billfishes : (Istiophoridae)	0.5	9	0.00	1	17
Billfishes : (Istiophorus platypterus)	0.0	2	0.00	0	4
Billfishes : (Makaira indica)	5.6	59	0.04	11	112
Billfishes : (Makaira mazara)	0.0	1	0.00	0	2
Billfishes : (Makaira nigricans)	8.0	55	0.05	15	104
Billfishes : (Tetrapturus angustirostris)	0.0	1	0.00	0	2

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Billfishes : (Tetrapturus audax)	9.4	20	0.06	18	38
Billfishes :(Xiphias gladius)	1.3	8	0.01	2	15
Other bony fishes : (Ablennes hians)	0.0	4	0.00	0	8
Other bony fishes : (Acanthocybium solandri)	16.1	2,911	0.11	30	5,525
Other bony fishes : (Aluterus monoceros)	0.7	547	0.00	1	1,038
Other bony fishes : (Aluterus scriptus)	0.0	6	0.00	0	11
Other bony fishes : (Belonidae)	0.0	7	0.00	0	13
Other bony fishes : (Canthidermis maculata)	27.4	40,153	0.19	52	76,203
Other bony fishes : (Carangidae)	0.3	664	0.00	1	1,260
Other bony fishes : (Carang. orthogrammus)	0.0	4	0.00	0	8
Other bony fishes : (Caranx sexfasciatus)	0.1	206	0.00	0	391
Other bony fishes : (Coryphaena equiselis)	0.1	16	0.00	0	30
Other bony fishes : (Coryphaena hippurus)	64.5	9,131	0.44	122	17,329
Other bony fishes : (Decapterus macarellus)	0.4	666	0.00	1	1,264
Other bony fishes : (Echeneidae)	0.0	1	0.00	0	2
Other bony fishes : (Elagatis bipinnulata)	38.9	16,825	0.27	74	31,931
Other bony fishes : (Exocoetidae)	0.0	1	0.00	0	2
Other bony fishes : (Kyphosus cinerascens)	0.3	537	0.00	1	1,019
Other bony fishes : (Kyphosus spp.)	0.0	20	0.00	0	38
Other bony fishes : (Kyphosus vaigiensis)	0.2	307	0.00	0	583
Other bony fishes :(Lag. lagocephalus)	0.0	3	0.00	0	6
Other bony fishes : (Lobotes surinamensis)	4.9	1,610	0.03	9	3,055
Other bony fishes : (Platax spp.)	0.0	25	0.00	0	47
Other bony fishes : (Platax teira)	0.1	107	0.00	0	203
Other bony fishes : (Scombridae)	0.2	32	0.00	0	61
Other bony fishes : (Seriola rivoliana)	0.1	157	0.00	0	298
Other bony fishes : (Sphyraena barracuda)	2.0	415	0.01	4	788
Other bony fishes : (Uraspis secunda)	0.2	481	0.00	0	913
Other bony fishes : (Uraspis spp.)	0.0	1	0.00	0	2
Sharks : (Carcharhinidae spp.)	1.5	29	0.01	3	55
Sharks : (Carcharhinus falciformis)	72.8	3,093	0.50	138	5,870
Sharks : (Carcharhinus leucas)	0.0	440	0.00	0	835
Sharks : (Carcharhinus longimanus)	4.4	85	0.03	8	161
Sharks : (Dasyatidae)	0.0	2	0.00	0	4
Sharks : (Dasyatys (Pteroplatytrygon) violacea)	0.0	6	0.00	0	11
Sharks : (Isurus oxyrinchus)	0.3	3	0.00	1	6
Sharks : (Manta birostris)	1.6	3	0.01	3	6
Sharks : (Manta spp.)	0.1	1	0.00	0	2
Sharks : (Mobula japanica (rancureli))	0.2	1	0.00	0	2
Sharks : (Mobula spp.)	0.8	6	0.01	2	11
Sharks : (Prionace glauca)	0.4	44	0.00	1	84
Sharks : (spp)	1.3	25	0.01	2	47

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Turtles : (Chelonia mydas)	0.1	2	0.00	0	4
Turtles : (Lepidochelys olivacea)	0.1	3	0.00	0	6
Turtles : (Tortue non identi)	0.0	1	0.00	0	2

Table 53: Echebastar: FADs - Observed Catch and Total Estimated Catch 2016

Year	2016
Set type	FAD
Number of observed sets	518
Total number of sets	1,510
Observed sets (%)	34
SRT released alive (%)	68

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Tunas : (Auxis rochei)	3.1	0	0.03	9	
Tunas : (Auxis thazard)	7.2	0	0.06	21	
Tunas : (Euthynnus affinis)	0.1	0	0.00	0	
Tunas : (Katsuwonus pelamis)	6631.4	0	54.05	19331	
Tunas : (Thunnus alalunga)	82.2	0	0.67	240	
Tunas : (Thunnus albacares)	4931.0	0	40.19	14374	
Tunas : (Thunnus obesus)	399.5	0	3.26	1165	
Billfishes : (Istiophoridae)	0.3	7	0.00	1	20
Billfishes : (Istiophorus platypterus)	0.2	7	0.00	1	20
Billfishes : (Makaira indica)	6.6	66	0.05	19	192
Billfishes : (Makaira nigricans)	1.1	17	0.01	3	50
Billfishes : (Tetrapturus audax)	3.7	11	0.03	11	32
Other bony fishes : (Acanth. solandri)	19.7	2,364	0.16	57	6,891
Other bony fishes : (Aluterus monoceros)	0.6	747	0.00	2	2,178
Other bony fishes : (Aluterus scriptus)	0.0	30	0.00	0	87
Other bony fishes : (Canthidermis maculata)	12.4	19,383	0.10	36	56,503
Other bony fishes : (Carangidae)	0.1	206	0.00	0	601
Other bony fishes : (Caranx sexfasciatus)	0.1	275	0.00	0	802
Other bony fishes : (Coryphaena equiselis)	0.0	1	0.00	0	3
Other bony fishes : (Coryphaena hippurus)	67.4	6,635	0.55	197	19,341
Other bony fishes : (Decapterus macarellus)	0.5	705	0.00	1	2,055
Other bony fishes : (Elagatis bipinnulata)	44.8	14,276	0.37	131	41,615
Other bony fishes : (Exocoetidae)	0.0	15	0.00	0	44
Other bony fishes : (Kyphosus cinerascens)	0.2	465	0.00	1	1,356
Other bony fishes : (Kyphosus vaigiensis)	0.1	183	0.00	0	533
Other bony fishes : (Lobotes surinamensis)	0.6	267	0.01	2	778

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Other bony fishes : (Platax spp.)	0.0	33	0.00	0	96
Other bony fishes : (Platax teira)	0.1	99	0.00	0	289
Other bony fishes : (Scomber japonicus)	0.0	25	0.00	0	73
Other bony fishes : (Seriola rivoliana)	0.0	132	0.00	0	385
Other bony fishes : (Sphyraena barracuda)	1.1	210	0.01	3	612
Other bony fishes : (Uraspis secunda)	0.3	176	0.00	1	513
Sharks : (Carcharhinidae spp.)	0.1	2	0.00	0	6
Sharks : (Carcharhinus falciformis)	51.2	2,459	0.42	149	7,168
Sharks : (Carcharhinus longimanus)	2.3	48	0.02	7	140
Sharks : (Dasyatidae)	0.0	1	0.00	0	3
Sharks : (Dasyatys (Pteroplaty.) violacea)	0.0	2	0.00	0	6
Sharks : (Galeocerdo cuvier)	0.2	1	0.00	0	3
Sharks : (Manta birostris)	0.1	4	0.00	0	12
Sharks : (Mobula japanica (rancureli))	0.5	3	0.00	1	9
Turtles : (Caretta caretta)	0.1	2	0.00	0	6
Turtles : (Eretmochelys imbricata)	0.0	2	0.00	0	6

Table 54: Echebastar: FSC - Observed Catch and Total Estimated Catch 2014

Year	2014
Set type	Free School
Number of observed sets	68
Total number of sets	237
Percentage of Observed sets	29
Percentage SRT released alive	20

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Tunas : (Katsuwonus pelamis)	303		17.45	1055	
Tunas : (Thunnus albacares)	1,156		66.57	4,023	
Tunas : (Thunnus obesus)	275.2		15.85	958	
Billfishes : (Makaira nigricans)	0.0	1	0.00	0	3
Other bony fishes : (Acanthocybium solandri)	0.6	150	0.04	2	522
Other bony fishes : (Canthidermis maculata)	0.3	480	0.02	1	1,671
Other bony fishes : (Coryphaena hippurus)	0.5	81	0.03	2	282
Other bony fishes : (Elagatis bipinnulata)	0.4	94	0.02	1	327
Other bony fishes : (Sphyraena barracuda)	0.0	3	0.00	0	10
Sharks : (Carcharhinus falciformis)	0.3	21	0.02	1	73
Sharks : (Carcharhinus leucas)	0.0	8	0.00	0	28
Sharks : (Mobula japanica (rancureli))	0.2	1	0.01	1	3

Table 55: Echebastar: FSC - Observed Catch and Total Estimated Catch 2015

Year	2015
Set type	Free School
Number of observed sets	124
Total number of sets	235
Observed set (%)	53
SRT released alive (%)	70

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Tunas : (Katsuwonus pelamis)	71.0		3.92	135	
Tunas : (Thunnus alalunga)	9.0		0.50	17	
Tunas : (Thunnus albacares)	1,477.7		81.55	2,804	
Tunas : (Thunnus obesus)	252.0		13.91	478	
Billfishes : (Makaira indica)	0.1	2	0.00	0	4
Billfishes : (Makaira nigricans)	0.4	3	0.02	1	6
Other bony fishes : (Acanthocybium solandri)	0.0	1	0.00	0	2
Other bony fishes : (Canthidermis maculata)	0.1	55	0.00	0	104
Other bony fishes : (Coryphaena hippurus)	0.1	9	0.00	0	17
Other bony fishes : (Elagatis bipinnulata)	0.5	88	0.03	1	167
Other bony fishes : (Lobotes surinamensis)	0.0	2	0.00	0	4
Other bony fishes : (Sphyraena barracuda)	0.0	1	0.00	0	2
Sharks : (Carcharhinus falciformis)	1.0	42	0.05	2	80
Sharks : (Carcharhinus longimanus)	0.1	1	0.01	0	2
Sharks : (Dasyatidae)	0.0	1	0.00	0	2

Table 56: Echebastar: FSC - Observed Catch and Total Estimated Catch 2016

Year	2016
Set type	Free School
Number of observed sets	65
Total number of sets	190
Observed sets (%)	34
SRT released alive (%)	100

Species / Species group	Observed Catch		% Total Wt.	Estimated Total Catch	
	Tons	Individuals (non-tuna)		Tons	Individuals (non-tuna)
Tunas : (Katsuwonus pelamis)	160.8		24.34	470	
Tunas : (Thunnus albacares)	475.0		71.92	1,388	
Tunas : (Thunnus obesus)	21.0		3.18	61	
Billfishes : (Makaira indica)	0.1	1	0.02	0	3

Billfishes : (Tetrapturus audax)	1.0	4	0.15	3	12
Other bony fishes : (Acanth. solandri)	0.3	5	0.05	1	15
Other bony fishes : (Belonidae)	0.0	1	0.00	0	3
Other bony fishes : (Canth. maculata)	0.2	305	0.03	1	892
Other bony fishes : (Carangidae)	0.1	18	0.02	0	53
Other bony fishes : (Coryphaena hippurus)	0.1	2	0.02	0	6
Other bony fishes : (Decapt. macarellus)	0.0	4	0.00	0	12
Other bony fishes : (Elagatis bipinnulata)	0.9	288	0.14	3	842
Other bony fishes : (Lobotes surinamensis)	0.0	1	0.00	0	3
Other bony fishes : (Seriola rivoliana)	0.0	2	0.00	0	6
Sharks : (Carcharhinus falciformis)	1.0	18	0.15	3	53
Sharks : (Carcharhinus longimanus)	0.0	0	0.00	0	0

9.4. Site Visits

The site visit began in late March 2017 in Bermeo, Spain, and the team met the following stakeholders.

Table 57: Site Visit: Stakeholder Meetings

Date	Time	Group	Persons	Contact
28-Mar-17	9:00 - 11:00	Echebastar	Jose Luis Jauregui, and others	jljauregui@echebastar.com
28-Mar-17	15:30 - 17:00	PEW Trust	Dave Gershman and others	dgershman@pewtrusts.org
29-Mar-17	10:00 - 12:00	Basque Gov't Fisheries	Leandro Azkue	beg-alonso@euskadi.net
29-Mar-17	15:00 - 17:00	AZTI	Ane Iriiondo and others	airiondo@azti.es
30-Mar-17	9:30 - 11:00	Princes	Ruth Simpson/ Andrew Conway	ruth.simpson@princes.co.uk
30-Mar-07	11:00-11:30	Thai Union	Tony Lazazzara	Tony.Lazazzara@thaiunion.com

Date	Time	Group	Persons	Contact
3-Apr-17	09:00 - 11:00	Gov.Vice President/Blue Economy	Philippe Michaud	Philippe.michaud@statehouse.gov.sc
4-Apr-17	09:00 - 11:00	Seychelles Observers Program	Alex Tirant	seychellesobserver@gmail.com
5-Apr-17	09:00 - 10:30	Gov. Minstry of Fisheries	Michael Nalletamby and Roy Clarisse	mnalletamby@gov.sc
5-Apr-17	10:30 - 12:00	Seychelles Fishing Authority	Victor Lucas	vlucas@sfa.sc
6-Apr-17	09:00-10:30	PNA	Maurice Bowjohn	maurice@pnatuna.com
6-Apr-17	11:00-13:30	SFBOA	Kieth Andre	andrte.kit@gmail.com

Notes were taken at all stakeholder meetings, and were sent to the stakeholder for comment. A set of all stakeholder meeting notes is presented below.

9.5. Consultations

55 Stakeholders were contacted including NGOs, overlapping fisheries, industry, scientists and government. Consultation was held following the publication of the Certifier Desk Review and stakeholders were advised of changes to the MSC Simplification Pilot allowing comments to be submitted until the end of the site visit.

9.6. Evaluation Techniques

The site visit included interviews with key stakeholders to gather information both responding to an independent of the Certifier Desk Review which had been published on the MSC website prior to the site visit.

The scoring process was group consensus.

10. Appendix 2: Conditions and Recommendations

10.1. Conditions

Table 58: Condition 1 – PI 2.3.3

PI	2.3.3 ETP species information
Score	70
Rationale	**SIb Information is adequate to measure trends and support a strategy to manage impacts on ETP species** More than three years of information is needed to measure trends and support a strategy to manage impacts on ETP species. and ensure that ETP bycatch levels remain at levels consistent with those for 2014-2016.
Condition	By the fourth annual surveillance audit, the client must demonstrate that information is adequate to measure trends and support a strategy to manage impacts on ETP species.
Milestones	Years 1-3. Echebastar must provide evidence at the 1-3 annual surveillance audits that the amount of processed data available has been significantly improved and that protocols for data processing have been established to assure the provision of the data required in future years. Expected score = 70. Year 4. Echebastar must provide evidence to the fourth annual surveillance audit that the processed data available for the period 2014 – 20 is adequate to measure trends and support a strategy to manage impacts of the fishery on ETP species. Expected score = 80.
Client Action Plan	ISSF has urged the IOTC to adopt 100% observer coverage on the tuna purse seine fleet. Echebastar vessels are registered in the ISSF PVR (Pro-active Vessel Register) ISSF. SFA has agreed to provide the necessary support to ensure continued 100% observer coverage of Echebastar tuna purse seine vessels, as in place since January 2014. There is a MOA (Memorandum of Agreement) between the two parties. Echebastar is working with SFA and AZTI to improve the processing of observer data into useful data sets. The problems of the initial years are being overcome, and Echebastar will present catch data from a minimum of 50% of the all sets. Echebastar will ensure that the available data are representative of the entire UoA. Echebastar actively collaborates with research centres (IEO and AZTI, IOTC members and ISSF) in using the available data. **Action Years 1-3** • SFA & AZTI observers will continue the monitoring of catch and by-catch by all Echebastar vessels. The data provided will allow a better understanding of the status and trends of retained species. • SFA will survey bycatch and discards in sufficient detail (species, sex, capture location, size and fate) to allow quantification of total catch, species composition and vulnerable species interacting with the fishery. • Echebastar will continue to record the by catch of vulnerable species bycatch and report all catches as per IOTC Resolution and bycatch reporting protocols. • AZTI will receive the data required according to the EU data collection framework http://datacollection.jrc.ec.europa.eu/. The data will be standardized and analysed, to monitor the compliance with the good practice code of Echebastar fleet.

	Deliverable Years 1-3 • Updated catch data tables from at a minimum of 50% of the total sets for the years 2015 – 18 at the first surveillance audit. **Deliverable Year 4** • Updated catch data tables from a minimum of 50% of the total sets for the years 2015 – 2020 at the fourth surveillance audit. **Action Lead** AZTI will be: • Be the responsible entity to verify and certify all recorded data. • Ensure validity, continuity and quality of the data. • Ensure the data complies with the good practice code. **Action partners** Echebastar will: • Provide all required data. • Participate in all meetings to monitor the implementation of defined tasks. • Participate in all workshops. • Document all activities. Seychelles Fishing Authority **Stakeholders** Seychelles Fishing Authority
Consultation on condition	AZTI represents the client through an on-going programme to deliver the defined work programme. SFA is a key part of the programme. AZTI and SFA will fully collaborate with Echebastar to implement the action plan (see letters below)

Table 59: Condition 2 - 2.4.1

PI	, SIb, VME habitat status, and SG80, the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm
Score	75
Rationale	**SIb. VME habitat status. The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.** While there is evidence that it is unlikely that derelict FADs reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm, due to the potential impact over a number of years and lack understanding of the real nature of the issue, it cannot be concluded that this is highly unlikely. More evidence is required.
Condition	By the fourth annual surveillance audit, the client must demonstrate that FADs are highly unlikely to reduce structure and function of coral reefs to a point where there would be serious or irreversible harm.
Milestones	Year 1. Echebastar must provide evidence to the first annual surveillance that a plan has been implemented to ensure that FADs are highly unlikely to reduce structure and function of coral reefs to a point where there would be serious or irreversible harm. Expected score = 75. Year 2. Echebastar must provide evidence to the second annual surveillance that the plan has been fully implemented with a description of the actions undertaken. Expected score = 75. Year 3. Echebastar must provide evidence to the third annual surveillance that actions continue and that results of the activities are being collected and analysed. Expected score = 75. Year 4. Echebastar must provide evidence to the fourth annual surveillance to prove that FADs are highly unlikely to reduce structure and function of the coral reefs (VME) habitats with lost FADs to a point where there would be serious or irreversible harm. Expected score = 80.
Client Action Plan	Echebastar has already partially implemented a work programme to respond to this condition as part of its approach to reduce its fishery imprint on the IO ecosystem and reduce the risk of any element of the fishery causing permanent damage. **Actions Year 1** Echebastar will work with all stakeholders to define a plan aimed at reducing the risk of derelict FADs damaging coral reefs throughout the Indian Ocean. It is anticipated that this plan will consist a number of measures: 1. The continued development and practical implementation of biodegradable FADs. 2. Cooperative work with relevant ENGOs in the Seychelles to test the difference in the impacts of biodegradable and traditional non-entangling FADs in selected locations. 3. Reaching out to ENGOs in other countries to determine the potential risk to corals from derelict FADs. 4. Monitoring the results of the current OPAGAC project in Seychelles and examining where this may be replicated in other countries. 5. Gathering more information on lost FADs and examining how they may be tracked. **Deliverables Year 1**.

	Echebastar will present the first annual audit with a report that presents the defined strategy, the resources allocated for its implementation and any results to-date. **Actions Years 2 & 3.** 1. Echebastar will monitor the implementation of the strategy and make adjustments as required. **Deliverables Years 2 & 3**. Echebastar will present the second and third annual audits with a report that details progress in the implementation of the defined strategy, the resources employed and results to-date. **Actions Year 4.** 1. Echebastar will monitor the implementation of the strategy and ensure the completion of the various sub-projects that it may comprise. **Deliverables Year 4**. 1. Echebastar will provide a report on the potential damage to coral reefs from derelict FADs that indicates that the risk has been significantly lowered due to the measures that have been taken. **Action Owner** • ECHEBASTAR • AZTI **Action Partners** • ANABAC • OPAGAC • AZTI • Selected ENGOs. • FIP - SIOTI **Stakeholders** • Seychelles Fishing Authority (SFA) • Fishermen and boat owners' associations (FBOA) • Local processing industry • Fish market stakeholders • ENGOs
Consultation on condition	The overall approach will be developed, coordinated and implemented by AZTI.

Table 60: Condition 3 – 2.4.2

PI	2.4.2 Habitats management strategy
Score	75
Rationale	**SIa. Management strategy in place. There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome SG80: The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.** The local impacts of derelict FADs on coral reefs may be significant, especially as a FAD may have a negative effects over an extended period. The measures to-date reduce the potential number of interactions. However, as yet biodegradable FADs have not been introduced into the fishery although development work continues. Until this is the case, it cannot be considered that an important element of a partial strategy are in place as the UoA has not implemented the precautionary measure (MSC FCR SA 3.14.2.2).
Condition	By the third annual surveillance audit, the client must provide evidence that a partial strategy in place that is expected to result that it will be highly unlikely that derelict FADs could reduce structure and function of the coral reefs to a point where there would be serious or irreversible harm.
Milestones	These are linked to Condition 2. Year 1. Echebastar must provide evidence to the first annual surveillance that a partial strategy has been defined and implemented to ensure that FADs are highly unlikely to reduce structure and function of coral reefs to a point where there would be serious or irreversible harm. Expected score = 75. Year 2. Echebastar must provide evidence to the second annual surveillance that the partial strategy has been fully implemented with a description of the actions undertaken. Expected score = 75. Year 3. Echebastar must provide evidence to the third annual surveillance that a partial strategy is in place. Expected score = 80.
Client Action Plan	Please refer to actions for Years 1, 2 & 3 above. **Actions Year 1** Echebastar will work with all stakeholders to define a partial strategy aimed at reducing the risk of derelict FADs damaging coral reefs throughout the Indian Ocean. It is anticipated that this partial strategy will consist a number of measures: 1. The continued development and practical implementation of biodegradable FADs. 2. Cooperative work with relevant ENGOs in the Seychelles to test the difference in the impacts of biodegradable and traditional non-entangling FADs in selected locations. 3. Reaching out to ENGOs in other countries to determine the potential risk to corals from derelict FADs. 4. Monitoring the results of the current OPAGAC project in Seychelles and examining where this may be replicated in other countries. 5. Gathering more information on lost FADs and examining how they may be tracked. **Deliverables Year 1**. Echebastar will present the first annual audit with a report that presents the defined strategy, the resources allocated for its implementation and any results to-date.

	Actions Years 2 Echebastar will monitor the implementation of the strategy and make adjustments as required. **Deliverables Years 2** Echebastar will present the second and third annual audits with a report that details progress in the implementation of the defined strategy, the resources employed and results to-date. **Actions Years 3** Echebastar will monitor the implementation of the strategy and ensure the completion of the various sub-projects that it may comprise. **Deliverables Year 3** Echebastar will provide a report on the potential damage to coral reefs from derelict FADs that indicates that the risk has been significantly lowered due to the strategy in place.
Consultation on condition	The overall approach will be developed, coordinated and implemented by AZTI.

Table 61: Condition 4 – 2.4.3

PI	2.4.3 Habitats information
Score	75
Rationale	**SIb. Information adequacy for assessment of impacts. Information is adequate to allow for identification of the main impacts of derelict FADs on coral reefs, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.** While there is good information on the spatial extent of interaction between derelict FADs and coral reefs in the Seychelles, similar data is not available for other countries. A precautionary approach would suggest that the potential for impacts to occur should be further investigated. There is limited information on the spatial extent, timing and location of FAD interactions with coral reefs, and this is not adequate to understand the nature of the impacts of the gear on coral habitat.
Condition	By the fourth annual surveillance audit, the client must provide evidence that information is adequate to allow for identification of the main impacts of derelict FADs on coral reefs, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.
Milestones	These are linked to Condition 2. Year 1. Echebastar must provide evidence to the first annual surveillance that the partial strategy includes the approach to improving the information base. Expected score = 75. Year 2-3. Echebastar must provide evidence to the second and third annual surveillance that information is being collected. Expected score = 75. Year 4. Echebastar must provide evidence to the third annual surveillance that the collected information has been analysed with the identification of the main impacts of derelict FADs on coral reefs, and an understanding of the spatial extent and timing of the interactions. Expected score = 80.
Client Action Plan	Please refer to actions for Years 1, 2-3 & 4 above. **<u>Actions Year 1</u>** Echebastar will work with all stakeholders to provide evidence that the partial strategy includes the approach to improving the information base. **Deliverables Year 1**. Echebastar will present the first annual audit with a report that presents that the partial strategy includes the approach to improving the information base. **<u>Actions Year 2-3</u>** Echebastar will work with all stakeholders to provide evidence to the second annual surveillance that information is being collected. **Deliverables Year 2-3**. Echebastar will present the second and third annual audits with a report that presents that the information is being collected. **<u>Actions Year 4</u>** The collected information will be analysed with the identification of the main impacts of derelict FADs on coral reefs, and an understanding of the spatial extent and timing of the interactions. **Deliverables Year 4**

	Echebastar will present a report for the fourth annual surveillance that provides evidences that the collected information has been analysed with the identification of the main impacts of derelict FADs on coral reefs, and an understanding of the spatial extent and timing of the interactions.
Consultation on condition	The overall approach will be developed, coordinated and implemented by AZTI.

Table 62: Condition 5 – 2.5.3

PI	2.5.3 Ecosystem information
Score	75
Rationale	**SIb. Investigation of UoA impacts. Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.** The effects of FADs used in the fishery on tuna behaviour, migration patterns and feeding is a subject of numerous ongoing investigations. Dagorn et al (2012) conclude that there is no unequivocal empirical evidence that FADs represent an 'ecological trap' that inherently disrupts tuna biology, although further research should focus on this issue.
Condition	By the fourth annual surveillance audit, the client must provide evidence that the main impacts of the FADs on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.
Milestones	Year 1. Echebastar must provide evidence to the first annual surveillance that the options to investigate the potential impact of FADs on the ecosystem have been identified and the preferred option has been implemented. Expected score = 75. Year 2. Echebastar must provide evidence to the second annual surveillance that the preferred option continues to be implemented Expected score = 75. Year 3. Echebastar must provide evidence to the third annual surveillance of the preliminary results from the preferred option. Expected score = 75. Year 4. Echebastar must provide evidence to the fourth annual surveillance that main impacts of FADs on key ecosystem elements can be inferred , and some have been investigated in detail. Expected score = 80.
Client Action Plan	Several studies are being carried out to analyse the "ecological trap" effects of FADs on tuna behaviour, feeding and condition and some Echebastar data have been used for these studies. **Actions Year 1** • Echebastar will support completion of a literature review of publications and projects related to the "ecological trap" hypothesis of FADs on tuna behaviour, feeding and migration. • On the basis of findings, Echebastar will define its role in a strategy to improve understanding. **Deliverables Year 1** • Report on findings of literature review. • Report on Echebastar role in improving understanding and how it will implement the related measures. **Action Year 2** • The identified measures will be implemented. **Deliverable Year 2** • A progress report will be provided to the audit team at the second annual surveillance audit. **Action Year 3** • A report will be prepared to indicate the progress achieved and indicate preliminary findings. **Deliverables Year 3**

	• A progress report will be provided to the audit team at the third annual surveillance audit. **Action Year 4** • A published report will use the evidence collected to infer the main impacts of FADs on key ecosystem elements and provide the analysis to show that some of these have been investigated in detail. **Deliverables Year 4** • It is anticipated that the report will have been / will be published in a scientific journal, if possible and accepted. The final / draft report will be presented to the fourth annual surveillance audit. **Action Lead** Echebastar **Action Partners** AZTI ANABAC OPAGAC Minister (Seychelles) Local stakeholders **Stakeholders** Seychelles Fishing Authority (SFA) Fishermen and boat owners associations (FBOA) Local processing industry Fish market stakeholders NGOs
Consultation on condition	The overall approach will be developed, coordinated and implemented by AZTI.

Table 63: Condition 6 – 3.1.2

PI	
Score	75
Rationale	SIb, **Consultation processes. The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.** Evidence (Welch & Kerrigan (2015), Standing (2016), stakeholder interviews – SFBOA, SFA, MAF & Blue Economy) indicates the limited input of local stakeholders in the Seychelles decision making process. Where local stakeholders have expressed views, it is not clear how these have been taken into account. At the site visit, It was reported that meetings between the Minister and stakeholders are not minuted. The lack of a mechanism to indicate if and how stakeholder information is used in the management system impacts transparency on how Seychelles fishery managers obtain and consider information and local knowledge.
Condition	By the third annual surveillance audit, the management system in the Seychelles includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.
Milestones	Year 1. Echebastar will provide evidence to the audit team in the first annual surveillance audit that the options to improve the consultation process in the management of the Seychelles tuna fisheries have been discussed. Expected score = 75 Year 2. Echebastar will provide evidence to the audit team in the second annual surveillance audit that the consultation process for tuna management in the Seychelles has met regularly with stakeholders and a formal record of those meetings as made available to all stakeholders is provided to the team. Expected score = 75. Year 3. Echebastar will provide evidence to the audit team in the third annual surveillance audit that the management system for tuna management in the Seychelles has demonstrated consideration of the information received from the consultation process. Expected score = 80
Client action plan	The Seychelles Fishing Authority (SFA) works in close collaboration with its parent Ministry, other Government entities, and a wide range of other stakeholders including international agencies, NGOs (e.g. WWF), fishermen and their representatives (e.g. FBOA). As identified in the evaluation report, it is widely recognised that, in the past, the involvement of stakeholders in the decision-making process has been less than optimal and this has led to steps being taken to strengthen the processes. Evidence of improvement is available through the approach adopted in preparing existing fishery management plans and recent participation of FBOA in IOTC meetings. Accordingly, the proposed client action is based on reinforcing the progress that has been made. While Echebastar does not have the authority to manage the process, they will work with SFA and other key stakeholders (especially the FBOA and other fisher representative groups) to ensure that any tuna FMP is based on a comprehensive consultation process that has considered the views expressed by all stakeholders. Further, Echebastar will propose that the reasons for not accepting any views and opinions of individual stakeholders are fully documented. A Fishery Improvement Project (FIP) for Indian Ocean tuna has been established in early 2017. In this framework, the Sustainable Indian Ocean Tuna Initiative (SIOTI) has been jointly established by key governments in the region, major tuna processors, producer organisations and their fishing vessels, with the support of WWF. This FIP is a multi-stakeholder effort, and it's goal is to support improvement in the management of tuna fisheries in the Indian Ocean. SFA leads this FIP. SFA recognises the importance of using best practise in developing and implementing fishery management plans and is committed to fully cooperate with Echebastar in meeting the conditions to MSC certification.

	Actions Year 1 -Echebastar will meet with SFA to promote the drafting of a fishery management plan by a dedicated Fisheries Management Committee that will comprise representatives of all key stakeholders. -Echebastar will ensure that SFA is fully aware of the best practise for preparation of fishery management plans. -Echebastar will hold informal meetings with other stakeholders to consider their needs from the fishery management process, with the objective of gaining a consensus on the required approach. -Echebastar will encourage the participation of the FBOA in the annual IOTC meetings, and facilitate their involvement as required. In parallel the Action Plan of the Indian Ocean FIP will be carried out. **Deliverables Year 1** Minutes of all meetings held with the Ministry, SFA and other stakeholders will provide evidence that the options for improving the stakeholder consultation process have been identified and discussed. IOTC reports on the annual meeting that provide evidence of the participation of Seychelles stakeholders and consideration of any issues that may be raised by them. **Actions Year 2** It is expected that following consideration of the alternatives to improve the stakeholder consultation process, the preferred option or options will be implemented in the second year of certification. Given current understanding, it is anticipated that this will include the formation of a formal working group or committee tasked with the definition of a fishery management plan for the Seychelles tuna fishery. Echebastar will support initiatives by the Government of Seychelles and SFA to fully involve all key stakeholders in the planning process. In addition: (i) Echebastar will work with SFA to ensure that the reporting processes are planned in the context of meeting the MSC standard; and (ii) maintain dialogue with the FBOA and other key stakeholders. Echebastar will encourage the participation of the FBOA in the annual IOTC meetings, and facilitate their involvement as required **Deliverables Year 2** Minutes of all meetings related to the preparation of a tuna FMP, along with copies of all relevant ad hoc reports. Minutes of all other meetings held with the Ministry, SFA and other stakeholders where the agenda includes consideration of the stakeholder consultation process. IOTC reports on the annual meeting showing the participation of Seychelles stakeholders in the proceedings and consideration of any issues that may be raised by them. **Actions Year 3** It is anticipated that a tuna FMP will have been prepared and implemented in year 3. The document will fully describe the processes and the decision making that has been used in defining the plan. Echebastar will encourage the participation of the FBOA in the annual IOTC meetings, and facilitate their involvement as required. **Deliverables Year 3** Minutes of all meetings related to the preparation of a tuna FMP, along with copies of all relevant reports.

	Minutes of all other meetings held with the Ministry, SFA and other stakeholders where the agenda includes consideration of the stakeholder consultation process. IOTC reports on the annual meeting showing the participation of Seychelles stakeholders in the proceedings and consideration of any issues that may be raised by them. **Action Owner** • ECHEBASTAR • AZTI **Action Partners** • ECHEBASTAR • AZTI • Minister (Seychelles) • FIP - SIOTI **Stakeholders** • Seychelles Fishing Authority (SFA) • Fishermen and boat owners' associations (FBOA) • Local processing industry • Fish market stakeholders • NGOs
Consultation on condition	Government agencies and entities are committed to meeting the condition and have the funding and manpower available to contribute to the implementation of the client action plan. Seychelles Ministry of fisheries will follow collaborating closely with stakeholders to commit this condition.

Table 64: Condition 7 – 3.2.1

PI	
Score	75
Rationale	**SIa Objectives. Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system** There are no explicit short and long-term objectives for the Seychelles skipjack tuna fishery. The overall lack of information on private agreements means that there are no explicit short and long-term objectives for this element of the skipjack tuna fishery using purse seine.
Condition	By the second annual surveillance audit, short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.
Milestones	Year 1. Echebastar will provide evidence to the audit team in the first annual surveillance audit that: (i) there has been consideration on the process of the establishment of the potential of short and long term objectives for the Seychelles skipjack tuna fishery in IOTC; and (ii) there has been consideration of possible short and long term objectives for fishing arrangements available for review by stakeholders including consideration of explicit short and long term objectives for this element of the fishery. Expected score = 75. Year 2. Echebastar will provide evidence to the audit team in the second annual surveillance audit on: (i) the progress of the establishment of explicit short and long-term objectives for the Seychelles skipjack tuna fishery within the management system for the national purse fishery for skipjack tuna ; and (ii) the progress of the establishment of explicit short and long term objectives for the fishing arrangements. Expected score = 75. Year 3. Echebastar will provide evidence to the audit team in the third annual surveillance audit that: (i) short and long-term objectives have been defined and are explicit within the Seychelles management system for the skipjack fishery; and (ii) short and long-term objectives for the Echebastar private fishery agreement have been defined and are explicit within those private fishery agreements. Expected score = 80.
Client action plan	The client will work with other key stakeholders in response to identified shortcomings of the private fishery agreements and the approach to fisheries management in the Seychelles. **<u>Private Fishing Agreements</u>** The Echebastar fishing agreements are made with coastal states that are Contracting Parties of IOTC. Accordingly, these follow the recommendations of IOTC. However, we recognise that while short and long-term objectives are explicit within IOTC policy, this is not the case for private agreements due to their nature. The certification report correctly identifies several issues that may impact the approach to SFPAs and private agreements, while in relation to the latter it notes that they are approved by the Spanish Government, and the fisheries administration of the coastal state and are submitted to the IOTC. Additionally, given the fact that the ultimate aim of the SIOTI is to meet the highest standards of sustainable fishing, such as the Marine Stewardship Council (MSC) standard, it is assumed that this FIP will be working to fulfil this condition. **Activities Year 1** Echebastar will meet with other Spanish fishing companies that benefit from private agreements in the context of their representative organisations, OPAGAC and ANABAC, to consider the approach to meeting the condition.

	Echebastar will ensure that the issue is raised within the LDAC to ensure a wide consideration of the options to respond to the condition. This will be relevant, if, as anticipated, other segments of the EU distant water tuna fishing fleet aspire to MSC certification Furthermore, there are several participants involved in the FIP that will ease to meet the condition. **Deliverables Year 1** Echebastar will present a report to the auditors with a list of the meetings with details on the decisions made, as supported by signed minutes. **Activities Year 2** Based on the discussions and following consultation with the coastal states, LDAC, the Government of Spain and IOTC, a model of the short and long-term objectives for private agreements will be agreed amongst interested parties. **Deliverables Year 2** Echebastar will present a report that details the model for short and long-term objectives for private agreements, including the form in which they will be made public e.g. in a protocol that is separate to the private commercial agreement or as part of the private commercial agreement with the commercial points redacted. **Activities Year 3** From Year 3, any new private agreements will incorporate the new approach. **Deliverables Year 3** Copies of the relevant agreements. **<u>The Seychelles</u>** As noted in the certification report The Fisheries Act (2014) introduces the concept of Fishery Management Plans, which are based on stakeholder participation. SFA is committed to the preparation of an FMP for the tuna fishery. Echebastar will work with SFA and other key stakeholders to progress the planning for the drafting and subsequent implementation of an FMP that will follow international best practice with the identification and definition of short and long-term objectives. **Activities Year 1** Echebastar will meet on a regular basis with SFA and other key stakeholders to promote the concept of a specific fisheries management plan for tuna fisheries. **Deliverables Year 1** Echebastar will present the auditors a list of the meetings completed together with signed minutes that provide evidence that the concept of a tuna FMP has been fully discussed. **Activities Year 2** It is anticipated that substantive work on the definition of a tuna FMP will be completed during the second year of the certification. One of the first areas to be considered will be the definition of short and long-term objectives. **Deliverables Year 2** Echebastar will present the auditors with the minutes of the meetings of the committee / working group charged with definition of an FMP to provide evidence that potential short and long-term objectives have been discussed between all key stakeholders. **Activities Year 3** It is anticipated that an FMP for tuna fisheries will be applied in the third year of certification. This will include defined short and long-term objectives.

	Deliverables Year 3 Echebastar will present the auditors with a copy of the approved FMP. **Action Owner** ECHEBASTAR **Action Partners** ECHEBASTAR SEYCHELLES MINISTRY OF FISHERIES AZTI SFA **Stakeholders** IOTC SECRETARIA GENERAL DE PESCA DE ESPAÑA
Consultation on condition	SFA is committed to the drafting and implementation of a tuna FMP.

Table 65: Condition 8 - 3.2.2

Performance Indicator	
Score	75
Rationale	**SId. Information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.** Limited specific information is available on the fisheries conducted under private arrangements.
Condition	By the third annual surveillance audit: SId. Information on the fishery's performance and management action relevant to the Seychelles fishery and private agreements is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
Milestones	Year 1. Echebastar will provide evidence to the audit team in the first annual surveillance audit that: (i) there has been consideration of the potential short and long-term objectives for the Seychelles skipjack tuna fishery; and (ii) there has been consideration of the mechanism for making information on private agreements available for review by stakeholders including consideration of explicit short and long-term objectives for this element of the fishery. Expected score = 75. Year 2. Echebastar will provide evidence to the audit team in the second annual surveillance audit that: (i) short and long-term objectives for the Seychelles skipjack tuna fishery have been defined and are explicit within the management system for the national purse fishery for skipjack tuna; and (ii) short and long-term objectives for the private agreements are explicit within those private agreements. Expected score = 80.
Client action plan	The client will work with other key stakeholders in response to identified shortcomings of the private fishery agreements and the approach to fisheries management in the Seychelles. **<u>Private Fishing Agreements</u>** The Echebastar fishing agreements are made with coastal states that are Contracting Parties of IOTC. Accordingly, these follow IOTC requirements. However, we recognise that details on private agreements have led to some concern being expressed by stakeholders. The certification report correctly identifies several issues that may impact the approach to SFPAs and private agreements, while in relation to the latter it notes that they are approved by the Spanish Government, and the fisheries administration of the coastal state and are submitted to the IOTC. **Activities Year 1** As condition 7. Echebastar will meet with other Spanish fishing companies that benefit from private agreements in the context of their representative organisations, OPAGAC and ANABAC, to consider the approach to meeting the condition. In that sense, OPAGAC and ANABAC are participants of the FIP, and as such, they will ensure to meet the highest standards of MSC. Echebastar will ensure that the issue is raised within the LDAC to ensure a wide consideration of the options to respond to the condition. This will be relevant, if, as anticipated, other segments of the EU distant water tuna fishing fleet aspire to MSC certification **Deliverables Year 1**

	Echebastar will present a report to the auditors with a list of the meetings with details on the decisions made as supported by signed minutes. **Activities Year 2** Based on the discussions and following consultation with the coastal states, LDAC, the Government of Spain and IOTC, a model for making private agreements more transparent will be agreed amongst interested parties. **Deliverables Year 2** Echebastar will present a report that details how the parties have agreed to make private agreements more transparent including a timely response to stakeholder concerns. This will include a publicly available report on the operating private agreements. **Activities Year 3** From Year 3, any new private agreements will incorporate the new approach. **Deliverables Year 3** Copies of the relevant agreements. Details of the response to any concerns expressed by stakeholders. **Action Owner** ECHEBASTAR **Action Partners** SEYCHELLES MINISTRY OF FISHERIES AZTI SFA **Stakeholders** IOTC
Consultation on condition	The Seychelles Ministry of Fisheries is committed to collaborate closely with stakeholders to meet this condition. It will ensure implementation of the approach required to strengthen the participation of the local stakeholders.

10.2. Recommendations

The audit team makes 3 recommendations.

Table 66: Recommendations

	PI	Recommendation
1	1.2.1	Observers estimate and report on discarded catch and reasons for discarding.
2	2.3.3	A greater percentage of observer data is available for review each year at annual surveillance audits to better assess impacts on ETP species.
3	2.4.3	Echebastar maintains a database of the number of lost FADs by area and date.

11. APPENDIX 3: STAKEHOLDER COMMENTS FOLLOWING CERTIFIER DESK REVIEW (CDR)

11.1. AZTI

First Name*	MARGARITA / ANE
Last Name*	ANDRÉS / IRIONDO
Title	Ms
Organisation*	AZTI
Department	FISHERIES RESEARCH
Job Title	Sustainable Fisheries Management
Description	At AZTI, we are a Technology Center where we develop sustainable products, services and business initiatives aimed at activating the industrial make-up while recovering and preserving natural resources. Transforming science into sustainable and healthy development for society today and in the future is our hallmark.
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Performance Indicator	Nature of Comment	Justification
3.2.1 Fishery-specific objectives	Further information is needed to score the PI	The certifier has justified that the score 80 could not be achieved. However, there is an important document that the certifier has not included in the analysis. The certifier refers to Medley P. & Powers 2015 (http://www.issuelab.org/resources/21506/21506.pdf). But in 2016, this report was updated by the same authors Powers and Medley, 2016 (http://iss-foundation.org/knowledge-tools/technical-and-meeting-reports/download-info/issf-2016-19-an-evaluation-of-the-sustainability-of-global-tuna-stocks-relative-to-marine-stewardship-council-criteria/). The report of year 2016 indicates that '*The scientific advice is based on MSC Principles 1 and 2, because these objectives are implicit in the management of each stock, meeting SG60. Additionally, with the adoption of 15-10 and 16-02, the SG80 is now met*.' In fact, the IOTC Resolution 15-10 set the reference points and IOTC Resolution 16-02 set management objectives of Skipjack tuna. Thus, according to aforementioned documents, the score of 80 could be achieve. **References:** IOTC Resolution 15/10 on interim target and limit reference points and a decision framework. IOTC Resolution 16/02 on harvest control rules for skipjack tuna in the IOTC area of competence. J.E. Powers and P.A.H. Medley. 2016. An Evaluation of the Sustainability of Global Tuna Stocks Relative to Marine Stewardship Council Criteria (Version 4). ISSF Technical Report 2016-19. International Seafood Sustainability Foundation, Washington, D.C., USA. Team Response: Powers & Medley was downloaded in mid-January 2017, before the up-dated version was posted. The up-dated version has been used in this report. The approach in P3 is to use the report as a de facto stakeholder submission; i.e. we do not necessarily agree with the authors' findings. Note that the approach to scoring in P3 requires consideration of several jurisdictions and is not limited to the IOTC. Also, analysis under P3 refers to the overarching framework; the various IOTC resolutions are more properly considered under 1.2.1 and 1.2.2. Please review the new text and respond if you do not agree with the justification and the allocated score.
3.2.3 Compliance and enforcement	Further information is needed to score the PI	The minimum score of 80 for each of the 4 scoring issues: a) A monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. b) Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.

		c) Some evidence exists to demonstrate fishers comply with the management system under assessment, including when required, providing information of importance to the effective management of the fishery. d) There is no evidence of systematic non-compliance. According to the document of Powers and Medley, 2016; a) Implementation meets SG60 but not SG80. b) Sanctions meet SG60 but not SG80. c) Compliance meets SG80. d) Systematic non-compliance SG80 is met. a) The implementation: IOTC already has an extensive number of monitoring, control and surveillance (MCS) related measures. However, the implementation of these measures are the duty and responsibility of the Contracting Party and Cooperating Non-Contracting Party (CPCs). In case of EU vessels, there are several regulations that could allow to increase the score and which are reviewed in the IOTC Compliance Committee. http://www.iotc.org/sites/default/files/documents/2016/05/IOTC-2016-CoC13-RE.pdf]: • Regulation EC No 404/2011: this regulation establishes a Community control system, vessel monitoring system (VMS) for ensuring compliance with the rules of the Common Fisheries Policy. [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0404&from=EN] • There is also an IOTC Compliance Report for: European Union 2016, where the level of implementation of the information requirements is described. [http://www.iotc.org/sites/default/files/documents/2016/05/IOTC-2016-CoC13-CR06_Rev1E-EU.pdf In the case of vessels from Seychelles, mainly the European Regulation is applied also to those vessels. b) Sanctions: At European level, there are possible sanctions in the data collection framework. When data of catches are not provided, withholding of aids or payments requirements can be carried out. Team Response: Powers & Medley was downloaded in mid-January 2017, before the up-dated version was posted. The up-dated version has been used in this report. The approach in P3 is to use the report as a de facto stakeholder submission; i.e. we do not necessarily agree with the authors' findings. Note that the approach to scoring in P3 requires consideration of several jurisdictions and is not limited to the IOTC. Also, analysis under P3 refers to the overarching framework; the various IOTC resolutions are more properly considered under 1.2.1 and 1.2.2.

		Please review the new text and respond if you do not agree with the justification and the allocated score.

11.2. INPLF

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GENERAL COMMENTS

We feel that the following issues did not receive enough attention in the desktop review and needs to be evaluated. All these issues are P2 and P3 related and should lead to downward adjustments in the scores awarded under the different PIs.

We also have to stess that this list is by no means exhaustive and is based on quick review of the CAB's desktop review. Fuller comments and critique on scoring of PIs will be provided at the next opportunity when the draft report is released.

dFADs and FAD management:

Since the mid-1990s, drifting Fish Aggregating Devices (dFADs), artificial floating objects designed to aggregate fish, have become an important mean by which purse seine fleets catch tropical tunas. Mass deployment of dFADs, as well as the massive use of GPS buoys to track dFADs and natural floating objects, has raised serious concerns for the state of tropical tuna stocks and ecosystem functioning.

In a recent study by Maufroy et al, (2017) tracks were combined from a large proportion of the French GPS buoys from the Indian and Atlantic oceans with data from observers aboard French and Spanish purse seiners and French logbook data to estimate the total number of dFADs and GPS buoys used within the main fishing grounds of these two oceans over the period 2007–2013. In the Atlantic Ocean, the total number of dFADs increased from 1175 dFADs active in January 2007 to 8575 dFADs in August 2013. In the Indian Ocean, this number increased from 2250 dFADs in October 2007 to 10 300 dFADs in September 2013. In both oceans, at least a fourfold increase in the number of dFADs was observed over the 7-year study period.

Though the relative proportion of natural to artificial floating objects varied over space, with some areas such as the Mozambique Channel and areas adjacent to the mouths of the Niger and Congo rivers being characterized by a relatively high percentage of natural objects, in no region do dFADs represent <50% of the floating objects and the proportion of natural objects has dropped over time as dFAD deployments have increased. Globally, this increased dFAD use represents a major change to the pelagic ecosystem that needs to be closely followed in order to assess its impacts and avoid negative ecosystem consequences.

The following weaknesses on FAD management at IOTC should be considered by the assessment team and the relevant PI scores should be adjusted downwards:

- The impact of current FAD numbers on tuna populations and the broader ecosystem are poorly understood. In this context, the IOTC should apply the Precautionary Approach and, at a minimum, freeze the dFAD footprint until more is known. Adopting 'limits' that actually incentivise an increase in overall dFAD use are counterproductive.

Team response: Over the several years, the IOTC has placed limits on the number of FADs that can be used by individual purse seine vessel and on the number of supply vessels that can service the FADs. Resolution 15/08 set the maximum number of instrumented buoys active and followed by any purse seine vessels at 550 instrumented buoys at any one time, the active number being calculated as the number of active buoys operated by a purse seine vessel. The number of instrumented buoys that shall be acquired annually for each purse seine vessel is set at no more than 1100 Resolution 16/01 reduced the number of Fish Aggregating Devices (FADs) as defined in Resolution 15/08, paragraph 7, will be no more than 425

active instrumented buoys and 850 acquired annually instrumented buoys per purse seine vessel. Prior to these actions, vessels could carry and set an unlimited number of FADs, and there was no limit on the number of supply vessels. The team does not consider these measures to "incentivize an increase in the overall FAD use". It should also be noted that the Echebastar fleet uses less that active 400 FADs per vessel, and has only one supply vessel to assist with the servicing of the FADS used by its fleet. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5 scoring.

- Mechanisms should be developed to take advantage of the valuable fishery information collected by dFADs that is currently not shared with fisheries managers or scientists. These data will provide clarity on dFAD numbers, benefit future stock assessments and other scientific endeavours, and aid in the development more effective FAD management measures. To accomplish this, dFAD data should be shared with relevant scientific bodies, secretariats, and research institutes, in line with confidentiality provisions of the RFMOs, not later than 6 months after they are collected.

Team response: Echebastar fisheries does share its FAD tracking and fish abundance data with AZTI, and does participate in collaborative research with AZTI and ANABAC, its Spanish industry trade organization. The results of some of this cooperative research were recently presented at Joint t-RFMO FAD Working Group meeting in November 2017, and included papers on buoy derived abundance indices of tropical tunas in the Indian ocean, managing FAD capacity and impacts on marine ecosystems, and other topics The French purse seine fleet in the Indian ocean is also involved in cooperative research with trade organization, and national fisheries research institute. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5scoring.

- Better understand how FAD fishing and densities of dFADs in tropical areas impact the distribution and CPUEs of tropical tunas to higher latitude coastal fisheries.

Team response: As noted in the team response to previous stakeholder comment, Echebastar fisheries is working with its regional fisheries research institute, its industry trade organization, and the IOTC to better understand how FAD fishing and densities of dFADs in tropical areas impact the tuna distributions, and potentially impact the CPUEs of tropical tunas in higher latitude coastal fisheries. This stakeholder comment and the team response has been incorporated into Component 2.4 and 2.5 scoring. Note also that a condition has been included in PI 2.5.3.

- Stricter licensing requirements for the use of dFADs should be imposed and this should include the sharing of tracking information with fisheries managers and scientists, limits on numbers of dFADs in their EEZs of coastal states at a given time, rules on dFADs deployed outside their EEZ but drifting inside, and licensing schemes.

Team response: Echebastar fisheries supports recent actions by the IOTC to impose restrictions on the number of FADs deployed, and in fact Echebastar vessels use less FADs per vessel that is currently allowed. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5 scoring. Note also that a condition has been included in PI 2.5.3.

Mechanisms to track and monitor dFADs should be implemented on the high seas by the IOTC to complement measures in coastal state EEZs.

- In looking at the impacts of fishing on associated schools, all data must be analysed and a range of options be considered including capacity limits (i.e. numbers and types of buoys, limits of supply vessels and daily/weekly/monthly deployment limits), effort limits (number of sets), as well as combination of both.

Team response: The team is uncertain as to the intent of this stakeholder comment. With regard to this assessment, the team is required to assess the impact of the UoA on the target species and on the ecosystem, and the team had done exactly that, evaluating the catches of the Echebastar fleet. If the comment is addressed to a concern that the IOTC should address fishing on associated schools, the team believes that the IOTC does exactly that, and as a result of its concern regarding the rebuilding of the yellowfin stock, the IOTC has recently approved Resolution 16/01, with three specific measures that not only will reduce fishing mortality on yellowfin, but will also address that number of FADs, and the number of supply vessels that service FADs. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5 scoring.

- Supply vessels and dFADs are a key component of fishing capacity and, as such, must be considered in any fishing capacity measures. As FADs are meant to attract tuna, they are constantly in the act of “fishing” and the biomass under each buoy is constantly monitored by dFAD owners. This clearly enhances the ability and therefore the efficiency of purse seine vessels to catch tuna. Commitments to “freeze capacity” or “capacity limits” at the RFMOs should apply to dFADs and buoy numbers as well.

Team response: The IOTC approved Resolution 16/01 in mid-2016, effective 1 Jan 2017 that addressed Supply vessels as one of three measures to reduce fishing mortality on yellowfin tune and assist in the rebuilding of the yellowfin tuna stock: "The total number of supply vessels by CPC on the IOTC active list shall not exceed half of the number of Purse seine vessels reported per CPC on the IOTC active list for the same year. Complementary to Resolution 15/08 on "*Procedures on FADs Management Plan including a limitation on the number of FADs, more detailed specifications of catch reporting from FAD sets, and the development of improved FAD designs to reduce the incidence of entanglement of non-target species*" and to Resolution 15/02 *“Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)”*, CPC shall report annually which Purse seiners are served by each Supply vessel. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5 scoring.

- Vessels should be accountable for all of the FADs they deploy, and should plan to recover them as part of their fishing strategy. This is consistent with the UN Fish Stock Agreement, which calls on States to, “minimize pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species.” When lost or stranded, dFAD owners should be liable for recovery and rehabilitation costs in case of damage to coastal habitats, such as reefs.

Team response: The purse seine fishing companies invest considerable resources in each FAD that is equipped with sonar/GPS beacon, so the fishing companies do attempt to recover as many FADs as possible. Unfortunately, current practice in the Indian Ocean fishery is for seiners and service vessels as they come upon the FADs of another fishing vessel or company to remove the beacon and possibly the FAD from the water after harvesting the tuna associated with the FAD. This practice contributes to the loss of FADs. The purse seine fleet is working with the beacon service companies/organizations and with the Island Conservation Society to retrieve lost FADs from the water as they approach coral reefs in the Seychelles. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5 scoring.

- Many FADs are still constructed of non-biodegradable materials, including plastic netting, and can be more than 100m in length. If non-biodegradable dFADs are not recovered, then they should be considered abandoned and this should be recorded as a violation of MARPOL Annex V, reported to the Flag State, and appropriate action should be taken minimize losses in the future.

Team response: The Echebastar fleet adopted the use of non-entangling FADs several years ago, and it currently working on the development of biodegradable FADs. This stakeholder comment and the team response has been incorporated into Components 2.4 and 2.5 scoring.

Fisheries Partnership Agreements and Private Agreements

The fishing area for the UoA is the Indian Ocean. This comprises two distinct areas: international waters and the EEZs of the coastal and island nations. In reference to the latter, Echebastar vessels may fish in the EEZs of Comoros, Seychelles, Madagascar and Mauritius under the terms of Sustainable Fishery Partnership Agreements signed with the European Union. These arrangements and the incentives

As part of the reform of the Common Fisheries Policy (CFP), strict standards were established for activities under official agreements with coastal States for access to their fisheries resources – so-called Sustainable Fisheries Partnership Agreements (SFPAs). These agreements must be of mutual benefit to both parties and only established where it is shown that there is a surplus of the resource that can be sustainably caught. The strict standards established for SFPAs do not currently extend to vessels fishing under private agreements established directly between EU companies and coastal States, nor to chartering agreements under which EU-flagged vessels fish a share of the resources of a coastal State's EEZ in collaboration with local companies. Even though vessels fishing under these agreements fly the flags of EU member states – and their catches have the same EU market access as catches under SFPAs – there are no common procedures to ensure that activities under these agreements comply with EU laws and adhere to CFP standards.

A major gap that limits the effective oversight of vessels fishing under private agreements is the lack of requirements for details of these agreements to be reported to the EU flag State and the European Commission, or for key information to be made publicly available. The lack of public information on these agreements makes it extremely difficult to determine the number of EU vessels fishing under such agreements, where these vessels are fishing and for which species, in order to assess the impact on local fish stocks (EJF, Oceana, Pew & WWF, 2016).

For instance 14 EU-flagged purse seine vessels provided with fishing authorisations in Tanzanian in 2013 under private agreements with ANABAC and OPAGAC (NFDS et al., 2014). Le Manach et al. (2012) reported that ANABAC vessels have in the past had private agreements with Madagascar and it needs to be established whether such agreements are still in place and what the implications of these are in terms of transparency, incentives to fish sustainably, perverse incentives etc.

FPAs and Private Agreements and the implications on effective management of the fishery needs to be included in the P3 analysis and scoring of PIs.

Team response: Please review this report which looks to fully consider SFPAs and private agreements in the scoring justification and associated scoring.

Silky sharks:

The status of silky sharks in the Indian Ocean is uncertain. In the eastern and western Indian Ocean, along with globally, silky sharks are considered Near Threatened by the International Union for the Conservation of Nature (IUCN) (Bonfil et al. 2009). No qualitative assessment has been conducted in the Indian Ocean, due to a lack of information. The information that does exist indicates that significant declines in abundance have occurred over time, and silky shark is considered one of the most vulnerable shark species in the Indian Ocean (IOTC 2012) (IOTC 2013g). They are the main shark species (79% of all shark bycatch) in Indian Ocean purse seine fisheries (Amande et al. 2008). Monterey Aqauarium's Seafood Watch programme says "the worst scoring species in the associated (Indian Ocean) purse seine fishery is the silky shark, due to the potentially low population size and large negative impacts from fishing.

Silky sharks are caught in a number of fisheries in the Indian Ocean, including purse seine fisheries. A qualitative assessment has not been conducted in the Indian Ocean, and there is substantial uncertainty surrounding total catch estimates. Current fishing mortality rates are unknown but it is generally thought that maintaining or increasing fishing effort will likely cause the biomass to decline (IOTC 2013). There is some evidence that entanglement mortality of silky sharks in drifting fish aggregagating devices (DFADs) may be substantial: 5 to 10 tmes the current bycatch estimates of silky sharks in purse seine fisheries operating in the Indian Ocean (Filmalter et al. 2013). The incidental capture of ecologically important species by FADs has the potential for negative ecological impacts, and management is not designed to avoid these impacts.

Although other gears have higher bycatch rates of silky sharks (e.g., gillnet and longline), MBAq Seafood Watch awarded a "high" concern score because of the uncertainty surrounding fishing mortality rates, the lack of effective management measures in place, and because it is believed current levels of fishing are too high to maintain the population at a healthy size.

A recent study by Poisson et al. (2014) has also shown that the overall mortality rate of silky shark individuals brailed on board purse seiners operating in the Indian Ocean was 85%. Scientists on-board French purse seine vessels recorded the number and condition of silky sharks caught during three fishing cruises in the Indian Ocean. A sample of 31 individuals that showed signs of life were tagged with satellite tags to investigate their post-release mortality. The majority of individuals (95%) were brought on-board using the brailer. Combining the proportion of sharks that were dead (72%) and the mortality rate of those released (48%), the overall mortality rate of brailed individuals was 85%. Few individuals (5%) were not brailed as they were entangled and landed during the hauling process. The survival rate of these individuals was high, with an overall mortality rate of meshed individuals of 18%. The combination of these two categories led to an overall mortality rate of 81%. This high value reflects the harsh conditions encountered by sharks during the purse seine fishing process (Poisson, 2014)

Team response: The CDR indicated that about 50% of the sharks were released alive, and then about 50% of those survived, that results in a 25% survival rate for sharks encountered. That was based on a single study. The INPLF comments indicate that the survival rate is about 20% for sharks encountered, and the team agrees that other references support a lower survival rate for sharks encountered in purse seines. The scoring of ETP sharks in this report (Component 2.3.) reflects this lower estimate of survival.

Large rays:

Several **species** of large rays (e.g., devil ray) are incidentally captured in the Indian Ocean purse seine fisheries in the Indian Ocean (Delgado de Molina et al. 2005) (Hall and Roman 2013). There is no information on their fishing mortality rates and these species have a high vulnerability to fishing.

Team response: The Echebastar catch of large rays is very low in both the FAD and FSC set types. The is addressed in the P2 catch analysis, and in the P2 scoring.

Ecosystem-based fisheries management:

Purse seine fisheries in the Indian Ocean catch several ecologically important groups including other tunas and sharks. In particular, sharks are considered top predators in many ecosystems and play a critical role in how these ecosystems are structured and function (Piraino et al. 2002) (Stevens et al. 2000). The loss of these predators can cause many changes, such as to prey abundances, which can lead to a cascade of other affects (Myers et al. 2007) (Duffy 2003) (Ferreira et al. 2010) (Schindler et al. 2002) and behavioural changes (Heithaus et al. 2007).

The use of FADs in the Indian Ocean could impact the surrounding ecosystems. Smaller tuna, specifically bigeye and yellowfin, are often associated with FADs and this could lead to growth and recruitment overfishing (Freon and Dagorn 2000). In addition, behavioural changes in tunas could be associated with the introduction of FADs into the Pacific region. These include increases in the biomass of tunas under FADs, reduced free-school abundance, changes in school movement patterns and structure, and differences between the age and size of free and FAD associated schools (Fonteneau 1991) (Menard et al. 2000a) (Menard et al. 2000b) (Josse et al. 1999) (Josse et al. 2000). The negative long-term impacts of FAD fishing are difficult to evaluate due to insufficient qualitative data (Fonteneau et al. 2000), so additional research should be undertaken to determine the potential effects of FADs on the ecosystem, including monitoring the number of FADs being used (Dagorn et al. 2012). Recently, the Indian Ocean Tuna Commission (IOTC) required individual countries to provide a management plan for FADs to be submitted to the Commission in 2013. Within this plan, countries must identify designs and deployment options that will reduce the incidental capture of sharks, marine turtles, or other bycatch species (IOTC 2013l).

There is a clear potential for negative ecological impacts from FADs, and management is not designed to avoid these impacts.

Team response:

Ecosystem impacts of beached FADs and associated ghost fishing:

One negative environmental impact of dFADs is they have the potential to wash ashore and become grounded or beached, potentially causing damage to marine habitats. Other than anecdotal reports (e.g. Stelfox et al., 2015), this issue has received very little research attention to date. On the occurrence of observed dFAD beaching events, Balderson and Martin (2015) present a detailed investigation into the location, characteristics and source of beached dFADs in Seychelles. They show categorically that dFADs used by fleets in the region are washing ashore, and that coral reefs are the most impacted habitat, with dFAD sub-surface structure becoming entangled on reef structure. However, their study did not attempt to quantify the damage caused to habitat during entanglement. From a different perspective, and using a large dataset of GPS buoy positions, Maufroy et al. (2015) estimated that almost 10% of all dFADs deployed by French vessels in the Indian and Atlantic Oceans ultimately became beached. In the Atlantic, dFAD beaching events were concentrated along the coastline of the Gulf of Guinea, adjacent to the main purse seine fishing grounds, although some travelled much further and stranded on the Brazilian coastline. In the Indian Ocean, beaching events occurred more widely, with most events observed in Somalia, the Seychelles, the Maldives, and Sri Lanka. Beaching events were also observed in the British Indian Ocean Territory (BIOT) marine protected area.

The lack of research on this topic means that the problem of beaching dFADs is not well defined, with the risk of dFADs beaching events being mostly assumed and the extent and severity of beaching impacts uncertain.

Balderson & Martin 2015 and Maufroy et al. 2015 ascertain that DFADs might result in some ghost fishing and that it is therefore essential to assess the magnitude of overall mortality of turtles through entangling in DFADs at sea or beached [from Rees et al., 2016. Research priorities for sea turtles: a review].

There are reports of Echebastar satellite trackers that are usually deployed on DFADs being found on a beach in South Africa (http://southcoastherald.co.za/73075/fishing-tracker-discovered-off-shelly-beach) and there are numerous other reports of DFADs drifting onto sensitive reef ecosystems and causing habitat damage.

This issue needs to be considered within the assessment.

Team response: The issue of lost FADs is fully addressed in this report, both in the P2 scoring introduction and in the scoring of PIs 2.4.x. It is generally agreed that about 20% of all active FADs are lost annually, and about 50% of those eventually wash ashore or ground in shallows. The proportion of those that wash ashore or ground in shallow water that actually impact a coral reef is unknown and is the subject of ongoing research. In the Seychelles, the Island Conservation Society has recently started a projects to both assess the rates at which lost FADs are washing ashore in St Francois atoll, and to retrieve lost FADs before they actually go ashore in the Seychelles. With regard to sea turtle entanglement in FADs, the new non-entangling FADs have significantly reduced this problem, as is reflected in the catch data for the Echebastar fishery. The scoring of PI 2.5.3 in this report includes a condition that requires Echebastar fisheries to contribute the body of knowledge regarding the effects of FADs on the behaviour, feeding and migration of tuna. The comments of the stakeholder and the team responses have been included in the scoring of Components 2.4. and 2.5. in this report.

References:

NFDS, POSEIDON, COFREPECHE and MRAG (2014). Ex ante evaluation of a possible future fisheries partnership agreement and protocol between the European Union and the United Republic of Tanzania. Framework contract MARE/2011/01 – Lot 3, specific contract n° 7. Brussels, 108 pp.

Le Manach, F., 2012. Valuation of Fisheries Resources in Madagascar: Wealth Accounting and Ecosystem Services Valuation (WAVES) Global Partnership. Fisheries Technical Study, Report Prepared for the World Bank. 14 April.

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Rees et al, 2016. Are we working towards global research priorities for management and conservation of sea turtles? ENDANGERED SPECIES RESEARCH Vol. 31: 337–382, 2016.

François Poisson, John-David Filmalter, Anne-Lise Vernet, Dagorn Laurent, 2014. Mortality rate of silky sharks caught in the tropical tuna purse seine fishery in the Indian Ocean. Canadian Journal of Fisheries and Aquatic Sciences, 10.1139/cjfas-2013-0561

11.3. ISSF

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Harvest method (UoC)

ISSF is pleased to see the Client is pursuing certification for the entire purse seine fishery as a whole and not making an artificial separation between FAD sets and free-school sets.

Traceability

ISSF believes that when transshipment in port occurs from several purse seiners to a single reefer vessel, there is a risk of mixing catches from the EIO fishery with catches from non-EIO vessels. Therefore, more evidence needs to be provided on how this risk is minimized.

Team Response:

Harvest method

The team agrees that this is the best approach, and has pursued an elemental approach to the scoring as per MSC CR v.2 guidance.

Traceability

As a result of the site visit, the team appreciates this comments, and the Traceability text in this report has been revised from the text in the CDR, so as to clarify specifically how Echebastar minimizes the risk of mixing catches of EIO certified tuna with catches of non-EIO certified tuna in a single reefer vessel. In essence, this is accomplished by placing a panel cargo netting fastened along its entire perimeter to the walls of the cargo hold, and labelling the catches with tags above and below the netting panel, so as to ensure that there is no mixing of catches.

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11.4. PEW

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2.1.1 – Primary Species	Further information is needed to score the PI	The desk review scored this PI greater than or equal to 80. Greater investigation should be given as to whether the use of FADs results in a "minimal impact" on silky sharks. Although the desk review notes that non-entangling FADs are used in the Echebastar fleet, little information is presented on their design, use and impacts. Data reported by several IOTC members shows declining abundances of silky shark (IOTC Silky Shark Supporting Information, 2016), and the IUCN classifies silky shark as "near threatened" in the Indian Ocean. The IOTC Scientific Committee recommended in 2016 that the IOTC should consider a precautionary approach to the management of silky shark (IOTC SC Report, Appendix XXVII, 2016). Team Response: Silky shark and oceanic whitetip sharks were incorrectly classified as primary minor species according the MSC CR v.2.0. These species should have been classified as ETP species. However, it should be noted that they are not listed on CITES Appendix 1, or listed as threatened or endangered on the IUCN redlist. Silky sharks are listed in Annex 1 CMS MOU on sharks, and in Appendix 2 of the Conservation of Migratory Species (CMS), and for this reason it is listed as an ETP species in this MSC assessment, in accordance with MSC CR v.2 guidance GSA 3.1.5.2. These species are not identified as Threatened or Endangered by the IOTC or the Seychelles. In response to the MSC guidance and the stakeholder concern for these species, silky shark and oceanic white tip sharks are now addressed individually in the Component 2.3. scoring as ETP species. The stakeholder comments and the team response are included in the scoring of Component 2.3. Although a variety of gears catch and interact with silky sharks, the use of FADs in the purse seine fishery impacts silky sharks in two ways. First, vessels fishing with FADs capture silky sharks. The Indian Ocean silky shark "demonstrates strong fidelity to seamounts and natural or man-made objects (like FADs) floating at the sea surface" (IOTC Silky Shark Supporting Information, 2016). Only 16% of the 1,390 FAD sets were observed in the Echebastar fishery in 2016, which means that many interactions with silky sharks may not have been recorded by human observers. In a study of the French purse seine fishery in the Indian Ocean, Amande et al., 2008 estimated silky sharks were captured in 40% of the FAD sets. In addition, rates of shark mortality related to FAD fishing appear understated in the desk review. Eddy et al., 2016 found a high rate of post-release mortality of sharks captured on FADs in the Eastern Pacific Ocean. The total mortality rate of the pelagic sharks studied was 80 to 95 percent (a combination of at-vessel and post-release mortalities). Second, deployed and unrecovered FADs entangle and kill silky sharks, a significant source of mortality that was not addressed in the desk review. Filmalter et al., 2013 quantified this ghost fishing in the Indian Ocean. Using information from underwater observations and satellite tagging data, the study estimated FADs entangle and kill 480,000 to 960,000 silky sharks each year in the Indian Ocean, assuming a range of 3,750 to 7,500 active FADs. Echebastar vessels made 1,390 FAD sets in 2016. Because vessels typically deploy many more FADs than are set upon, there is a high likelihood that thousands of FADs deployed by Echebastar vessels were unrecovered and potentially available to interact with silky sharks. Team Response: The percentage of observed sets for 2016 included in this assessment report has been increased to 33%, but this is all the data available at this time. The assessment team recognizes that the percentage of observer trips should be greater and the team has placed a condition on the certification of the fishery that requires the percentage of the

		observer data available to characterize the catch of the fishery be increased to greater than 70% by the 3rd annual surveillance. However the team notes that the IOTC has indicated that only 25% observer coverage is required to accurately estimate the shark bycatch in the Indian Ocean purse seine fishery. This is discussed in more detail in the P2 scoring in this report. The assessment team is aware of the Amande et al., 2008 report that estimated silky sharks were captured in 40% of the FAD sets. However, the data used in the Amande report was collected during the period when entangling FADs were in general use. The Echebastar fleet has exclusively used non-entangling FADs since 2014, and that most likely accounts for the differences in the captures of sharks, and in particular silky sharks. This is all explained in more detail in the P2 scoring introduction and in the scoring of Component 2.3. in the report. Also note that much of the P2 scoring in this report addresses the UoA alone, not the catches or fishing practices of the entire fleet of Indian Ocean purse seiners. References: Corey Eddy et al., "Rates of at-vessel mortality and post-release survival of pelagic sharks captured with tuna purse seines around drifting fish aggregating devices (FADs) in the equatorial eastern Pacific Ocean," *Fisheries Research* 174 (2016): 109-117 John David Filmalter et al., "Looking Behind the Curtain: Quantifying Massive Shark Mortality in Fish Aggregating Devices," *Frontiers in Ecology and Environment* 11 (2013): 291-296 M-J Amande et al., "Silky shark (Carcharhinus falciformis) bycatch in the French tuna purse-seine fishery of the Indian Ocean," IOTC WPEB-2008/016
2.1.2 Primary Species Management - bigeye	Additional rationale is needed to support the score	The desk review provides no discussion of the management strategy in place for bigeye tuna, or evidence of evaluation or implementation of a strategy if it exists. Such discussion should be added in order to justify the scores given for these three sections. Bigeye is identified as a main primary species and accounts for 8.3 percent of the catch of tunas by the Echebastar fleet. Given that scientific analysis has shown the relationship between the setting on FADs and catch of juvenile and/or small bigeye in certain FAD fisheries, the issue of a management strategy or lack thereof for bigeye warrants closer examination. Team Response: As noted in PI 2.1.2, SIa and SIb, the bigeye tuna stock in the Indian Ocean is within biologically based limits, and therefore there is no need for measures or a partial strategy. Further, the catch of bigeye by the UoA is 3% of the total catch of bigeye in the Indian Ocean, much less than 30% of the total catches for the stock, so the UoA would not normally be expected to hinder the recovery to the PRI (GSA3.4.6), So, again, there is no need for measures or a partial strategy. The SG60 and 80 requirements are met, as neither measures nor a partial strategy in place for the UoA, are necessary.
2.1.2 Primary Species Management - yellowfin	Further information is needed to score the PI, Additional rationale is	The desk review scored these indicators relating to parts A, B, C as meeting SG80 requirements. However, to justify the scores, the assessment should further consider: • Although yellowfin (estimated at $0.29SB_0$) is above the PRI. Resolution 16/01 mandates catch reductions that are less than the reductions called for in the scientific advice to return the stock to B_{MSY}. With insufficient catch reductions,

	needed to support the score	yellowfin's biomass may continue to decline. The resolution notes the scientific advice recommends "catches of Yellowfin tuna have to be reduced by 20% of the 2014 levels to recover the stocks to levels above the interim target reference points with 50% probability by 2024." However, reductions specified in the measure are 15% for certain purse seine vessels, 10% for gillnet and longline gears, and 5% for other gears. Yellowfin has experienced unsustainable catches and relatively low recruitment levels. • In 2016, after the adoption of Resolution 16/01, the IOTC Scientific Committee, stated that "the possible effect of this measure can only be assessed once estimates of abundance in 2018 would be available at the 2019 assessment." (2016 SC Report, Appendix XI, Executive Summary, Yellowfin Tuna) • MSC criteria require some evidence of successful implementation of Resolution 16/01 with respect to yellowfin to achieve at SG80. The desk review failed to provide this information. According to media reports, some IOTC members are not implementing the catch reductions called for in the resolution. Evidence of IOTC members' compliance, including passage of the necessary national legislation, is needed to ascertain whether the measure and required catch reductions are being implemented successfully. Team Response: For yellowfin tuna, the PI 2.1.2 SIa and SIb SG60 and 80 requirements are met, as there are both measures and a partial strategy in place to rebuild the stock. Additionally, because of the low catch level of the UoA of yellowfin tuna relative to the total fishery for yellowfin tuna, the UoA would not be expected to hinder the recovery of the stock (GSA3.4.6), so neither measures nor a partial strategy in place for the UoA, are necessary. References: "Fishing authority to observe yellowfin tuna stock in Seychelles' waters until March," The Seychelles News Agency, 13 Jan. 2017, available at http://www.seychellesnewsagency.com/articles/6600/Fishing+authority+to+observe+yellowfin+tuna+stock+in+Seychelles+waters+until+March "Fishing Industry – Seychelles' Economy Will Suffer If Tuna Catch Rates Are Followed," The Seychelles News Agency via All Africa.com, 18 March, 2017, available at: http://allafrica.com/stories/201703200798.html
2.1.2 Primary Species Information	Additional rationale is needed to support the score	Justification should be provided for the statement in the desk review that, based on the MSC criteria, that "there is no strategy required for bigeye." Bigeye is identified as a main primary species and accounts for 8.3 percent of the catch of tunas by the Echebastar fleet. Given that scientific analysis has shown the relationship between the setting on FADs and catch of juvenile and/or small bigeye in certain FAD fisheries, the issue of a management strategy or lack thereof for bigeye warrants closer examination. Team Response: The 2015 stock assessment of bigeye in the Indian Ocean indicates that the stock is above Bmsy. PRI for the bigeye stock is taken as 20%B0 (or 0.2 SB0 in IOTC terminology) or 0.5SBmsy. Bigeye was assessed in 2016 with SB2015/SB0 estimated as 0.38 but with no confidence intervals. SB2015/SBmsy is estimated at 1.29 (1.07-1.51). While it

		is recognized that analysis has shown the relationship between the setting on FADs and catch of juvenile and/or small bigeye in certain FAD fisheries, that does not change the stock status. Therefore this does not affect the MSC scoring.
2.3.1 ETP Species Outcome	Further information is needed to score the PI, Additional rationale is needed to support the score	Justification should be provided for not assessing silky shark as an ETP species. The EU, Spain, and Seychelles are signatories to the Memorandum of Understanding on the Conservation of Migratory Sharks, which lists silky shark as an Annex I species. This instrument was negotiated and is implemented under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), an agreement that MSC includes in its list of those to be considered here. The EU, Spain, and Seychelles are also all Parties to the broader CMS Convention. Team Response: As noted in a previous response, silky shark and oceanic whitetip sharks were incorrectly classified as primary minor species according the MSC standard, v.2. These species are now classified as ETP species. However, it should be noted they are not listed on CITIES Appendix 1, or listed as threatened or endangered on the IUCN redlist. These species are also not identified as Threatened or Endangered by the IOTC or the Seychelles. In this report they are addressed individually in the P2.3.x scoring as ETP species. Consideration should be given to the impact of lost/abandoned and discarded FADs on ETP coral species. Unrecovered, lost or abandoned FADs from purse seine operations in the Indian Ocean strike, and can damage, coral reefs. A study of FAD movements in the Atlantic and Indian Oceans using electronic data from the French purse seine fleet estimated 10 percent of deployed FADs run aground, striking sensitive habitat including coral reefs (Maufroy et al., 2015). Team Response: The team has a much greater appreciation for the impacts of FADs on coral reefs after receiving the stakeholder comments and conducting the site visit in the Seychelles. This assessment report has been substantially revised from the CDR to describe the lost FAD issue and to assess the impact of FADs on coral reefs. The scoring of this issue is included in PI 2.4.x. As PEW stakeholder points out, about 20% of the active FADs used are lost, and about 50% of them are estimated to reach shallow water somewhere in the Indian Ocean. The percentage of FADs lost that actually impact a coral reef is unknown, but is the subject of ongoing research, as is the actual impact of those grounded FADs on a coral reef. This subject is addressed further in the Introduction to P2 scoring, and in the PI 2.4.x scoring. References: Alexandra Maufroy et al., “Large-Scale Examinations of Spatio-Temporal Patterns of Drifting Fish Aggregating Devices (dFADs) From Tropical Tuna Fisheries of the Indian and Atlantic Oceans,” *PLOS ONE* 10 (2015).
2.4.1 Habitats Outcome	Further information is needed to score the PI, Additional rationale is needed to support the score	The desk review scored this indicator as meeting SG80 requirements, noting that at no time does purse seine gear make contact with biogenic reef. However, unrecovered, lost or abandoned FADs from purse seine operations in the Indian Ocean strike, and can damage, coral reefs. A study of FAD movements in the Atlantic and Indian Oceans using electronic data from the French purse seine fleet estimated 10 percent of deployed FADs run aground, striking sensitive habitat including coral reefs (Maufroy et al., 2015). Moving toward non-entangling FADs in some fisheries does not prevent them from grounding or beaching and is therefore unlikely to reduce the impact of FADs on reefs and other coastal habitat. Greater consideration also should be given to effects of the deployment of thousands of FADs in the pelagic habitat.

		Team Response: With regard to FADs impacting coral reefs, this was just addressed in the previous comments, and is repeated here. The team has a much greater appreciation for the impacts of FADs on coral reefs after receiving the stakeholder comments and conducting the site visit in the Seychelles. This assessment report has been substantially revised from the CDR to describe the lost FAD issue and to assess the impact of FADs on coral reefs. The scoring of this issue is included in PI 2.4.x. As PEW stakeholder points out, about 20% of the active FADs used are lost, and about 50% of them are estimated to reach shallow water somewhere in the Indian Ocean. The percentage of lost FADs that actually impact a coral reef is unknown, but is the subject of ongoing research, as is the actual impact of those grounded FADs on a coral reef. This subject is addressed further in the Introduction to P2 scoring, and in the PI 2.4.x scoring. With regard to impact of FADs in the pelagic environment, that is addressed further in the Introduction to P2 scoring, and in the PI 2.5.x scoring, Ecosystem Impacts scoring in this report. References: Alexandra Maufroy et al., "Large-Scale Examinations of Spatio-Temporal Patterns of Drifting Fish Aggregating Devices (dFADs) From Tropical Tuna Fisheries of the Indian and Atlantic Oceans," *PLOS ONE* 10 (2015).
2.4.2 Habitats Management	Further information is needed to score the PI, Additional rationale is needed to support the score	The desk review scored this indicator as meeting SG80 requirements. However, there is no requirement in the IOTC to prevent the impact of FADs on sensitive habitat, such as coral reefs. The IOTC has not limited the number of FADs that can be introduced into the ecosystem and does not require the removal of unproductive FADs from the ocean. Resolution 16/01 limits the number of instrumented FADs per vessel to 425 active at one time, and limits vessels to acquiring 850 instrumented buoys for FADs per year. However, this limitation does not appear to be a science-based limit that would actually reduce FAD deployments. We request that more evidence be provided to support the statement in the desk review that "there has been a reduction of around 23% on the number of FADs." A purse seiner can deactivate a buoy on an unproductive or lost FAD at any time and deploy a new FAD at any time, making the limitation on the number of active buoys that can be monitored at any one time an unacceptable proxy for limiting FAD deployments. The yearly limit on the number of instrumented buoys that can be acquired also appears to have no connection to the actual patterns of use in the Indian Ocean. It is likely that only the largest vessels would have deployed more than 850 FADs per year. With little information available on actual FAD use across all fleets in the Indian Ocean, one study relied on data from the French fleet to extrapolate to the Spanish fleet, which has larger and potentially more FAD-dependent vessels. The study estimated each Spanish vessel on average deployed 385 to 570 FADs per vessel per year (Fonteneau and Chassot, 2014). The study also estimated overall FAD deployments for European Union and Seychelles vessels had increased to a range of 10,500 to 14,500 FADs in 2013, up from a range of 6,200 to 8,500 FADs in 2003. In this light, a limitation of 850 FADs per year affected the behaviour of only a fraction of the vessels in the Indian Ocean. Because most vessels deploy far fewer than 850 FADs per vessels, this measure actually allows FAD deployments to increase potentially by several thousand basin-wide over current practices.

		Team Response: In order to address this stakeholder comment, the team asked very specific questions of the client (Echebastar Fisheries), AZTI (the Basque region fisheries institute), and Seychelles Fishing Authority and the Seychelles Observer program. The responses that we received from these groups informed our revised text in the Introduction to P2 scoring, and in the P2 scoring of PIs 2.4.x and 2.5.x. As described in this report, there is an effective limit on the number of FAD beacons and FAD beacons cannot be turned back on at will, once they have been turned off. The number of FADs in the fishery overall has been reduced through a number of IOTC resolutions, and in Res. 16/01 the number of supply vessels has been limited to essentially one supply vessel per two licensed seiners. The number of FADs in use is managed and monitored by the various FAD tracking /service organizations. The number of active FAD has been reduced from an unlimited number to 425 active per vessel. The stakeholder concern for the number of FADs in the Indian Ocean is noted, but based on the team site visit, it is clear to us that the problem has been recognized by the purse seine fleet, and the trend in the number of FADs per vessel is definitely downward. As noted in this report, the Echebastar fleet uses only 375 active FADS per vessel, and operates only one supply vessel for the entire fleet of five seiners. The team considered the evidence sufficient to warrant a score of 80 for this PI. As noted above, the stakeholder's comments and the team response are all incorporated into the scoring of PIs 2.4.x and 2.5.x, including the addition of a condition on PI 2.5.3 requiring the fishery to contribute to the body of knowledge regarding the ecosystem impacts of FADs. References: Alain Fonteneau and Emmanuel Chassot, “Managing Tropical Tuna Purse Seine Fisheries Through Limiting the Number of Drifting Fish Aggregating Devices in the Indian Ocean: Food for Thought,” (presented to the IOTC Working Party on Tropical Tunas, Nov. 15-19, 2014).
2.5.1 Ecosystem Outcome	Further information is needed to score the PI, Additional rationale is needed to support the score	The desk review scored this indicator as meeting SG80 requirements, meaning the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function. However, the introduction of thousands of man-made FADs each year from this UoA should be more strongly examined for their potential to contribute to ecosystem effects on a range of species, including target species. The unmanaged proliferation of FAD deployments represents a change in the pelagic ecosystem. An overabundance of FADs may be linked to changes in observed behaviour and size of skipjack tuna in the Indian Ocean (Fonteneau, 2014). In the Indian Ocean, 90% of the skipjack caught in the purse seine fishery are taken on FADs. Free schools have become “very rare” and the average size of skipjack taken on FADs has become smaller (IOTC Scientific Committee Report, 2014). Tuna caught on FADs are less healthy; Menard et al., 2000 found numerous empty stomachs in the tuna examined from catches on FADs. Changes in the distribution of skipjack in the Indian Ocean could be the result of biomass decline or spatial redistribution due to school fragmentation from the increased use of FADs (IOTC Working Party on Tropical Tunas Report, 2016). Scientists believe that FADs play a role in the significant changes in the migratory patterns of skipjack tuna during El Nino events (Wang et al, 2014). Based on the available evidence we do not believe that there is justification for a finding that it is “highly likely” (greater than 80th percentile) that the use of FADs would not disrupt key elements of the ecosystem structure.

		Team Response: As noted in previous responses to this stakeholders comments, the team notes that the IOTC agrees that there are too many FADs in the Indian Ocean, and the team believes that there is evidence that the IOTC is reducing the number of FADs in the Indian Ocean. Consequently, there is not "unmanaged proliferation of FAD deployments". The team agrees that there is some information that suggests FADs may be having an effect of tuna behaviour, feeding, and migration, and these possible impacts have been referred to as the so-called "ecological trap hypothesis'. However, Dagorn et al (2012) address the question: "Is it good or bad to fish with FADs". The authors conclude that there is no unequivocal empirical evidence that FADs represent an 'ecological trap' that inherently disrupts tuna biology, although further research should focus on this issue. These issues are discussed further in the Introduction to the P2 scoring, and in the scoring of PI 2.5.x. Also note that the team has included a condition on the fishery with regard to PI 2.5.3 for additional knowledge to be developed regarding the ecosystem impacts of FADs in the Indian Ocean. References: Dagorn, L., K.N. Holland, V. Restrepo, and M. Gala. 2013. Is it good or bad to fish with FADs? What are the real impacts of the use of drifting FADs on pelagic marine ecosystems?.Fish and Fisheries 14(3):391-415.Alain Fonteneau, "On the Recent Steady Decline of Skipjack Caught by Purse Seiners in Free School Sets in the Eastern Atlantic and Western Indian Oceans," 2014 Frederic Menard et al., "Food consumption of tuna in the Equatorial Atlantic ocean: FAD-associated versus unassociated schools," *Aquatic Living Resources*, 13, no. 4 (200) Xuefang Wang et al., "The Large-Scale Deployment of Fish Aggregating Devices Alters Environmentally-Based Migratory Behavior of Skipjack Tuna in the Western Pacific Ocean," *PLOS ONE*, 9, no. 5 (2014)
2.5.2 Ecosystem Management	Further information is needed to score the PI, Additional rationale is needed to support the score	The desk review noted a number of measures in support of scoring this PI at the SG80 level, finding that a partial strategy exists that takes into account available information and is expected to restrain impacts on the ecosystem. However, the IOTC has not limited the number of FADs that can be introduced into the ecosystem. Resolution 16/01 limits the number of instrumented FADs per vessel to 425 active at one time, and limits vessels to acquiring 850 instrumented buoys for FADs per year. However, this limitation is insufficient and does not appear to be a science-based limit that would achieve actual management or limits of FAD deployments. A purse seiner can deactivate a buoy on an unproductive or lost FAD at any time and deploy a new FAD at any time, making the limitation on the number of active buoys that can be monitored at any one time a poor proxy for limiting FAD deployments. The yearly limit on the number of instrumented buoys that can be acquired also appears to have no connection to the actual patterns of use in the Indian Ocean. It is likely that only the largest vessels would have deployed more than 850 FADs per year. With little information available on actual FAD use across all fleets in the Indian Ocean, one study relied on data from the French fleet to extrapolate to the Spanish fleet, which has larger and more FAD dependent vessels. The study estimated each Spanish vessel on average deployed 385 to 570 FADs per vessel per year (Fonteneau and Chassot, 2014). The study also estimated overall FAD deployments for European Union and Seychelles vessels had increased to a range of 10,500 to

14,500 FADs in 2013, up from a range of 6,200 to 8,500 FADs in 2003. In this light, a limitation of 850 FADs per year affected the behaviour of only a fraction of the vessels in the Indian Ocean. Because most vessels deploy far fewer than 850 FADs, this measure actually allows FAD deployments to increase potentially by thousands basin wide over current practices.

Team Response: The number of FADs in the fishery overall have been reduced through a number of IOTC resolutions, and in Res. 16/01 the number of supply vessels has been also limited to essentially one supply vessel per tow licensed seiners. The number of FADs in use is managed and monitored by the various FAD tracking /service organizations. The number of active FADs has been reduced from an unlimited number to 425 active per vessel. The stakeholder concern for the number of FADs in the Indian Ocean is noted, but based on the team site visit, it is clear to us that the problem has been recognized by the purse seine fleet, and the trend in the number of FADs per vessel is definitely downward. As noted in this report, the Echebastar fleet uses only 375 active FADs per vessel, and operates only one supply vessel for the entire fleet of five seiners. The team considered the evidence sufficient to warrant a score of 80 for this PI, and this is further explained in the P2 introduction to scoring and in the scoring of PIs 2.4.x and 2.5.x in this report.

References:

Alain Fonteneau and Emmanuel Chassot, “Managing Tropical Tuna Purse Seine Fisheries Through Limiting the Number of Drifting Fish Aggregating Devices in the Indian Ocean: Food for Thought,” (presented to the IOTC Working Party on Tropical Tunas, Nov. 15-19, 2014).

11.5. PNA

We hereby submit comments to the assessment of the Echebastar Indian Ocean Purse Seine Skipjack tuna fishery.

Identifying UoAs/UoCs

Noting the MSC guidance - Where two or more clearly different gears are used, with differences in both impact areas and management arrangements, such gears should normally be assessed as separate UoAs. FAD fisheries and free school constitute two different management arrangements, the latter most likely to experience significant differences in scoring issues – most specifically in respect to P2 outcome and management strategy (Guidance Identifying the UoAs/UoCs pp 260).

The combination of these two methods, seemingly into one UoA is contrary to the guidance. Comments below will demonstrate why these two gear types have two very different outcomes.

Team Response: The Certifier Desk Review (CDR) was drafted based on information available for the failed assessment report, and provided by the client in the Client Assessment Report. Recall that in the failed assessment a stakeholder objected to the distinction made between FAD (associated) and FSC (non-associated) methods of targeting a purse seine net, essentially arguing that there were so many FADs in the Indian Ocean, that it was impossible to set a purse seine on non-associated tuna (see the Introduction to the P2 scoring section of this report for more information and references on this matter). Because the gears used in the FSC and FAD are identical, and the only difference is the method of targeting the set, the decision was made to treat the two gear types as one in the CDR, pending the collection of additional information on the site visit.

As a result of the site visit, the assessment team is confident that FSC and FAD set types can be reliably distinguished, and the differences in the bycatch for the two gear set types verify this. The MSC Guidance referred to makes reference to *discrete gear type or fishing method*. The paragraph including the words underlined by the submitter refers to two cases. The first is where there are variations in gear type and the second *where two or more clearly different gears are used.* In the case of the Indian Ocean purse seine fisheries under consideration, it is a matter of degree and interpretation as to whether associated (including FAD) and non-associated fishing are discrete gear types or part of the same overall fishery with capture practices varying depending on a variety of circumstances. In this case (EIO), the majority of target species catch is taken around FADs or using non-FAD but still associated sets. Catch from non-associated sets comprise a small percentage (15%) of the total and these sets have a smaller impact than associated/FAD sets. Treating the fishery as one UoA is pragmatic and does not contravene the MSC CR v2.0.

Further, the MSC FCR v.2.0 (G 7.4.7-7.4.9) suggests while both FAD (associated) and FSC (non-associated) sets can be combined within a single UoA, a scoring elements approach should then be taken. That is the approach used in this report.

Harmonisation with any overlapping MSC fisheries

As of February 2017, this assessment must be harmonized with the "Pole and Line Skipjack Fishery in the Maldives" that was certified in November 2012 using CR Ver. 1..2. PNA is of the view that the Maldives assessment, and scoring of 1.2.1 and 1.2.2 is insufficiently robust on the grounds that there are limited management actions in place, and certainly actions which cannot be termed as compatible or otherwise, with other fisheries across the range of the stock. The assessment would have to demonstrate what management actions would take place in response to a trigger.

Team Response: Following Annex A of the Simplification Pilot Process, the Maldives Pole and Line skipjack fishery has been adopted as a first mover. That fishery has undergone four surveillances and much re-scoring since the 2012 assessment. Currently (i.e., at the time of the stakeholder comment

and this response) it is in re-assessment, the site visit having taken place in December 2016. The Pilot Process description does not fully cover all eventualities related to the timing of first mover fisheries but for practical purposes and to ensure harmonization requirements can be met, the re-assessment version of the Maldives assessment is used for this pilot process. The Maldives re-assessment, and this assessment, therefore use FCR Ver2 for P1 as well as for P2 and P3. (We note that the Maldives certification has now been renewed. The PCR was posted on 4th October 2017; see: https://fisheries.msc.org/en/fisheries/maldives-pole-line-tuna/@@assessments. No objections were made).

The stakeholder's comments on the 2012 Maldives assessment are not relevant given substantial changes in management since that time and re-scoring during surveillances.

Parallels should also be drawn from the inadequacy of actions in the yellowfin tuna fishery, which should be consistent with 1.2.1 b *The harvest strategy is likely to work based on prior experience or plausible argument*. The assessors will need to demonstrate that the all IOTC fisheries (and not just Echebastar, have applied the Resolution 16/01 on an Interim Plan for Rebuilding the Indian Ocean Yellowfin tuna, i.e. a reduction in their purse seine catches of yellowfin by 15 %, and other limits set for other fisheries (Resolution 16/01) from the 2014 levels, and that *an adequate monitoring system is in place that is expected to determine whether the harvest strategy is working*. Evidence that the strategy is working effectively will need to be forthcoming in the form of the respective national compliance reports. These reports are not likely to be available during the timeline for this assessment.

This is a difficult issue and we think it is appropriately raised by the submitter. We are not convinced that the most relevant PI is 1.2.1b as noted by the submitter but rather see the relevance of IOTC CPC reactions to Res 16/01 as important evidence to be used in the future, possibly at PI 1.2.2c.

Currently, for PI1.2.2c, scoring relies on the use of SA2.5.6-2.57 and associated Guidance, as well as taking account of an MSC Interpretation dated 16th December, 2016.

The team acknowledges that how CPCs react to and implement Res 16/01 on yellowfin will be attest of IOTC ability actually to manage fisheries and will need to be taken account of in time, not just for yellowfin tuna but also for other stocks, such as skipjack. Tests of (all) RFMO resolve and capability need not be restricted solely to the stock under assessment.

Assessors will also need to illustrate, based on the application of the tools applied in the yellow fin tuna fishery that *there is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation* (1.2.2 c).

Team Response: See comment above.

P2 species

It is noteworthy that yellowfin and bigeye tuna are identified as primary species. Again, taking note of the above, the assessors will need to demonstrate that the UoC (Echebastar) is compliant with Resolution 16 /10. Most specifically, the assessors will need to demonstrate that *there is some evidence that the measures/ partial strategy is being implemented successfully* (2.1.2c). Evidence that the strategy is working effectively will need to be forthcoming in the form of an EU compliance report.

Team Response: Resolution 16/10 is to promote the implementation of IOTC conservation and management measures. This is essentially the development of a fund to support capacity building in the CPCs. Resolution 16/10 does not appear to be relevant to demonstrating that there is some evidence that the measures/partial strategy is being implemented successfully. The team is unsure of what the stakeholder is referring to. Assuming it is a typo, and the stakeholder is referring to Resolution 16/01, the stakeholder is referred to the scoring section of this report for PI 2.1.2.

For SIc, on yellowfin, the scoring states: "The strategic objective is to limit yellowfin catches to a level consistent with IOTC Res 16/01, the objective of which is to ensure the yellowfin stock rebuilds to

SBmsy. The strategy in place consists of various arrangements outlined at SIa. These have only been effective from 1 Jan 2017 and there is thus not yet any clear evidence to draw on. It is been implemented from 2016 onwards but until next year meetings results of clear evidence of its implementation will not be available."

For SIc on bigeye, the scoring states: "As noted for SIa, the bigeye tuna stock in the Indian Ocean is within biologically based limits, and therefore there are no need for measures or a partial strategy. Further, the catch of bigeye by the UoA is 3% of the total catch of bigeye, much less 30% of the total catches for the stock, so the UoA would not hinder the recovery to the PRI were it necessary. So again there is no need for measures or a partial strategy"

The team concludes that these justifications met the SG80 scoring requirements, and this is further described in the P2 scoring of Component 2.1

We also note that assessors classify silky shark and Oceanic whitetip shark as primary species. These species appear on the IOTC stock status report, but do not have assigned reference points and cannot be classified as primary species. Furthermore, since no stock assessment is available for these species, it is not possible to assess species under PI 2.1.1, species above the point where recruitment would be impaired (PRI), but as secondary species. It is further noted that these species are identified as IUCN Vulnerable and Near Threatened and that IOTC advocates a precautionary approach to the management of these species. The IOTC stock status report states that mortality rates for interactions with other gear types such as *purse seines and gillnets* may be higher. The high levels of these species interactions in the WCPFC FAD fisheries questions the impartiality of the Echebastar observer data provided, and there are a number of studies available that would question whether 50% of these species survive post capture. It is noteworthy that the EU has submitted a number of requests for a Resolution to protect these species underlining the need for a precautionary approach to the management of shark species. It is also noteworthy that based on stock status reports, WCPFC has applied a management strategy (non retention) for the protection of these species.

Team response: Silky shark and oceanic whitetip sharks were incorrectly classified as primary minor species according the MSC standard, v.2. These species should have been classified as ETP species. However, they are not listed on CITES Appendix 1, or listed as threatened or endangered on the IUCN redlist. Silky shark is listed in Appendix 2 of the Conservation of Migratory Species and Annex 1 CMS MOU on sharks, but this just identifies species that have unfavorable conservation status. These species are not identified as Threatened or Endangered by the IOTC or the Seychelles. MSC guidance CR v.2 GSA 3.1.5.2 indicates that species listed by CMS are considered as ETP for an MSC assessment review. In this report silky sharks and oceanic whitetip sharks are considered as ETP species due to stakeholder interest, and are addressed individually in the Component 2.3 scoring as ETP species.

The assessors are requested to undertake a more thorough literature review of the mortality rates, and to consider whether a precautionary approach to the management of these species is warranted.

Team response: the team has researched the literature further and included other sources of information on silky shark and oceanic while tip shark survival after live release from a purse seine in the report. In essence, about 50% of the silky sharks captured are released alive depending on the catch amount, and the survival of tagged silky sharks post release is about 20-40%. So, about 10-20% of the silky sharks captured in a purse seine and released (dead or alive), actually survive. This report reflects this information.

References:

Eddy, C., Brill, R., Bernal, D. 2016. Rates of at-vessel mortality and post-release survival of pelagic sharks captured with tuna purse seines around drifting fish aggregating devices (FADs) in the equatorial eastern Pacific Ocean. Fisheries Research 174 (2016) 109–117

Poisson, F., Vernet, A.L., Filmalter, J.D., Goujon, M., Dagorn, L., 2011. Survival rate of silky sharks (Carcharhinus falciformis) caught incidentally onboard French tropical purse seiners, Indian Ocean Tuna Commission Working Party on Ecosystems and Bycatch, October 11

Poisson, F., Filmalter, J.D., Vernet, A.L., Dagorn, L., 2014. Mortality rate of silky sharks (Carcharhinus falciformis) caught in the tropical tuna purse seine fishery in the Indian Ocean. Can. J. Fish. Aquat. Sci. 71, 1–4.

Habitats

Evidence suggests that there are around 10,000 or more FADs being deployed by the EU fleet (IOTC, SC 17, 2014). FADs are known to entangle sharks and other species. The assessors will need to ensure that *The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm*, and that *there are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance*.

Team Response: The team recognizes the stakeholder's concern for sharks being entangled in FADs. However, the evidence that is presented is based on data collected before the introduction of non-entangling FADs. The IOTC in Resolution 13/08 has required the use of non-entangling FADs, and since 2014, the Echebastar fleet has exclusively used non-entangling FADs. The Echebastar fleet has 100% observer coverage including on its supply vessel that services its FADs, and observers record sharks entangled in FADs when found. The observer data used in this report, and the resulting estimates of sharks captured includes sharks entangled in Echebastar FADs.

Chain of Custody

For an effective CoC system, 100% independent physical observer monitoring is critical to ensure no high grading or sorting of catch to game the data. As two fishing methods are proposed it is important that catches of free school and fad sets are kept separate in order to assess the species composition by gear/set type and by species. Some boats in the IO have automated sorting under deck to discard unwanted species and sizes, this will seriously impact the validity of the science and coc data and brings into question the current data sets available for the science behind the assessment.

Free school can be identified easily from the absence of indicator species like triggerfish in the catch. It should be noted that captain's log sheets are not valid for absolute set id as they are only a "best guess" in reality.

Team response: The Echebastar fleet has 100% of all sets observed by independent observers. There are also observers on the Echebastar supply vessel. There is no video observation. The UoA/UoC is all skipjack tuna captured by the Echebastar fleet with either the FAD or FSC method of setting. There is no reason to differentiate the catch on the vessel into FAD and FSC. The observers physically subsample the catch before any species are discarded either on the second conveyor belt, or as the catch as the catch is discharged into a hold. The traceability section of this report has more information of the tracking of the catch from the point of brailing into the fishing vessel to the point of sale or delivery.

12. APPENDIX 4: STAKEHOLDER COMMENTS FOLLOWING SECOND REPORT

The MSC made changes to the Simplification Pilot allowing a public consultation for stakeholders who had previously participated in the process as stakeholders. They further indicated that "*due to the pilot nature of this process, the team may decide to consider comments from stakeholders who did not register interest at or before the site visit*."

12.1. MSC Technical Oversight

SubID	Page Reference	Grade	Requirement Version	Oversight Description	Pi	CAB Comment
27264	65-66	Minor	FCR-7.10.6.1 v2.0	PI2.1.1 (a): It is not clear why different metrics are used in the rationale for the main primary species yellowfin tuna and bigeye tuna. i.e. stock status in relation to B0 for yellowfin tuna and SBmsy for bigeye tuna.	2.1.1	The scoring text has been revised to address yellowfin and bigeye with the same metrics in relation to SBmsy and SB0.
27265	69-70	Major	FCR-7.10.6.1 v2.0	PI2.2.1(b): It is not clear in the scoring rationale that all minor primary species are highly likely (Table SA9 - 80th %ile) above PRI. The scoring rationale does not provide level at which PRI is determined for minor primary species.	2.2.1	PRI is taken to be SBlim for albacore tuna, and the SB2014 value (with 80% CI) has been compared to Blim, to show that the stock is highly likely to be above PRI. Note that albacore tuna is the only primary minor species with UoA catches above the 0.05% of the total catch cut-off, and therefore is the only species addressed in the scoring.
27266	71	Major	FCR-7.10.6 v2.0	PI2.1.2(a): PI2.1.2 (a) requires the team to assess at SG60 and SG80 level that "there are measures (SG60)/ partial strategy (SG80) in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the point where recruitment would be impaired." The guidance GSA3.4.6 stated in the rationale applies to the second part of the clause in scoring issue (a) 'the UoA does not hinder recovery'. The assessment team should still score the measures (SG60) and partial strategy (SG80) for the first part of the clause in scoring issue (a) 'maintain'.	2.1.2	Table SA8 in the MSC CR defines the term "'*if necessary*" to mean "*this is to exclude the assessment of UoAs that do not impact the relevant component at these SG levels*". As indicated in PI 2.1.1, both the main primary species are above PRI. The rationale of SIa has been revised to indicate this, and describe the measures and partial strategy in place to maintain these species above PRI

				Rationale is repeated in PI2.1.2 (b, c, d) and PI2.1.3 (c).		The scoring rationales were also revised for PI 2.1.2 (b, c, d) and 2.1.3 (c)
27267	74, 88	Major	FCR-7.10.6.1 v2.0	PI2.1.2 (e) and PI2.2.2 (e) It is not clear from the scoring rationale how at the SG100 level the review of alternative measures to minimise UoA-related mortality of all primary (PI2.1.2) and secondary (PI2.2.2) species accounts for the part of the catch that have been thrown away or slipped where components of the catch may not survive after release (see SA3.5.3 and associated guidance). Additionally, review of measures to minimise mortality of unwanted catch should also include consideration of unobserved mortality, such as that caused by ghost fishing and impacts from gear loss - see Box GSA7 and SA3.1.8 and associated guidance.	2.1.2, 2.2.2	The scoring rationale was revised to address mortality of catch slipped or thrown away. Note this would be included in the observer coverage if it occurred. The scoring rationale for PI 2.1.2 (e) and 2.2.2 (e) were revised to include consideration of the use of non-entangling FADs to minimize unobserved mortality.
27268	82	Major	FCR-7.10.6 v2.0	PI2.2.1 (b): It is not clear in the scoring rationale for the SG100 level that all minor secondary species are highly likely (Table SA9, 70th %ile) to be above biologically based limits. See MSC interpretation 'Minor species and scoring element approach at SG100' http://msc-info.accreditation-services.com/questions/minor-species-and-scoring-element-approach-at-sg100/	2.2.1	The rationale does not state that the minor secondary species are highly likely to be above PRI; it applies to the second part of the requirement (after "or"). The negligible catches provide evidence that if the stock is below biologically based limits the UoA would not hinder recovery or rebuilding.
27269	93-99	Major	FCR-SA3.10.1 v2.0	PI2.3.1 (a): It is not clear if there are national or international requirements that set limits for the ETP species assessed. If there is no applicable national legislation or international agreement, scoring issue (a) shall not be scored. See SA3.1.5 and subclauses.	2.3.1	Accepted. Scoring for PI 2.3.1 SIa has been replaced by scoring for SIb where individual species are treated separately for the FAD and FSC sets.

27270	94	Major	FCR-SA3.1.5 v2.0	PI2.3.1 (a): It is not clear that oceanic white tip sharks should be assigned as ETP species following SA3.1.5, subclauses and associated guidance.	2.3.1	Oceanic whitetip shark has been reassigned as a minor secondary species. Shortfin mako shark has been reassigned as an ETP species.
27271	106-107	Major	FCR-7.10.6.1 v2.0	PI2.3.2 (e): It is not clear in the scoring rationale how the review of measures to minimise mortality of ETP species considers unobserved mortality, such as that caused by ghost fishing and impacts from gear loss - see Box GSA7 and SA3.1.8 and associated guidance.	2.3.2	The rationale for SIe has been revised to account for ghost fishing by FADs.
27272	93-116	Major	FCR-7.10.6.1 v2.0	PI2.3.1 (a) and (b): It is not clear in the scoring rationales for the individual ray and turtle species that the UoA does not hinder the recovery of these ETP species.	2.3.1	The rationale has been redrafted to provide evidence (extremely low catches of rays and sea turtles) that the UoA does not hinder the recovery of those species.
27273	100	Major	FCR-7.10.6.1 v2.0	PI2.3.1 (c): It is not clear in the scoring rationale that that the indirect effects of the UoA on ETP species is highly likely (Table SA9, 80th %ile) to not create unacceptable impacts. The scoring rationale states that competition for forage species and destruction or disturbance of habitat are indirect effects, but does not expand this to justify how the UoA does not create unacceptable impacts on ETP species identified in this UoA.	2.3.1	The rationale for PI 2.3.1(c) has been revised to clarify that the UoA does not create unacceptable impacts on ETP species through indirect effects.
27274	103-107	Minor	FCR-SA3.11.2 v2.0	PI2.3.2 (a) and (b): It is not clear if there are national or international requirements that set limits for the ETP species assessed. Where there are requirements for protection and rebuilding provided through national ETP legislation or international agreements, the team shall score scoring issue (a). If there are no	2.3.2	The rationale for PI 2.3.2 SIa was revised.

				requirements then the team shall score scoring issue (b). See TO raised for PI2.3.1.		
27275	114	Minor	FCR-7.10.6 v2.0	PI2.4.1 (a) and (c): PI2.4.1 (a) FSC set type: It is not clear if SG 100 is met for FSC set type. Rationale states that "the fishery is highly unlikely to reduce commonly encountered habitat structure and function to a point where there would be serious or irreversible harm" but the score for scoring issue (a) is given at the SG80 level.	2.4.1	The score for SIa of PI2.4.1 for both the FAD and FSC set types has been revised to 100, as the net is always fished in waters deeper than its own depth and has no contact with the benthos.
27276	115	Major	FCR-7.10.6.1 v2.0	PI2.4.1 (b): It is not clear in the scoring rationale what quantitative evidence is available to score SG80 for VME coral reef that is highly unlikely (<30th %ile) to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. In addition, it is not clear how habitat enhancement as stated in section 2.1.3. Scope of Assessment in Relation to MSC program (page 14) is addressed in this performance indicator. It is also not clear how coral reefs in the managed area have been identified as a VME. See GSA3.13.3.2.	2.4.1	The team agrees with the argument that there is not quantitative information to support a score of SG 80 that the FADs are highly unlikely to reduce structure and function of VME coral reefs. FADs meet SIb at SG60 and this is reflected in the overall score for the PI. A condition has been added. Text has been added to the scoring justification to address how this PI is related to the habitat enhancement Scope of the Assessment. Justification for classifying the coral reefs as VME based on GSA 3.13.3.2 was included in the rationale These reefs are biogenic reefs consistent with the MSC CR, page 453.
27277	120	Major	FCR-7.10.6.1 v2.0	PI2.4.2 (a): It is not clear in the scoring rationale how the measures (SG60) include implementation by the UoA of precautionary measures to avoid encounters with VMEs or how the partial strategy (SG80) includes	2.4.2	We question the relevance of "encounter avoidance" in the relation to lost and subsequently derelict FADs. FADs lost at sea. Evidence shows some lost FADs drift onto coral reefs. Limiting the number of FADs reduces the probability of interactions between FADs and coral

				implementation by the UoA of precautionary measures to avoid encounters with VMEs to meet the habitat outcome at SG80. Limiting the number of FADs may reduce impact, but is not a measure to avoid encounters with VMEs.		reefs. However, avoidance is not option. The duration of an encounter may be limited by using biodegradable with the objective of minimizing the damage. This point has led to the rescoring of SIb with FADs meeting SG60 but not SG80. While biodegradable FADs are being researched they have not been implemented and the risk of damage to corals over an extended period has not been reduced.
27278	125	Major	FCR-7.10.6 v2.0	PI2.4.3: Following SA3.13.3 commonly encountered and VMEs are treated as "main" habitats in information PI2.4.3. PI2.4.3 (a): It is not clear in the scoring rationale that the nature and distribution and vulnerability of VME coral reefs are known at a level of detail relevant to the scale and intensity of the UoA. PI2.4.3 (c): It is not clear in the scoring rationale that adequate information continues to be collected to detect any increase in risk to VME coral reefs.	2.4.3	The text of the justification has been revised to specifically address main and VME habitats in SIa. The rationale of SIa has been revised to clarify that the nature, distribution and vulnerability of coral reefs is understood. The rationale of SIc has been revised to clarify that the information being collected to detect any increase in risk to VME coral reefs
27279	130-133	Major	FCR-7.10.6.1 v2.0	PI2.5.1 (a): It is not clear how habitat enhancement as stated in section 2.1.3. Scope of Assessment in Relation to MSC program (page 14) is addressed in this performance indicator.	2.5.1	The justification of the SIa scoring has been revised to include text demonstrating how habitat enhancement as stated in section 2.1.3 Scope of the Assessment in Relation to the MSC program is addressed in this PI and PI 2.4.1.
27280	140	Guidance		Guidance PI2.5.3 (a): References to information available about the Indian Ocean ecosystem are out of date (1988) given the	2.5.3	The reference to the 1988 report of Sherman et al is useful as it sets the context for changes in the Indian

				rationale and evidence of changes in the species assemblage in PI2.5.1.		Ocean ecosystem. The text of the justification has been revised to put the historical references in context.
27281	Various	Major	FCR-7.10.6.1 v2.0	PIs 2.1.1. 2.2.1, 2.3.1 and 2.4.2: It is not clear how the assessment team has determined the need to assess cumulative impacts (if necessary) in P2. See GSA3.4.6, GSA3.10, Table GSA3 GSA3.14.2.2.	2.1.1, 2.2.1, 2.3.1, 2.4.2	Cumulative impacts have been addressed where required.
27282	Various	Major	FCR-SA3.6.3 v2.0	PI 2.1.3, PI2.2.3 and PI2.3.3:] Only one source of catch data is used in this assessment. It is unclear whether the catch data from the fishery observer program is adequate to assess the impact of the UoA on P2 species, information on how observer data is collected and analysed is not included in this assessment (see SA3.6.3, subclauses and associated guidance). It not clear why a variable percentage of observer data (29% (2014), 53% (2015) and 34% (2016)) has been analysed and used in this assessment when the fishery has 100% observer coverage. Are these data considered valid to assess the impact on Principle 2 species in this assessment?	2.1.3, 2.2.3, 2.3.3	The report has been revised (section 7.3) to provide a more detailed description of the SFA observer program, the training of observers, and analysis of the data that was provided by AZTI to the assessment team. The availability of observer data compared to actual observer coverage (see above) is due to issues in the practical implementation of data input into the system. Note more than 25% of the annual data is available for the recent years. Various references (including MSC CR GSA3.6.3) indicate that 20% observer data available should be adequate to characterize the catch of most species. Revisions have been made to the scoring rationale, as needed to justify the allocated scores.
27283	195-201	Major	FCR-7.11.1.2 v2.0	Condition on PI2.3.3, 2.4.3 and 2.5.3 Conditions on P2 performance indicators do not follow the narrative or metric form of the performance indicator scoring guideposts used in the final tree.	2.3.3, 2.4.3, 2.5.3	The text of all conditions has been revised to comply with MSC requirements.
27284	146-147	Guidance		Table numbers 4-6 on page 146-147 need updating and cross referencing in the text updated to provide clarity.		Clarification has been provided.

27285	Various	Major	FCR-7.10.6.1 v2.0	Within P3 rationales and associated background information, the team repeatedly references a report produced Medley and Powers (2016). However, this report is an assessment of information similar to the current report, but is in essence a less detailed examination compared to what the current assessment would be able to undertake. As such, relying on this report without referencing primary sources to demonstrate evidence of scoring being met/not met, as seems to be currently the case, does not allow justification to support the team's conclusion.	3.1.2, 3.1.3, 3.2.2	The text has been substantially revised.
27290	18, 19, 20	Minor	FCR-7.12.1.4 v2.0	In the 4th row of Table 3.1 on pg 19, the report states "there is no risk that non-certified skipjack tuna or other non-certified tuna will be mixed with certified skipjack after sorting when landed, and in auction, transport, storage, processing…because SFA officers inspect 100% of landings to verify the breakdown by tuna species." SFA inspections occur at landing into Port Victoria and during transhipment in port. Therefore, it is not clear how SFA inspections address traceability risks at the other stages mentioned, e.g. auction, transport, storage and processing (it also appears processing is not intended to be covered by the certificate). Please explain how risks at these stages are addressed, when there is no mention of inspections or other mitigation at these steps.		The section on traceability has been revised.
27291	18, 19, 20	Minor	FCR-7.12.1.3 v2.0	The report is clear that segregation does not occur on-board. Please explain how it is ensured that segregation occurs upon receipt to processors. For example, how will receiving processors be aware that product has been received as mixed and still requires segregation of certified and non-certified fish?		The section on traceability has been revised.

27292	18, 19, 20	Minor	FCR_7.12.1.5. b v2.0	Please clearly state the intended point of change of ownership of product, for both scenarios when fish are delivered to local processors and when fish are transhipped in port and transported to final destinations for processing.		The section on traceability has been revised.
27293	18, 19, 20	Guidance	FCR_7.12.2.1. a v2.0	Please clarify the parties/ categories of parties eligible to use the certificate, particularly if transhipment vessels are proposed to be included in the fishery certificate. The client group currently includes the 5 Echebastar purse seiners only.		The section on traceability has been revised.
27294	18, 19, 20	Minor	FCR_7.12.2.1. b v2.0	The report suggests the fishery certificate will cover up to the point of receipt of product by processors, whether local or whether received after transhipment at a final destination. However, the report does not explain risks of introduction of non-certified fish during transhipment and how these are mitigated, nor at other steps prior to receipt by processors such as any transport on land before delivery to processors. The report mentions in Table 3.1 on pg. 20 that cargo nets are used to separate tuna in reefer vessel holds. It is not clear why CoC certification has not been required to cover transhipment, if such separation is required within the activities proposed to be covered by the fishery certificate.		The section on traceability has been revised.
27295	22	Guidance	FCR-7.10.5 v2.0	The score for PI 1.2.3 in Table 3.5. Summary of PI Level Scores is given as 90. However, the score given for this PI in the scoring tables is 85.	1.2.3	The score has been revised to 90.

12.2. PEW Foundation

Note: to facilitate review, the format of the comments and responses have been modified from the Pew presentation that followed the MSC format

2.1.2
To meet SG80, a partial strategy for yellowfin in the UoA should be necessary and in place. Without one, this PI score should be reduced.
First, greater justification should be provided to support the stock as being "highly likely" to be above the PRI. The 2016 assessment found the stock status at 0.29$SB_{F=0}$, 80% confidence interval. Overfishing continued (1.11 F_{MSY}), recent recruitment was estimated to be "relatively low," the effectiveness of measures in the IOTC had not been assessed, and implementation by all parties is uncertain. Second, greater consideration should be given to the UoA's impact. Although the CAB does not anticipate the UoA's catch of yellowfin to increase, it noted that the UoA's relative share of the yellowfin catch in the IOTC could increase if other parties reduce catches under the IOTC interim rebuilding plan (Res 16-01). This underscores the need for a strategy in the UoA, one that should be in place to avoid the PRI with greater certainty and manage the UoA consistent with the IOTC rebuilding plan (as required in the guidance in the FCR v.2, Table GSA3, Page 184)
The scoring of PI2.1.1 SIb has been modified to strengthen the rationale related to the status of yellowfin in relation to PRI to provide evidence that the fishery meets SG80 SIa. In relation to the stakeholder's second point, the text related to what may happen in the future has been deleted as it is based on supposition. A fishery meets the MSC standard if a partial strategy is in place; i.e. a strategy is not needed. If the relative importance of the fishery UoAs in relation to the overall catch increases in the future, evidence should be submitted to annual surveillance audits of the fishery with a request to consider a rescoring of this PI. The role of the auditors is to assess the current sustainability credentials of the fishery. We do not understand the stakeholder reference to FCR v.2, Table GSA3, Page 184.
2.3.1
From our perspective, this PI does not achieve SG80. The FAD element has a greater impact on ETP species such as silky shark than the free school element, and this should be recognized by a reduction to a score below 80.
Oceanic whitetip sharks have been reclassified minor secondary species and shortfin mako sharks have been reclassified from minor secondary to ETP species. The scoring for all P2 PIs reflects the lower score allocated to FAD and FSC Sets. Thus, the FAD related issue in relation to silky sharks would be reflected in the final score if this was the case. The individual species are now scored separately. We conclude that silky shark meets SG80. The scoring rationale has been revised to clarify the justification.
2.3.3
The CAB should increase the data to be provided in the condition to 100% of all sets.

The wording of all conditions has been revised to meet MSC requirements. As auditors we cannot be prescriptive.
2.4.1
There has not been sufficient justification given that FADs are "highly unlikely" to reduce the structure of function of the VME habitats (coral reefs) to a point where there would be serious or irreversible harm. The score for this PI should be reduced to a level below 80.
We have reviewed the previous scoring rationale and the score for PI 2.4.1 has been reduced to 75 with the consequent setting of a condition.
2.4.2
In our view, the UoA does not have a partial strategy in place to manage the impacts of drifting FADs on VME (coral reefs) and therefore should not achieve SG80.
We have reviewed the previous scoring rationale and the score for PI 2.4.1 has been reduced to 75 with the consequent setting of a condition.
GENERAL COMMENTS
This assessment raises a subject of great interest to the global tuna fisheries scientific community: What constitutes best practice regarding the effective management of FADs? In March, 30 experts with experience working in all of the major ocean basins where FAD fishing occurs grappled with that question at an independent Global FAD Science Symposium in Santa Monica, Calif. The participants work with government agencies, research institutions, non-governmental organizations and industry. Among them were the then-chairs of each of the RFMO FAD Working Groups. Outputs of the symposium should be considered best practice; papers were developed from points agreed by the participants on the state of knowledge, gaps in understanding and data, and proven and promising ways to mitigate impacts of FADs on juvenile tunas, non-target species, habitats and ecosystems. A summary paper consolidated the best practices for FAD use consistent with the attributes of a well-managed purse seine fishery. That paper, "What does well-managed FAD use look like within a tropical purse seine fishery?" was presented to the 1st Joint Tuna RFMO FAD Working Group Meeting in Madrid in April. It was posted as paper j_FAD_35 to the meeting's documents folder, which can be accessed from this link: https://meetings.iccat.int/index.php/s/VOCt7mjI0aduZCl?path=%2FENG The other four papers can be found in the same documents file as paper j_FAD_20 (Managing FAD Capacity and Impacts on Marine Ecosystems); j_FAD_21 (The Impacts of FAD Use on Non-Target Species); j_FAD_22 (FAD Use and Fishing Mortality in Tropical Tuna Fisheries); and j_FAD_23 (Technological Approaches to Addressing Tuna Mortality Associated with FAD Fishing). We strongly urge this certification process to consider the outputs of the symposium, including these relevant examples of best practice for target tunas, non-target species, habitats/ecosystems, and monitoring, control and surveillance (MCS): • Setting limits for juvenile tunas caught by purse seine operations, particularly of overfished stocks, and avoiding setting on FADs with large concentrations of juvenile or overfished tunas; • Avoiding interactions with non-target species, such as sharks or turtles, through use of non-entangling FADs, avoiding hotspots of non-target species, and avoiding setting on small FAD-associated schools that generally have a higher bycatch rate than large schools;

• If encircled, actively releasing sharks (via other fishing gear) and turtles (via manual capture), and if brought on deck, use of safe release techniques for sharks and resuscitation/revival techniques for sea turtles, to reduce mortality after release; • Using biodegradable FADs, and developing FAD recovery plans to minimize loss, abandonment or interaction with sensitive habitats, including by partnering with coastal groups to use FAD location information to assist in recovery of FADs before they encounter sensitive areas; and • Requiring 100% observer coverage onboard purse seiners and supply vessels to record FAD deployment, retrieval, set types and catch numbers, use of FAD positional data in combination with VMS data to identify FAD sets, and effectively and comprehensively addressing suspected non-compliance at the licensing authority, flag state, or RFMO, as appropriate.
The MSC pilot simplification process includes a cut-off date for information used in the assessment report which is that available at the end of the site visit, unless any new information would result in a failure of the fishery to meet the MSC standard. The assessment team is unaware of any new information that would result in a material change. Stakeholder participation at Surveillance Audits is critical to maintaining the integrity of fishery certification. However, we note that Echebastar fisheries: • Exclusively uses non-entangling FADs; • Prefers to set on large schools rather than small ones; • Has a policy of releasing all large sharks, ray and turtles following the Code of Best Practices established for Spanish tuna purse seiners; • Is working with AZTI on biodegradable FADs; • Operates with high observer coverage (see above for note on this aspect).

12.3. Parties to the Nauru Agreement (PNA)

Note: to facilitate review, the format of the comments and responses have been modified from the PNA presentation that followed the MSC format

2.1.1a
In our view while bigeye tuna stock is highly likely to be above PRI, there is no clear evidence that the stocks of yellowfin tuna is highly likely to be above PRI, but rather likely, meeting the requirement at SG60 but not at SG80. Considering the range of the confidence interval in 2015 (0.21-0.36), the statement that the 2016 estimate was "much higher" (0.29 with no CI) is not justified. We consider that a stronger justification to demonstrate an 80% probability that the stock is above PRI, or "there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding" would be necessary for a score of 80, otherwise a score of 60 would be advised.
The scoring justification for PI2.1.1 SIa has been revised to strengthen the rationale supporting the fishery achieving SG80 score.
2.1.2a
The CAB argument that there is no need for a partial strategy for Yellowfin Tuna and Bigeye Tuna as a main primary species is not in accord to the definition of "if necessary" in the MSC FCR v.2. In our opinion, measures or partial strategies for the management of the main primary species are necessary. No measures are identified for the management of the main primary species and if such measures do not exist, the UoA fails to meet SG60 for this SI. "The term “if necessary” is used in the management strategy PIs at SG60and SG80 for the primary species, secondary species, habitats and ecosystems components. This is to exclude the assessment of UoAs that do not impact the relevant component at these SG levels" (FCR v.2, Table SA8, p.133). Stating that measures/partial strategies are not necessary would imply that the fishery does not impact or the impact is negligible on yellowfin tuna (YFT) and bigeye tuna (BET) stocks, which is incorrect and misleading, considering that catches for these species, especially for YFT, in the EIO are considerable. The CAB base their argument on the para GSA 3.4.6 of the FCR v.2. According to the FCR, v.2, GSA 3.4.6, catches of less than 30% of the total catch of the stock may not hinder recovery. However, this does not mean there is no need for measures, to ensure the stock is maintained above PRI or that MSC UoAs collectively do not hinder recovery. In addition, Res 16/01- calls for catch reduction (which may have been achieved) and improved reporting and monitoring of the YFT catch and the EIO tuna would need to comply with these measures. No management measures are identified by the CAB that "are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to above the point where recruitment would be impaired" and the UoA does not meet the SG60 requirements.
The scoring rationale has been revised and strengthened to provide evidence that the fishery meets SG80 SIa. Emphasis is placed on the need for a partial strategy to maintain main primary species at a level above PRI and has identified the components of the partial strategies.
2.1.2b

The justifications given for this SI do not support a score of 80 for either YFT or BET. The SG80 requirement states:

"There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved" but no clear measures for the management of these species have been identified by the CAB and no objective basis of confidence that the measures will work is presented.

The justification for a score of 80 for both, YFT and BET, is that measures are not necessary because catches of these species in the UoA are much less than 30% of the total removals from these stocks, however, the FCR v2. does not specify that measures/partial strategy are not necessary in this situation. Consistent with IOTC requirements, management measures are necessary and the justification needs to specify what is the objective basis of confidence that the measures in place will work to maintain these stocks above PRI and to meet the requirements of the Res 16-10 for YFT stock.

The scoring rationale has been revised and strengthened to provide evidence that the fishery meets SG80 SIb. The evidence that provides an objective basis for confidence that the partial strategy will work is information directly about the fishery i.e. it accounts for a low proportion of the total catch of both primary main species in the IO. The justification of PI2.1.2 SIb has been revised to better support scoring at the SG80 level.

2.1.2c

It is our view that the outcome status for both primary species - yellowfin and bigeye fails to meet the SG 80 score

In our view, for both main primary species, the justification fails to support a score of 80 for this SI because no management measures are identified for main primary species and the justification does not respond to this SI requirement which refers to the implementation of management measures and not to the effectiveness of such measures.

As mentioned above, we do not agree with the argument that measures are not necessary because the catch of YFT and BET in the UoA are less than 30% of total catches of these stocks. Also, the declining trend in catch cannot be justification that the measures are implemented successfully. An identification of the measures in place and a documented level of compliance with these measures would constitute such evidence. Our belief is that this SG cannot score SG 80 until the obligations to IOTC Compliance reporting are met, and this needs to form part of the Condition.

Following on from our responses above, the scoring rationale has been revised and strengthened to provide evidence that the fishery meets SG80 SIc Reference to the 30% has been deleted with our rationale based on Echebastar's approach. The partial strategy for yellowfin consists of the regulations on FADs and supply vessels. With regard to bigeye tuna, as described in the revised scoring table, it is estimated to be highly likely to be above the point where recruitment would be impaired, and also above Bmsy. IOTC has in place both measures and a partial strategy to maintain this species above PRI. These include a series of resolutions that are listed in the revised scoring table.

2.1.3a

The information provided does not seem to be adequate to assess with high degree of certainty the impact of the UoA on main primary species with respect to status. According to para FCR v.2, para SA3.6.3.2, in determining the adequacy of the methods used for data collection, the team shall consider:

a. The precision of the estimates (qualitative or quantitative);

b. The extent to which the data are verifiable (on their own or in combination with other data sources);

c. Potential bias in estimates and data collection methods; d. Comprehensiveness of data; and e. The continuity of data collection (p142). The justification given by the CAB for a score of 100 for this SI, is that catch information is (highly) likely to be reliable and there was no potential bias. However, the information was verifiable only for the last three years and the comprehensiveness and continuity of the data collection can only be claim since 2014.
The rationale for SIa identifies multiple sources of information to determine the impact of the UoA on main primary species. Data from the 3 sources are coherent, and this reduces concerns about any bias over the past 3 years. Some of the information is available for an extended period dating back more than 20 years. We consider that this provides the evidence required to justify the allocated score.
2.2.2c
The requirement at SG80 for this SI, "there is some evidence that the measures/partial strategy is being implemented successfully", is not addressed in the CAB's justification for this score. The justification addresses the effectiveness of the measures and not if and how they are implemented.
As there are no secondary main species, the fishery meets SG 60 and SG 80 (MSC FCR v.2 GSA 3.5.1). The text has been edited.
2.3.1a
We consider that a score of 80 for this SI for both FADs and FSCs, is not supported by the justification given. CAB justifies a score of 80 for these ETP species on the basis that the relative catch of the UoA is small compared to total catch of these species in the Indian Ocean. The SI at SG80, however, requires: "Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population/stock are known and highly likely to be within these limits". The justification does not clearly specify what the national and international requirements/ limits set are and how the UoA combined with other MSC UoAs effects comply with these limits or that such effects are known. The argument that most ETP species interactions are with non-MSC certified fisheries and the interactions with MSC UoAs are comparatively low is not enough to meet SG80 for this SI. A score of 80 is probably met because some of these requirements are identified in the justification for SI 2.3.2a and the fact that there are measures to achieve these requirements, but the rationale for 2.3.1a needs to be revised. Further whale shark incidents are cited as not existing, this looks highly irregular with a free school operation and in a RFMO where one of the few CMMs relates to whale sharks. It appears data is from limited observer coverage and port sampling, thus whale shark incidents, and any discards from brails or sorting below deck is unlikely to be fully recorded

The scoring of PI2.3.1 SIa has been deleted and PI2.3.1 SIb has been scored. The substantive issues related to direct interaction of the fishery with ETP species are now covered in SIb and we conclude that the fishery meets SG80. In the revised draft, the rationale is now species specific.
2.3.1c
In our opinion, for FAD set gear type there is no strong justification for a score of 80 for this SI: "Indirect effects have been considered and are thought to be highly likely to not create unacceptable impacts." From the justification given, there is no clear evidence that indirect effects of FADs on migratory sharks, i.e. silky shark and oceanic white tip "have been considered and thought to be highly likely to not create unacceptable impacts". We do not believe the argument that these effects are negligible because of the relative low catch in the UoA compared to total catch of these species stocks is appropriate and sufficient to meet SG80.
Oceanic whitetip shark is now covered in Component 2.2. The rationale for SIc has been redrafted to justify our finding that the fishery meets SG80.
2.3.2a
We do not agree that there is "strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species" and we consider that the requirement at SG80 for this SI is not currently met, thus a score of 60 would be more appropriate. According to MSC FCR v.2, Table SA8, "a 'strategy' represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification of fishing practices in the light of the identification of unacceptable impacts". This would be impossible without adequate information to support the strategy. As the CAB did not consider that the information is yet adequate to support a strategy, (SI2.3.3b scored 60), an understanding of how the strategy works cannot be achieved, thus the definition of a strategy is not met. A score of 60 (there are measures in place) can only be justified if there is a strategy in place. It is noteworthy that WCPFC has applied strategies to both silky and oceanic whitetip shark to all tuna fisheries, without exception, and this is supported by stocks assessments for these species.
The scoring of PI2.3.2 SIa has deleted and PI2.3.2 SIb has been scored. The score has been revised to better support the fishery meeting SG80.
2.3.2d
The requirement for this SI at SG80 is: "there is some evidence that measures/strategy is being implemented successfully" is not correctly addressed. The justification given is that the measures/strategy work and not about the degree of implementation. The justification needs to address if the measures are implemented successfully, i.e. how the measures have been adopted and the degree of compliance with these measure by the EIO tuna fleet.
The team disagrees with the stakeholder as to the intent of SId in PI2.3.2. The score has been revised to better support the fishery meeting SG80. Compliance is considered in Component 3.2.

3.2.1
No measures are identified in the report that demonstrate that specific or implicit management measures are broadly consistent with achieving the outcomes expressed by MSC's Principle 2
There are no P2 fishery specific short-term objectives, defined or implicit within the fishery-specific management system, and the content of the P2 assessment argues that because of the small size of this fishery that there is no need for such measures to be set or in place.
We are not clear on the exact nature of the stakeholder comment and the relationship between the rationale for the scoring of PI 3.2.1 and the content of the P2 assessment. The purpose of P3 is to provide the overarching framework under which sustainability is required and facilitated. On that basis, we consider that the scoring rationale underpins the score assigned to PI 3.2.1. However, the scoring justification has been redrafted and we trust it helps to meet the stakeholder concerns.
GENERAL COMMENTS
It appears from the report that COC would commence on at a processor when there are considerable opportunities for mixing fish transshipped from UoA purse seiners and uncertified purse seine fisheries. There needs to be a weight validation process, and clear evidence of separation of non UoA and uncertified fish on the carrier to ensure no mixing or substitution. Compartmentalisation is required on carriers, where sourcing from eligible and non-eligible vessels may occur. In instance with carriers and traders the ownership may change on loading, and there is clear opportunity and economic benefit to game the catch. As it reads, expectation is upon the processor to honestly declare MSC eligible catch to be MSC certified upon receipt to the plant, and not mix non MSC from the same fishery and carrier to game the catch. Also advise exact weights of target and non-target species composition, back to the authorities and vessels. Clearly this is a high risk for MSC. If the proposed CoC was credible and current practice then the level of data would be much higher than in the assessment, but this would explain why recorded discards are apparently limited.
The section on traceability has been revised.

12.4. IPNLF

Note: to facilitate review, the format of the comments and responses have been modified from the IPNLF presentation that followed the MSC format

2.2.1 Secondary species outcome
Other 2.2.1(a) – Main secondary species stock status The CAB scores the UoA at SG 100. SG 100 requires that: 'There is a high degree of certainty that main secondary species are within biologically based limits.' The Second Report states that: 'There are no main secondary species in the FAD or FSC set types.' (CAB's emphasis.) It adds: 'Because there are no main secondary species this SI is scored at 100'. If it is right there being no main secondary species (and, in that respect, see our general comments above), the correct approach for this SI should be to regard it as not applicable and therefore to attribute no score.
There is not an option for "not applicable". The justification has been revised. We do not agree that the sustainability credentials of a fishery should not take into account the lack of main secondary species.
2.2.1(b) – Minor secondary species stock status The CAB scores the UoA at SG 100. SG 100 requires that: 'Minor secondary species are highly likely to be above biologically based limits.' *or* 'If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species.' The CAB states the following (though it is not entirely clear if this relates just to bony fish species or to all minor secondary species): These species are not managed, and there are no stock assessments available for them. The small catches of these species in the [Echebastar Indian Ocean] tuna purse seine fleet have negligible impacts on these species. There is no evidence to indicate that these species are all highly likely to be above biologically based limits. But, there is sufficient evidence based on the catch amounts in the expanded observer catch data to indicate that the UoA does not hinder the recovery or rebuilding of these minor secondary species, if it was required, due to the very low level of catch of these species by the UoA. The CAB provides no evidence at all to justify its assertion. It also proceeds without any express consideration of the definitions of 'biologically based limits' and 'does not hinder' set out in Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT. In our view, if the CAB were to consider these definitions, it would be clear to the CAB that SG 100 cannot be met. Since SG 100 is the only SG for the SI, it follows that the UoA should be **FAILED** for this SI.
The rationale has been revised in response, with a score of 80 for PI 2.2.1. The RBF may be implemented for secondary species (MSC FCR Table 3). However, where there are no main secondary species, the option is to not use the RBF, but cap the score for PI 2.2.1 to 80. We have followed this approach. We note that not scoring 100 is not a fail.

Additional rationale is needed to support the score.

General point

Regarding PI 2.2.2, SA3.8.1 (FCR, p.146), which is normative for the DAT, states that: 'The team shall score this PI *even if* the UoA has no impact on this component.' (Emphasis added.) The term 'this component' as used in SA3.8.1 means 'secondary species'. The CAB takes the view that there are no secondary main species. *If* that is correct, logic suggests that the UoA has no impact on those species. However, the effect of SA3.8.1 is that the CAB must nonetheless score the UoA against PI 2.2.2. We assume that is the CAB's rationale for scoring PI 2.2.2, although Second Report does not refer to SA3.8.1. We will comment on the scoring applied by the CAB.

"Component" refers to the Performance Indicator dealing with "secondary species [management strategy]". Consideration is broken down into Scoring Issues, within which there are Scoring Guidelines. In this fishery, there are no main secondary species that the fishery necessarily should manage using measures or a partial strategy..SA3.8.1 says scoring at PI2.2.2 should proceed even if there is no impact on secondary species, which is dealt with at PI2.2.1. It is necessary to distinguish the needs related to impact/no impact (S3.8.1) and scoring options within PI2.2.1 which may refer to GSA3.5.1. We acknowledge this SI a difficult and perhaps grey area.

2.2.2(a) – Management strategy in place

SG 60 and SG 80 for this SI use the term 'if necessary'. Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT, defines 'if necessary' as follows:

The term "if necessary" is used in the management strategy PIs at SG60 and SG80 for the primary species, secondary species, habitats and ecosystems components. *This is to exclude the assessment of UoAs that do not impact the relevant component at these SG levels.* [Emphasis added]

The Second Report states that: 'there are no secondary main species and no measures or partial strategy is necessary'. It cites GSA 3.5.1 (FCR, p.436), which is guidance on the DAT, which states that:

If the UoA has no (or negligible: see below) impact on this component, scoring issue (a) does not need to be scored for SG60 and SG80 […].

If it is right that 'there are no secondary main species', one would expect the effect of GSA 3.5.1 and the definition of 'as necessary' in Table SA8, respectively, to mean that SI 2.2.2(a) need not be scored for SG60 and SG80 and, indeed, that the UoA must not be assessed for this SI. However, the effect of SA3.8.1 (see above) suggests that the CAB must nonetheless score the UoA against SI 2.2.2(a). We assume that is the CAB's rationale for scoring SI 2.2.2(a). We will comment on the scoring applied by the CAB.

All SGs for this SI use the term 'in place'. Table SA8 (normative – see above) states that:

When a measure or strategy is "in place" the measure or strategy has been implemented, and if multiple measures have been identified to address an impact of the UoA, there is a specified process with a clear timetable and endpoint for implementation of all of the measures.

So, for a measure or strategy to be 'in place', it must have been implemented; and if there are multiple measures, they are only 'in place' if there is a specified process with a clear timetable and endpoint for implementation of all of the measures. In other words, a loose array of measures is not sufficient.

SG 100 and SG 80 refer to a strategy and partial strategy, respectively, 'for the UoA'. Yet in setting out evidence to score this SI, the CAB places emphasis on management undertaken by IOTC, SFA, EU and Spain – and relatively little emphasis on management undertaken by the UoA itself. On management undertaken by the UoA, the references by the CAB are as

follows: (a) aspects of 'Echebastar company policy'; (b) research into bycatch (2013); (c) crew training; (d) a study on 'possible bycatch mitigation measures'; and (e) reference to certain onboard procedures in relation to by-catch.

SG 80 refers to a 'partial strategy'. Table SA8 (normative – see above) defines either a 'partial strategy' as follows:

A "partial strategy" represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.

We consider that the items mentioned in (a)–(e) above do not represent 'a cohesive arrangement' or meet the other requirements of the definition of 'partial strategy'. (This is corroborated by the CAB when, for SI 2.2.2(b), the Second Report states (p.86) that 'there are *some measures* in place, that have resulted in lower by bycatch levels' (emphasis added) – in other words, the CAB refers to 'measures' rather than to a 'partial strategy'.) On this basis, the UoA does not reach SG 80.

SG 60 refers to 'measures'. Table SA8 (normative – see above) defines 'measures' as follows:

"Measures" are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.

We consider that some of the items mentioned in (a)–(e) above are indeed 'actions or tools'. However, we do not consider that they are 'in place' as defined SA8 (see above). That is because they are merely a loose array rather than being part of 'a specified process with a clear timetable and endpoint for implementation of all of the measures'. On this basis, the UoA does not reach SG 60 and so should be **FAILED** for this SI.

We are aware of the normative and, on the basis of extensive experience, understand that there may be wide range of interpretations of it, even amongst experienced auditors. There are no main secondary species neither measures or a partial strategy are necessary. This approach follows the practice in many MSC assessments of fisheries that have been certified. The remainder of the stakeholder's comments on SG60 and SG80 are therefore moot.

The scoring rationale has been redrafted to clarify the evidence.

2.2.2(b) – Management strategy evaluation

Please see above regarding SA3.8.1. We assume that SA3.8.1 is the CAB's rationale for scoring this SI (despite it citing GSA 3.5.1 – see above).

The CAB scores the UoA at SG 80. SG 80 requires that: 'There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved'. Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT, states that:

"Objective basis for confidence", as used at the SG80 level in the P2 management PIs (Management Strategy Evaluation scoring issue) refers to the levels of information required to evaluate the likelihood that the management partial strategy will work.

- The SG60 level for these PIs requires "plausible argument" based on expert knowledge;
- The SG80 level requires expert knowledge augmented by some information collected in the area of the UoA and about the specific component(s) and/or UoA;

- The SG100 level requires all preceding information augmented by relatively complete information on the component, much of which comes from systematic monitoring and/or research.

Therefore, the reference to 'objective basis for confidence' in SG 80 requires 'expert knowledge augmented by some information collected in the area of the UoA and about the specific component(s) and/or UoA'. The CAB fails to identify any expert knowledge, augmented or otherwise. Instead, it refers merely to (a) some very high-level statistics, without any consideration of confidence limits, (b) the introduction of non-entangling FADs (to which, it says, a decline in by-catch is 'probably related'), (c) reduced number of FADs and (d) reduced effort. In our view, the items (a)–(d) do meet the requirements of Table SA8, and therefore the score of SG80 is not justified.

SG 60 requires that: 'The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).' Table SA8 (see above) states that: 'The SG60 level for these PIs requires "plausible argument" based on expert knowledge'. The CAB fails to identify any expert knowledge. Therefore, a score of SG 60 is not justified and the fishery should be **FAILED** on this SI.

Please refer to the response above.

2.2.2(c) – Management strategy implementation

Please see above regarding SA3.8.1. We assume that SA3.8.1 is the CAB's rationale for scoring this SI (despite it citing GSA 3.5.1 – see above).

The CAB scores the UoA at SG 80. SG 80 requires that: 'There is some evidence that the measures/partial strategy is being implemented successfully.' If we assume that measures (though not a partial strategy) exist, the question is: is there 'some evidence' that they are 'being implemented successfully'? The CAB identifies, as measures, non-entangling FADs, reduced number of allowed FADs and reduced effort. However, the evidence of successful implementation of these measures is not persuasive: the CAB refers only to (a) some very high-level statistics, without any consideration of confidence limits, and (b) attendance by skippers and crew at workshops. Therefore, we consider that SG 80 is not met. There is no SG 60. Therefore, the UoA should be **FAILED** on this SI.

Please refer to the response above.

2.2.2(d) – Shark finning

The CAB considers that the UoA meets SG 100, whereby: 'There is a high degree of certainty that shark finning is not taking place.' As evidence, the CAB cites the following: (a) Echebastar group policy explicitly does not permit shark finning; and (b) 'there are limited opportunities for shark finning to take place at sea' because (i) 'any sharks returned to the sea are returned directly from the brailer', (ii) any sharks entering chill tanks cannot not be accessed until discharge and (iii) observer coverage is '100% of all effort'. In our view, '(a)' and '(b)' do not create the requisite 'high degree of certainty'. In particular, the percentages of observed sets for each of 2014, 2015 and 2016 are (only) 29%, 53% and 34% respectively (see text and Table 6, at p.55). In our view, these relatively low percentages could still allow finning to take place. Echebastar's group policy itself is not a practical barrier to finning, and there is scope for sharks to be finned after brailing (without any carcass ever entering the chill tanks). In our view, particularly in view of the low percentages of observed sets, not even SG 60 (which requires it to be 'likely that shark finning is not taking place') can be said to be met. The UoA should therefore be **FAILED** on this SI.

Note the difference between the number of observed sets and the available tabulation results. Research indicates that 20-25% observer coverage is adequate to characterize and quantify shark bycatch. There is no relationship between the "low"' percentage of data available for analysis and the likelihood of shark finning. Several sources of evidence support a score of SG100. However, as Seychelles law allows for some shark finning, the rationale has been revised and the fishery fails to meet SId SG100

2.2.2(e) – Review of alternative measures to minimise mortality of unwanted catch

SA3.8.4 (FCR, p.146), which is normative for the DAT, states that: 'In assessing scoring issue (e), clause SA3.5.3 and its sub-clauses shall apply here.' SA3.5.3 starts by stating that: 'If there is unwanted catch as defined in SA3.1.6, the team shall assess scoring issue (e).'

In our view, there is 'unwanted catch' as defined by SA3.1.6. Therefore, SA 3.5.3 requires the CAB to assess SI 2.2.2(e). GSA3.5.3 (FCR, p.436), which is guidance on the DAT, states that: 'Any non-negligible proportion of the catch that meets the unwanted definition (see SA3.1.6 and GSA3.1.6) for a particular species should be assessed as unwanted catch.' The CAB does not state whether it considers the unwanted catch in the UoA as 'non-negligible' or 'negligible'. It does state (p.88) that 'there are no main secondary species'. But, equally, it goes on to assess the SI.

The CAB jumps to the conclusion that because, in its view, there are no main secondary species, 'the SG 60 and SG 80 requirements are met'. In our view, this is simplistic. In particular, it ignores the requirements of SA3.5.3.

SA3.5.3.1 states that the term 'alternative measures', as used in SG 60, SG 80 and SG 80, 'shall be interpreted by the team as alternative fishing gear and/or practices that have been shown to minimise the rate of incidental mortality of the species or species type to the lowest achievable levels'. There is no evidence that the CAB has applied this (mandatory) interpretation. It must do so before jumping to the conclusion that 'the SG 60 and SG 80 requirements are met'.

SA3.5.3.2 states that the term 'regular review', as used in SG 80, 'shall mean at least once every 5 years'. There is no evidence that the CAB has applied this (mandatory) interpretation. Again, it must do so before jumping to the conclusion that 'the SG 60 and SG 80 requirements are met'.

SA3.5.3.3 states that the term 'as appropriate', as used in SG 80 and SG 100, states that:

> "As appropriate" … in the context of implementing reviewed measures shall be interpreted by the team as situations where potential alternative measures reviewed are:
> a. Determined to be more effective at minimising the mortality of unwanted catch than current fishing gear and practices,
> b. Determined to be comparable to existing measures in terms of effect on target species catch, and impacts on vessel and crew safety,
> c. Determined to not negatively impact on other species or habitats, and

d. Not cost prohibitive to implement.

There is no evidence that the CAB has applied this (mandatory) interpretation. It must do so before jumping to the conclusion that 'the … SG 80 requirements are met' and that SG 100 is met. Overall, SI 2.2.2(e) must be reconsidered in the light of clause SA3.5.3 and its sub-clauses. In the absence of doing so, the UoA should be **FAILED** on this SI.

Please refer to the comments above.

In addition, evidence is presented to support our conclusion that the fishery meets SG100.

The scoring rationale has been redrafted to clarify the evidence supporting a score of 100 for this SI.

2.2.3 Secondary species information

Additional rationale is needed to support the score,

2.2.3(a) – Information adequacy for assessment of impacts on main secondary species

The CAB has found that the SG 100 is met. It is not clear to us whether this score is on the basis that, as claimed by the CAB, 'there are no main secondary species' or, alternatively, whether it is based on scoring despite the CAB's claim. Our default position is that if there are indeed no main secondary species and no requirements in the FCR to the contrary, this SI is not applicable and should not be scored. However, without prejudice to that position and acknowledging that main secondary species may be present (see our general comments (6), (7), (9) and (10) above), the following is a critique of the CAB's scoring of this SI.

In our view, SG 100 is not met and, instead, only SG 80 is met. SG 100 requires that: 'Quantitative information is available and is adequate to assess *with a high degree of certainty* the impact of the UoA on main secondary species with respect to status.' (Emphasis added.) The CAB states that 'there are no main secondary species'. However, that finding itself requires the data to be adequate, and there is a degree of circularity about that. With the observer coverage at relatively low levels (see our general comment (6) above), it is not possible, with 'a high degree of certainty' (a) to hold that there are no main secondary species and (b) in turn, to assess 'with a high degree of certainty the impact of the UoA on main secondary species with respect to status'.

Instead, the best that can be said, is, as stated in SG 80, that: 'Some quantitative information is available and is adequate to assess the impact of the UoA on the main secondary species with respect to status.'

The CAB bases its findings on the observer programme. In that regard, we would add that GSA3.6.3 (FCR, p.441), which is guidance on the DAT and which is applicable to this PI, states that:

With regard to observer programmes, teams may consider factors such as how representative the sampling is, whether observer coverage is based on the total effort or number of trips, any spatial or temporal limitations on data collected, definition and rigour of data collection protocols, what training observers have had in terms of species identification, and the priorities for observer time on the vessel (Bravington et al, 2003; DFO, 2012; Wolfaardt, 2011). … There is not a single optimum level of observer coverage that covers all fisheries and species caught/killed. Generally, for species that are highly variable, clumped in distribution and/or relatively rare, higher levels of observer coverage are needed (Wolfaardt, 2011). For more normal species, observer coverage rates above 20% provide only diminishing returns and small incremental improvements in the CV of catch estimates (Lawson, 2006).

In view of the reliance of the CAB on observer programmes, it is surprising that reliability of the observer programmes concerned has not been expressly considered against the above guidance. This omission should be rectified.

Please refer to the responses above.

2.2.3(b) – Information adequacy for assessment of impacts on minor secondary species

GSA3.6 (FCR, p.441), which is guidance on the DAT and which is applicable to this PI, states that:

If the management approach is very precautionary or the status of the species is very high or the catches and impact of those catches are very low, information with low precision may be adequate for both the estimation of current status and the performance of the management strategy. *Conversely, where the status is unknown or based on limited information, CABs would be expected to be more precautionary in their assessment of information adequacy to support the Outcome or Management PIs*. [Emphasis added]

The CAB itself acknowledges that '[t]he difficulty is that the status of most of the minor secondary species is unknown' (p.91). Therefore, as per GSA3.6, the CAB 'would be expected to be more precautionary in [its] assessment of information adequacy to support the Outcome or Management PIs.' We see no evidence of the CAB having been 'more precautionary', and this omission should be rectified.

The score for this SG100 score for this SI has been revised to No. The assessment on reflection recognizes that the status of the minor secondary species is unknown.

2.2.3(c) – Information adequacy for management strategy

The CAB has found that the SG 80 is met. In our view, this is not correct and, instead, only SG 60 is met. SG 80 requires that: 'Information is adequate to support a partial strategy to manage main secondary species.'

Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT, defines a 'partial strategy' as follows:

A "partial strategy" represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.

The CAB cites evidence for 'supporting and evaluating the effectiveness of the partial strategy'. However, for this SI, it does not mention any of the measures that it considers make up the 'partial strategy'. A partial strategy must exist before there can be a judgment as to the adequacy of information that supports it. Without evidence of a partial strategy, SG 80 for this SI cannot be met. With regard to whether or not a partial strategy does exist, see our response above regarding SI 2.2.2(a): we consider that a partial strategy does not exist.

We would add that SA3.6.4 (FCR, p.142), which is to be applied to this SI (FCR, p.148), states that:

For scoring issue (c) teams shall consider the adequacy of information in relation to supporting the management measures, partial strategy or strategy including the ability to detect any changes in risk level to main species, e.g., due to changes in the operation of the UoA or the effectiveness or implementation of the management system.

Therefore, in respect of SG 60 for this SI, the CAB must 'consider the adequacy of information in relation to supporting the management measures … *including the ability to detect any changes in risk level to main species, e.g., due to changes in the operation of the UoA or the effectiveness or implementation of the management system*' (emphasis added). The CAB has not done this – not even for SG 80 which it considers is met. This omission should be rectified.

Please refer to the comments above.

2.3.1 ETP species outcome

Additional rationale is needed to support the score

2.3.1(a) – Effects of the UoA on population/stock within national or international limits, where applicable

For this SI, the CAB splits the UoA into 'FAD set type' and 'FSC set type'. This is the first P2 SI that the CAB splits in this way.

For each of the set types, the CAB has found that the SG 80 is met. SG 80 states that: 'Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population/stock are known and highly likely to be within these limits.'

The relevant UoAs are the Echebastar UoA and the Maldives pole and line UoA. For SG 80 to be met, the combined effects of these two UoAs on the population/stock must be (a) 'known' and (b) 'highly likely to be within' limits set for ETP species by national and/or international requirements.

In our view, the combined effects on the population/stock of the various ETP species cannot be 'known'. That is because: for **Silky sharks**, as noted in the Second Report (pp.93, 94, 96 and 97), 'it is not managed by the IOTC, nor is there an assessment' and the stock status is 'unknown'; for **Ocean whitetip sharks**, as noted in the Second Report (pp.94 and 97), 'it is not managed by the IOTC and there is not an assessment' and the stock status is 'unknown'.

For both of these shark species, the test used by the CAB (pp.93, 94 and 97) is whether the by-catch would inhibit or hinder recovery. For rays and sea turtles, the test used by the CAB (pp.94 and 97) is whether the by-catch is 'considered to be a risk'. However, none of these are the relevant test for SG 80 (noted above). In our view, because it is not possible for combined effects on the population/stock of, amongst others, Silky sharks and Ocean whitetip sharks, to be 'known', SG 80 cannot be met. For the same reason, SG 60 (which likewise requires effect to 'known') cannot be met and the UoA should therefore be **FAILED** on this SI.

We would add that SG 80 requires that the combined effects of the two UoAs concerned on the population/stock must be 'highly likely to be within' limits set for ETP species by national and/or international requirements. But the CAB makes no analysis of any limits set by national and/or international requirements for the various ETP species involved – despite setting out lengthy text on Silky shark, Oceanic whitetip shark and other ETP species. Without such an analysis, it is not possible for the CAB to know whether any of the SGs for this SI have been passed. (This is without prejudice to our view that the UoA should anyway be failed on this SI – see above.)

We would add further that SA3.10.1.1 (FCR, p.149), which is normative for the DAT, states that: 'If there is no applicable national legislation or binding international agreement, scoring issue (a) shall not be scored.' It is not known to us whether any 'applicable national legislation or binding international agreement' sets limits (see above). However, if the conclusion is that it does not, the effect of SA3.10.1.1 is that SI 2.3.1(a) must not be scored.

The scoring of PI2.3.1 SIa has been deleted to be replaced by scoring of PI2.3.1 SIb. The substantive issues related to direct interaction of the fishery with ETP species are now covered in SIb and we conclude that the fishery meets SG80.

The scoring tables have been redrafted for all P2 PIs to consider FAD and FSC sets separately as part of an elemental approach.

SIb, unlike SIa, does not require consideration of combined effects of MSC certified fisheries.

2.3.1(b) – Direct effects

The CAB has found that the SG 80 is met. SG 80 states that: 'Direct effects of the UoA are highly likely to not hinder recovery of ETP species.' (The version of SG 80 in the Second Report is not correct.) SG 80 uses the term 'Direct effects' whereas SG 60 uses the term 'Known direct effects'. This suggests that for SG 80 to be met, all possible direct effects, rather than just those which are known, must meet the test concerned.

The test concerned is that the effects in question 'are highly likely to not hinder recovery of ETP species'. The CAB provides no meaningful evidence to justify this test being met. In particular, it makes no distinction between 'Direct effects' in SG 80 and 'Known direct effects' in SG 60, it proceeds without any express consideration of the definition of 'does not hinder' set out in Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT and it takes no account of the unknown status of the population/stock of Silky shark. These omissions should be rectified.

We consider that the significant take (and kill) of Silky sharks by the Echebastar vessels, even when seen in context against the take of that species by other vessels in the Indian Ocean, cannot be said to meet the definition of 'does not hinder'. 'Not hindering' is not simply a matter of showing that take by the Echebastar vessels is relatively small compared to the overall picture. Since SG 60 uses that test too, the UoA should be **FAILED** on this SI.

We acknowledge that SG 80 mistakenly included the word "Known".

MSC FCR 2.0 Table SA8 defines does not hinder as "*The impact of the UoA is low enough that if the species is capable of improving its status, the UoA will not hinder that improvement. It does not require evidence that the status of the species is actually improving*". We provide evidence of the low take.

The rationale for our conclusion that the fishery meets SG80 has been edited.

PI 2.3.2 – ETP species management strategy

2.3.2(a) – Management strategy in place (national and international requirements)

The CAB has scored this SI, rather than the alternative (i.e. 2.3.2(b) – 'Management strategy in place (alternative)'). The CAB has found that SG 80 is met. SG 80 states that: 'There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.'

So, in scoring 2.3.2(a) rather than 2.3.2(b), the CAB considers that 'national and international requirements for the protection of ETP species are in place. With the exception of listing some IOTC resolutions, the CAB does not expressly identify what the national and international requirements are. For the CAB to score 2.3.2(a) (rather than 2.3.2(b)), this omission should be rectified.

SG 80 for SI 2.3.2(a) refers to a 'strategy'. Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT, defines a 'strategy' as follows:

> A "strategy" represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts.

At the Echebastar level, the CAB identifies the elements of the 'strategy' as follows: (a) releasing large animals from the net or from the deck; (b) staff training; (c) research; and (d) double conveyor belts on three of the capture vessels. The CAB also refers to several 'relevant' IOTC resolutions. In our view, these items collectively do not represent 'a cohesive and strategic arrangement' and do not meet the other requirements of SG 80 either. Instead, they are just a compilation of things that are being done. Therefore, SG 80 is not met.

We would add that SG 80 and SG 60 both require a design (SG 80) or expectation (SG 60) 'to be highly likely to achieve national and international requirements for the protection of ETP species'. The CAB has not systematically identified the 'national and international requirements for the protection of ETP species' (see above) and so it cannot say with any confidence whether that part of SG 80 or SG 60 is met. Pending this systematic identification for the purposes of SG 60, the UoA should be **FAILED** on this SI.

The scoring of PI2.3.1 SIa has been deleted to be replaced by PI2.3.1 SIb. The main comments of the stakeholder are not relevant here.

The scoring rationale has been redrafted to clarify the evidence supporting a score of 80 for SIb.

2.3.2(c) – Management strategy evaluation

The CAB scores the UoA at SG 80. SG 80 requires that: 'There is an objective basis for confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or the species involved'. Table SA8 (FCR, 'Principle 2 Phrases', p.134–135), which is normative for the DAT, states that:

"Objective basis for confidence", as used at the SG80 level in the P2 management PIs (Management Strategy Evaluation scoring issue) refers to the levels of information required to evaluate the likelihood that the management partial strategy will work.

- The SG60 level for these PIs requires "plausible argument" based on expert knowledge;
- The SG80 level requires expert knowledge augmented by some information collected in the area of the UoA and about the specific component(s) and/or UoA;
- The SG100 level requires all preceding information augmented by relatively complete information on the component, much of which comes from systematic monitoring and/or research.

Therefore, the reference to 'objective basis for confidence' in SG 80 requires 'expert knowledge augmented by some information collected in the area of the UoA and about the specific component(s) and/or UoA'. The CAB fails to identify any expert knowledge, augmented or otherwise. Instead, it refers merely to (a) the observer data, which has significant limitations (see our general comments (8), (9) and (12) above) and (b) some data about sea turtles, which it seeks to use as an indicator. The items (a) and (b) do meet the requirements of Table SA8. Therefore, the score of SG 80 is not justified.

We would add that: (a) because SG 80 refers to 'partial strategy/strategy' our view, as set out above regarding SI 2.3.2(a), that there is no 'strategy' is also relevant to SG 80 not being met; and (b) SA3.11.1 (FCR, p.152), which is normative for the DAT, requires that '[w]hen scoring the ETP Management Strategy PI SGs teams shall consider the need to minimise mortality' and it is not clear what weight the CAB has placed on this requirement.

SG 60 requires that: 'The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).' Table SA8 (see above) states that: 'The SG60 level for these PIs requires "plausible argument" based on expert knowledge'. The CAB fails to identify any expert knowledge. Therefore, a score of SG 60 is not justified and the UoA should be **FAILED** on this SI.

Table SA8 as noted by the INPLF stakeholder further defines the requirement for SG80 as: *expert knowledge augmented by some information collected in the area of the UoA and about the specific component(s) and/or UoA*.

The assessment team justification of its scoring at the SG80 level, provides more than "*some information collected in the area of the UoA*" it presents real data. It describes the overall low bycatch of ETP species in the Echebastar purse seine fishery, as demonstrated by the observer data. For sea turtles, it compares the bycatch rates reported for the fishery in general a decade ago to bycatch rates as observed in the Echebastar fishery. This is stronger than "*expert knowledge augmented by some information*".

The SI score remain at the SG80 level.

2.3.2(d) – Management strategy implementation

The CAB scores the UoA at SG 80. SG 80 requires that: 'There is some evidence that the measures/strategy is being implemented successfully.' If we assume that measures (though not a strategy) exist, the question is: is there 'some evidence' that they are 'being implemented successfully'? The evidence provided by the CAB of successful

implementation of these measures is not persuasive: the CAB refers only to (a) the observer data, which has significant limitations (see our general comments (8), (9) and (12)), (b) some data about sea turtles, which it seeks to use as an indicator and (c) some published papers. Therefore, we consider that SG 80 is not met. There is no SG 60. Therefore, the UoA should be **FAILED** on this SI.

As noted above, we conclude that there is a strategy.

The scoring rationale has been redrafted to clarify the evidence supporting a score of 80 for SId. We consider there is ample evidence to demonstrate the measures / strategy have implemented and have been effective at minimizing mortality of ETP species.

2.3.2(e) – Review of alternative measures to minimize mortality of ETP species

SA3.11.3 (FCR, p.152), which is normative for the DAT, states that: 'In assessing scoring issue (e), clause SA3.5.3 and its sub-clauses shall apply here, noting that where those clauses refer to mortality of unwanted species they apply here to mortality of ETP species.' SA3.5.3 starts by stating that: 'If there is unwanted catch as defined in SA3.1.6, the team shall assess scoring issue (e).'

In our view, there is 'unwanted catch' as defined by SA3.1.6. Therefore, SA 3.5.3 requires the CAB to assess SI 2.3.2(e). GSA3.5.3 (FCR, p.436), which is guidance on the DAT, states that: 'Any non-negligible proportion of the catch that meets the unwanted definition (see SA3.1.6 and GSA3.1.6) for a particular species should be assessed as unwanted catch.' The CAB does not state whether it considers the unwanted catch of ETP species in the UoA as 'non-negligible' or 'negligible'. However, it goes on to assess the SI.

The CAB scores the UoA at SG 100. SG 100 requires that: 'There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.' There are some key terms in SG 100, including **'biennial'** (meaning taking place every other year), **'review'**, **'alternative measures'** (see below), the measures' purpose being to **'minimise'** mortality, the need for the measures to be **'implemented'** and the caveat **'as appropriate'**.

The term 'alternative measures' is interpreted in SA3.5.3 (see above) as follows:

"Alternative measures" in scoring issue (e) shall be interpreted by the team as alternative fishing gear and/or practices that have been shown to minimise the rate of incidental mortality of the species or species type to the lowest achievable levels'.

The CAB does not systematically identify the 'alternative measures'. Therefore, it is not in a position to decide if there is a review of these. This omission should be rectified. At the same time, the CAB should consider the definition of 'as appropriate' in SA3.5.3 and, as evidence of the alleged biennial nature of the review, should state in what years Echebastar has conducted the said reviews. Overall, SI 2.3.2(e) must be reconsidered in the light of clause SA3.5.3 and its sub-clauses. In the absence of doing so, the UoA should be **FAILED** on this SI.

The justification for this SI has been revised. The rationale now addresses alternative measures to minimise UoA-related mortality of ETP species. With regard to unwanted catch, all ETP catch is considered non-negligible, however, as noted previously, very low catches of ETP species are unlikely to hinder the recovery of a ETP species. We conclude that SG100 is met as evidence indicates that Echebastar regularly reviews (i.e. more often than biennial) the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.

PI 2.3.3 – ETP species information

2.3.3(a) – Information adequacy for assessment of impacts

The CAB scores the UoA at SG 80. SG 80 requires that: 'Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species.'

SA3.12.2 (FCR, p.154), which is normative for the DAT, states that: 'SA3.6.1–SA3.6.4 shall apply here (except SA3.6.2.2) noting that the paragraphs apply to all ETP species (i.e., there is no 'main' for ETP).'

That means that for the assessment in hand, the following clauses shall apply: SA3.6.2; 3.6.2.1; 3.6.3 and its sub-clauses; and 3.6.4. However, there is no evidence that the CAB has applied clauses SA3.6.2, 3.6.2.1, 3.6.3 (and its sub-clauses) and 3.6.4 to the UoA when scoring SI 2.3.3(a). It is mandatory to do so. In the absence of doing so, the UoA should be **FAILED** on this SI.

We would add that, in assessing 2.3.3(b) (see below), the CAB has placed a condition on the UoA as follows:

Condition 1: The fishery needs more than three years of catch data *to measure trends* and support the strategy to manage impacts on ETP species. At present, there are only three years of data available for evaluation in this assessment, and a minimum of five years should be used. Additionally, the data should represent at least at the 50% of observer sets. Therefore, the fishery is required to present catch data on at least 50% of all sets for the first two years following certification. This will result in a total of five years of data available to measure trends and support the strategy to manage impacts on ETP species. [Emphasis added]

It can be seen that this condition relates not just to supporting a management strategy (the subject matter of SI 2.3.3(b)) but also to measuring trends. Measuring trends is relevant to SI 2.3.3(a). In our view, if Condition 1 is required for SI 2.3.3(b), it should be required for SI 2.3.3(a) and indicates that the highest that SI 2.3.3(a) should score is SG 60.

SA3.6.3: at SG80, notes that the information adequacy required for the estimation of the impact of the UoA on the outcome of the species should be balanced against the likely impact on that particular species. In the case of ETP species, the principal source of information is independent observer data, and the details of that program have been described and total interactions by species are estimated. We do not see a need to duplicate that information. At SG80, this SI requires that some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. The rationale provides evidence to support the fishery meeting SG80.

The Condition articulates the distinction between the need to measure trends (SIb), and the adequacy of information to assess impacts (SIa)

2.3.3(b) – Information adequacy for management strategy

The CAB scores the UoA at SG 60. SG 60 requires that: 'Information is adequate to support measures to manage the impacts on ETP species.'

SA3.12.2 (FCR, p.154), which is normative for the DAT, states that: 'SA3.6.1–SA3.6.4 shall apply here (except SA3.6.2.2) noting that the paragraphs apply to all ETP species (i.e., there is no 'main' for ETP).'

That means that for the assessment in hand, the following clauses shall apply: SA3.6.2; 3.6.2.1; 3.6.3 and its sub-clauses; and 3.6.4. However, there is no evidence that the CAB has applied clauses SA3.6.2, 3.6.2.1, 3.6.3 (and its sub-clauses) and 3.6.4 to the UoA when scoring SI 2.3.3(b). It is mandatory to do so. In the absence of doing so, the UoA should be **FAILED** on this SI.

Please see the previous comment. The principal source of information on interaction with ETP species is independent observer data and the estimated total interactions by species (PI2.3.1 SIb). The justification for this SI has been revised.

PI 2.5.1 – Ecosystem outcome
2.5.1(a) – Ecosystem status The CAB scores the UoA at SG 80. SG 80 requires that: 'The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.' The CAB, when considering the FAD component of the UoA, mentions sharks only at a very high level. No detailed assessment is made of the possible effect of the UoA's by-catch of sharks on ecosystem structure. From its high-level assessment, the CAB concludes that the test in SG 80 is met. This approach to the assessment is unacceptable. The UoA has a significant by-catch of sharks, especially Silky sharks. Very little is known about the status of this species and about its role in ecosystem structure. (A possible effect of the UoA cannot be dismissed by any argument that the UoA's by-catch is low compared to fishing activities by others – though we acknowledge that argument is not made by the CAB for this particular SI.) Therefore, level of confidence in SG 80 simply cannot be met by this UoA in respect of its FAD component. The highest possible score that can be given for the FAD component of the UoA, and hence for this SI as a whole, is 60.
The MSC Guideline FCR 2.0 notes "*The Ecosystem component considers the broad ecological community and ecosystem in which the fishery operates. The Ecosystem component does not repeat the status assessment of the other components individually but rather considers the wider system structure and function*". The wording of SG80 is "*The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function*". Sharks are part of the high trophic level pelagic species that is referred to in the rationale. While we do not consider the stakeholder point to be relevant to this PI, note we do not agree with the view that the mortality of silky shark in the Echebastar fishery would be likely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. There is no requirement to address shark mortality in this SI, as the UoA does not contribute substantively to shark mortality in the Indian Ocean, as demonstrated in the observer data catch, that is a very low estimated total UoA catch of sharks relative the total catch of sharks in the Indian Ocean in other fisheries. The justification for this SI has been revised.
PI 2.5.3 – Ecosystem information
This PI has five SIs. However, for none of them are sharks specifically mentioned by the CAB in the course of its assessment. This is very surprising. Unless the assessment for this PI, including each individual SI, is re-done, with adequate consideration of sharks in relation to the ecosystem, the UoA should be **FAILED** for this PI.
Please note the previous comment. The justification for this SI has been revised.
PI 3.1.1 – Legal and/or customary framework
3.1.1(a) – Compatibility of laws or standards with effective management The CAB scores the UoA at SG 80. SG 80 requires that: 'There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.'

SG 80 refers to 'an effective national legal system'. The CAB's assessment focuses on flag States (Spain and Seychelles), in the context of IOTC. With the possible exception of the Seychelles, it does not consider the various coastal States involved – i.e. the coastal States in whose waters the Echebastar vessels fish. The latter are listed in Tables 4–6 at pp.146–147. Even though the catches in the waters of some of these coastal States may be relatively small, each of them needs to be considered. This is a significant omission and needs to be remedied with reference to the national legal system of each coastal State concerned. One would expect to see, at the very least, a table of relevant provisions of the current national legislation of the coastal States. There is no such table. In the absence of this matter being addressed, the UoA would need to be **FAILED** for this SI.
The stakeholder's comment led to a rigorous consideration of the issue. We concluded that SFPAs / private agreements / individual vessel licensing should be considered under the fishery specific Component 3.2. The three jurisdictions considered under Component 3.1 are IOTV, EU and Seychelles. The rationale for this approach is provided in the main body of the text. SFPAs are now considered under Component 3.2. Due to a misunderstanding the previous draft did not consider the licenses issues to Echebastar vessels by the Governments of Kenya and Tanzania. This omission has been corrected and the two are considered under Component 3.2. The text has been edited to strengthen the scoring rationale.
The fact that some of the coastal States concerned have active SFPAs with the EU, and that SFPAs are considered earlier in the section on P3, is not sufficient. According to the CAB (p.151), the only coastal States that have active SFPAs with the EU are Madagascar, Mauritius and Seychelles. That is not all of the coastal States concerned. In addition, for Madagascar, Mauritius and Seychelles it is not sufficient to consider only the SFPAs: the coastal States' national legislation must also be considered. Regarding the flag States, the CAB states simply that: > The fishery policy of Spain (EU) and Seychelles, working in conjunction with IOTC and other parties, provides a coherent basis for effective management of the skipjack resource in the IO through the procedures established for data collection, stock analysis, scientific advice (UNSFA Art. 10) and management tools. As an assessment, both in relation to Spain (EU) and Seychelles, this is inadequate. We appreciate that earlier in the section on P3, the CAB sets out some evidence. However, the assessment of SI 3.1.1(a) needs to make proper cross-references to that evidence in order for it to be clear whether or not SGs under this SI are met.
The text has been edited to strengthen the scoring rationale.
The assessment refers to the 'fishery policy' of Spain. However, it provides, neither at pp.160–161 nor earlier in the section on P3, any evidence relating to the fishery policy of Spain (except a brief mention at p.152). Instead, the evidence earlier in the section on P3 relates only to the EU. The fishery policy of Spain itself, as the flag State, is relevant and needs to be considered with adequate evidence.
The fisheries responsibilities of individual member states are limited to the waters under national jurisdiction. Fisheries outside the national waters up to the limit of the EU EEZ are subject to EU regulations as encapsulated in the CFP and supported by a range of EU documents and regulations. The CFP applies to EU fisheries in distant fishing grounds such as the Indian Ocean. The direct reference to Spain was an error and the text has been edited to strengthen the scoring rationale.
A further point is that the FCR, at SA4.3.2, SA4.3.3 and SA4.3.4 (pp.170–172), sets out what is needed for a UoA to meet SG 60, SG 80 and SG 100 under SI 3.1.1a. The requirements are precise; they are also normative in relation to the DAT. The CAB seems to have made no attempt to systematically go through these requirements. That omission nee

We approached the scoring rationale for all PIs on the basis of a systematic application of the MSC standard. At the same time, all scoring rationales have been reviewed and redrafted as required to further strengthen the justifications for the allocated scores.

3.1.1(b) – Resolution of disputes

The CAB scores the UoA at SG 80. SG 80 requires that: 'The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.'

The CAB states that: 'As evidenced in the main text above, each jurisdiction has a mechanism for dealing with disputes'. Several points arise in relation to this statement.

First, 'the main text above' does not deal in any detail with the various coastal States concerned (as listed in Tables 4–6 at pp.146–147). Even though the catches in the waters of some of these coastal States may be relatively small, each of them needs to be considered. Some of them have private agreements with Echebastar. In that respect, the CAB states simply that (p.152):

> Echebastar provided copies of the protocols for private fishing agreements with Eparses (TAFF 2017) and Madagascar (Echebastar 2015) and these are available to interested stakeholders. The approach is similar to the one used for the SFPAs. The dispute resolution mechanism is based on conversation and if this does not lead to a solution both sides agree to independent arbitration.

There is absolutely no assessment by the CAB as to whether the 'conversation' or 'independent arbitration' is transparent (cf. SGs 100 and 80) and effective (cf. SGs 100 and 80) in resolving disputes. This omission needs to be rectified, for each of the private agreements concerned (and we assume that there are private agreements other than just those with Eparses and Madagascar).

SFPAs / Private agreements / vessel licensing are not considered under Component 3.1. which is limited to consideration of the overarching legal framework of the 3 jurisdictions (see above).

Regarding the existence of a private agreement with Madagascar, we are surprised that such an agreement exists (unless it relates only to the Seychelles-flagged vessels). This is because we understand that SFPAs rule out private agreements with vessels flagged to EU Member States, and we are told (p.151) that an active SFPA exists between the EU and Madagascar.

Please refer to the main text for Component 3.2 which provides clarification.

Secondly, for cases where there are SFPAs in place, 'the main text above' provides very little relevant evidence. In relation to the EU–Seychelles SFPA, it states simply that (p.151):

> The signatories share responsibility for the effective implementation of SFPA protocols. A Joint Committee comprising representatives of both parties monitors the application of the SFPA and acts as the mediator in any dispute.

The CAB's assessment for this SI adds, at p.162, that 'the Joint Committees are the mechanism for resolving issues related to the application of the SFPAs'. However, there is absolutely no analysis as to whether the Joint Committee is transparent (cf. SGs 100 and 80) and effective (cf. SGs 100 and 80) in resolving disputes. This omission needs to be rectified, for each of the SFPAs concerned. We would add that the assessment for this SI refers, at p.161, to 'arbitration' under the SFPAs, but this is the first time in the entire section on P3 that such arbitration in the context of SFPAs is mentioned, and clearly more information is needed.

Please refer above and the 3 jurisdictions considered under Component 3.1.

3.1.1(c) – Respect for rights

The CAB scores the UoA at SG 80. SG 80 requires that: 'The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.'

The management system, through the IOTC, has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2, through the membership of IOTC by individual States.

However, at national level, according to the auditors in the assessment (p.29 of Second Report):

> The decision-making process has an impact on the livelihoods of Seychelles fishers (see MSC CR GSA 4.8). While improvements have been made, local stakeholders do not recognise the existing system as effective. […]
>
> … there is no concrete evidence that the Seychelles government responds to the issues raised by fishers who depend on tuna for their livelihoods in a transparent, timely and adaptive manner. […]

On this basis, SG 80 for this SI is not met, and the SI should instead be scored at SG 60.

We would add that SA4.3.7 (FCR, p.172), which is normative for the DAT, states that '[t]he team shall interpret "observe" in scoring issue (c) at SG80 to mean that':

> There are more formal arrangements such as bylaws or regulation that make explicit the requirement to consider the legal rights created explicitly or by custom of people dependent on fishing for food or livelihood; and
>
> Those peoples' long-term interests are taken into account within the legal and/or customary framework for managing fisheries.

The CAB seems to have made no attempt to assess the UoA against this interpretation of the term 'observe'.

The rationale has been redrafted. The mechanisms to "*observe legal rights*" in Seychelles are the Fisheries Law and the need for co-management (e.g. fishery management plans). The effectiveness of those mechanisms is considered in PI 3.2.2 SIa and this results in a condition.

PI 3.1.2 – Consultation, roles and responsibilities

3.1.2(a) – Roles and responsibilities

The CAB scores the UoA at SG 80. SG 80 requires that: 'Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.'

The CAB states (at p.165) that 'the roles of the various actors are well defined and understood'. We disagree in that, amongst other things, the role of the industry and coastal State governments in making private agreements is not well defined and understood (or, to use the wording of SG 80, 'explicitly defined and well understood'). Indeed, there is a considerable lack of transparency, including in relation to the roles of the actors concerned, about the process of making private agreements (see p.11 and Condition 6). Therefore, in our view, SG 80 cannot be met for this SI.

The CAB, having referred to various actors, states (at p.165) that: 'The activities of each of these actors are well known, and their role in the management process is documented and understood.' In our view, this simple statement is not sufficient. Instead, evidence is needed that the actors' functions, roles and responsibilities are 'generally understood' (cf. SG 60). This omission should be rectified, and only if such evidence can be provided can SG 60 be met.
The stakeholder's point on private agreements is moot as private agreements are not considered under Component 3.1. Regarding the stakeholder's concern about "*generally understood*" the scoring rationale has been strengthened.
3.1.2(b) – Consultation processes The CAB scores the UoA at SG 60 (in relation to which, see Condition 4). SG 60 requires that: 'The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.' SA4.4.4–4.4.5 (FCR, p.172), which are normative for the DAT, state that: SA4.4.4 Consultation processes that exist at a multinational level and a national level shall be included and considered, subject to SA4.1.3. SA4.4.5 Teams shall interpret "local knowledge" to mean: qualitative, and/or anecdotal, and/or quantitative information, and/or data that come from individuals or groups local to the fisheries managed under the UoAs' management system. The CAB seems to have made no attempt to assess the UoA against SA4.4.5 or to address SA4.4.4 in relation to relevant coastal States (other than the Seychelles). These omissions should be rectified.
The stakeholder's point on private agreements is moot as private agreements are not considered under Component 3.1.
3.1.2(c) – Participation The CAB scores the UoA at SG 80. SG 80 requires that: 'The consultation process provides opportunity for all interested and affected parties to be involved.' The CAB presents no evidence as to whether 'all interested and affected parties' in the coastal States concerned (other than the Seychelles) are provided with an opportunity to be involved, notably prior to or during negotiation by the coastal State of access arrangements with the EU or with private operators. In the absence of evidence in this regard, which is a requirement for SG 80, it follows that the UoA should be **FAILED** for this SI (because there is no SG 60).
The stakeholder's point on private agreements is moot as private agreements are not considered under Component 3.1.
PI 3.1.3 – Long term objectives
3.1.3(a) – Objectives The CAB scores the UoA at SG 100. SG 100 requires that: 'Clear long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are explicit within and required by management policy.'

The CAB presents (brief) evidence in relation to IOTC, EU Regulation 1380/2013 and the Seychelles Fisheries Act 2014. Since the CAB provides evidence regarding the Seychelles as a coastal State, it should also provide evidence in relation to each of the other coastal States in whose waters the Echebastar vessels fish (as listed in Tables 4–6 at pp.146–147). It does not, and this omission should be rectified.

GSA4.5 (FCR, p.479), which is guidance for the DAT, states that: 'The CAB should consider if decisions have been taken on the basis of the ecological health of the UoA and associated ecosystems, or for other reasons that are not compatible with achieving sustainability over the long term.' The CAB should consider this for each of the coastal States concerned, including in relation to any private agreements.

In the absence of these matters being addressed, the UoA would need to be **FAILED** for this SI.

The stakeholder's point on private agreements is moot as private agreements are not considered under Component 3.1. The Seychelles is a main jurisdiction within the overarching legal and management framework as it is the flag state for 3 Echebastar vessels.

PI 3.2.1 – Fishery-specific objectives

3.2.1(a) – Objectives

The CAB scores the UoA at 75, i.e. as 'partially' meeting SG 80. SG 60 and SG 80 read as follows:

> SG 60: Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery-specific management system.
>
> SG 80: Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.

The CAB states that: 'The fishery specific management system relates to the purse seine fishery for skipjack which is broader than the UoA.' This approach is consistent with GSA4.1 (FCR, p.471), which is guidance for the DAT.

The fishery-specific management system includes private agreements as made by Echebastar (and by other fishing companies targeting Skipjack using purse seine). The CAB presents the following statements in relation to these private agreements (pp.171–172):

> The approach to private agreements is within the context of IOTC and EU policy and it may be concluded that objectives are implicitly linked to the achievement of required P1 and P2 outcomes.
>
> […]
>
> A clear short-term objective of private agreements is to benefit the EU fleets through offering fishing opportunities to maximise the harvest according to the migratory paths of tuna. From the perspective of the coastal states, the objective is to maximise the benefit from harvesting a resource for which they have limited domestic fishing capacity.
>
> While the activities of the Spanish fleet engaged in private agreements are directly linked to EU policy, the overall lack of information on private agreements means that there are no explicit short and long-term objectives for this element of the fishery.

Several points arise in relation to these statements. **First**, it is not clear how the CAB can say that '[t]he approach to private agreements is within the context of IOTC and EU policy'. IOTC and EU policy may touch on a few aspects of private agreements, but it cannot reasonably be said that private agreements are 'within the context of' IOTC and EU policy.

Secondly, without examination of private agreements, it cannot reasonably be said that their objectives 'are implicitly linked to the achievement of required P1 and P2 outcomes'. **Thirdly**, the concession by the CAB that 'there are no explicit short and long-term objectives for this element of the fishery' (i.e. private agreements) should raise doubts about whether it is reasonable to conclude implicit linking to P1 and P2 outcomes. Overall, the treatment by the CAB of private agreements in relation to this SI is wholly inadequate.

In the absence of these points being adequately addressed, the UoA would need to be **FAILED** for this SI.

All countries with SFPAs and private agreements / direct vessel licensing relevant to the fishery are members of the IOTC either directly or indirectly (French OT). Note that scoring is not based on an element approach.

3.2.2(c) – Use of precautionary approach

The CAB scores the UoA at SG 80. SG 80 requires that: 'Decision-making processes use the precautionary approach and are based on best available information.' Only SG 80 is available for this SI.

SA4.8.2 (FCR, p.178), which is normative for the DAT, states that:

> The team shall interpret that at SG80 and SG100 the precautionary approach in this PI to mean that decision-making processes use caution when information is uncertain, unreliable or inadequate.

The CAB states that (p.175): 'The use of the precautionary approach is explicit within decision making process within the IOTC, the EU and Seychelles, and by implication private agreements'. (Emphasis added.) This statement raises several points. **First**, it cannot reasonably be said that, even if one accepts that use of the precautionary approach is explicit within IOTC, the EU and the Seychelles, its use is implicit within private agreements. Absolutely no evidence for that assertion is provided by the CAB. **Secondly**, each of the private agreements concerned will need to be examined for evidence of use of the precautionary approach.

In our view, this is very clearly a case whereby, by virtue of the prevalence of private agreements in this UoA and the absence of any evidence of their use of the precautionary approach, the UoA must be **FAILED** on this SI.

All the coastal / island states with private agreements or direct vessel licensing are members of IOTC or represented in IOTC (French OT). They follow the precautionary approach. The scoring of P3 PIs is not based on an elemental approach.

3.2.2(d) – Accountability and transparency of management system and decision-making process

The CAB scores the UoA at SG 60. SG 60 requires that: 'Some information on the fishery's performance and management action is generally available on request to stakeholders.'

SA4.8.5 (FCR, p.179), which is normative for the DAT, states that:

> At the SG60 level, at least a general summary of information on subsidies, allocation, compliance and fisheries management decisions should be available to stakeholders on request.

The CAB states that: 'Limited specific information is available on the fisheries conducted under private arrangements.' It is not clear what 'specific information', though 'limited', is available. Condition 6 helps to frame the problem. The CAB, at p.152, sets out text from an EJF paper, as follows:

A major gap that limits the effective oversight of vessels fishing under private agreements is the lack of requirements for details of these agreements to be reported to the EU flag State and the European Commission, or for key information to be made publicly available. The lack of public information on these agreements makes it extremely difficult to determine the number of EU vessels fishing under such agreements, where these vessels are fishing and for which species, in order to assess the impact on local fish stocks".

The CAB does not comment on this text and so the fact that it has set it out suggests that it acknowledges the problem as identified by EJF. In our view, in the light of the problem as described by EJF, the UoA cannot meet even SG 60 in that, to our knowledge, there is not even a general summary of information on fisheries management decisions as implemented through private agreements, and so the UoA must be **FAILED** on this SI.

The private agreements are included in a report annex. The scoring of P3 PIs is not based on an elemental approach.

3.2.2(e) – Approach to disputes

The CAB scores the UoA at SG 100. SG 100 requires that: 'The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.'

This SG has two elements, namely that the management system or fishery must *either* (a) act proactively to avoid legal disputes *or* (b) rapidly implement judicial decisions arising from legal challenges. There needs to be evidence of one or both of these for SG 100 to be met.

The CAB provides no evidence of the existence of any judicial decisions arising from legal challenges. Therefore, it is not possible to say that '(b)' is met. Equally, the CAB provides no meaningful evidence of proactive avoidance of legal disputes (see further below). Therefore, it is not possible to say that '(a)' is met.

The fact that, according to the CAB (p.176), (i) there is no evidence of disrespect being shown for the law, (ii) there are no reports of repeat violations and (iii) there is no evidence of legal challenges, is irrelevant to the test imposed by SG 100. And the Seychelles- and IOTC-specific evidence cited by the CAB is far from sufficient to meet the test applied by SG 100 regarding proactive avoidance by the system or fishery in general.

Therefore SG 100 is not met.

SG 80 requires that: 'The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.'

This SG has a pre-condition, namely that 'judicial decisions arising from legal challenges' exist. As noted above, the CAB provides no evidence in that regard.

Therefore SG 80 is not met.

SG 60 requires that: 'Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.'

The fishery includes that part of the UoA that is taking place with coastal State waters. No evidence is presented of any violations of coastal State laws and regulations. Without this, it is not possible to demonstrate that SG 60 is being met. Evidence from the coastal States needs to be gathered by the CAB to enable it to take a view on whether or not SG 60 is met. In the absence of this evidence, the UoA would need to be **FAILED**

The stakeholder argument is based on there being a pre-condition to meeting 80 (judicial decisions arising from legal challenges exist) and an interpretation of 60 (No evidence is presented of any violations of coastal State laws and regulations) would imply that the perfect fishery that scores 100 on every other PI would not be able to meet the MSC standard.

We do not agree with the stakeholder's interpretation. We quote from the recently recertified Maldives fishery report with which we consider that the stakeholder will be familiar. For Maldives "*The fact that no legal disputes have arisen provides sufficient evidence that the management system is acting proactively to avoid legal disputes*". For IOTC "*given the lack of disputes it may be argued that the system is proactive in dealing with potential disputes*" and "*No legal challenges have been made to IOTC*". On the basis of that evidence, the Maldives' auditors concluded that the fishery met SIe SG100.

PI 3.2.3 – Compliance and enforcement

3.2.3(a) – MCS implementation

The CAB scores the UoA at SG 100. SG 100 requires that: 'A comprehensive monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.'

The CAB states (p.177) that various MSC requirements 'are … explicit in the private fishing agreements'. However, for this purpose it seems to be repeating a reference earlier in the Second Report (p.30) about a finding by the auditors. However, the evidence of the 'explicit' MSC requirements needs to be provided by appending copies of, or at least relevant extracts from, the private agreements concerned.

In that respect, the CAB states that (p.152): 'Echebastar provided copies of the protocols for private fishing agreements with Eparses (TAFF 2017) and Madagascar (Echebastar 2015) and these are available to interested stakeholders.' Those agreements should have been analysed by the CAB specifically in response to SI 3.2.3(a). That has not been done.

Furthermore, we assume that there are private agreements other than just those with Eparses and Madagascar, in view of (a) the list of coastal States in whose waters the Echebastar vessels fish (see Tables 4–6 at pp.146–147) and (b) the statement that active SFPAs exist only in relation to Madagascar, Mauritius and Seychelles. That suggests there should be private agreements with, at least, Comoros, Jaun de Nova, Kenya, Mayotte, Mozambique and Tanzania. Those other agreements should, likewise, have been analysed by the CAB specifically in response to SI 3.2.3(a). That too has not been done.

In view of the lack of evidence provided for private agreements, the UoA cannot meet any of the SGs for this SI. In the absence of this evidence being provided, the UoA would need to be **FAILED**.

We should add that, even if the evidence we have called for were to be provided, SG4.9.2–4.9.3 (FCR, p.181), which is normative for the DAT, states that:

> SA4.9.2 The team's judgement on this PI shall be informed, to the extent possible, by independent and credible information from relevant compliance and enforcement agencies or individuals and/or stakeholders.
>
> SA4.9.3 The team shall, at SG100 for scoring issue (a), consider if the monitoring, control and surveillance systems are comprehensive in relation to their coverage, the independence of the systems and the internal checks and balances.

These requirements would need to be applied by the CAB. There is no evidence that the CAB has applied them so far in relation to this SI.

The main text covering fishing rights in the EEZs of the various coastal / island states has been substantially amended. All the coastal / island states with private agreements or direct vessel licensing are members of IOTC or represented in IOTC (French OT). The vessels themselves must follow the onerous regulations of their flag state. We consider that the scoring rationale provides the justification for the allocated score.

3.2.3(b) – Sanctions

The CAB scores the UoA at SG 80. SG 80 requires that: 'Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.'

SG 80 requires that there are sanctions to deal with non-compliance and that (a) they are consistently applied and (b) they are thought to provide effective deterrence.

The CAB cites evidence that sanctions exist under the SFPAs and under Seychelles national fisheries law. Regarding private agreements, it adds that (p.178): 'Infractions and sanctions are covered in the private agreements (e.g. Madagascar Article 20).' Apart from this reference to Article 20 in what we presume is the private agreement between Echebastar and Madagascar, no specific evidence is provided. This is inadequate. Private agreements are an important part of this UoA and their provisions on sanctions should be set out clearly to justify the CAB's statement.

Even if evidence shows that sanctions are established by the private agreements, there needs to be evidence that they are consistently applied *and* that they are thought to provide effective deterrence. Evidence for *both* of these requirements is not provided by the CAB, and therefore SG 80 cannot be met. In that regard, GSA4.9 (p.483), which is guidance for the DAT, states that:

> At SG80 and SG100 for scoring issue (b), in some fisheries management systems, or for particular types of fisheries, it may be difficult to demonstrate an ability to enforce relevant management measures, strategies and/or rules if violations are rare. However, an absence of violations (or absence of a record of sanctions and penalties for violations) does not necessarily indicate that compliance and enforcement are effective; it could mean that MCS is in fact ineffective and what is happening is an absence of detection.

If evidence were to be provided showing that sanctions are established by the private agreements, it is possible that SG 60 could be met.

The vessels are subject to the regulations of the flag states that incorporate the IOTC regulations and resolutions. Sanctions on illegal activity would be applied by the flag state. The situation is very clear – IUU fishing will be sanctioned by inclusion of an offending vessel on the IUU list. A number of other sanctions exist. The fisheries in the private agreements / direct vessel licenses are subject to the same approach and are not independent. Echebastar vessels are subject to 100 % observer coverage and strict reporting requirements. We consider that the scoring rationale provides the justification for the allocated score.

3.2.3(c) – Compliance

The CAB scores the UoA at SG 100. SG 100 requires that: 'There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.'

In our view, SG 100 is too high a score for this UoA. In view of the lack of transparency about private agreements and about the activities of vessels fishing under those agreements, there simply cannot be 'a high degree of confidence' as required by SG 100.

Only a score of SG 80 or lower, in view of the lower standard of confidence required by those SGs, can possibly be justified.

We should add that SG4.9.1–4.9.2 (FCR, p.181), which is normative for the DAT, states that:

> SA4.9.1 In scoring issue (c) the team should consider whether "fishers cooperate, where necessary, with management authorities in the collection of catch, discard and other information that is of importance to the effective management of the resources and the fishery" as one of the elements that should influence scoring.

SA4.9.2 The team's judgement on this PI shall be informed, to the extent possible, by independent and credible information from relevant compliance and enforcement agencies or individuals and/or stakeholders.

These requirements would need to be applied by the CAB. Regarding SA4.9.1, there is no evidence that the CAB has applied this requirement regarding private agreements. Regarding SA4.9.2, we note that the CAB refers to a stakeholder interview with Echebastar whereas SA4.9.2 refers to 'independent' information (albeit 'to the extent possible').

In our view, the nature of the private agreements bears no relation to compliance as the vessels must meet the requirements of the IOTC and their flag states. Nor, is it possible to consider issues on cooperation on an EEZ by EEZ basis. As noted in the rationale, in the past (2012) a single Spanish purse seiner was subject to the judicial system. At the moment, there is an unproved allegation that an Echebastar vessel fished illegally in the Maldives EEZ. No other transgressions or potential transgressions have been identified. If there have been any, then it is for the stakeholder to provide evidence. In the absence of such evidence we must assume that the stakeholder does not have the basis to contest the scoring of the SIc. We reviewed the Maldives report. While we find it difficult to understand the scoring rationale and why SIc SG100 was not met, we presume it is due to some fishers do not complete log books. This is not the case for Echebastar vessels. We consider that the scoring rationale provides the justification for the allocated score.

PI 3.2.4 – Monitoring and management performance evaluation

3.2.4(a) – Evaluation coverage

The CAB scores the UoA at SG 80. SG 80 requires that: 'There are mechanisms in place to evaluate key parts of the fishery-specific management system.'

In our view, one 'key' part of the fishery-specific management system is that part relating to fishing in the waters of coastal States under private agreements. This part is 'key' because private agreements apply to access by Echebastar vessels to several EEZs (Eparses and Madagascar, we are told – but also potentially to Comoros, Jaun de Nova, Kenya, Mayotte, Mozambique and Tanzania: see our response regarding SI 3.2.3(a)).

We do not consider that there are mechanisms in place to evaluate this part of the management system. Indeed, the CAB acknowledges this when it states (p.181) that: 'Mechanisms to evaluate the fishery management system and local stakeholder concerns for … private agreements are lacking.' Therefore SG 80 cannot be met and, instead, only SG 60 can be met.

Note previous comments on private agreements. While these are an important part of the overall fishery-management system as together they account for less than 10% of the total Echebastar catch; the key parts are related to the IOTC (and indirectly to the private agreements) and flag countries. Fishing vessels in the various EEZs must respond to exactly the same regulations. For the reasons stated we do not consider that the fishery meets SG100 SIa.

3.2.4(b) – Internal and/or external review

The CAB scores the UoA at SG 80. SG 80 requires that: 'The fishery-specific management system is subject to regular internal and occasional external review.'

One part of the fishery-specific management system is that relating to fishing in the waters of coastal States under private agreements. (Indeed, as noted above regarding SI 3.2.4(a), we consider this to be a key part of the system.) The CAB states (p.182) that: 'As yet, there is not a regular external review of private agreements.'

The CAB considers that IOTC Resolution 14/05, which apparently requires the list of all fishing vessels operating under private agreements to be submitted to IOTC, 'allows for an external review of the activity'. We disagree. At best, it provides a list of vessels.

In our view, the private agreements are not subject to 'regular internal and occasional external review' (cf. SG 80) or to even to 'occasional internal review' (cf. SG 60). Therefore, the UoA should be **FAILED** on this SI.
The annual renewal of licenses provides a basis for reviewing performance. The external review is the periodic revision of the agreements. We consider that the scoring rationale provides the justification for the allocated score.
GENERAL COMMENTS
In our opinion the quality of the Second Draft Report is sub-standard which makes it very time consuming and costly to be involved as a stakeholder. We recommend that this is something that is urgently addressed by MSC and ASI so that stakeholders are not consumed with pointing out unnecessary errors, contradictions, lack of justification/rational when awarding certain scores and in some cases blatant misrepresentations of the facts. We also feel that the CAB did not adequately consider the inputs provided by IPNLF during the "Desktop Review' stage of this assessment. If these issues were considered in an objective and considered fashion it is difficult to see how the CAB could honestly have come to some of the conclusions that are contained in this 'Second Draft Report'. We would also urge the MSC to reconsider some of the timeframes within which stakeholders are expected to provide inputs. There is almost an assumption that most stakeholders can "leave everything else" and exclusive focus on providing inputs on MSC assessments. In reality there are very few stakeholders who either have their own capacity to effectively engage with MSC processes or who have the financial means to hire an adequately qualified expert to provide meaningful input. A combination of condensed timelines for stakeholders to provide feedback and increased complexity in assessments will lead to the side-lining of many stakeholders and impact on the quality of fisheries assessments. If necessary a higher level of quality control needs to be applied by the MSC, ASI and/or peer reviewers so that stakeholders can focus on real issues and not be absorbed in pointing out elementary errors and misrepresentations of how a fishery actually operates.
We acknowledge shortcomings in the Second draft report. This report is the result of significant editing. We consider it a robust document that provides the evidence and rationales to support the scoring and recommendation while facilitating its review by stakeholder. We carefully considered all the stakeholder comments provided both in writing and at meetings and this resulted is a substantially different second report. The normal MSC approach is to respond to peer review comments. In our experience, team response to peer review often leads to substantial revision and editing. Subsequently, a 3rd version is released for stakeholder review. This should have been the case in this assessment, but MSC elected a different route. Given the content of the 3 (as opposed to the usual 2) peer reviews, it is clear that if the opportunity had presented itself, stakeholders would have received a different draft for review.
Following on the above, we would like to point to the following specific issues: **(1)** The UoA, and proposed UoC, applies to Skipjack only. Yet Skipjack is not the only species targeted by the Echebastar vessels: they also target Yellowfin and Bigeye. This is stated at just one point in the Second Report (p.54), as follows: Skipjack, the target (MSC P1) species under MSC assessment represents 36.7% of the landed catch, *and yellowfin and bigeye are targeted species* representing 54.8 and 8.3% of the landed tuna catch, but are not considered as P1 species in this assessment. [Emphasis added] It is important to note that the UoA comprises only 37% of the landed catch. This issue is not clearly emphasised throughout the report.

We consider that the report is clear on the breakdown of the total catch. We followed the MSC requirements for identifying the P1 and P2 species. This is the same approach adopted in the recently recertified Maldives pole and line fishery for skipjack where a significant part of the total catch is yellowfin.
(2) Although the UoA is for all purse seining activities for Skipjack, the Second Report distinguishes between 'FAD' and 'FSC' (free school) – both in Tables 7–11 and in the scoring of PIs. (And see also p.51.) Yet at no point in the Second Report is there a definition of a 'FAD' or a definition of 'FSC'. This is despite a statement at p.51 as follows: During the site visit the team discussions with the client, the head of the Seychelles observer program, AZTI scientists, the skipper of an Echebastar purse seine vessel, revealed more about the different methods of targeting purse seines. It was clarified to the team that there are multiple ways to distinguish between FAD and FSC sets, and that observers can easily differentiate between the two types of sets when classifying the set type on the observer data forms. Without definitions, it is impossible to know how the observers decide between what is a FAD set and what is a FSC set; and without knowing that, parts of the rest of the Second Report (including the distinction between FAD and FSC in the section on P2) are potentially meaningless. Definitions should be provided as a matter of urgency. It should also be noted that the same CAB used a definition of 5nm from a FAD to define a free school set when the same fishery was previously assessed against the MSC standard and failed when an objection against a successful certification determination was upheld. The CAB needs to provide clear justification why they decided to abandon this 5nm distinction from a FAD and chose to rely on clear definition at all to distinguish between the two school types.
The quoted statement adequately characterises the two set types. As PIs in the fishery are scored as the lowest of the individual scores for FSC and FAD, in effect this provides a "worst case scenario". With regards to the final paragraph, the previous assessment was completed by a different team; the name of the CAB is largely irrelevant. It is noted that the independent adjudicator did not take into account P2 issues when he upheld the objection. The point on 5 nm is moot.
(3) There is some confusion in the Second Report about whether the 'fishery' concerned (and we use that term advisedly) is an 'enhanced fishery' or not. This arises from the use of FADS: see p.14. We feel that there should be clarity on this and hence a clearer rationale for the CAB's use of the DAT.
The possibly enhanced nature of the FAD fishery has been clarified, specifically in relation to Components 2.4 and 2.5.
(4) The Second Report seems confused as to whether a FAD is a gear type or not, as shown in the following examples. At **p.51**, (a) it refers to FAD and FSC sets as 'two gears' and, in the very same paragraph, to each of FAD and FSC as a 'targeting method' and (b) it seems to rely on FAD and FSC as being 'gears' for the purpose of applying G7.4.7–G7.4.9. At **p.54**, it states that: 'The UoA and UoC in the current MSC assessment involve one gear type, the tuna purse seine deployed in two methods, FAD and FSC …'.
This has been redrafted to FAD set and FSC set types with the purse seine as the gear type.
(5) The Second Report refers to the number of capture vessels involved as being five. (See p.63: 'The Echebastar fleet of five purse seine vessels is currently working with only one supply vessel'.) Yet, according to Tables 1–4, this is not the case. Those tables show that, over the years 2012 to 2015, 9 different capture vessels have been involved, namely: Alakrana, Campolibre Alai, Demiku, Elai Alai, Erroxape, Euskadi Alai, Izaro, Jai Alai, and Xixili. Clarity is needed here.
The report has been revised to clarify that 5 vessels are fishing supported by a single supply vessel.
(6) Tables 1–4 at pp.52–53 of the Second Report set out tuna 'landings' by Echebastar seiners, by species, for each of 2012, 2013, 2014 and 2015. Table 6 at p.147 of the Second Report sets out 'catch' of skipjack by 'all Echebastar vessels' for each of 2014, 2015 and 2016. Therefore, figures for 2014 and 2015 can be compared, as follows:

	Skipjack (tonnes) 2014	Skipjack (tonnes) 2015
Tables 3–4 at p.53 ('landings')	13,903	15,263
Table 6 at p.147 ('catch')	21,583	27,812

Therefore, there is a significant discrepancy between the figures in the tables at p.53 and the figures in the table at p.147. This discrepancy needs to be explained.

The data have been corrected.

(7) The Second Report, at least for P2, places a great deal of weight on data gathered by observers. But no information is provided about the observer scheme, for example: what qualifications the observers need to have; what training they receive; what nationalities they are compared to the flag State of the vessel; and how they are paid. This information needs to be provided in order that stakeholders, including IPNLF, can form their own view of what credibility the observer scheme should have.

This report has been edited to provide a better description of the SFA observer programme (3.2.3).

(8) The percentages of observed sets for each of 2014, 2015 and 2016 are 29%, 53% and 34% respectively (see text and Table 6, at p.55). The UoA's bid for certification, regarding Principle 2, is based on data arising from these percentages. And yet Condition 1 (p.111) acknowledges that, for ETP species, (a) 'the data should represent at least at the 50% of observer sets' [sic] and (b) 'a minimum of five years should be used'. The observer data reveal a large by-catch of sharks, particularly Silky sharks. We consider that the content of Condition 1 means that any decision on the certification of this UoA must wait till observer coverage has risen to 50% and until there are 5 years of data at that level of coverage. Anything else does not allow the FCR's PIs on ETP species to be applied meaningfully.

We maintain our analysis in the report.[18] The observer data used are in excess of 20%. Condition 1 requires more years to better evaluate trends.

(9) Much of the assessment of the P2 PIs uses the data set out in Tables 10 and 11. These two tables contain data from observers for the years 2014, 2015 and 2016. Yet the percentages of observed sets for each of 2014, 2015 and 2016 are (only) 29%, 53% and 34% respectively (see text and Table 6, at p.55). Regarding Table 6, from which these percentage figures are derived, we note that data from the vessels Demiku and Izaro are missing for 2014 (cf. Table 3 at p.53), suggesting that the percentage figure for 2014 may be wrong.

In any event, these relatively low percentages raise doubts about the reliability of the data in Tables 10 and 11. The Second Report states (at p.55) that:

the IOTC has determined that the level of observer coverage or data available required to be able to accurately characterize the bycatch of the major bycatch species (particularly sharks and billfish) in Indian Ocean purse seine fisheries is 25% (Lennert-Cody, 2001; Sánchez, et al. 2007).

We take issue with whether, as stated, this is an 'IOTC' determination or, instead, a determination solely by the authors of the two papers cited. (And the same 25% figure is used elsewhere in the Second Report, including, amongst others, pp.93, 96 and 109.)

[18] Essentially, 20-25% observer coverage or data is considered adequate to characterize the catch in most fisheries, and the MSC CR states that at the SG80 level with regard to sharks, 20% observer coverage is adequate (GSA 2.4.5-2.4.7), and generally, for more normal species that 20% observer coverage provides diminishing returns in terms of the precision of the estimate of catch of a particular species.

In any event, we note that the most recent of those two papers is now 10 years old. In addition, we note that the Second Report states (at p.55) that 'larger sample size would likely be required to accurately estimate the bycatch of ETP species with substantially lower interaction rates, such as sea turtles'.
In response to the INPLF comment, we requested AZTI to review their observer data. Revised data are contained in the report.
(10) As noted above, the percentages of observed sets for each of 2014, 2015 and 2016 are 29%, 53% and 34% respectively. However, the Second Report (see text and Table 6, at p.55) makes no distinction between observed FAD sets and observed FSC sets. Indeed, it assumes that the percentage of observed sets is the same across both types of set. We consider that the percentage figures should distinguish between FAD sets and FSC sets. This will presumably require going back to the primary data, but we see no reason why that cannot be done.
The observer catch data are not summarized or presented by vessel, it is summarized for the fleet by set type, and then expanded to an estimated total observed catch by the percentage of observed sets.
(11) The Second Report refers at several points to observer coverage as being '100%' (pp.27, 54, 76, 87, 110, 127, 128 and 177, amongst others) or 'comprehensive' (p.11). Yet, as noted above, the percentages of observed sets for each of 2014, 2015 and 2016 are (only) 29%, 53% and 34% respectively. So, these former references are, in our view, misleading and should be amended. In particular, the following three references are highly misleading (emphasis added). At **p.76**, the Second Report states that: '… in the last several years, Echebastar has taken the lead in the Indian Ocean purse seine fisheries by moving to *100% observer coverage of all sets*, VMS data for all Echebastar fishing vessels is available through AZTI.' At **p.77**, the Second Report states that: 'As noted previously, while 100% of the vessels have observers, *and all sets are observed*, not all the observer data was available for this analysis, so the data has been expanded to represent the entire fishery.' At **p.87**, the Second Report states that: 'Increased onboard observer coverage (*100% of all effort*) introduced by Echebastar during 2014 is considered to be a level of observer coverage that is capable of detecting whether shark finning is occurring.'
Note the comment on observer coverage in the revised report. The report has been revised to clarify the difference between 100% observer coverage versus percentage of data available for analysis.
(12) The Second Report refers to 'expanded' data (see, amongst others, pp.54, 60, 61, 65, 66, 69, 77, 78, 82 and 109). At p.54, it states that: 'The total catch of all species by weight and number for non-tuna species was expanded using the ratio of observed sets to total sets for each year and gear type.' This assumes that the distribution of by-catch species (e.g. sharks, including Silky sharks) over time and distance is homogenous and hence that it is representative to 'expand' as has been done. We do not consider that the natural environment of the Indian Ocean is that simple. We consider that careful consideration should be given to whether or not it is representative to expand as has been done, before reliance is placed on 'expanded' data.

The expansion of limited observer coverage or available observer data to the full scale of a fishery is a standard procedure in fisheries science. Assuming that the observer data are representative of the fishery, then limited observer data can be expanded to estimate the total catch of any species by using either some measures of effort (the proportion of observed sets to the total number of sets), or some measure of catch of the target species, (the proportion of observed catch of tuna) to the total catch of tuna. While there are assumptions, we believe that the analysis allows for the reasonable estimation of the catch of individual species, including silky sharks.

(13) Regarding the data on number of **FAD sets** for **2016**: the **Desk Review** (Tables 7–9, pp.14–15) refers to 265 observed FAD sets, out of a total of 1390 FAD sets, i.e. 19.06% observed), whereas the **Second Report** (Tables 6–9, p.55–56) refers to 518 observed FAD sets, out of a total of 1390 FAD sets, i.e. 37.27% observed). This suggests an amount of updating on the data for observed sets for 2016 between the Desk Review and the Second Report, which is to be expected. A comparison across the Desk Review and Second Report (using the tables in their respective appendices) shows that, for FAD sets in 2016, as the percentage observer rate rises from 19.06% (in the Desk Review) to 37.27% (in the Second Report), the number and tonnage of observed by-catch of Silky sharks rises too. For example, the number of observed individuals caught rises from 1218 (at 19.06% coverage) to 2459 (at 37.27% coverage).

It is notable that this increase in the number of observed individuals is a very good match with the increase in the observer coverage. This can be illustrated as follows. If one takes 1218 observed sharks (i.e. the Desk Review figure) and divides by 19.06% (i.e. the Desk Review observation rate), the result is 63.9 observed sharks per percentage point. If one then multiplies 63.9 by 37.27 (i.e. the Second Report observation rate), the result is 2382 *predicted* sharks. That is only 77 less sharks than the Second Report figure for *observed* sharks (i.e. 2459). That suggests an almost perfect linear relationship between observation effort and number of Silky sharks observed. In view of the patchiness (heterogeneity) of the marine environment, we would not expect that relationship, and we would be grateful for the CAB's explanation of it.

As noted in the Second Report, additional observer data available were incorporated. The additional data also included some revisions to the data used in the CDR.

(14) Regarding the data on number of **FSC sets** for **2016**: the **Desk Review** (Tables 7–9, pp.14–15) refers to 59 observed FSC sets, out of a total of 310 FSC sets, i.e. 19.03% observed), whereas the **Second Report** (Tables 6–9, p.55–56) refers to 65 observed FSC sets, out of a total of 310 FSC sets, i.e. 20.97% observed). Again, this suggests an amount of updating on the data for observed sets for 2016 between the Desk Review and the Second Report – though only an increase of 6 FSC sets. However, a comparison across the Desk Review and Second Report (using the tables in their respective appendices) shows that, for FSC sets in 2016, as the percentage observer rate rises from 19.03% (in the Desk Review) to 20.97% (in the Second Report), the number and tonnage of observed by-catch of Silky sharks *decreases*. For example, the number of observed individuals caught decreases from 60 (at 19.03% coverage) to 18 (at 20.97% coverage). No explanation is given for this unexpected result, and so we would be grateful for an explanation.

Please see comment above

(15) SA3.1 (FCR, p.132), which is normative for the DAT, explains the distinction between 'primary' and 'secondary' species. In turn, GSA3.4.2 (FCR, p.428), which is guidance on the DAT, explains the designation of a species as 'main'. GSA3.4.2 makes clear that the CAB has considerable discretion of whether to designate a species as 'main' or 'minor'. Thus, the designated weight thresholds of 5% and 2% are not determinative:

In all cases teams may still designate species as main, even though it falls under the designated weight thresholds of 5% or 2%, as long as a plausible argument is provided as to why the species should warrant that consideration.

For example, a stock might be in such a poor state, that all impact by the UoA is important enough to consider, even in cases where the catch proportion is so low that it would normally be classified as a minor species (also see GSA3.4.2.2 below).

In the Second Report, the CAB has not used the discretion available to it under GSA3.4.2. Instead, it has simply used the percentages from Tables 10 and 11 to designate, according to the weight thresholds of 5% or 2%, whether a secondary species is main (in practice, none) or minor (in practice, all) (see p.61). We are of the view that, on the basis of the example above from GSA3.4.2, the CAB should review whether – for some of the secondary species currently regarded as 'minor' – the stock is in a sufficiently poor state that consideration should be given to whether the species should instead be regarded as 'main'.

In our view, that is particularly the case with Bull sharks. It is startling that a fleet of approximately 5 vessels can, in the course one year, catch the following numbers of Bull sharks (based on 'expanded' data – on which see our general comment (9) above). The figures below are taken from the tables in Appendix A1.2.

Year	FAD or FSC	No. of individuals
2014	FAD	686
	FSC	28
2015	FAD	835
	FSC	[not stated]
2016	FAD	[not stated]
	FSC	[not stated]

We consider that, with these numbers of individuals being taken as by-catch in the FAD part of the fishery, it is unacceptable, and indeed irresponsible, to regard Bull shark as a 'minor' secondary species and hence we consider that the CAB must use its discretion, available under GSA3.4.2, to designate Bull shark as a 'main' secondary species.

The assessment team has followed the MSC requirements for identifying & classifying the secondary species as main or minor. As noted in the report, no single secondary species approaches 1% of the catch for the FAD set type, and even less than 1% for the FSC set type.

With regard to bull sharks, the average estimated annual catch of bull sharks is 295 for the FAD set type and 9 for the FSC set types. Note that there are no weights given for the observed catches, as the animals are most likely manually released from the net, and not taken aboard. However, assuming an average bull shark weight, they represent less than 0.1% of the catch. There are no stock assessments, status determination, or management measures for bull sharks

(16) The Second Report states that 'based on the observer data summaries by year and set type as presented in Appendix 1.2, on average about 50% of all ETP species encountered by the FAD and FSC purse seine sets are released alive'. However, scrutiny of the tables at Appendix A1.2 reveals an almost complete absence of data on live releases: for each table, all there is a figure for 'Percentage [of sharks, rays and sea turtles] released live' but there are no data to support this figure. The Second Report, at p.54, states that this is 'a weighted average by number', but there is no explanation as to what that means. Before any reliance at all can be placed on the percentage figures for live releases, more data is needed to show how these percentage figures have been derived.

The raw observer data summary by year and set type provides the number of live releases for each species of shark, ray and sea turtle. This data are summarized by calculating the total number of sharks, rays and sea turtles captured and the total number released alive for each species, summing each column, then calculating the percentage of sharks, rays,

and sea turtles released alive year for each set type. That number is presented in the Appendix for each year and set type, and ranges from 52% to 68% for the FAD set type, and 20-100% for the FSC set type. We used a live release rate of about 50% to be precautionary.

(17) The Second Report states, in several places, that: 'Of the silky sharks that are released alive, about 40% survive (Poisson et al. 2011, Poisson et al. 2014, and Eddy et al. 2016).' However, it provides no information on the age of shark to which the 40% figure relates. We understand that a significant number of the Silky sharks caught are likely to be juveniles. We consider that before a 40% figure is applied universally to all Silky sharks that are released alive, the CAB should provide more information about how this figure varies across the age range of Silky sharks.

The assessment has aggregated all silky sharks, independent of size. However, the data in the Appendix provide some insight into silky shark bycatch by set type. A summary of CPUE (catch per set) and the average weight of an individual silky shark is:

	FAD		FSC	
	CPUE -	weight (kg)	CPUE-	weight (kg)
2014	3.2	10	0.5	15
2015	5.0	23	0.8	24
2016	4.7	21	0.7	55

The FAD set type catches smaller silky shark. However, data for both set types indicate a doubling in the average weight of individual silky sharks and a small increase in the CPUE in 2014-2016. The interaction rate is significantly higher (6-7 fold) in the FAD set as compared to the FSC set and the average weight of the silky shark in the FSC bycatch is two times the individual weight in the FAD set type.

We also refer to our inputs below which were submitted during the '**Desktop review**' stage of the assessment and which we feel the CAB did not adequately consider when producing the "**Second Draft Report**':

We feel that the following issues did not receive enough attention in the desktop review and needs to be evaluated. All these issues are P2 and P3 related and should lead to downward adjustments in the scores awarded under the different PIs.

We also have to stress that this list is by no means exhaustive and is based on quick review of the CAB's desktop review. Fuller comments and critique on scoring of PIs will be provided at the next opportunity when the draft report is released.

(18) dFADs and FAD management:

Since the mid-1990s, drifting Fish Aggregating Devices (dFADs), artificial floating objects designed to aggregate fish, have become an important mean by which purse seine fleets catch tropical tunas. Mass deployment of dFADs, as well as the massive use of GPS buoys to track dFADs and natural floating objects, has raised serious concerns for the state of tropical tuna stocks and ecosystem functioning.

In a recent study by Maufroy et al, (2017) tracks were combined from a large proportion of the French GPS buoys from the Indian and Atlantic oceans with data from observers aboard French and Spanish purse seiners and French logbook data to estimate the total number of dFADs and GPS buoys used within the main fishing grounds of these two oceans

over the period 2007–2013. In the Atlantic Ocean, the total number of dFADs increased from 1175 dFADs active in January 2007 to 8575 dFADs in August 2013. In the Indian Ocean, this number increased from 2250 dFADs in October 2007 to 10 300 dFADs in September 2013. In both oceans, at least a fourfold increase in the number of dFADs was observed over the 7-year study period.

Though the relative proportion of natural to artificial floating objects varied over space, with some areas such as the Mozambique Channel and areas adjacent to the mouths of the Niger and Congo rivers being characterized by a relatively high percentage of natural objects, in no region do dFADs represent <50% of the floating objects and the proportion of natural objects has dropped over time as dFAD deployments have increased. Globally, this increased dFAD use represents a major change to the pelagic ecosystem that needs to be closely followed in order to assess its impacts and avoid negative ecosystem consequences.

The following weaknesses on FAD management at IOTC should be considered by the assessment team and the relevant PI scores should be adjusted downwards:

- The impact of current FAD numbers on tuna populations and the broader ecosystem are poorly understood. In this context, the IOTC should apply the Precautionary Approach and, at a minimum, freeze the dFAD footprint until more is known. Adopting 'limits' that actually incentivise an increase in overall dFAD use are counterproductive.

- Mechanisms should be developed to take advantage of the valuable fishery information collected by dFADs that is currently not shared with fisheries managers or scientists. These data will provide clarity on dFAD numbers, benefit future stock assessments and other scientific endeavours, and aid in the development more effective FAD management measures. To accomplish this, dFAD data should be shared with relevant scientific bodies, secretariats, and research institutes, in line with confidentiality provisions of the RFMOs, not later than 6 months after they are collected.

- Better understand how FAD fishing and densities of dFADs in tropical areas impact the distribution and CPUEs of tropical tunas to higher latitude coastal fisheries.

- Stricter licensing requirements for the use of dFADs should be imposed and this should include the sharing of tracking information with fisheries managers and scientists, limits on numbers of dFADs in their EEZs of coastal states at a given time, rules on dFADs deployed outside their EEZ but drifting inside, and licensing schemes.

Mechanisms to track and monitor dFADs should be implemented on the high seas by the IOTC to complement measures in coastal state EEZs.

- In looking at the impacts of fishing on associated schools, all data must be analysed and a range of options be considered including capacity limits (i.e. numbers and types of buoys, limits of supply vessels and daily/weekly/monthly deployment limits), effort limits (number of sets), as well as combination of both.

- Supply vessels and dFADs are a key component of fishing capacity and, as such, must be considered in any fishing capacity measures. As FADs are meant to attract tuna, they are constantly in the act of "fishing" and the biomass under each buoy is constantly monitored by dFAD owners. This clearly enhances the ability and therefore the efficiency of purse seine vessels to catch tuna. Commitments to "freeze capacity" or "capacity limits" at the RFMOs should apply to dFADs and buoy numbers as well.

- Vessels should be accountable for all of the FADs they deploy, and should plan to recover them as part of their fishing strategy. This is consistent with the UN Fish Stock Agreement, which calls on States to, "minimize pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent species." When lost or stranded, dFAD owners should be liable for recovery and rehabilitation costs in case of damage to coastal habitats, such as reefs.

- Many FADs are still constructed of non-biodegradable materials, including plastic netting, and can be more than 100m in length. If non-biodegradable dFADs are not recovered, then they should be considered abandoned and this should be recorded as a violation of MARPOL Annex V, reported to the Flag State, and appropriate action should be taken minimize losses in the future.

(18) Fisheries Partnership Agreements and Private Agreements:

The fishing area for the UoA is the Indian Ocean. This comprises two distinct areas: international waters and the EEZs of the coastal and island nations. In reference to the latter, Echebastar vessels may fish in the EEZs of Comoros, Seychelles, Madagascar and Mauritius under the terms of Sustainable Fishery Partnership Agreements signed with the European Union. These arrangements and the incentives

As part of the reform of the Common Fisheries Policy (CFP), strict standards were established for activities under official agreements with coastal States for access to their fisheries resources – so-called Sustainable Fisheries Partnership Agreements (SFPAs). These agreements must be of mutual benefit to both parties and only established where it is shown that there is a surplus of the resource that can be sustainably caught. The strict standards established for SFPAs do not currently extend to vessels fishing under private agreements established directly between EU companies and coastal States, nor to chartering agreements under which EU-flagged vessels fish a share of the resources of a coastal State's EEZ in collaboration with local companies. Even though vessels fishing under these agreements fly the flags of EU member states – and their catches have the same EU market access as catches under SFPAs – there are no common procedures to ensure that activities under these agreements comply with EU laws and adhere to CFP standards.

A major gap that limits the effective oversight of vessels fishing under private agreements is the lack of requirements for details of these agreements to be reported to the EU flag State and the European Commission, or for key information to be made publicly available. The lack of public information on these agreements makes it extremely difficult to determine the number of EU vessels fishing under such agreements, where these vessels are fishing and for which species, in order to assess the impact on local fish stocks (EJF, Oceana, Pew & WWF, 2016).

For instance, 14 EU-flagged purse seine vessels provided with fishing authorisations in Tanzanian in 2013 under private agreements with ANABAC and OPAGAC (NFDS et al., 2014). Le Manach et al. (2012) reported that ANABAC vessels have in the past had private agreements with Madagascar and it needs to be established whether such agreements are still in place and what the implications of these are in terms of transparency, incentives to fish sustainably, perverse incentives etc.

FPAs and Private Agreements and the implications on effective management of the fishery needs to be included in the P3 analysis and scoring of PIs.

(18) Silky sharks:

The status of silky sharks in the Indian Ocean is uncertain. In the eastern and western Indian Ocean, along with globally, silky sharks are considered Near Threatened by the International Union for the Conservation of Nature (IUCN) (Bonfil et al. 2009). No qualitative assessment has been conducted in the Indian Ocean, due to a lack of information. The information that does exist indicates that significant declines in abundance have occurred over time, and silky shark is considered one of the most vulnerable shark species in the Indian Ocean (IOTC 2012) (IOTC 2013g). They are the main shark species (79% of all shark bycatch) in Indian Ocean purse seine fisheries (Amande et al. 2008). Monterey Aquarium's Seafood Watch programme says "the worst scoring species in the associated (Indian Ocean) purse seine fishery is the silky shark, due to the potentially low population size and large negative impacts from fishing.

Silky sharks are caught in a number of fisheries in the Indian Ocean, including purse seine fisheries. A qualitative assessment has not been conducted in the Indian Ocean, and there is substantial uncertainty surrounding total catch estimates. Current fishing mortality rates are unknown but it is generally thought that maintaining or increasing fishing effort will likely cause the biomass to decline (IOTC 2013). There is some evidence that entanglement mortality of silky sharks in drifting fish aggregating devices (DFADs) may be

substantial: 5 to 10 times the current bycatch estimates of silky sharks in purse seine fisheries operating in the Indian Ocean (Filmalter et al. 2013). The incidental capture of ecologically important species by FADs has the potential for negative ecological impacts, and management is not designed to avoid these impacts.

Although other gears have higher bycatch rates of silky sharks (e.g., gillnet and longline), MBA Seafood Watch awarded a "high" concern score because of the uncertainty surrounding fishing mortality rates, the lack of effective management measures in place, and because it is believed current levels of fishing are too high to maintain the population at a healthy size.

A recent study by Poisson et al. (2014) has also shown that the overall mortality rate of silky shark individuals brailed on board purse seiners operating in the Indian Ocean was 85%. Scientists on-board French purse seine vessels recorded the number and condition of silky sharks caught during three fishing cruises in the Indian Ocean. A sample of 31 individuals that showed signs of life were tagged with satellite tags to investigate their post-release mortality. The majority of individuals (95%) were brought on-board using the brailer. Combining the proportion of sharks that were dead (72%) and the mortality rate of those released (48%), the overall mortality rate of brailed individuals was 85%. Few individuals (5%) were not brailed as they were entangled and landed during the hauling process. The survival rate of these individuals was high, with an overall mortality rate of meshed individuals of 18%. The combination of these two categories led to an overall mortality rate of 81%. This high value reflects the harsh conditions encountered by sharks during the purse seine fishing process (Poisson, 2014)

(18) Large rays:

Several species of large rays (e.g., devil ray) are incidentally captured in the Indian Ocean purse seine fisheries in the Indian Ocean (Delgado de Molina et al. 2005) (Hall and Roman 2013). There is no information on their fishing mortality rates and these species have a high vulnerability to fishing.

(18) Ecosystem-based fisheries management:

Purse seine fisheries in the Indian Ocean catch several ecologically important groups including other tunas and sharks. In particular, sharks are considered top predators in many ecosystems and play a critical role in how these ecosystems are structured and function (Piraino et al. 2002) (Stevens et al. 2000). The loss of these predators can cause many changes, such as to prey abundances, which can lead to a cascade of other affects (Myers et al. 2007) (Duffy 2003) (Ferreira et al. 2010) (Schindler et al. 2002) and behavioural changes (Heithaus et al. 2007).

The use of FADs in the Indian Ocean could impact the surrounding ecosystems. Smaller tuna, specifically bigeye and yellowfin, are often associated with FADs and this could lead to growth and recruitment overfishing (Freon and Dagorn 2000). In addition, behavioural changes in tunas could be associated with the introduction of FADs into the Pacific region. These include increases in the biomass of tunas under FADs, reduced free-school abundance, changes in school movement patterns and structure, and differences between the age and size of free and FAD associated schools (Fonteneau 1991) (Menard et al. 2000a) (Menard et al. 2000b) (Josse et al. 1999) (Josse et al. 2000). The negative long-term impacts of FAD fishing are difficult to evaluate due to insufficient qualitative data (Fonteneau et al. 2000), so additional research should be undertaken to determine the potential effects of FADs on the ecosystem, including monitoring the number of FADs being used (Dagorn et al. 2012). Recently, the Indian Ocean Tuna Commission (IOTC) required individual countries to provide a management plan for FADs to be submitted to the Commission in 2013. Within this plan, countries must identify designs and deployment options that will reduce the incidental capture of sharks, marine turtles, or other bycatch species (IOTC 2013l).

There is a clear potential for negative ecological impacts from FADs, and management is not designed to avoid these impacts.

(18) Ecosystem impacts of beached FADs and associated ghost fishing:

One negative environmental impact of dFADs is they have the potential to wash ashore and become grounded or beached, potentially causing damage to marine habitats. Other than anecdotal reports (e.g. Stelfox et al., 2015), this issue has received very little research attention to date. On the occurrence of observed dFAD beaching events, Balderson and Martin (2015) present a detailed investigation into the location, characteristics and source of beached dFADs in Seychelles. They show categorically that dFADs used by fleets in the region are washing ashore, and that coral reefs are the most impacted habitat, with dFAD sub-surface structure becoming entangled on reef structure. However, their study did not attempt to quantify the damage caused to habitat during entanglement. From a different perspective, and using a large dataset of GPS buoy positions, Maufroy et al. (2015) estimated that almost 10% of all dFADs deployed by French vessels in the Indian and Atlantic Oceans ultimately became beached. In the Atlantic, dFAD beaching events were concentrated along the coastline of the Gulf of Guinea, adjacent to the main purse seine fishing grounds, although some travelled much further and stranded on the Brazilian coastline. In the Indian Ocean, beaching events occurred more widely, with most events observed in Somalia, the Seychelles, the Maldives, and Sri Lanka. Beaching events were also observed in the British Indian Ocean Territory (BIOT) marine protected area.

The lack of research on this topic means that the problem of beaching dFADs is not well defined, with the risk of dFADs beaching events being mostly assumed and the extent and severity of beaching impacts uncertain.

Balderson & Martin 2015 and Maufroy et al. 2015 ascertain that DFADs might result in some ghost fishing and that it is therefore essential to assess the magnitude of overall mortality of turtles through entangling in DFADs at sea or beached [from Rees et al., 2016. Research priorities for sea turtles: a review].

There are reports of Echebastar satellite trackers that are usually deployed on DFADs being found on a beach in South Africa (http://southcoastherald.co.za/73075/fishing-tracker-discovered-off-shelly-beach) and there are numerous other reports of DFADs drifting onto sensitive reef ecosystems and causing habitat damage.

This issue needs to be considered within the assessment.

(18) References:

NFDS, POSEIDON, COFREPECHE and MRAG (2014). Ex ante evaluation of a possible future fisheries partnership agreement and protocol between the European Union and the United Republic of Tanzania. Framework contract MARE/2011/01 – Lot 3, specific contract n° 7. Brussels, 108 pp.

Le Manach, F., 2012. Valuation of Fisheries Resources in Madagascar: Wealth Accounting and Ecosystem Services Valuation (WAVES) Global Partnership. Fisheries Technical Study, Report Prepared for the World Bank. 14 April.

European vessels fishing under the radar: The need to regulate private and chartering agreements for access to external waters, November 2016, EJF, Oceana, Pew & WWF.

Rees et al, 2016. Are we working towards global research priorities for management and conservation of sea turtles? ENDANGERED SPECIES RESEARCH Vol. 31: 337–382, 2016.

François Poisson, John-David Filmalter, Anne-Lise Vernet, Dagorn Laurent, 2014. Mortality rate of silky sharks caught in the tropical tuna purse seine fishery in the Indian Ocean. Canadian Journal of Fisheries and Aquatic Sciences, 10.1139/cjfas-2013-056

We have again reviewed the comments and we consider that the substantive evidence provided by the stakeholder has been fully considered in the report. We would have appreciated a meeting with the stakeholder during the site visit but appreciate that was not possible. We note also that the audit is made on the basis of evidence and not opinions.

Chain of custody

The Second Report deals with traceability at pp.18–21. We would be grateful if the CAB would answer the following questions: **(1)** Is *all* catch 'landed' from the capture vessels before it is transferred to containers vessels or reefers (if it is not going to local processors)? Hence is *all* catch inspected and sampled by SFA officers (to verify the catch breakdown by species)? We ask this question because, at p.20, it is stated that: significant quantities (mainly skipjack) may be transhipped directly from Pesqueras Echebastar purse seiners to containers or reefers vessels for onward transport to processors at other locations in the Indian Ocean (e.g. Mauritius) and Africa. **(2)** Is catch that is transferred to a container vessel or reefer accurately sorted and weighed *prior* to that transfer? We ask this question because, from the description provided, it seems to us that accurate sorting and weighing is carried out (only) 'at the point of catch delivery'/ 'upon delivery to processors or buyers'. **(3)** What measures are in place to ensure that, during transfer to a container vessel or reefer, or after transfer but onboard the vessel concerned, there will be no mixing of MSC-certified with non-certified catch (e.g. mixing of MSC-certified Skipjack with non-certified Skipjack from other capture vessels)? **(4)** We note that: 'Catches are sorted by species during final unloading of transshipped containers or reefer vessels, and reporting of catch quantities is based on final weights for each species from unloading.' Where does the 'final unloading' take place, who carries out the sorting and weighing at that point and who ensures that no mixing of MSC-certified with non-certified catch will take place?
The section on traceability has been revised.

12.5. Shark Project

Note: to facilitate review, the format of the comments and responses have been modified from the Shark Project presentation that followed the MSC format

Executive Summary
p12 Draft determination
Based on the available data and the mentioned concerns this fishery should not be certified especially as it would be the first fishery using FAD associated purse seine fishing for tropical tuna and with regard to use of the pilot process with expedited timelines and limited time for stakeholder input on this second report which was sadly published right in the middle of summer vacation time in most European countries and thus did not allow for sufficient time for review and commenting;
MSC invited Echebastar to participate in the simplification pilot.
Furthermore, our request for a timeline extension was declined by the CAB and the requested additional observer data only provided today on September 11th – 1 day before the expiry of the review time – despite the promise to deliver those data by Friday last week.
MSC set the time line for the simplification pilot. The CAB follows MSC procedures.
Based on the review of principle 2 PIs and provided data the scoring of 83.0 is not justified for Principle 2 scoring and the proposed conditions for P2 are neither sufficient nor stringent enough to ensure that this fishery will not have an accumulated negative impact on the affected ETP species, mainly sharks and turtles and the overall ecosystem
We have reviewed the scoring of all the PIs in P2 and some adjustments have been made. We conclude that the fishery achieves a score of 80.7 for P2.
Summary of Conditions
p16
Based on the review of principle 2 PIs and provided data the scoring of 83.0 is not justified for Principle 2 scoring and the proposed conditions for P2 are neither sufficient nor stringent enough to ensure that this fishery will not have an accumulated negative impact on the affected ETP species, mainly sharks and turtles and the overall ecosystem
Please refer to the comment above
Condition 1
The fishery should provide more than 3 years of observer data and at least data from 50% of the observed sets. This condition is insufficient as 5 years of bycatch data from observed sets should be available at the time of certification rather than used as a condition. Especially in light of the inconsistency of the to date available data which show different bycatch distribution and patterns for the different years, the different vessels and an extreme dependency of bycatch rates on the number of observed sets, the currently available data are not suitable for assessing the fishery's cumulated impact on the stocks of affected ETP species, being mainly Carcharhinus falciformis, Carcharhinus longimanus and turtles

We agree that more observer data should be available, both in % coverage and the length of the time series. A condition has been drafted to respond to the latter point. Our scoring rationales using the available data indicate that the fishery achieves a score of 80.7 for P2.
Condition 2
Since this would be the first fishery ever to become certified using FADs this data is essential to have prior to awarding certification. Therefore, the fishery should be remaining in the FIP program and thereby collect this data which can once available then be used for assessment and later certification! This is simply a premature entry of a fishery into the certification
Our analysis of the existing evidence indicates that the fishery meets the MSC sustainability standard. We identify a number of issues that fall short and that has led to Conditions to certification.
Recommendations
p17
The proposed recommendation is highly welcome and indeed provide a much better data basis to evaluate the impact of the fishery on turtles, which is not sufficiently possible based on the data provided so far. However, we would consider this data to be requested rather as a mandatory condition then a non-binding recommendation.
Conditions are applied when a PI does not achieve 80 but scores more than 60. If a PI meets SG80, auditors may make a recommendation to improve the situation. While recommendations are non-binding on the client, the annual surveillance report does review them..
Traceability within the Fishery
p18
As the fishing vessel do not use AIS on a regular basis it can't be verified whether all transhipment really only takes place in Port Victoria. As demonstrated in Appendix 1 below the little AIS* data available show that the vessel stops at Port Said where transhipment might also take place. In general, however the unavailability of AIS coverage – not even for the European vessels, suggests that the fishery is trying to hide certain activities since the vessels obviously switch off their AIS. While there is no proof for what the vessels actually do or don't do this behaviour does not confirm any trust in a clear chain of custody or traceability within the fishery. *According to "Regulations for carriage of AIS". Imo.org. Retrieved 16 February 2015 each voyaging vessel of more than 300 GT is required to have AIS since 2004.
The traceability section has been redrafted.
There is no proof provided for the electronic logs and obviously no data from these which could support that log data correlates to observer sets and also document the discards
Electronic logs address catches of tuna by species, not all bycatch by species. Observer coverage addresses actual catch species and amount, and discarding of unwanted catch by species and amount.

Performance Indicator Score and Rationale
p27
Based on the nonexistence of the data from 50% of observed sets as announced in the PDCR the team should have not been satisfied by the eventually provided lower percentage of only 35%. If this coverage is not available for at least 3 years no condition should be applied but postponement of certification until these are available. Otherwise the team can't assess the true impact of this fishery and especially not the accumulated impact of the fishery on ETP species
However, we have scored the fishery against the data available and conclude that the fishery meets the MSC standard. The reasons for more tabulated data not being available are covered in the report. The % of data required to support analysis of bycatch is also considered in the report.
p28
Also in the lack of sufficient data of the timing and location of interaction of FADs with coral reefs there should not just be a condition but a minimum amount of data available prior to certification as the risk is very high that these data might demonstrate a much higher negative impact as compatible with certification. Therefore, data availability should be a precondition prior to certification as experience has shown (*see Sea Choice report of September 11th 2017 at www.seachoice.org/whats-behind-thelabel/*) that fisheries otherwise have little or no incentive to resolve the conditions during certification and thereby improve their environmental impact
The habitat PIs have been rescored and they do not achieve a score of 80. This rescoring does not reduce the score of Principle 2 below 80. Conditions have been applied to each Component 2.4 PI.
PI Scoring Introduction
p51
The team describes that observers can easily differentiate between FCS and FAD sets but does not give any criteria based on which this differentiation is actually performed. In the PCDR on page 13 the definition given for FSC was not associated with anything and specifically further than several nautical miles from FADs… In the second report no description of FSC and FAD sets is given for this fishery any longer. Therefore, we would like to know whether the initial definition is still applied?
The stakeholder is referring to the PCDR of the failed Echebastar assessment. The new assessment considers a fishery that comprises two elements – FAD and FSC – with the score allocated to each PI reflecting the lower score of the two. The report's revised text clarifies how observers make a distinction between the two set types.
Purse seine fishery landed tuna catch 2012 - 2015
p52 ff
Landed Tuna Catch in tons 2012 39,538 2013 43,864

2014	33,602
2015	34,274
2016	not provided

List shows that the biggest vessel of the fleet Alakrana also consistently landed the biggest catches of the fleet making up almost 1/3 of the total catch.

Landings show on average a catch of 54.8% of yellowfin and 8.3% of bigeye tuna which are not part of the UoA but targeted, actually making up the majority of the tuna catch but are not considered under P1.

This tuna is retained, landed and sold and actually achieves a much higher price at the market than the UoA itself and therefore require harvest control rules and active stock management just as required in P1

Echebastar targets several species of tuna. Echebastar is seeking certification for skipjack tuna (P1). Yellowfin and bigeye are considered main primary species (P2). In common with other certified tuna fisheries (e.g. pole and line Maldives skipjack where the certificate for yellowfin was suspended and the species is now considered under P2) we follow the MSC FCR.

Observed catch 20142016

p54 f

Table 6 of the allocation of observed sets (old data as in PCDR) shows that while the overall numbers of observed sets comply with the numbers cited by the CAB the observed sets differ quite considerably between the vessels. The 2 Spanish vessels with the highest overall catch have the lowest observer coverage in 2016 and thus even less than average coverage, while the Seychelles vessels had generally higher coverage. Therefore, the use of an average is not really justified especially since Alakrana also always had the highest catch rates during the last years and thus is clearly showing an underrepresented coverage with relation to the extent of catch!

There is not a PCDR.

While in 2014 still 30% (Table 8) of all sets were made by FSC it is only 18% of all sets in 2016 which are made as FSC sets according to the report and thereby highlight that the fleet almost completely relies and probably intends to further increase its proportion of FAD sets thereby making it even more important that the full impact of FADs and the associated bycatch as a cumulative impact on the ecosystem is considered prior to certifying this fishery. Otherwise the number of FAD and FSC sets is the same as stated in the PCDR in table 9

The team claims that the bycatch characteristics have changed due to the use of non-entangling sets for the last 3 years, however there is no proof provided that the bycatch proportion has actually improved

Again, if not 100% of observer data is available yet why then not wait till these data have been decoded?

Also, the claim that the bycatch data from observed sets includes number of animals and their weight is not accurate as the provided raw data actually show that a large proportion of the observed sets for Izaro does not include any weight data for the bycatch and lists the weight only as “NA”

While Table 6 still shows the same data of all sets as had been presented in the PCDR on page 15, table 7 now shows the new numbers for 2016 with a higher number of observed sets of 583 versus 324 in the PCDR. This is very confusing and shows that the team has rushed to finalise the report and thereby missed some of the required updates of tables for 2016. While Table 6 still shows the same data of all sets as had been presented in the PCDR on page 15, table 7 now shows the new numbers for 2016 with a higher number of observed sets of 583 versus 324 in the PCDR. This is very confusing and shows that the team has rushed to finalise the report and thereby missed some of the required updates of tables for 2016. While Table 6 still shows the same data of all sets as had been presented in the PCDR on page 15, table 7 now shows the new numbers for 2016 with a higher number of observed sets of 583 versus 324 in the PCDR. This is very confusing and shows that the team has rushed to finalise the report and thereby missed some of the required updates of tables for 2016. While Table 6 still shows the same data of all sets as had been presented in the PCDR on page 15, table 7 now shows the new numbers for 2016 with a higher number of observed sets of 583 versus 324 in the PCDR. This is very confusing and shows that the team has rushed to finalise the report and thereby missed some of the required updates of tables for 2016.
If the stakeholder is referring to the CDR report, that report was written based on information provided by the client through its consultant, AZTI. As noted in both the CDR and the Second Report, all Echebastar purse seiners have had 100% observer coverage since 2014. The issue with the observer data is the transcription and verification of data collected by the observers. There is not a PCDR. The Second Report provides specific data on the reduction of bycatch on a per set basis that can only reasonably be attributed to the use of non-entangling FADs. See table on PI2.3.2 SIc.
Average Bycatch data table 10
p57
The use of average data is generally not suitable when the quantity of total catch and the overall bycatch are so different over the years, showing a constant increase from 2014 to 2016 and overall observed set were less than 50% (except for 2015)
The average annual catch by species reported are based on the sum of the expanded observed catch by species each year divided by 3 years. This is the only way to handle such data. Annual differences in bycatch could be based on many factors, including natural variability, fishing conditions, market demand for particular tuna species, etc. Observer coverage is 100%. The data used in the Second Report were revised data and included the observer data available at the time, which was more than the data used in the initial CDR report. A 5% difference between the estimated silky shark take between the two analyses is understandable, as the data were expanded and revised. Other differences in the tables are due to revisions and expansions in the data available. The assessment team has used the data provided by the client, AZTI their technical/scientific consultants, and the Seychelles Fishing Authority Observer Programme.
Nevertheless, the average tables show how the increased percentage of observed sets in 2016 already increased the number of bycatch to 4406.8 silky sharks or 101.8 t compared to the original data based on the lower number of observed sets in the PCDR table 10 with 2049.8 silky sharks or 97 tons! While the increase in tons is about 5% the increase in individuals has more than doubled as obviously a higher number of juvenile animals was included in the additional sets. A similar picture is also given for Carcharhinus longimanus with 101.4 animals versus 55.3 before!

The available data from observed sets are thus not predictive for the complete impact of the fishery on the ecosystems and more data is required to fully assess this impact not only for marine turtles but all ETP species!

When considering that table 10 in the old report included the average form all sets while table 10 now is only the average of the FAD sets this also demonstrates quite dramatically that it is the increasing number of FAD sets and the majority of the skipjack (13.8 tons) being caught by FADs with only 551 tons by FSC sets- and this causes the dramatic increase in bycatch mostly in Carcharhinus falciformis and Carcharhinus longimanus, but also in mantas, turtles and other ETPs

A recommendation and a condition relate to observer data.

ETP Species

p62

While we highly appreciate that the team has now finally recognised the 2 CITES II listed shark species, being most affected by the purse seiners as ETP species following the stakeholder recommendations during site visits and comments to the PCDR we are also largely disappointed to see that this different assignment has not made any other change in the consideration of the impact of the fishery on these species. Nowhere in the report is any indication of using a precautionary approach for these. Considering that no stock assessments are available for either of the two shark species and that no information of the cumulative impact of this fishery together with other fisheries in the Indian Ocean on these species is available, this is very worrying indeed. While Carcharhinus falciformis is rated as near threatened by the IUCN for the Indian Ocean they are already classified as vulnerable for the pacific and Carcharhinus lonigmanus is vulnerable at a global status showing the high risk of these species to be depleted further. Nevertheless the CAB calculates the percentage of these species based on the total catch and considers a percentage of 0.4% respectively 0.01% to be minimal and not requiring any further conditions! This is hard to believe when knowing that the CAB has access to the raw data, which clearly state several worrying facts even clearer – as I only got the raw data for 2016 these are the only ones I can relate to, but there is a high probability that the other 2 years look similarly.

Based on the following aspects appropriate conditions are required to lower the amount of bycatch taken by the FAD associated sets

- The level of bycatch varies significantly between the different vessels and is not only related to the number of sets or the total catch quantity
- Alakrana has the highest number of Carcharhinus falcifomis as bycatch (more than 700 animals throughout all FAD sets but also the lowest number of animals released alive
- Izaro has the second highest number of more than 600 animals and while providing insufficient weight data for the animals caught the proportion of those released alive is almost 80%
- Elai Alai catches over 400 animals but releases almost 95% of these alive
- For all vessel alike applies that some sets and usually a sequence of sets results in unusually high bycatch while others are significantly better and also the percentage of sets with animals released alive rather than dead varies greatly
- Alakrana catches mostly 20 to 25 kg animals, but many are less than 15 kg or even 10 kg and only very few have more than 50 kg…
- Alakrana sets no. 5175, 5176, 5181, 5195, 5196, 5203, 5204, 5206, 5207, 5327 show higher numbers of sharks with more or equal to 20 per set than all the other sets
- Elai Alai reports having caught 1 Carcharhinus falciformis weighing 419 kg!

- Euskadi catches comparatively lower numbers but has a very low number of animals released alive especially when considering that this is a new vessel equipped with double conveyor belt. In one single set 40 sharks of less than 10 kg each were caught indicating fishing in or close to shark nurseries and general having higher proportions of sharks of less than 20 kg
- Izaro even caught 75 sharks in a single set and does not provide kg weights for the bycatch over a wide range of sets at all
- Jai Alai generally releases about 73 % of all sharks alive, however there appears to be series with either all sharks alive and then again, all sharks dead. It also claims having caught 15

Carcharhinus falciformis with 115 kg each and having them released alive

So, in general much more analysis of individual set and the bycatch pattern is required before being able to properly assess the impact of the fishery

The list of ETP species has been revised. Oceanic whitetip sharks have been reclassified as minor secondary species and shortfin mako sharks have been reclassified from minor secondary to ETP species. We are unsure to which "raw data" the stakeholder refers.

PI2.3.1 SIa is not applicable; SIb has now been scored and we conclude that it meets SG80.

The status or classification of shark species in other oceans is not relevant to their status in the Indian Ocean.

There are no set limits on the catch of silky shark in the Indian Ocean. We estimate that the annual bycatch of silky sharks by the UoA is about 0.01% of the total Indian Ocean annual catch.

Survival rates of ETP species in general and Carcharhinus falciformis in specific

p62

The statement that 50% of all caught ETP species are released alive is not appropriate as demonstrated from the raw data of the observed sets in 2016

- The number of animals released alive differs greatly between the different vessels of the fleet and is actually lowest with less than 30% for the biggest vessel with the highest overall catch, the Alakrana! Therefore, the stated average should not be used but individual bycatch and release rates of the individual vessels need to be listed and compared. This would be a minimum condition to have to compare on board survival rates between the vessels and to evaluate why this is much higher e.g. for the Elai Alai. Whether the listed data are true or only a result of different observer ratings has been beyond the possibility of my review, but it should have been noticed also by the team that the survival rates of Carcharhinus falciformis on board is substantially higher for this vessel than for the Alakrana of the Euskadi. Identifying the reasons for this difference and if based on different vessel set up or training of the crew or available handling gear than this should be defined as "best practice" for all vessels and implemented on all as a condition including the monitoring of reduced deaths as a cause of this "best practice".

Out of the released animals' survival rates reported in the literature for Carcharhinus falciformis are much lower than the 40% mentioned on page 62. The CAB was made aware of this by stakeholders and had committed to correct these figures, but obviously has so far not done so consistently. Actual survival rates can be estimated to range around 10%

To minimize shark interactions, Echebastar exclusively uses non-entangling FADs and follows "best practices" when handling sharks that are captured.

The proportion of 50% of the ETP species released alive comes from the average shown in the summary catch tables in the Appendix. The actual number varies by species and by year. Literature review indicates that the survival rate of released silky sharks is about 40%. This implies that the overall survival of the species captured in the Echebastar fishery is about 20%. Other stakeholders point out that some researchers have reported 10% survival of sharks captured in a purse seine. Our scoring rationale indicates a survival rate for silky sharks of 10% -20%.

PI 2.1.3 b Information adequacy

p77

The correlation between extrapolated catch data from observed sets and recorded catch landings of tuna do actually not correlate as well for all years as proclaimed by the CAB

Observed sets in tons of tuna (SKJ, YFT, BET) extrapolated to total catch of these tuna based on 34% observed sets for 2016

2014	16,363
2015	26,678
2016	34,870

Following review ("The tuna catches estimated in the expanded observer data agree well with the landed tuna catches both in relative proportions and in amount") we maintain our finding.

PI 2.2.2 a

p85

The referenced on board procedures to release charismatic large specimens of bycatch at the earliest possible point from the brailer or vessel obviously fall short in most cases and depending on the actual vessel result in quite different numbers of animals released alive and also the sequence of sets and their survivals clearly demonstrates that there are no procedures in place but rather if at all individual approaches of the some vessels and strongly depending on the effort invested by the individual crews and/or observers at different times.

Therefore, the score is not justified for FAD sets!

The stakeholder's points are not supported by evidence. The SIa rationale has been edited to clarify why we conclude that the FAD sets meet SG80.

PI 2.2.2 b

p86

The given overall bycatch rate and the ratio between FSC and FAD sets does not apply to Carcharhinus falciformis for which bycatch levels are more than 10 times higher for FADs than for FSC sets. A condition to reduce the extremely high numbers of juvenile or actually baby sharks caught over wide ranges of sets with less than 50 kg and often even less than 10 kg animals is required closing down areas which are suspected to be shark nurseries or close to shark nurseries completely for the fishing with FADs. Also, strategies are required to analyse the structure and potential cause of increased bycatch in certain sets and take appropriate actions is required; the

scoring is thus not justified for FAD sets
There are no main secondary species in the fishery. The bycatch rate for secondary, non-tuna species is 2.5% for the FAD set type, and 0.5% for the FSC set type. These rates do not include ETP species and silky shark is not considered. The SIa rationale has been edited to clarify why we conclude that the FAD sets meet SG80.
PI 2.2.2 f
p87
There is neither proof nor a written policy provided that finning does not occur given the high numbers of Carcharhinus falciformis and Carcharhinus longimanus, both preferred species for finning and the insufficient data sets from observers there is not significant assurance that no finning occurs. While the policy to retain all animals whether dead or alive appears to be followed from the observed data sets there is especially for Izaro a large number of sets lagging the eight of the released or discarded sharks. And for Alakrana there is even a not that 2 Carcharhinus longimanus were taken to the kitchen in the observer data. As a condition the EU policy of fins attached should also be mandatory for the Seychelles vessels as the 5% of dressed body weight rule for fins at landing is known to be not effective to prevent shark finning as this cannot be calculated reliably to the green weight of the animals. As not all observer data has been made available there is still a high risk that finning does occur especially as the low income of fishermen on purse seiners associates a permanent risk in search for additional earnings
There is no PI 2.2.2 SIf, perhaps the stakeholder is referring to SIe? Is the kitchen use of shark anecdotal information, as the assessment team has not been provided that information? After review of the scoring rationale, we conclude that the fishery meets SIe SG100 requirements.
PI 2.2.3 c
p91
Due to the significant lack of observer data with not even 50% of observed sets being available to evaluate whether the species are recorded properly and whether extrapolated data are adequate as a matter of precaution the lack of sufficient information for adequate management strategy should be assumed. The Scoring of 90 is thus not justified as long as not at least 50% data sets for at least 3 subsequent years are available and evaluated
There are no secondary main species and a partial strategy is not required. Note that the score for PI 2.2.3 has been revised from 90 to 95 as 2 of the 3 scoring issues meet SG100.
PI 2.3.1 a
p93
Most recent data from 2016 indicate twice as many sharks as bycatch for FAD sets alone! Therefore, the average number must not be used here but the reason for the increase in bycatch from 2014 to 2016 being a deeply worrying trend needs to be assessed! Bycatch of Carcharhinus falciformis in no of animals extrapolated to full catch based on percentage of observed FAD sets 2014 1827 animals 2015 5870 animals 2016 7168 animals This is especially worrying as it also shows that there are neither management systems nor the enforcement of any reduction plans in place and that bycatch numbers have increased continuously without taking any action!

The annual data on the bycatch of silky sharks indicates a trend of increasing bycatch in the FADs set type by number of individuals and total weight. Also noted previously there is the apparent increase in weight of the average individual from about 10kg in 2014 data to 20 kg in 2015 and 2016 data.
p93
The CAB unfortunately keeps referring to wrong and much too high survival rates throughout the report. While having been made aware of this by stakeholders it continues to refer to the old numbers from the PCDR. The correct number here should be about 10% of survival, especially since most animals are juveniles with less than 50 kg and many even babies with less than 10 kg. Therefore, they stand an even lower chance to survive the harsh conditions and the imposed stress during capture as demonstrated clearly by Hutchinson in 2015 when out of 295 caught silky sharks, 165 had died immediately and out of the surviving animals, 28 of which were tagged and released, only 5 actually survived (18%). As stated in the same paper not even the recorded bycatch numbers are accurate with observer data always being lower than scientists' recoding and log data showed even lower numbers! Sharks die out of exhaustion and lack of ram ventilation even before being injured by the weight of the tuna when hauling the net; Therefore, making suggestions that a significant number of sharks survive when not directly released from the net before hauling it in, is wrong and pretends a higher survival rate without appropriate proof; What does Echebastar do to release the sharks from the net before hauling? And how do they avoid bringing them on deck in the first place? These are conditions that should be place on the fishery requiring it to consequently decrease the number of bycatch from FAD sets and to develop appropriate measures to release the animals prior to hauling of the net. They should also be obliged to performing studies that demonstrate the survival rates of the released animals being caught by their vessels
The Second Draft Report indicated our literature review found a 20% survival rate for captured silky sharks, and as pointed out by the stakeholder the Hutchinson et al paper suggests a survival rate for those captured at 10%. The report has been revised to reflect this additional information. With regard to releasing sharks from the net before hauling or brailing, Echebastar follows the best practices handbook prepared by AZTI.
Carcharhinus falciformis
P 94
100 tons on average completely underestimates the actual bycatch of Carcharhinus falciformis which was 1.5 times higher than this average in 2016 already (149 tons), so only 5 vessels contribute to about 0.5 – 3.5% of the total catch of silky sharks in the Indian Ocean already. But what is even worse is that these sharks are mostly juvenile animals, which have not yet reproduced and considering the long reproduction cycles of sharks these number thereby really do hinder the rebuilding of stocks which are already described as near threatened in the Indian Ocean and vulnerable in the Pacific and generally considered as decreasing.
We determined an average catch based on the three years of available data. The total catch on average by the UoA is about 0.01% of the silky sharks taken in fisheries in the Indian Ocean, so the UoA is highly likely to not hinder the recovery of this species.

Carcharhinus longimanus
p94
There is no stock assessment for Carcharhinus longimanus, which is classified by IUCN as vulnerable and 100 animals per year again grossly underestimates the impact taken by only 5 vessels! Actual numbers were already higher in 2016 and real figures can be expected to be even higher than those protocolled by the observers as also discussed by Hutchinson in 2015
Oceanic whitetip shark has been reclassified to secondary minor species.
p94
Non-entangling FADs only prevent death of additional sharks in the FADs but do not reduce the amount of bycatch as such. There is absolutely no proof of the special handling procedures which are claimed to be in place at Echebastar to reduce the bycatch and no measures are reported either! On the contrary raw data confirm that bycatch mortality varies greatly between vessels and is highest on board of Alakrana, the biggest vessel of the fleet
The assessment team specifically addressed this issue with the Seychelles Observer Program manager and AZTI data analysts. The observers check the FADs for entangled sharks and entangled sharks are part of the bycatch data reported. We have not analysed vessel specific bycatch rates, but one would expect variability in bycatch rates and total bycatch.
Survival rates reported in the literature
p94
Eddy actually reports post release mortality rates of 62% and not of 40% and overall mortality of sharks is 92%. Therefore, the referenced literature is again not cited correctly. The overall mortality of silky sharks caught and brought on board of the vessel (and there is no information whether the animals were released from the brail or snagged) ranges between 10 and 15% and is strongly depending on the size of the catch and the method used for release!! The score of 80 is not justified for FAD sets
We acknowledge that some literature indicates a survival rates for captured silky sharks of about 10%. In the previous Report, the assessment team stated a rate of 20%. This report has been revised to say 10-20%. We maintain the score.
PI 2.3.2 a
p103
The claim that the 3 newest vessels being equipped with double conveyor belt and thereby improve release of bycatch alive is not supported in all cases by the raw observer data.

Percentage of silky sharks released alive of total numbers caught • Alakrana 27% • Elai Alai 95% • Euskadi 40% • Izaro 80% • Jai Alai 73% However, as Alakrana has the biggest catch and the biggest bycatch this strongly impacts the overall performance in a negative way and there appears to be no strategy in place to improve numbers for the 2 vessels with highest mortality rates.
The assessment team has not analysed the observer data by vessel, but we accept the stakeholder's observation. However, the team does note the question with regard to the release of silky sharks by the Alakrana, and suggest that this may be related to the use of the second conveyor.
PI 2.3.2 score
P 112
The score of 75 is not justified considering the increasing trend of by-catch for 2016 a scoring of 60 or less is proposed as there is no strategy in place to reduce bycatch rates especially for FAD and the available measures so far seem to have increased rather than decreased the bycatch in 2016
Presumably the stakeholder is referring to PI 2.3.2, for which we have redrafted the rationale to justify the score of 85.
P3 Scoring Introduction
p146f
While the majority of the catch (64%) is caught in international waters only about 20% of skipjack tuna are caught in the Seychelles. During the last 2 years catch quantities from the coasts of Madagascar and Tanzania have also increased but overall the total increase of catch from 21,583 tons to 39,477 tons of skipjack tuna in table 6 clearly demonstrates almost doubling of the caught quantities between 2014 and 2016 despite several statements by the CAB that the fishery has been reducing its fishing activities and catch amounts
The text has been revised to clarify a number of issues.
p184ff
When comparing the bycatch data over the last 3 years numbers and tons have increased significantly for the FAD sets as listed below for the two shark species. While this has already been obvious from the PCDR the data for 2016 have now been adjusted following the increased number of observed sets which have been added. However thereby also the total number of FAD sets in table A 1.2.3. has been increased to 1510 sets in order to increase the number of observed sets to 518 and an observer coverage of data of 34% being available when compared to the 19% observe data sets available from 1390 FAD sets in the PCDR.

Important to note is that with this increased coverage the extrapolated bycatch rates for all sets has increased substantially from the previous table 2 in the PCDR. Extrapolated bycatch of Carcharhinus falciformis in tons and number of animals

2016 at 19% coverage 6391 animals or 123 tons

2016 at 34% coverage 7168 animals or 149 tons

and for Carcharhinus longimanus in tons and number of animals

2016 at 19% coverage 89 animals or 4 tons

2016 at 34% coverage 140 animals or 7 tons

This again clearly demonstrates that the currently available data from observed sets are by far not adequate to estimate bycatch and impact on ETP species accurately enough. Therefore 3 years with at least 50% data sets in a row are required prior to certification.

The data which has been available so far obviously did not cover the relevant data sets which can be explained by the extreme variability of bycatch between the different vessels and between FAD and FSC sets as well as the completely different composition of bycatch from set to set depending on fishing area resulting in baby sharks, mostly juveniles or sub-adult sharks being caught. and number of animals

As also visible from Figure 1 the composition of the bycatch has changed significantly between 2015 and 2016. While up to 2015 also bull sharks, mako sharks and blue sharks were caught there is basically none any more since 2016. Now however tiger sharks are affected as bycatch, while there had never been a tiger shark in the catch before. While this is quite surprising it could be due to several reasons, such as previously wrong recording by observers or a change in the catch regions, but in any case, demonstrates that the data from 2014 and 2015 are not directly comparable with 2016 data and that data overall may not be very reliable

While there are differences between the catch rates by set type and year, we consider that the data on actual interactions are sufficient to assess the impact of the fishery on silky sharks. However, it does not allow the identification of trends. While data indicate an increase in the average weight of an individual silky sharks and a small increase in the CPUE, it may be the case that 2014 was not typical. Should the fishery be certified, the auditors in any annual surveillance report would review data and this could potentially lead to a rescoring of individual PIs.

	FAD		FSC	
	CPUE -	weight (kg)	CPUE-	weight (kg)
2014	3.2	10	0.5	15
2015	5.0	23	0.8	24
2016	4.7	21	0.7	55

Table 1.2.6

p192

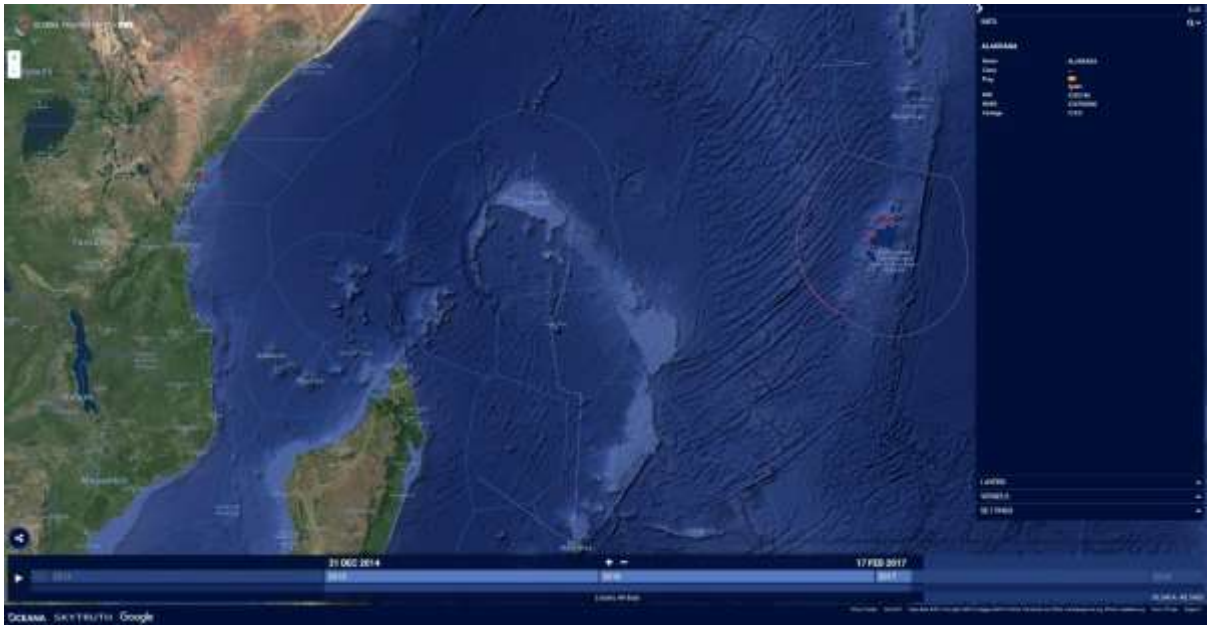
The number of FSC has been reduced now for 2016 to only 190 from previously 310 sets. How this has been done is not clear to me. Whether the sets had previously been wrongly allocated and then relabelled into FAD sets or whether they have now simply been ignored and new FSC used as also the average weight of the 18 animals Carcharhinus falciformis in 190 sets has increased considerably to 55 kg/animal indicating older animals as compared to the 60 animals in 310 sets before with an average weight of 32 kg on average
The assessment team uses observer data provided by the SFA and AZTI. More data are available for the Second Draft. Also, a number of errors found in the original data used in the CDR Report were rectified. The Observer programme has expanded rapidly and this has led to issues in processing and verification.

Data Provided By Shark Project

AIS Tracks of the Spanish Vessels

Elai Alai

Alakrana



According to "Regulations for carriage of AIS". Imo.org. Retrieved 16 February 2015 each voyaging vessel of more than 300 GT is required to have AIS since 2004.

12.6. WWF

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Acoura Marine LTD

12 September 2017

Dear Acoura Fisheries Department,

WWF actively engages with key governments in the Indian Ocean, as well as tuna processors, producer organisations and their fishing vessels, and local and international NGOs. This engagement aims to support improvement in the practice and management of tuna fisheries in the Indian Ocean so that consumers may in future be assured that the purse-seine tuna they purchase has been harvested sustainably.

We applaud and support the efforts of many purse seine fisheries (including Echebastar) to develop and implement responsible and sustainable fishing methods. We also recognise the progress made in Indian Ocean tuna management. However, we are not convinced that the above changes are insufficient for the tuna purse seine fishery to meet the highest sustainable fishing standard within the next five years (e.g. such as score 80 for all PIs in the Marine Stewardship Council (MSC)).

At present, the main catch (58% of catch is yellowfin tuna) of the UoA is determined to remain overfished and subject to overfishing. This is not addressed in the current assessment and vital information pertaining to the stock status of yellowfin tuna is not presented. Additionally, the impact of FADs on the ecosystem and habitat is not sufficiently covered. Utilizing drifting FADs modifies the pelagic habitat and the extent of this modification in the Indian Ocean is potentially severe, as these FADs can act as ecological traps for over 80 fish species and their different life stages. The risk of ETP bycatch significantly increases when utilizing dFADs and the UoA causes the death of more than 3000 silky sharks per year, a species that is in strong decline and highly susceptible to overfishing. Additionally, the UoA operates partially under direct private agreements, without the possibility for stakeholders to gain access to the most basic information regarding management, sustainability and accountability. Transparency is essential for responsible fisheries, as it can stimulate an active demand for accountability, contributing to improved decision-making in fisheries management.

INVESTORS IN PEOPLE

President: His Royal Highness, The Prince of Wales KG, KT, GCB, OM
Chief Executive: Tanya Steele

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We therefore do not believe that a MSC certification would be justified at this stage and hope that the Echebastar Indian Ocean skipjack purse seine fishery will continue their efforts under a Fishery Improvement Project until the above mentioned issues are resolved.

We would also like to raise our concern about the certification process. The Echebastar Indian Ocean skipjack tuna purse seine fishery is not viewed as an appropriate fishery to be used as a test candidate for the new MSC assessment process. As stated before, there are complex issues within the fishery, which potentially have a broad impact on the tuna industry, ecosystem and habitat in the Indian Ocean. The use of the new MSC "simplified" assessment process cannot sufficiently address these complex issues. WWF believes that this complex fishery cannot be accurately assessed over the 15 day comment period, as this period is too short and stakeholders are not able to view comments from the reviewers.

WWF has previously given written objection to this pilot, simplified process.

Yours sincerely,

WWF-UK, WWF-DE and WWF-Spain.

Philipp Kanstinger, Program Officer Seafood Certifications – WWF-DE

Raúl García Rodríguez, Fisheries Officer – WWF-SPAIN

Andrew Russell, Sustainability Specialist – WWF-UK

PI 2.1.2 – Primary species management strategy
WWF considers that the PCDR fails to provide adequate evidence of adequate management strategies to meet the SG80 score Page 71 and 72: 'There is no explicit strategy in place for the UoA for managing primary main or minor species.' Yellowfin tuna makes up a significant proportion of the total catch by the Echebastar vessels. In fact, yellowfin tuna makes up 72% of the free-school annual average catch by weight and 38.8% of the FAD set annual average catch by weight.
The scoring rationale has been revised and strengthened to provide evidence that the fishery scores 85 for PI 2.1.2.
The resolutions from the IOTC 17/01 are not stated in this section. In particular the reduction in yellowfin catches (15%) by purse seiners in the Indian Ocean. The poor stock status is driven by unsustainable catches of yellowfin tuna taken over the last four (4) years and the actual implementation of Res 16/01 has not been demonstrated yet. WWF's view is that the score should be no more than SG60, as there is no explicit strategy evaluation and implementation for the UoA for managing primary main or minor species.
The site visit was completed in early April 2017. The Second Report was prepared shortly thereafter and following MSC requirements has not been updated to consider information that was subsequently available. This includes the results of the IOTC meeting of May 2017, published in June 2017. The scoring rationale has been revised and strengthened to provide evidence that the fishery meets SG80 for SIa, SIb & SIc.
PI 2.2.3 – Secondary species information
Lack of observer data
WWF considers that the PCDR fails to provide adequate evidence to meet the SG100, as limited quantitative observer data is available. Page 91, 'The fact that the data is not fully available (only about 50% of the collected observer data is available at the time this report is being drafted) on the catches of non-target species means that information cannot be considered adequate to manage impacts or to evaluate with a high degree of certainty whether the strategy is achieving its objective. There remains associated uncertainty in respect of the impact of the fishery on incidentally captured species.' WWF's view is that the score should be no more than SG80, as there is limited verifiable quantitative logbook and catch data is available (see also "Issues with traceability information" below).
There are no main secondary species. The scoring rationale has been revised to justify the scoring of SIb as not meeting the SG100 requirements. The SG100 requires there be some quantitative information to estimate the impact of the UoA on the species with respect to status, and this status information is lacking.
PI 2.3.1 – ETP species outcome PI 2.3.2 ETP species management
Silky shark and oceanic white tip bycatch

WWF considers that the PCDR fails to provide adequate evidence to meet the SG80. The severe bycatch of silky sharks by the UoA was highlighted by many stakeholders in this assessment (e.g. PEW, International Pole & Line Foundation, Seychelles Fishing Authority). There is no stock assessment or limit reference points, CPUE indicates a heavy decline, no national or international catch limits are in place and the species is highly vulnerable shark, due to its low productivity and high susceptibility for purse seine gear. productivity and high susceptibility for purse seine gear. WWF's view is that the Risk Based Framework for silky sharks would lead to score >60. Therefore, we cannot follow the rationale of the CAB that a removal of >3000 individuals per year is highly unlikely to impact the population, taking into account that data regarding stock size, total mortality etc. are missing. It has also been noted that ISSF published a range of recommendations how silky shark bycatch in purse seine fishing operations can be minimized, but the UoA did not implement most of them. And it has also be noted that IOTC is the last RFMO that allows the catch of silky sharks. Based on the PCDR it is unclear how the UoA handles shark bycatch in general, are all sharks discarded? If not and some are landed, the CAB should safeguard that there is full documentation of the destination of all shark bodies and body parts;
PI2.3.1 SIa is no longer used. SIb is scored. The list of ETP species has been revised; Oceanic whitetip is classified as a minor secondary species and shortfin mako is classified as ETP. The estimated catch of silky sharks in FAD sets is 101 t compared to the average annual catch of between 3,200 t (IOTC) and >20,000 t (including longline and gillnet fisheries Murua et al). The MSC definition of *not hinder* is explicit (Table SA8) "*the impact of the UoA is low enough that if the species is capable of improving its status, the UoA will not hinder that improvement. It does not require evidence that the status of the species is actually improving*". The Echebastar fleet follows the ANABAC and OPAGAC Manual of Best Practices, and the vessel captains have participated in the ISSF workshops on minimizing mortality of sharks. The handling of catch and in particular sharks is summarized in the introduction to the P2 scoring, and again the ETP species scoring justification. Echebastar Fisheries attempts to remove all sharks and other large ETP species manually in the water while they are in the net. Those large animals that are not manually removed, are lifted from the net in a special net sling, finally those small animals, including small silky sharks that cannot otherwise be removed are brailed out of the net along with the tuna. As these species move down a conveyor to the holding tank they are either removed by hand and then carried out and released, or on three of the vessels there is a second conveyor that discharges the unwanted catch overboard. Undoubtedly, some small sharks may end up in the hold and are frozen along with the tuna and other bycatch species that have not been separated from the catch. No sharks are sold as part of the landed catch. Any small sharks that may have been entered the holding tanks are removed from the landed catch being offloaded and sold. No shark finning occurs at sea. No sharks bodies or parts are sold, this is specifically against Echebastar policy.
PI 2.5.1 – Ecosystem outcome; PI 2.5.2 – Ecosystem management strategy; PI 2.5.3 – Ecosystem information
Lack of information on the impact of FAD's on surrounding habitats
WWF considers that the PCDR fails to provide adequate evidence to meet the SG80, as the cumulative impact of FAD's on surrounding vulnerable habitats is poorly assessed. Page 113, '20% of the total number of active, authorized FADs that are released into the Indian Ocean are lost. Further, it is estimated that 50% of those lost FADs eventually reach a shoreline or shallow water and ground, somewhere in the Indian Ocean. The UoA consists of 5 seiners, that utilize less than 400 active FADs per vessel, per season. The estimated number of FADs lost by the UoA is about 400 and the number that may reach a shoreline, including coral reef or grounding in shoal water is about 200.'

Page 125, 'The distribution of the all coral habitats and in particular the impacts of the lost FADs on the coral habitats are not known.' Table 1 of the MSC FCR 2.0 notes that habitat enhanced fisheries can only be considered for MSC certification if they are considered "in scope", specifically "any modifications to the habitat of the stock are reversible and do not cause serious or irreversible harm to the natural ecosystem's structure and function". The use of FADs is a modification of the pelagic habitat (Wang 2014) and the extent of this modification is significant. On average there are already two time more FADs (in some areas up to 40 times) than floating natural debris in the Indian ocean. There is an ongoing scientific discussion if their cumulative impact is serious, the so called "ecological trap hypothesis", and there is by far not sufficient data to state that the hypothesis is not likely (especially taking into account that over 80 fish species and their different life stages are associated with FADs). Additionally, up to date, the input of FADs into the pelagic ecosystem must be classified as non-reversible. Annually 20% of dFADs are lost at sea and the fishery has no possibility to recover them. Some of the lost dFADs will beach while the rest will continue to drift in the IO (Imzilen 2016). The UoA (as the rest of the tuna purse seine fleet in the IO) uses non-degradable dFADs made mostly of synthetic materials. Synthetic materials such as nylon, polyethylene, and polypropylene are impervious to natural biodegradation and can remain unchanged in the marine environment for decades (Stelfox 2016). As long as the UoA does not use bio gradable FADs, the annual input of lost non-degradable FADs must be classified as a non-reversible habitat modification in the Indian Ocean. WWF's view is that the PI's 2.5.1, 2.5.2 and 2.5.3 score should not be greater than SG60 because there is lack of information on the impacts of lost FAD's on vulnerable habitats and a lack of current management strategies.
The assessment team has revised the section 2.3 : "Scope of Assessment in Relation to MSC Program" to better address the WWF concerns regarding the applicability of this fishery to the MSC certification requirements. We have separated consideration of potential FAD impacts by Components 2.4 (VMEs: coral reefs) & 2.5. As presented in the report, we conclude that FADs are within the scope of MSC. A condition is defined to respond to concern about limited understanding of the impact of FADs on the ecosystem.
GENERAL COMMENTS
Traceability information and Management P3
Issues with traceability information. PCDR page 18: 3.2. Traceability within the Fishery. 'As such, accurate recording of the species mix is not possible during the fishing operation or while the vessel is at sea. An approximate breakdown of the catch, is made through sorting and sampling at discharge when the fish are removed from the tanks. Officers from the Seychelles Fishing Authority (SFA) inspect and sample all landings into Port Victoria (irrespective of vessel flag) to verify the catch breakdown by species.' 'All transhipments are witnessed by SFA inspectors.' From the IOTC compliance report for Seychelles 2017 (IOTC-2017-CoC14-CR22): Repeated compliance issues: Has not inspected at least 5% of landing or transhipment, as required by Resolution 10/11.
The section on traceability has been revised, and Echebastar is working with SFA to improve the rate of inspections of landed or transshipped tuna catch. See Appendix 19.1. for Letter of Support from SFA.
PCDR page 18. 'There is accurate catch recording and reporting using electronic log books (Spanish and Seychellois).'

Observer data: average 8 marine turtle bycatches per year IOTC compliance report for Seychelles 2017 (IOTC-2017-CoC14-CR22): no logbook reports of turtle bycatch. The assessment team notes the discrepancy between the IOTC Compliance report and the sea turtle bycatch estimate based on the observer data. While we cannot comment on the data collection and reporting process for information in the IOTC Compliance Report, we do believe that the estimated annual average catch of sea turtles from the observer data is reasonable and representative of the UoA. The fishery is missing key transparency data and information: • The fishery operates partially under disclosed direct private agreements. There are no common procedures to ensure that activities under these agreements (in contrast to SFPAs) comply with EU laws and adhere to CFP standards. Without stakeholder access to these private agreements it cannot be evaluated if these agreements fulfil the MSC requirements for P3 (Management). This issue was also raised by the International Pole & Line Foundation (IPNLF). The CAB replied that Echebastar provided copies of the protocols for private fishing agreements with Eparses (TAFF, 2017) and Madagascar (Echebastar, 2015). However, we do not think that these two agreements can be set as examples for direct private agreements due to the fact that a) a SFPA is established for Madagascar (and due to the presence of an "exclusivity clause" in official EU access agreements (SFPAs), private agreements are only allowed where there is no (S)FPA in place). b) Eparses Islands are not inhabited and under French authority. Without the possibility to access the private agreements with Coastal states like Kenya or Tanzania it is not possible to assess, for example, Legal and customary framework (3.1.1), Governance and policy – Consultation, roles and responsibilities, Governance and policy – Long-term objectives (3.1.3), Compliance and enforcement (3.2.3) and others. Another major transparency issue is that there is clear evidence that the vessels switch off their AIS for the majority of time that they are within fishing grounds. We are aware of the potential security issues on the East African coast, however, this information cannot be disregarded and should be made available at all times. AIS is an important surveillance tool for several coastal states that do not have full VME coverage (for example Tanzania). Several other fishing fleets (e.g. Japan, China, Taiwan) in the region have their AIS turned on.
Please refer to the redrafted Component 3,2. It is not clear, what evidence WWF is referring to with regard to the use of AIS. Certainly, after acknowledging that there are potential security issues on the eastern coast of Africa, WWF would understand turning off AIS, if pirates are using AIS to target ships?
Yellowfin stock status

The PCDR should incorporate the Kobe plot of the update yellowfin stock status as it is available in the "an update of the 2015 Indian Ocean Yellowfin Tuna stock assessment for 2016" report.

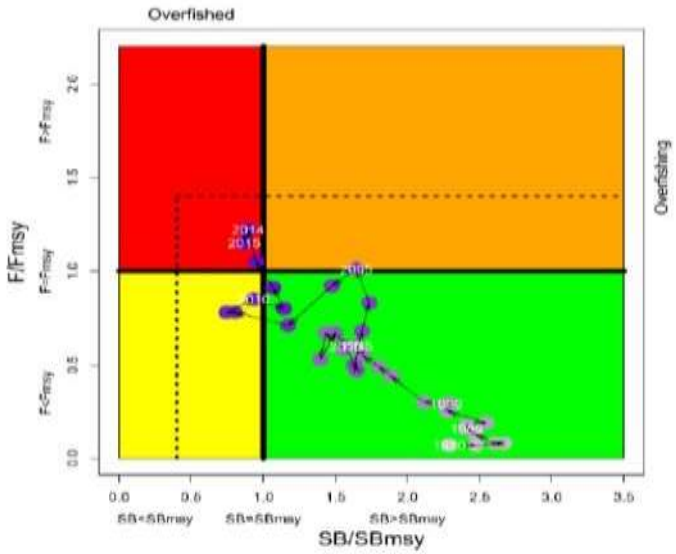

Figure 5. Kobe plot for the *Update2016* model (dynamic MSY).

The most recent stock assessment (2015) indicates that the yellowfin tuna stock in the Indian Ocean is overfished.

The Kobe plot has been added to the justification of PI2.1.1SIa & the justification has been revised to better support the scoring at the SG80 level.

Yellowfin and bigeye recognised as target species not primary species.

Yellowfin and bigeye tuna make up significant proportions of the total catch by the Echebastar vessels. In fact, yellowfin tuna makes up 72% of the free-school annual average catch by weight and 38.8% of the FAD set annual average catch by weight.

Yellowfin and Bigeye tuna should be recognised as target species and not primary species, as they make up a significant proportion of the catch percentage.

Their inclusion to the assessment would mean that this assessment of only skipjack would be void.

Echebastar targets both yellowfin and bigeye in addition to skipjack in its purse seine fishery. However, in this assessment the P1 species is skipjack; yellowfin and bigeye are considered main primary species follows the MSC standard and guidance.

12.7. MSC comments on Final Report

SubID	Page Reference	Grade	Requirement Version	Oversight Description	PI	CAB Comment
27468	54-55, 70-72	Major	FCR-7.10.6.1 v2.0	PI 2.1.1 scoring issue b and PI 2.2.1 scoring issue b: SG100 is indicated as being met for this scoring issue, however not all minor species are assessed individually at SG100 level. Please see MSC Interpretation 'Minor species and scoring element approach': http://msc-info.accreditation-services.com/questions/minor-species-and-scoring-element-approach-at-sg100/. "The MSC recognise that there are time and cost implications of scoring each individual element separately, particularly in cases where there are large numbers of species to assess. After some discussion we have determined that teams should list which main or minor species are assessed in each component to make clear what is being scored as main vs minor. All minor species automatically achieve at least SG80. Then it would be up to the team whether they decide to score these species at SG100 as individuals (some meet SG100, others do not) or to use an 'all or none' approach to scoring. So if all minors meet 100 then it is achieved. If any do not, it stays at SG80. The team then need to record and assess the	2.1.1, 2.2.1	For PI 2.1.1 SIb. additional minor species specific, IOTC stock status text added to strengthen the justification, supporting the SG100 score. For PI 2.2.1 SIb the SG100 scoring box had been changed to 'No', but the text that supports an SG100 score had not been deleted. An explanation has been added on the MSC interpretations and guidance that means that 80 is the maximum score for this PI.

SubID	Page Reference	Grade	Requirement Version	Oversight Description	PI	CAB Comment
				scores for minor species but they can 'group' how they report these scores." This is further supported by the MSC interpretation 'P2 species: assessing negligible interactions': http://msc-info.accreditation-services.com/questions/p2-species-assessing-negligible-interactions/ Furthermore, the team has assinged an overall score of 80 for PI 2.2.1, as given in Table 5a, b and the final row of the scoring rationale in Table 28. However, in Table 28, the rationale for PI 2.2.1 scoring issue a and the scoring issue rows for both UoAs in scoring issue and a and b indicate that SG100 is met. The rationale in scoring issue b also states that "SG100 is met, but the fishery cannot score more than 80 for this PI." As such, it is unclear how the team have determined a score of 80 for PI 2.2.1.		
27469	100-101	Major	FCR-7.10.6.1 v2.0	PI 2.4.1 scoring issue b: FAD UoA: It is not clear how the assessment team have concluded that SG60 is met for this scoring issue. The assessment team should interpret "serious and irreversible harm" as reductions in habitat structure and function below 80% of the unimpacted level (SA3.13.4.1 and associated guidance). No evidence is	2.4.1	The justification has been revised to include the estimated spatial impacts of lost FADs over a five year certification period.

SubID	Page Reference	Grade	Requirement Version	Oversight Description	PI	CAB Comment
				presented to demonstrate this is met in the scoring rationale. E.g. the rationale provides limited quantifiable information/assessment on the spatial extent, timing and location of possible FAD interactions with VMEs presented. Additionally the impact assessment of beaching FADs on VME habitat, particularly at the localised scale, is unclear. The consideration of impact may be compounded by the lack of assessment of possible cumulative impact of FADs over the certification period (e.g. 1000+ beached FADs over the 5 year certification period) Note that the impact of FADs on the habitat should be known, i.e. following GSA3.13.1.1, "….the team should have gear-specific (quantitative) impact information and/or data, such as fishing-effort mapping with knowledge of regeneration ability that is specific to the UoA, and/or habitat-specific research results that examine the impact of the gear(s) on habitats in the relevant area".		
27470	105-106	Major	FCR-7.10.6.1 v2.0	PI 2.4.2 scoring issue b: FAD UoA: It is not clear that SG80 is fully met for this scoring issue for the FAD component given the limited analysis/assessment presented of the likely interaction and related impact from FADs over the proposed certification period (as per PI2.4.1 SI b).	2.4.2	PI 2.4.1 Sib. The justification has been revised (see above) to strengthen analysis/assessment presented of the likely interaction and related impact from FADs over the proposed certification period.

SubID	Page Reference	Grade	Requirement Version	Oversight Description	PI	CAB Comment
				Additionally, the rationale for PI 2.4.2 scoring issue a states that, for VME habitats, there is not a 'partial strategy in place'. However, in rationale for PI 2.4.2 scoring issue b the rationale states that "These measures in addition to those identified above comprise a partial strategy. There is an objective basis for confidence that the partial strategy will work."		PI2.4.2 SIa. The text of has been revised. In the assessment team's opinion, while a partial strategy is in place, the results of the use of FADs constructed with biodegradable materials to reduce the potential for localised damage to coral reefs (in approximately 1,000 sites of limited area (total 0.1 km^2 within a total area of coral in the Indian Ocean of 32,000 km^2 would be needed to allow the fishery to meet SG80. PI2.4.2 SIb / SIc: The assessment team considers that a partial strategy is in place.
I	110-111	Major	FCR-7.10.6.1 v2.0	PI 2.4.3 scoring issue a: FAD UoA: It is not clear in the rationale how the nature, distribution and vulnerability of the VME habitat is known at the level of detail relevant to the scale and intensity of the UoA. Elsewhere the team refer to localised impact of FADs beaching on the VME habitat (e.g. PI2.4.1 b), which is not directly evaluated in this scoring issue.	2.4.3	PI 2.4.3 SIa scoring justification has been to differentiate between the localized impact of a single FAD on a coral reef, and the evaluation of the overall all impacts of potentially 1000 lost FADs impacting coral reefs throughout the western Indian Ocean. The justification now demonstrates that the nature, distribution, and vulnerability of the VME coral reefs is known at the level of detail relevant to the scale of the fishery.
27472	2, 89-92	Major	FCR-7.10.6.1 v2.0	PI 2.3.2 scoring issue a: The report indicates that silky sharks are the most commonly encountered ETP species for the fishery (e.g. on Page 2 the team state that "There is a low bycatch of most ETP bycatch species. The exception is silky sharks".) However, in the scoring rationale the team do not explictly	2.3.2	PI 2.3.2 SIa The scoring justification has been strengthened with evidence of conservation measures/strategy related to silky sharks. PI 2.3.2 SIc The scoring justification has been strengthened with evidence that the measures/strategy are working for ETP species.

SubID	Page Reference	Grade	Requirement Version	Oversight Description	PI	CAB Comment
				reference silky sharks in the justifying the 'strategy in place' to manage ETP species at the SG80 level. PI 2.3.2 scoring issue c: The only direct reference to information from the fishery that the measures/strategy will work is a reduction in sea turtle bycatch. No evidence is provided for other ETP species (such as silky shark) and reference is made to 'measures', not a 'strategy', which the team consider to be in place in scoring issue a.		
27473	89-92	Major	FCR-SA3.11.2 v2.0	PI 2.3.1: The CAB response to MSC Technical oversight number 27274 in the Final Report states "The rationale for PI 2.3.2 was revised: SIa scoring was deleted. SIb was scored." However, in the Final Report, PI 2.3.2 scoring issue a is scored and scoring issue b is not scored. Please review the report and rationale to ensure the correct scoring issue is scored at the relevant SG level.	2.3.1	The CAB response to MSC To #27274 was an error. It has been revised.
27475	91	Guidance	FCR-SA3.1.5 v2.0	PI 2.3.2. scoring issue a: If oceanic whitetips sharks are no longer considered ETP by the assessment team, the reference to this species in PI 2.3.2 no longer valid.	2.3.2	The text referencing oceanic white tip sharks has been deleted.

13. Appendix 5: Peer Review Reports

13.1. Peer Reviewer - A

Summary of Peer Reviewer A Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	No	CAB Response
Justification: The Assessment team did a good job of explanation for most categories. I think the scores were somewhat too high, particularly for issues with uncertainty around Yellowfin stock status, uncertainty/variability in minor and ETP species and observer data, FAD impacts on VME habitats, and effects of FADs on ecosystems and tuna behaviour. Some species appear to have been misclassified.		Species are reclassified, scores adjusted, and rationales revised to strengthen the justifications for the allocated scores.

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	Yes	CAB Response
Justification: Conditions 1,4,5 and 6 should help achieve the SG=80 outcome. Conditions 2 and 3 are more intractable issues that I don't think one research project will correct.		The conditions have been revised to meet MSC requirements.

Do you think the client action plan is sufficient to close the conditions raised?	NO RESPONSE	CAB Response
Justification:		Noted

Table 67: Peer Reviewer A - Detailed Comments with CAB Responses

Columns

1 Performance Indicator
2 Has all available relevant information been used to score this Indicator? (Yes/No)
3 Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)
4 Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)
5 Justification. Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
Note: Justification to support your answers is only required where answers given are 'No'.
6 CAB Response

1	2	3	4	5	6
1.1.1	No	Yes	NA	While the latest stock assessment report (IOTC 2016) does provide justification to support a score of 100 for SI(a) and SI(b), it also includes caveats about the estimation of MSY as being not well determined and potentially too high. A new stock assessment is expected in 2017 and information from the new assessment should be included in the first surveillance report or included in the certification process if it is completed in time.	Noted. No new information is available at this stage but should be considered at the first opportunity. We continue to use the information from the IOTC SC in 2016, as referenced in the report. We note the caveats and comments in the 2016 report but the conclusions of the report are robust and the overall stock status characterization in 2016 is positive and supportive of 100 level scoring. The Kobe II matrices need great care in interpretation as probabilities but as presented and interpreted by the IOTC SC suggest very low risk of spawning biomass declining below SBmsy in 2016 or even 2023 under catch levels as high as 1.2 times the 2013 level – essentially no risk of falling below 20%SB0, 1% for falling below SBmsy in 2016 and 6% by 2023. At continuing catches 1.4 times the 2013 level, the risk of spawning biomass falling below SBmsy rises to 9% in 2016.
1.1.2	Yes	Yes	NA	.	Noted
1.2.1	Yes	Yes	NA		Noted

1	2	3	4	5	6
1.2.2	Yes	No	NA	SI(c) -HCRs have only been put in place recently (2016) and catch limits and allocations have yet to be determined, as well as "each Member's approach to ensuring national catch allocations are adhered to". There is no timeline given for determining allocations, although there is a plan for interim allocations. The report uses one proxy for F (C/Cmsy) and the history of reasonably constant fishing mortality and biomass as a second proxy and concludes that these are evidence that the HCRs are effective in controlling exploitation. However, given the newness of the HCRs and the fact that they are not yet fully finalized or fully implemented, as well as information in the stock assessment concerning declines in "the total overall catch of skipjack for both BB and PS", marked declines in the catch per set and the proportion of skipjack in drifting FADS, it is more precautionary to say there is some evidence that tools are appropriate and effective (SG=60) rather than that there is evidence that they are effective. SG = 60 for SI(c). That makes the overall score for 1.2.2 a 75, requiring a condition.	This is a difficult scoring issue which causes many problems. ISSF raised a similar issue in submission to the Maldives Pole and Line assessment, to which this assessment needs to be harmonized. The response in that case is "*We have some sympathy with the tenor of the ISSF comment but the logic for scoring at 80 is based on very specific provisions at FCR V2 GSA2.5.6-2.5.7 (and SA2.5.6-2.5.7) plus the quoted MSC Interpretation dated 16/12/2016. These provisions and interpretation arguably move from the language of the 1.2.2c SG, as used by ISSF, and push scoring towards a reliance on matters already considered at P1.1.1. We have received no comments from Peer Reviewers for this assessment, or from multiple stakeholders comments on both assessments, that address our logic. One (of three) EIO reviewer touches on the logic but essentially makes a similar SG-based argument as ISSF – we have responded similarly in comments to that reviewer. We further note that attempts to score PI1.2.2c based on the SG language alone, as in the ISSF letter, often stray in to issues of management effectiveness that might in fact be best considered at PI3.1.1a.* Despite MSC attempts at interpretation, this is a difficult scoring issue and we appreciate the ISSF input. We hope our response satisfactorily explains why we have scored at 80 even though our understanding/interpretation and ISSFs' may differ.
1.2.3	Yes	Yes	NA		Noted
1.2.4	Yes	Yes	NA		Noted

1	2	3	4	5	6
2.1.1a	Yes	No, the score on 2.1.1a = 60 for YFT FAD, 60 for YFT FSC, 80 for BET FAD, 80 for BET FSC, so = 60 for 2.1.1a .		2.1.1a YFT is justified as primary major species but does not meet SG80 for FAD and FSC The 2015 stock assessment for YFT found that the biomass SB2014/SB0 was estimated as 0.23 (80% CI = 0.21-0.36). The 2016 update was 0.29 with no CI listed. The justification given for the 'highly likely" to be above PRI was cited as guidance from the Third Surveillance Report from the Maldives Pole and Line fishery, but the link to open this report is broken, so the report is not available for review (link broken in the MSC Certification Report and on the IOTC website). The 4th Surveillance Report is available but gives no confidence intervals and no guidance. The question of how likely 0.29 is to be above 0.20 is pertinent but not answerable by saying the model for 2016 is more optimistic so if the 2015 assessment was highly likely than the 2016 should be highly likely as well, as higher variability in the data may change the confidence intervals. Thus, the SG=80 of 'highly likely" is not justified. It is more precautionary to stick with SG=60 as being likely (70% probability).	We have strengthened the rationale for our conclusion that SIa meets SG80 (YFT). The broken link has also been corrected.

1	2	3	4	5	6
2.1.1b	No- didn't appear to use 2016 updates for minor primary species as assessments based on 2013 stock assessments without updates	Yes, but for 2.1.1b, SG=100 for all 7 Primary minor species (tuna and billfishes), not 3.		2.1.1b Several billfish species should also be listed as primary minor species in addition to Kawakawa tuna, albacore, and swordfish, as they are managed by IOTC and have MSY target reference points even if no limit reference points – Black marlin, blue marlin, striped marlin and sailfish. Black marlin is close to its PRI (SB2015/SB0= 0.3 with 80% CI= 0.2-0.41), as is striped marlin with B2014/B1950 = 0.24 with no CI listed. However, for all minor primary species, the catches are small enough that they are unlikely to hinder recovery or rebuilding.	The text and scoring justification have been revised to include the identified additional species. The catch of these species is negligible, and would not hinder the recovery or rebuilding of a species if it were needed.
2.1.1 total	See above	No, SG=75		All elements meet SG60; most achieve higher performance, at or exceeding SG80; only a few fail to achieve SG80 and require intervention action (YFT)	Please see our response to the comment on YFT above.

1	2	3	4	5	6
2.1.2	No	No but the score remains the same		2.1.2a The MSC Cert report argues for yellowfin both that measures/partial strategy aren't necessary because the catch is < 30% but also that there is a partial strategy but implementation has not yet been demonstrated. FCR v2 guidance on GSA3.4.6 p. 414 says at SG=80, the impact of all MSC UoAs with that species as main needs to be considered, but only this fishery is considered. If combined with the Maldives Pole and Line Fishery, which had a 2015 catch of 36,299 t, then the total UoA catch is about 13%, which is unlikely to hinder rebuilding or recovery. Therefore SG=60 is met due to <30% of catch in this UoA but it appears that SG=80 is also met due to the partial strategy and the < 30% of catch in both UoAs.	The rationale for PI2.1.2 has been revised to include a description of the measures and partial strategy in place to maintain the species above PRI. Reference to the fishery not hindering recovery and rebuilding has been deleted.
2.1.3	Yes	No, not for 2.1.3b so SG = 85		2.1.3b – The MSC report for minor primary species discusses impact rather than information adequacy, so the rationale alone doesn't support the score. There are some concerns with information adequacy for minor species. The information on catches presents no CVs or other measure of variability, and no power tests to estimate the % of samples needed for rarer species. Although average catches of minor species are generally low, data is unlikely to be normally distributed and at the least there needs to be some confidence levels around the estimates to determine the impacts. There are 3-year delays in coding, as the 100% observer coverage started in 2014 but still 50% or less of the data is available. There is very little information on discards or whether individuals are dead or alive if discarded beyond a general average for combined ETP species. The minor primary species should include black, blue, and striped marlin and sailfish. So, there is some information available, but it is not completely adequate to determine impacts on minor species. SG = 100 not met.	The list of minor primary species has been corrected. The text of the justification for this PI has been revised to better address the information adequacy. We conclude that the fishery meets SG100 for SIa and SIb and SG80 for SIc.

1	2	3	4	5	6
2.2.1	No	Yes	NA	2.2.1b – Shortfin mako sharks should be moved to ETP as they are considered 'Vulnerable" on IUCN red list and are listed on the CMS, Annex I of UNCLOS, ANNEX 2 of CMS migratory Shark memo and Appendix II of CMS. It is possible that Tiger sharks and Bull sharks should also be considered ETP species as these are listed as 'Near Threatened' on the IUNC red list, despite this not being one of the criteria in the guidance.	The IUCN red list is considered only if the species is "out of scope". CMS appendices I and II were used to identify ETP; tiger and bull sharks are not included, Silky shark and shortfin mako are included and the latter is now considered an ETP species. Oceanic whitetip shark is now considered as Minor Secondary.
2.2.2	Yes	Yes	NA		Noted
2.2.3	Yes	No, not for 2.2.3b so 2.2.3 SG = 85	NA	2.2.3b – See comment for 2.1.3b above, SG =100 not met	The rationale has been revised to better address the information adequacy. We consider that available data is sufficient to address the requirements of identifying and assessing the impact of the fishery on secondary species. The list of minor secondary species has been corrected. Some species listed in the introductory P2 text are not addressed in the scoring as their catches are considered negligible. We conclude that the fishery meets SIb at SG100.

1	2	3	4	5	6
2.3.1	NO	Yes		2.3.1a – As stated above, shortfin mako shark should be added to ETP as they are considered 'Vulnerable' on the IUCN red list and on the CMS, Annex I of UNCLOS, ANNEX 2 of CMS migratory Shark memo and Appendix II of CMS - See below for data adequacy - The effects of other fisheries are listed for turtles but not sharks or rays - Other UoA's like Maldives pole and line are not considered – should be mentioned even if no catch of same ETP species. - Silky and oceanic whitetip sharks in this fishery are ~ 3% each of the IOTC known catch, so the UoA could have some impact on these less resilient species. - Although it is likely that some % of the unidentified sharks are oceanic white tip or silky sharks, it is not justified to use that large catch as evidence of no impact without some indication of what % of the unidentified is likely to be oceanic white tip or silky sharks.	Shortfin mako has been added to the ETP list, and oceanic whitetip sharks have been removed from the ETP list Now SIa is not scored. SIb is scored; the cumulative effects of all MSC certified fisheries are now addressed.
				-The scoring of FSC and FADs should be shown in combination not just separately, as they have a cumulative effect which is not addressed -The 'about 40%' released alive should be better estimated with confidence intervals. - A meta-analysis may be possible from literature studies.	The scoring considers the worst-case scenario i.e. FAD set. The impact of FSC is limited. It is beyond the scope of this assessment to do a meta-analysis.
2.3.2	Yes	Yes			Noted

1	2	3	4	5	6
2.3.3	No	No, but already has condition	No-Condition 1 should include CVs and power analyses to ensure that 50% observer coverage is enough for all ETP and minor species, also add timeline for coding, data should be reanalyzed using 100% of the data from 2014 -2016	2.3.3a– The report says that 25% observer coverage is enough for sharks but this is not well justified - it depends on CVs of catch, which are not presented. Also, silky sharks caught in FADS are small, from 10-25 kg, so obviously young, and young silky sharks travel in large groups, so risk is larger. This means the average doesn't say much about how many sets need to be observed and CVs are more important - I agree with recommendation but add CVs and power tests to ensure that 50% coverage is enough - 3-year delay in coding is concerning, add timeline to when data ready, particularly data from 2014-2016	The value of 25% observer coverage is referenced and originates from the IOTC. MSC CR guidance states that observer coverage at the 20% level meets the SG80 requirement (GSA2.4.5, regarding observing shark finning operations). The team believes that 25% is a minimum, and hence has place both a recommendation and a condition on the fishery for greater data availability than 25%. Conditions cannot be prescriptive. The team understands the difficulty in ramping up data processing capacity in a short period of time., especially as the programme is covering all Spanish IO purse seine fisheries.
2.4.1	Yes	No	NA	2.4.1b – The likelihood of serious harm to coral reefs from lost FADS depends on the materials that FADs are made of. While the damage may be localized, it could possibly be serious and take a long time for recovery. In the interests of being precautionary, this should be scored SG=60 unless the fishery uses biodegradable FADs.	We agree. SG80 is not met and a condition is defined. Biodegradable FADs are in the research phase.

1	2	3	4	5	6
2.4.2	No	No	NA	2.4.2a -The justification mostly discusses reducing the number of FADs rather than lessening the impact of lost FADS on coral reefs. More information on the construction of FADs and ways to make them less damaging or biodegradable would be a necessary part of a strategy. SG = 60 2.4.2b – Again, because the measures don't directly address making FADs less damaging if lost, these should be considered measures rather than a partial strategy. SG=60 2.4.2c No quantitative evidence is presented that the number of FADs, lost FADs, or coral damage has been reduced by the resolutions. SG=80 not met	SIa. We agree. SG80 is not met and a condition is defined. SIb / SIc The issues of applicability of the measures, partial strategy, quantitative evidence is addressed in the revised rationale.
2.4.3	Yes	Yes		The research project is pretty vague and not precautionary – just studying the problem doesn't help solve the problem. The project should also include experiments with biodegradable materials and estimates of lost FADs should have to be supplied for analysis each year.	The text of the condition has been revised to include the narrative of the SI and PI that score below 80. Echebastar is in a project with AZTI evaluating biodegradable FADs. A condition has been added for PI 2.4.1 regarding biodegradable FADs. A recommendation has been added for Echebastar to maintain a data base on lost FADs.
2.5.1	No	No		2.5.1a – The MSC Cert report does a good job of documenting the undesirable changes that have gone in the ecosystem in terms of loss of predators, changes in species composition, etc., but then says it is highly unlikely that that the UoA would cause any further changes. However the IOTC 2016 skipjack stock assessment documents further changes in skipjack catch rates on FADs, indicating that changes are still occurring –" The recent declines in total overall catch of skipjack for both BB and PS (Fig. 1), the decline in catch per set on drifting FADs (Fish Aggregating Devices), in parallel to the overall increase in	According to the most recent stock assessment, the skipjack tuna stock in the Indian Ocean is above Bmsy. The team also notes that the results of the most recent assessment indicate decline in stock biomass and CPUE for most fleets since 2006. However, it is also clear the there was an increase in stock abundance in the late 1990s that continued into the mid-2000s, and combined with the increases in effort and fishing mortality, catches increased until 2006-2007 in most fleets. The team believes that this process is unrelated to the direct ecosystem impacts of FADs in the Indian Ocean. However, the justification for SIa has been revised to better support the scoring at SG80.

1	2	3	4	5	6
				number of drifting FADs deployed at sea and number of supply vessels, and the decrease on free school catches of skipjack tuna are thought to be of some concern, particularly as the causes of these indicators are currently not fully understood. These indicators may suggest some increase in fishing mortality or a process of school fragmentation caused by the large number of drifting FADs. In addition, the marked decline in the relative proportion of skipjack in drifting FAD catches, should be further investigated and explained." SG=60 This indicates that there are still disruptions to ecosystem structure and function.	
2.5.2	Yes	Yes	NA		Noted

1	2	3	4	5	6
2.5.3	Yes	No	Condition 3 – The research project proposed is very vague in terms of 'contributing to the expansion of knowledge with regard the effects of FADs on tuna behavior, feeding, and migration." I'm not sure that any one project could really answer the question directly but not sure what other conditions would help either. Much harder to fix this problem than others.	2.5.3b the effects of FADs on tuna behavior cannot be inferred, despite some investigation. The MSC report cites Dagorn et al (2012) but neglects to give details that would explain the conclusion that 'there is no unequivocal empirical evidence that FADs represent an 'ecological trap' that inherently disrupts tuna biology'. First, Dagorn et al (2012) was a review paper, not the results of an experiment. Each paper had different objectives and many were trying to test alternative ecological theories. Second, almost all of the papers reviewed were observational studies, rather than controlled experiments. This makes each paper at best able to find correlations, not causes. Third, finding that there is no evidence of harm is a very risk prone position, and contrary to the precautionary principle, in which there should have to be evidence provided that there is no disruption. SG=80 not met.	We agree. The FAD sets do not meet SG80. The condition has been extended to cover this issue. The overall performance score is unchanged at 75.
3.1.1	Yes	Yes	NA		Noted
3.1.2	Yes	Yes	Condition 4 - Yes		Noted
3.1.3	Yes	Yes	NA		Noted
3.2.1	Yes	Yes	Condition 5 - Yes		Noted

1	2	3	4	5	6
3.2.2	Yes	No	Condition 6 - Yes	3.2.2b – The report says that SG=60 is met for the IOTC and the EU but not for the Seychelles, so not sure how to score this one 3.2.2c – The report says that the precautionary approach is used, but in other places the process for making private agreements (p 155) implies that financial considerations may override the precautionary principle. So, the IOTC and EU meet the SG=80 but the Seychelles doesn't.	Seychelles does not meet SG80. We are uncertain of the peer reviewers concern. The report does not imply that financial considerations may override the precautionary principle. The ability of coastal states to benefit from resources in their EEZs when they have no domestic fishing capacity is part of UNCLOS, which also considers the precautionary approach in that context. The text has been amended for clarification.
3.2.3	Yes	No	NA	Scoring should be 90, not 95? All elements meet SG80; some achieve higher performance at SG100, but some do not.	The score has been revised.
3.2.4	Yes	Yes	NA		Noted

General comments

a. Having FAD and FSC scored separately negates cumulative impacts. There should be some recognition of cumulative impacts for both methods, not just separate scoring for each, e.g. ETP species – if 2% in FADs and 2.5% in FSC, there was no mention of the other method in cumulative impacts. Otherwise it worked pretty well.

We have now included cumulative impacts assessments in PIs 2.1.1, 2.2.1, 2.3.1 and 2.4.2 as required by MSC . We agree that the elemental approach to scoring FAD and FSC set types does confound the issue of cumulative impacts assessments, but we have attempted to meet both MSC requirements.

b. The Assessment team did a good job of providing background information. The report was very readable and understandable.

Noted

13.2. Peer Reviewer - B

Summary of Peer Reviewer B Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	Yes/No	CAB Response
Justification: In Principle 1 I have queried some of the SG100 level scores, in particular due to uncertainties and availability of information. I have also queried one SG80 score due to the tools to control the rate of exploitation according to the HCR only being "available". However, even if the team take onboard these concerns this does not result in a change of score which would lead to a change in the overall conclusion of a pass at P1, although in relation to the HCR tools this could lead to an additional condition.		The report has undergone extensive editing to clarify scoring rationales, rescore PIs and Ps as appropriate, revise existing conditions to follow MSC requirements and add new conditions and recommendations.
For Principle 2 in a number of instances further justification is required to support the scores given. If not possible then lower scores may result. In particular, the re-classification of some shark species as secondary and a fuller consideration of ETP species (based on potential to interact, rather than observed interaction) may lead to changes in scores. And potentially even further conditions. Overall in Principle 2 – given the loss of 200 FADs a season and the known capture of shark and ETP species it is slightly surprising that the only conditions relate to information PIs.		See specific PIs for detailed comments.
For Principle 3 a lot of the rationale and justification is contained in the descriptive reporting sections rather than under each scoring issue of each performance indicator. This makes it harder to quickly and clearly understand the reasoning behind the score given. This may mean in some cases I have concluded that the justification is not adequate, when, with more time, I may have found the relevant critical information in the chapter. Apologies if this is the case, but I do think in the interests of clarity it is best to have all critical information contained in the scoring justifications.		We appreciate the comment but we consider this to be a matter of style. If all relevant information was repeated in the scoring rationales this could detract from the thrust of the justification.
In some cases, in P3, the difference between scoring at the 100 level or scoring at the 80 level is very small (sometimes just down to a single word in the scoring guidepost). In these cases, I've tried to focus on the justification in support of that particular difference. Overall, I've highlighted a number of places in P3 where I think improved justification is required to support higher scores. Although if all high scores with insufficient justification were to be revised downward, this may result in the fishery failing P3, I suspect this can be avoided by improving the justifications.		See specific PIs for detailed comments.

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCR 7.11.1 and sub-clauses]	Yes/No	CAB Response
Justification: Some of the conditions raised are not appropriately written. Conditions should be drafted following the narrative and metric form of the PISGs. For example, condition 1 relates to 2.3.3 scoring issue b. The condition should make clear it refers to scoring issue b and the condition should be expressed with reference to the SG80, such as "Ensure information is adequate to measure trends and support a strategy to manage ETP species". This applies in particular to the P2 conditions. Condition 6 refers to scoring issue c instead of scoring issue d. All conditions are expressed with an appropriate timeline and indications of how scores will change as a result. However, the timelines may be considered by some to be a little too prescriptive. For example, specifying that the client should commence a particular project may be beyond the remit of the assessors, as there may be other possible means to demonstrate that the SG80 level is met.		We have revised existing conditions to follow MSC requirements.

If included:

Do you think the client action plan is sufficient to close the conditions raised? [Reference FCR 7.11.2-7.11.3 and sub-clauses]	Yes/No	CAB Response
Justification: Several of the P3 conditions rely on input from external entities – in particular the Seychelles Fisheries Authority / Ministry. Accordingly, success may depend upon that input.		We agree.

Table 68 Peer Reviewer B- Detailed Comments with CAB Responses

Columns

1 Performance Indicator
2 Has all available relevant information been used to score this Indicator? (Yes/No)
3 Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)
4 Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)
5 Justification. Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary. Note: Justification to support your answers is only required where answers given are 'No'.
6 CAB Response

1	2	3	4	5	6
1.1.1	Yes	Yes	NA	The 2013 stock assessment indicates the stock was well above Bmsy. Since then fishing mortality has been below Fmsy. It is a shame that there is not a more recent stock assessment, therefore (along with the identified uncertainties) this may lead to a reduced level of certainty about current stock status, however, the IOTC review of 2016 still concludes a very low probability of the stock being below Bmsy.	Noted.
1.1.2				n/a	Noted.

1	2	3	4	5	6
1.2.1	SIa – Yes SIb - Yes SIc – Yes SId – No SIe – N/A SIf – N/A	SIa – Yes SIb – Yes SIc – Yes SId - No SIe – N/A SIf – N/A	N/A	The MSC defines Harvest strategy as "the combination of monitoring, stock assessment, HCRs and management actions ….". However, the text justification places considerable focus on HCR. Even though this is very newly implemented and no mechanism for allocation of catches is in place. Indeed, the justification even says "if implemented as intended". For SId SG100 I would expect to see a review of the overall harvest strategy for skipjack – i.e. as per the MSC definition above. Instead the justification points to routine stock assessment, review of reference points and IOTC adoption of recommendations.	We disagree. This scoring issue is not a review of the HS and any failings as possibly intimated by the peer reviewer ("*For SId SG100 I would expect to see a review of the overall harvest strategy for skipjack*"). Rather, this scoring issue tests whether there is a review and improvement process for the HS. We note the HS definition from the V2 Vocabulary, as well the indication of key HS elements at GSA2.4. The HS for skipjack is science-driven with critical dependency on the flow of information, stock assessment to make inferences, and application of controls put in place through annual IOTC meetings and decisions. The scoring rationale lays out how the SC fits in the annual process and how the Commission responds through making resolutions. The SC and Commission processes constitute the periodic (annual) review and the making of resolutions on catch reporting, effort control, implementation of HCR, etc., are evidence of attempts at improvement. Overall, these processes are interpreted as sufficient to achieve the 100 level requirements but scoring 100 does not imply there are no problems with the process or that the HS is unflawed.

1.2.2	SIa – Yes SIb - Yes SIc – Yes	SIa – Yes SIb - Yes SIc – No		A key concern here is that the HCR only ensures a cessation of fishing at 0.1B0. This is 50% below the PRI at 0.2B0. At the point of PRI, the HCR still allows for 33% of maximum levels of effort. A second key concern here is that no mechanism for allocating catches in event of the HCR needing to constrain catches is available. This is often the most difficult of all fisheries challenges to resolve! The justification for scoring issue c refers to tools to achieve HCR exploitation rates as being "available" – i.e. a catch allocation system would be implemented if required. However, if the tools are only "available" as opposed to "in use" then scoring should be at the SG60 level.	Key concern: The HCR as adopted is chosen based on likely performance estimated using Management Strategy Evaluation (MSE). It is the performance rather than the rule itself that matters. We have responded also to ISSF on this point in comments on the Maldives Pole and Line PCDR: "*This is a very difficult issue. We do not agree the ISSF point related to the structure of the HCR – the HCR likely performance has been tested using Management Strategy Evaluation (MSE) and it is the performance of the rule that matters, not the rule per se. However, we agree that testing of likely performance could include a range of assumptions as to (as yet unspecified) management decisions related for example to subsistence fishing if the minimum threshold is reached. We have to make a judgment given the materials presented and the MSE work cannot be comprehensive. We have to take in to account the full set of "meta rules" associated with Res 16-02 and the likely robustness to the "main uncertainties" possible during the implementation lifetime. It is very hard to envisage that the stock could approach such a low level during the next five years (as seems to be agreed by ISSF in its comment at 1.2.2c) and even if it were to decline, Res 16-02 and the annual IOTC processes allow for reconsideration. We recognize the FCR V2 Guidance at GSA2.5.2-2.5.5 and our considered view is that the HCR is likely to be robust <u>to the main uncertainties</u>, hence justifying a score of 80."* Second concern: *we agree that "This is often the most difficult of all fisheries challenges to resolve!"* Indeed, in our view, it is nearly always

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					the overwhelming challenge to fisheries management and is especially so for RFMOs. In terms of the HCR implementation, IOTC 16/02 paragraph 11 addresses the issue of allocation should SBcurrent fall below 0.4SB0. The specification is incomplete but no more so that in any other HCR case we are aware of. Leaving allocation unspecified for catch limits when SB>0.4SB0 assumes a constant selectivity/exploitation pattern in the fishery which, at least in the near-term is not unreasonable and is tested for in the MSE. While the MSC definition of HCR uses the term "well-defined", there are few if any HCR or management procedures in use globally that include allocation/selectivity definitions as part of the main rule or even meta rules. Justification: Please see comments to peer reviewer A on this issue. The scoring rationale is based on very specific provisions at FCR V2 GSA2.5.6-2.5.7 (and SA2.5.6-2.5.7) plus the quoted MSC Interpretation dated 16/12/2016.

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1.2.3	SIa – Yes SIb - No SIc – Yes	SIa – Yes SIb - No SIc – Yes		There are 2 Scoring Issues at the SG100 level. At present one is met; the other is not. Therefore, the overall PI score is 90 (not 85 as indicated – although it does say 90 on the summary on page 22). For scoring issue B, a critical difference is that SG80 only relates to UoA removals, whereas SG100 relates to "all". Therefore, the data deficiencies resulting from some countries and some fleets reporting does impact on scoring at the SG100 level. If it cannot be concluded that "all" information required by the HCR is monitored with "high frequency and a high degree of certainty", then SG100 is not met.	We disagree. FCR V2 GSA2.61 specifies that the SG80 level distinction at UoA and all other removals is at SI(b) and SI(c), not between SI(b) 80 and 100 as suggested by the peer reviewer. The SG language at SI(b) 100 pertains to information and uncertainties associated with implementing the HCR, and therefore the stock assessment, as outlined in the scoring rationale.
1.2.4	SIa – Yes SIb - Yes SIc – Yes SId – Yes	SIa – Yes SIb - Yes SIc – Yes SId – Yes		Good clear justification.	Noted.

2.1.1	SIa – Yes SIb - No	SIa – Yes SIb - No		Does the catch table take account of mortality from entanglement? It would be helpful if the issue of entanglement could be addressed explicitly for 2.1.1, 2.2.1 and 2.3.1. If non-entangling FADs are mandatory then this should be defined in the UoA and demonstrated to be applied with. Catch tables support justification for 2 main primary species (in both set types) – bigeye and yellowfin. IOTC concludes yellowfin stock is "overfished and subject to overfishing" but that there is sufficient probability that the stock is above PRI. A score of 80 is therefore appropriate for yellowfin. For bigeye the stock is well above Bmsy, but the level of probability is just less than the 90% confidence levels to support a score of 100. Therefore, a score of 80 is also appropriate. 3 primary minor species are identified – swordfish, albacore tuna and kawakawa tuna. All make up less than 1% of catches in both set types. However, there are other species managed by IOTC with reference points, which feature in the catch which might also be considered as 'Primary minor' – depending on the % threshold the team wish to specify for discounting negligible quantities. For example, striped marlin, blue marlin and black marlin are all IOTC managed, with reference points and with a higher % catch than kawakawa tuna, which is considered here. So perhaps these should be included in 'elemental scoring'. In particular as some other these additional species are currently overfished. This exercise would be more logical, although I suspect	Both the SFA and AZTI reported that observer data includes observation of entanglement in the FADs. The introductory text has been revised to cover entanglement in FADs. The Echebastar fleet exclusively uses non-entangling FADs, and we believe this accounts for the difference between the higher bycatch rates in the published 2000-2010 data and the observer data for this fleet in the 2014-2016 period. The team acknowledges the oversight with regard to the identification of primary minor species. The text has been revised to correctly include the additional species.

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				that the score will remain unchanged.	
2.1.2	SIa – Yes SIb - Yes SIc – Yes SId – N/A SIe – No	SIa – Yes SIb - Yes SIc – Yes SId – N/A SIe – No		Given that none of the main or (currently defined) minor primary species appear to be below PRI, the measures referred to here are adequate and the justification provided is appropriate. Scoring issue e should only be scored if there is unwanted catch of primary species (SA3.5.3). Since the justification begins by stating there is not, this should not be scored. This will reduce the score for the PI to 80.	The SIe rationale states that there are no unwanted main primary species, but some of the minor primary species are unwanted. The score for SIe is maintained
2.1.3	SIa – Yes SIb - Yes SIc – Yes	SIa – Yes SIb - Yes SIc – Yes		As 2 out of 3 of the 100 level scoring guideposts are met, the overall PI score should be 95, not 90 as indicated here. Scoring at the 100 level is appropriate for scoring issue a, since this only refers to main species and only UoA impact. Scoring at the 100 level is also appropriate for scoring issue b since this only asks for some quantitative info from the UoA on minor species. However, if the list of minor species changes (as a result of comments above) then justification will need to be updated to reflect this.	The list of minor primary species has been revised. The overall score for the PI has been revised upward to 95.

2.2.1	SIa – No SIb - Yes	SIa – No SIb - Yes		Any out of scope species (i.e. birds, mammals, reptiles, amphibians) which are not ETP are automatically considered as secondary main (SA3.1.4.2). Therefore, any birds which are occasionally caught in the fishery should be referred to here – even if the levels are negligible. Additionally, some species treated as ETP species do not appear to be ETP according to the MSC definition (SA3.1.5). For example, according to the justification provided, Oceanic whitetip shark is not ETP and should instead be treated as secondary species. It is not listed in CITES Appendix 1, nor the CMS and there is no mention of it being protected in national legislation. Furthermore, the IUCN status of 'vulnerable' does not qualify it as ETP as it is not 'out of scope' (see SA3.1.5.3). The fact the silky shark is listed on appendix 2 not appendix 1 of the convention of migratory species may mean that it too is not ETP. And there is no mention of why the various ray species qualify as ETP. Scoring at the 100 level for this PI is based upon the premise that there are no secondary main species. This should be reviewed in light of comments above. For Minor species no attempt has been made to determine their status (such as by doing a RBF exercise) instead the argument is based on the small size of the UoA (just 5 client vessels and no other eligible fishers) and the fact that all minor species comprise less than 0.5% of overall catch – therefore quantities relative to overall catches in other fisheries are sufficiently small to not hinder any recovery even if the species was depleted.	No birds were identified in the observer data and no bird entanglements were reported in response to specific questions during the site visit. Oceanic whitetip sharks have been moved to minor secondary species. The team has now identified ETP species as those listed in CITIES Appendix 1 and in the CMS Appendices I and II, as per GSA 3.1.5.2, and that includes the manta and devil rays. There no requirement to do a RBF for only secondary minor species, however the maximum score for the PI is 80 and this is the allocated score.

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				This argument is permissible within the standard.	
2.2.2	SIa – Yes SIb - Yes SIc – Yes SId – Yes SIe – No	SIa – Yes SIb - Yes SIc – Yes SId – Yes SIe – No		This may change depending on whether the definition of secondary main is revised based on comments above in relation to 2.2.1. For example, if silky shark is concluded to be main secondary then management may wish to focus on reducing UoA related impacts.	Silky shark is ETP
2.2.3	SIa – Yes SIb - Yes SIc – Yes	SIa – Yes SIb - Yes SIc – Yes		As 2 out of 3 of the 100 level scoring guideposts are met, the overall PI score should be 95, not 90 as indicated here. Scoring at the 100 level is appropriate for scoring issue a, since this only refers to main species and only UoA impact. Scoring at the 100 level is also appropriate for scoring issue b since this only asks for some quantitative info from the UoA on minor species. However, if the list of main species changes (as a result of comments above) then justification will need to be updated to reflect this.	The list of secondary species and the scoring has been revised. The overall PI score has been revised to 85.

2.3.1	SIa – No SIb - No SIc – Yes	SIa – No SIb - No SIc – Yes		The comments above for 2.2.1 already discuss the possibility that some species classified as ETP should be secondary. A further concern for ETP classification is that this has been based on observed *catch* records. It would be preferable to begin with a review of which species are classified as ETP (according to the various definitions in SA3.1.5), which exist in the area of the fishery with the theoretical potential to interact (regardless of whether they have been *observed in catches*). This may well mean that a number of bird and whale species should be included which have not previously been considered. Scoring should then be done by elements. Also, if using scoring issue, a, then national and international limits should be referred to in order to determine whether the level of catches are within these. According to SA3.10.2.1b a direct demonstration of this is required to score at SG80. The data clearly demonstrates that some ETP turtles are caught in the FAD UoA, so this rationale of likelihood of being within 'limits' is important. The rationale currently presented is based around other fisheries being worse for ETP mortality and that the numbers of vessels in the UoA is small. No quantitative figures are given for the other MSC certified fishery so the combined impact is not presented. And no quantitative explanation is given in relation to "likely", "highly likely" and "high degree of uncertainty" thresholds. Justification for SIb should also be scored using elements for a wider range of ETP species and further justification provided for "highly likely" (nb. In the bold text which summarizes the score	The list of ETP species has been revised. The scoring rationale (SIb) has been revised to include a general impact assessment of the fishery on ETP species and to consider the specific direct effects using the scaled observer data. The scoring of SIb includes accounting for the combined effect of MSC certified fisheries.

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				it states only “likely” – i.e. SG60).	

2.3.2	SIa – No SIb – N/A SIc – No SId – No SIe - No	SIa – No SIb – N/A SIc – No SId – No SIe - No		For scoring issue a no mention is made of what the national and international requirements are. Given that, an alternative may have been to use the alternative scoring issue b (although I think the MSC would prefer that national and international limits are referred to). I would imagine that the use of non-entangling FADs is a key pillar of the ETP management strategy. Comments elsewhere indicate that this has contributed to a significant reduction in ETP bycatch. Is there a reason that this is not described in SIa? Also, mention is made that all FADs are non-entangling. Can this be independently verified? Why not define this as part of the UoA? Is the double conveyor in use on all boats of the UoA? If not, it should not be mentioned. In scoring issue c information is presented to give objective basis for measures to reduce turtle capture. Is there objective basis in relation to measures to reduce impacts on other ETP species? In scoring issue d, it would be good if the measures referred to in scoring issue a could be demonstrated as being implemented. Instead the justification again talks of low catch rates and level of impact, which is not what the SI is asking. Here would be a good place to describe how it can be verified that only Non-Entangling FADs are used, or that training is indeed carried out etc. SIe refers to reviews by the client, but no reference is given for these. Some of the references that are given are not reviews.	The justification has been revised to state specifically what the requirements are: to minimize mortality. The UoA includes the purse seine set in two ways: free school and FAD, or unassociated and associated. Double conveyors are only used on 3 of the 5 Echebastar vessels. SId justification has been revised

1	2	3	4	5	6
2.3.3	SIa – Yes SIb - Yes	SIa – Yes SIb - Yes	Yes	This correctly states that there is some quantitative data this does not provide a 'high degree of certainty'. So SG100 is not met for scoring issue a. A condition in relation to scoring issue b is also appropriate.	Noted
2.4.1	SIa – Yes SIb – Yes SIc - Yes	SIa – Yes SIb – No SIc - Yes		Scoring issue a should not refer to VMEs. This should be addressed only in scoring issue b. It is very striking that even with a tightly defined UoA of just 5 vessels there are still 200 FADs lost (it is not clear over what time frame that is). This seems to be a significant issue which an MSC certified fishery should address. Scoring issue b: I think it is applicable that free sets do not impact VMEs. They should be given credit for this. It is also not relevant that in Seychelles corals are considered a renewable resource. It seems surprising that given the high number of FADs that are lost (even by the tightly defined UoA), their unknown fate and their clear potential to impact on habitats, that a condition has not been raised to address this issue – either under habitats or under ecosystem.	The text of SIa, SIb, and SIc have been revised, and score of SIb for the FAD set type has been reduced to 60. The overall score for the PI is 70, and a condition has been added relative to the impact of FADs on corals.

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2.4.2	Yes	No		The justification for the main pelagic habitat and in relation to free-set is adequate – for all SIs. However, the impact highlighted in 2.4.1 is the physical impact of lost FADs on reef habitats. The measures referred to here relate to measures to slightly reduce fleet capacity and slightly reduce the numbers of FADs deployed and encourage improved FAD design to address the issue of entanglement and improved reporting of bycatch. None of these are focused on the issue -defined in 2.4.1 - of lost FADs and the impact on coastal habitats (including reefs). In order for scoring issue b to be met in relation to the issue of lost FADs impacting habitats then the 'objective basis' for confidence that management will work should be described. In scoring issue c – it is not clear that non-entangling FADs reduces habitat impact. Focus should be on implementation of the management that addresses the issue identified in 2.4.1. Scoring issue d also refers to non-entangling FADs which is not a habitat management measure – unless it is explained how this reduces habitat impact.	The text of this justification has been revised to specifically demonstrate the measures and partial strategy consisting of the various IOTC resolutions will reduce both the probability of an encounter between a FAD and a coral reef, and minimize the extent of the damage to the coral reef.

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2.4.3	Yes	Yes	Maybe – see note.	Information is adequate for main pelagic habitats and the free set fishery. In relation to FAD sets it is correct to highlight that "information is not adequate to understand the nature of impacts of gear on VME coral habitat……" – and so look to address this weakness with a condition. However, the scoring issue where this condition is raised (SIb) only refers to "main impacts" on "main habitats", so there is a risk that the fishery demonstrates that the SG80 is met, without really undertaking what the condition seeks to achieve.	The text of the justification has been revised to include main and VME habitats. Additionally, the text of the condition has been revised, including addressing the nature of the impacts between FADs and coral reefs.
2.5.1	Yes	Yes		Extensive justification is provided. Although the justification does not state why the conclusion is "highly likely", as opposed to "likely" or "high degree of certainty. However, a score of SG80 seems appropriate and in line in many other fisheries. No change needed. I wonder if the issue of marine litter could be addressed here – i.e. the loss of FADs. Regardless of their impact on VMEs or ETPs, there is a question about environmental impact.	Justification has been revised to better support the conclusion "high likely". With regard to the issue of marine litter, when FADs are released there is no intention of losing them i.e. there is a distinction between releasing a FAD with the intent of retrieving it, and intentional discharging (dumping) of marine debris as defined by MARPOL.
2.5.2	Yes	Yes		The management measures referred to here have mostly already been mentioned in P1 or previously in P2. But given the 80 score for 2.5.1 they are probably adequate to qualify as a "partial strategy".	Noted
2.5.3	Yes	Yes	Yes	The condition is appropriate.	Noted

3.1.1	SIa – Yes SIb – OK SIc – No	SIa – Yes SIb – OK SIc – No		Justification should refer to the legal texts which provide the foundation for fisheries management at all relevant jurisdictions – EU Common Fisheries Policy, Seychelles Fisheries Act, IOTC convention etc. However, scoring at the 80 level is OK. For scoring issue b, it would be preferable to point to an actual dispute resolution mechanism, rather than proactive approaches to avoid dispute, which is addressed under 3.2.2e. Note: The IOTC Agreement states "*Any dispute regarding the interpretation or application of this Agreement, if not settled by the Commission, shall be referred for settlement to a conciliation procedure to be adopted by the Commission. The results of such conciliation procedure, while not binding in character, shall become the basis for renewed consideration by the parties concerned of the matter out of which the disagreement arose. If as the result of this procedure the dispute is not settled, it may be referred to the International Court of Justice in accordance with the Statute of the International Court of Justice, unless the parties to the dispute agree to another method of settlement*". **http://www.iotc.org/documents/dispute-settlement** For scoring issue, c the justification suggests that SFPAs, IOTC regulations and declarations of marine reserves are all evidence to support conclusions about the legal rights of those dependent by custom on fishing for food and livelihoods. It would be preferable to highlight explicit examples of where such rights are formally observed. Overall scoring at 80 seems	The scoring rationales should be read in conjunction with the main text that provides the detail. Note that 3.1.3 refers to the legal texts. In the Seychelles the mechanism to observe legal rights is the FMPs and the declaration of marine reserves. The rationale has been revised to strengthen the justification.

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				justified, but justification of reasons for score could be improved.	
3.1.2	SIa – Yes SIb – Yes SIc – Yes	SIa – No SIb – Yes SIc – Yes	Yes	It is not easy to follow the justification. For scoring issue a, justification at SG60 refers to how many actors are involved, so does not address the focus of the scoring issue – namely how tightly these roles are defined and understood. It would be preferable to simply list the key roles & responsibilities, then state where there these are defined and provide evidence that they are understood. It is not clear why the weakness identified in relation to Seychelles stakeholder consultation in scoring issue b does not also apply to scoring issue c.	The rationale has been redrafted. There is a notable difference between the scoring issue SIb (The management system demonstrates consideration of the information obtained.) and SIc (The consultation process provides opportunity for all interested and affected parties to be involved.)

1	2	3	4	5	6
3.1.3	No	No		Justification is adequate for SG80. The objectives are clearly there. For SG100 it is critical to point to where within management policy there is an explicit "requirement" that clear long-term objectives (consistent with MSC / precautionary principle) are set. Clearly demonstrating this "requirement" means that SG100 is met. If not only SG80 is met resulting in the overall Principle level score falling below 80. The reference for the EU Common Fisheries Policy does sets out objectives, but not a "requirement" for objectives. The justification provided does not state how the Seychelles fisheries law specifies such a "requirement". So, the focus rightly falls on IOTC 12-01. This clearly "requires" that the precautionary principle is followed and "requires" that reference points and HCRs are implemented. The question is: does this count as a requirement that clear and long-term objectives (consistent with MSC) are set. IOTC 12-01 goes on to "require" that "*In the determination of appropriate reference points and harvest control rules, consideration must be given to major uncertainties, including the uncertainty about the status of the stocks relative to the reference points, uncertainty about biological, environmental and socio-economic events and the effects of fishing activities on non-target and associated or dependent species*". Perhaps this "requirement" captures some of the wider MSC objectives, so could be included in the justification to help support scoring at SG100.	The scoring rationale has been redrafted to strengthen the justification for 100.

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3.2.1	No	No	Yes	It is not clear why a score of 75 is awarded for this single-issue performance indicator. Is this because EU and IOTC meet the SG80 but Seychelles does not? Or because of the private agreements do not reach 80? Or because P1 objectives meet the SG80 but P2 don't? Partial scoring is possible but why not a 70 or 65? Some of the actions required by the resulting condition suggest that scoring is currently well below 80. All justification should point to the Indian Ocean skipjack / purse seine fishery. The EU external waters legislation is not fishery specific. The justification states that there are explicitly short and long term P1 and P2 objectives within the EU management approach – but are these fisheries specific? No fishery specific P2 objectives are referred to here. SG60 is met, but more clearer justification is required to support higher scores. It may be helpful to quote objective 1 of IOTC 16/02, which is fisheries specific and states: "*To maintain the Indian Ocean Tuna Commission Skipjack tuna stock in perpetuity, at levels not less than those capable of producing maximum sustainable yield (MSY) as qualified by relevant environmental and economic factors including the special requirements of Developing Coastal States and Small Island Developing States in the IOTC area of competence and considering the general objectives identified in Resolution 15/10 (or any subsequent revision)*".	The scoring rationale has been redrafted to strengthen the justification for 75.

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3.2.2	SIa – Yes SIb – No SIc – Yes SId – Yes SIe - Yes	SIa – Yes SIb – No SIc – Yes SId – Yes SIe - Yes	Yes	As 2 out of 5 scoring issues at SG80 are met, then the overall score should be 65, not 70. Scoring issue, a: As the focus here is on fishery specific decisions, I think main emphasis of justification should be IOTC. And justification should describe how decisions are taken. The degree of stakeholder involvement is not relevant to the scoring issue. Reference to private agreements protecting local fishers would be better placed in 3.1.2. Overall, I'm not clear why SG80 is not met. Scoring issue b: SG80 justification needs to include reference to IOTC processes. An example here would be useful to demonstrate how issues have been responded to. Scoring issue c: score of 80 justified with correct reference to IOTC 16/02 Scoring issue d: weakness in relation to explanation correctly identified. Scoring issue e: is the "opt-out" a strength of management? Justification adequate to support the SG80 (the scoring of SIe at SG100 does not influence overall scoring).	On the basis of the peer reviewer's observations the scoring rationale has been revised: SIa, SIb, SIc and SIe meet 80 and SId meets 60. The allocated score is 75. We accept that SIa achieves 80 with the rationale on the EU strengthened. Issues with the Seychelles decision making process are covered in 3.1.2 and there should not be double jeopardy.

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3.2.3	SIa – No SIb – Yes SIc – Yes	SIa – No SIb – Yes SIc – Yes		Around 65% of catches are from international waters, where presumably there is very little enforcement capacity. The IOTC 2015 review of MCS notes that *"a high seas boarding and inspection scheme is currently being developed for the IOTC Area, with the hope that the Commission will adopt such a scheme in the future" (***http://www.iotc.org/documents/monitoring-control-and-surveillance-mcs** *).* Has this been introduced yet? The system comprises licensing, VMS, e-logs and enforcement of landings. Neither the UoA definition nor the traceability section of the report makes clear where landings can be made to? Is this just to Seychelles? Or are other landing inspection regimes relevant too? The high level of observer coverage is mentioned – but is their role related to enforcement? The traceability section of the report also states that "catches are sorted by species during the final unloading of transshipped containers" and that reported catch quantities are based on these figures. This contradicts the earlier statement that species catch breakdown is confirmed prior to transshipment. Overall, justification is insufficient to conclude that the control and enforcement system is" comprehensive".	The peer reviewer may be mixing traceability and enforcement issues. The traceability section has been redrafted. The score is amended to 85 .

3.2.4	SIa – No SIb – No	SIa – No SIb – No		The Medley & Powers MSC pre-assessment is not an external review. This is not part of the management system. Only 1 reference is provided for a review of a fisheries partnership agreement with Mauritius (where less than 1% of catches are made). But the IOTC seems quite good on reviews & evaluations and lots of other reviews are available of key parts of the management system such as: Overall IOTC performance review: **http://www.iotc.org/documents/report-2nd-iotc-performance-review-panel** Port state measures: **http://www.iotc.org/documents/port-state-measures** MCS: **http://www.iotc.org/documents/monitoring-control-and-surveillance-mcs** Data collection & sharing: **http://www.iotc.org/documents/data-collection-and-sharing** Scientific advice **http://www.iotc.org/documents/quality-and-provision-scientific-advice** & lots more (look up PRIOTC) in the IOTC document search: **http://www.iotc.org/documents** In addition, it is very relevant that IOTC 16/02: which is the fishery specific resolution for skipjack states "The Commission shall review this measure at its annual session in 2019, or before if there is	Noted. The rationale has been edited.

1	2	3	4	5	6
				reason and/or evidence to suggest that the Skipjack tuna stock is at risk of breaching LRP". There's even a FAO review of RFMO reviews! **http://www.fao.org/3/a-i4869e.pdf** Overall, there is enough to support scoring at SG80 but justification should be added to.	

13.3. Peer Reviewer - C

Summary of Peer Reviewer Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	Yes, mainly	CAB Response
Justification: In general, the report is well written and is comprehensive. There are some sections/points in the report which would benefit from a review to improve their clarity, and I believe the rationales for P2 sometime miss the point of the requirements (although the information seems to be available – the rationales just need to be adjusted). More details are provided against the PIs and in the general comments section, below.		Noted.

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCR 7.11.1 and sub-clauses]	Yes, mainly	CAB Response
Justification: Generally, yes, but see the comment on the CAP, below.		Noted.

If included:

Do you think the client action plan is sufficient to close the conditions raised? [Reference FCR 7.11.2-7.11.3 and sub-clauses]	Yes mainly	CAB Response
Justification: Generally, yes I have a concern over the approach taken to the condition on PI 3.1.2, though, where I see no evidence that there will be a process established to 'regularly seek and accept relevant information'. Essentially, information as to how this will be delivered on an ongoing basis through a 'process' is missing.		The condition and milestones themselves cannot be prescriptive. The CAP refers to the FMP – which if delivered in an appropriate way should respond to the peer reviewers expressed concern.

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Table 69: Peer Reviewer C- Detailed Comments with CAB Responses

Columns

1 Performance Indicator
2 Has all available relevant information been used to score this Indicator? (Yes/No)
3 Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)
4 Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)
5 Justification. Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
Note: Justification to support your answers is only required where answers given are 'No'.
6 CAB Response

1	2	3	4	5	6
1.1.1	Yes	Yes	N/A	Nothing further.	Noted.
1.1.2	N/A	N/A	N/A	Not scored as not below MSY.	Noted.
1.2.1	No	No	N/A	For SIf, the report states that '*All skipjack catch is retained*'. However, IOTC Resolution 15/06 allows for exemptions to the rule that all catch be retained when the catch is deemed unfit for human consumption due to meshing, depredation or spoiling due to gear failure, or when it is from the last set of a trip, the storage capacity is exceeded, and attempts are made to release the fish alive. In essence, the scoring statement does not appear to be accurate, and it is appropriate to ask – what % of the catch is actually discarded?? If it is anything other than 'negligible' (GSA 3.5.3) then a review of measures to minimize the UoA-related mortality of unwanted catch is appropriate. If there are no data then a precautionary approach should be taken.	GSA3.5.3, and more generally GSA3.1.6, are pertinent to Principle 2 but also to Principle 1 through FCR V2 SA2.4.8.1. IOTC Res 15/06 specifies that all catch must be retained and landed but does create exemptions as noted by the peer reviewer. Data reports (see PI1.2.3c) suggest that overall (not just UoA) discards are considered to be low, though estimates are not available for most of the industrial fisheries. This scoring issue relates only to the UoA. Our understanding from discussions during the site visit is that our statement is correct and scoring at SI(f) is not needed. The peer reviewer

					comment, however, is a concern and we have added a recommendation to estimate unwanted skipjack tuna catch for future evaluation, starting at the first surveillance audit.
1.2.2	Yes	Yes	N/A	Nothing further.	Noted.
1.2.3	Yes	Possibly No	N/A	The SIc requirement is that "There is good information on all other fishery removals from the stock." Although MSC guidance (GSA2.6.1) indicates that information for SIc requires "good information but not necessarily to the same level of accuracy or coverage as that covered by the second scoring issue.", the text provides limited confidence that SG80 is met. It is stated that "According to IOTC (2016d), the majority of skipjack removals are by purse seine (~39%), gillnet (~26%), and pole and line (~17%)." The sum of these figures is 82%, and it seems reasonable to ask which fisheries account for the remaining 18%, and what confidence is there in these other data? There does appear to be considerable uncertainty, though, as the report also states "Discards are considered to be low though estimates are not available for most of the industrial fisheries. Catches are less certain for many of the artisanal fisheries with incomplete reporting by species by some fleets, and uncertainty in some of the more significant fleets (e.g., Sri Lanka)." Essentially, despite the summary sentence indicating that the information is good enough for the stock assessment, the requirement is for 'good information on <u>all</u> other fishery removals', which	We quote figures from IOTC for UoA and main fleets but do not include a complete review of the very large data reports referenced. Our interpretation of SIc requirements seems to be a little different to that of the peer reviewer. MSC guidance (GSA2.6.1) does on the one hand use the term "all", but it also states that information for SI(c) requires "good information but not necessarily to the same level of accuracy or coverage as that covered by the second scoring issue.". We overall conclude that: Overall, while there are known problems with some of the artisanal fishery reporting, the quality of information on non-UoA removals is considered sufficiently good for stock assessment purposes and hence to inform management. This is what matters in order to achieve the overall PI1.2.3 outcome (that relevant information is collected to support the harvest strategy).

				doesn't appear to be the case.	
1.2.4	Yes	Yes	N/A	Nothing further.	Noted.
2.1.1	Yes	Yes	N/A	Nothing further	Noted.
2.1.2	No	No	N/A	General The report states that a partial strategy is not necessary for yellowfin (and bigeye) because: "…if UoA catches are less than 30% of the overall catches of this stock, then the UoA may not normally be considered to be hindering recovery of a species. There is therefore no necessity for a partial strategy to be in place for the UoA." However, Table SA8 states: "The term "if necessary" is used in the management strategy PIs at SG60and SG80 for the primary species, secondary species, habitats and ecosystems components. This is to exclude the assessment of UoAs that do not impact the relevant component at these SG levels." As the UoA <u>does</u> impact the stock of yellowfin (and noting that the stock is estimated to be only between PRI and BMSY), a partial strategy is needed to meet the SG80 score. The same is true for bigeye – there is not 'no impact', so a partial strategy is needed. Essentially, the premise for the entire scoring rationale is flawed, and needs to be reviewed. SIe The report states here: "All unwanted catch is either released before being brailed aboard or is released immediately after being placed on the catch conveyor belt, as all Echebastar vessels are equipped with a secondary conveyor that allows unwanted species to be manually sorted out	The rationale SIa has been revised to include descriptions of the measures and partial strategy that are in place by the IOTC, and this revision is included in subsequent scoring issues as appropriate. Three of the Echebastar vessels have the dual conveyor system; the rationale for this SI has been revised accordingly. With regard to the catch of primary main species that may be lost of slipped, this would be accounted for in the observer data, and reported accordingly. This has been added to the rationale.

				as the catch is moving toward a hold, and returned to the sea." But 2.3.2 SIa states: "The last three vessels that Echebastar has entered into service, IZARO, JAI ALAI and EUSKADI ALAI, are equipped with a double conveyor belt in the fishing deck that allows for the sorting of catch and the return to the sea of specimens that are unwanted once the fish has been put on the conveyor. This has not been possible before…" As there are at least five vessels in service now (Table 6), the best that can be said is that text of PI 2.1.2 SIe is inconsistent with text elsewhere. Sift The report states there is no unwanted catch of main primary species. However, as noted against PI 1.2.1, IOTC Resolution 15/06 allows for exemptions to the rule that all catch be retained when the catch is deemed unfit for human consumption due to meshing, depredation or spoiling due to gear failure, or when it is from the last set of a trip, the storage capacity is exceeded, and attempts are made to release the fish alive. There is no indication of how much discarding there is under this exemption – it may be more than 'negligible'. If there are no data then a precautionary approach should be taken.	
2.1.3	No	No	N/A	I have no argument with the information available for primary species, but the justification for SIc is confused and is at least partly based on the premise that no partial strategy is necessary. For example, the justification states: "There is no partial strategy required for yellowfin and bigeye tuna as catches are small…" But also:	The scoring rationales for PIs 2.1.1 and 2.1.2 have been revised to concentrate on the partial strategies. This leads them to be coherent with the scoring rationale for 2.1.3. The overall PI score has been revised to 95.

				"For yellowfin and bigeye tuna, the measures/partial strategy (see PI2.1.2 Si(a); effectively, maintaining UoA catches… " Under PI 2.1.2, no partial strategy is described, and it is stated that none is necessary. This is not consistent with the CR. NB – Ignoring the need to revise the rationale, this PI has three SIs, and both UoAs are currently scored Yes for 2 SIs at 100 and one SI at 80. As such, the score should have been given as 95, not 90.	
2.2.1	Yes	Not really	N/A	Please note that there are other justifications for scoring a species 'main' than just that it comprises ≥5% of the catch (SA 3.4.2). For minor species, I can sympathies with the attempt to apply common sense, but Table 3 of the CR states that, for assessing 2.2.1, if there are not stock status reference points available then the RBF needs to be used. Even for minor species, it's not sufficient to say (paraphrasing) "there's not much catch, so it's got to be fine".	The text has been amended for clarification on the scoring of a species as main. MSC CR PF4.1.4 allows the team may to use the RBF PSA on the main secondary species. As there are no main secondary species, there is no need for an RBF. Additionally, PF5.3.2.1 states that if minor secondary species are not considered in the RBF, the PI score is capped at 80. The scoring text has been modified to make this clear, and the PI score reduced to 80
2.2.2	Yes	Mostly	N/A	SId Note there is an inconsistency, between what is stated here: "In practical terms, there are limited opportunities for shark finning to take place while at sea and any sharks returned to the sea are returned directly from the brailer prior to catches entering the hopper." and what is stated for 2.1.2 SIe: "All unwanted catch is either released before being brailed aboard or is released immediately after being placed on the catch conveyor belt, as all Echebastar	The text has been revised to make it clearer. The role of the observer program in documenting unwanted mortality has been added. The scoring rationale for SIe has been redrafted to support the fishery meeting SG100. The PI overall score is confirmed as 85.

				vessels are equipped with a secondary conveyor that allows unwanted species to be manually sorted out as the catch is moving toward a hold, and returned to the sea." And what is stated in 2.3.2 SIa: "releasing large sharks from the deck where they are taken aboard" This inconsistency implies a lack of clarity in the approach. Also, not all sharks are big and easily sorted prior to being brailed. How are the small ones dealt with, particularly on vessels that do not have secondary conveyors? Sift Although there is now 100% observer coverage, it is stated that the feasibility / effectiveness of the enforcement of the regulation has yet to be assessed. Without this verification, or at least some data showing absence of finning, a score of 100 is not justified.	
2.2.3	No	No	N/A	SIb Paraphrasing, the justification for SIb that is provided is that not much is known about minor species, but there is enough information to determine change in risk to those species, so score = 100. Change in risk is not being assessed here, however. I'll also point to the inconsistency between the catch data and the landings data (see general comments, below). For SIb, 100 is not justified. NB – The PI has three SIs, and both UoAs are scored Yes for 2 SIs at 100 and one SI at 80. Score should have been given as 95, not 90.	The species list for secondary species has been revised, and justification for SIb revised. The justification now addresses the information adequacy to assess the impact of the UoA on minor secondary species. The SI is determined to not meet the SG100 requirements. The overall PI score has been revised to 85.

2.3.1	Yes	Yes, but see comments	N/A	To note – SIb rather than SIa should be scored if there are no 'limits' in place (SA3.10.1), and I see no evidence of limits….	SIa is now considered as not applicable, and SIb is now considered.
2.3.2	Yes	Yes, but see comments	N/A	Following comments on PI 2.3.1, SIb rather than SIa should be scored if there are no limits in place (SA 3.11.2). I note the comment "the sea turtle interaction rate in the 2000-2010 period is about 1 sea turtle captured per 25 sets, and the Echebastar observer data indicates a rate of 1 sea turtle per 150 sets. This reduction is most likely due to the introduction and use of non-entangling FADs." Of course, in the absence of other evidence, another possible cause for the decline in the encounter rate is that the turtle population has declined.	According to SA3.11.2, the distinction is not set limits as in 2.3.1 SIa or SIb, rather on whether or not there is a requirement to minimize mortality. According to the CMS convention there are requirements on species on the Appendix 1 list, identified as endangered to minimize mortality. We have included a reference that states that sea turtle nesting site in the western Indian Ocean have increased 2-5 fold in the last 25-50 years depending on the area. So sea turtle populations are clearly recovering, not declining.
2.3.3	Yes	Yes	Yes	Nothing further	Noted.
2.4.1	Yes	Mostly yes	N/A	Note that MSC guidance and interpretations indicate that any mention of VMEs in the requirements should also be read as applying to 'Potential VMEs' (CR footnote 6), and that the 'managed area' is relevant. In this regard, I would say that it is pretty clear the managed area is the IOTC CA, so the status of coral in the Seychelles is not the only consideration – essentially, has it been given VME-like status anywhere in the IOTC area – I would suspect so, …? The interpretation here is relevant: http://msc-info.accreditation-services.com/questions/move-on-rules-at-sg60-for-pi2-4-2a/.	The MSC CR states in footnote 6 that the term "VME" also includes "potential VME" to cover situations when a governance body uses a precautionary approach (e.g., where there is doubt over whether a habitat is a VME or not) and when a habitat is being treated as a potential VME. This report follows that guidance and uses the term VME when referring to coral reefs in the Indian Ocean as VMEs, whether potential or so designated. As stated in the report the Seychelles coral reefs are not a managed habitat or designated a VME, but as pointed out by the reviewer, there

					are some coral reef habitats in the Indian Ocean that are "managed". The "move on " rule is not applicable to the impacts of lost FADs on coral reefs.
2.4.2	No	No	N/A	SIa The report states: "There are no management measures in place designed to specifically protect these coral reef habitats (closed areas), so there is no need for requirements to comply with management measures to protect the coral reefs." However, MSC guidance and interpretations apply the idea of 'Potential VMEs' to any requirement applying to 'VMEs' (CR footnote 6), and in this regard the 'managed area' is relevant, which I believe is the IOTC CA. As such, and because lost FADs could impact reefs outside the Seychelles, it is not only the status of coral in the Seychelles that is relevant. Essentially, has coral been given VME-like status anywhere in the IOTC area – I would suspect so – for example, what about the BIOT…? The interpretation here is relevant: http://msc-info.accreditation-services.com/questions/move-on-rules-at-sg60-for-pi2-4-2a/. However, irrespective of an absence of 'need' to comply with management requirements, the MSC sets a Standard for sustainable fishing. In this regard, the interpretation highlights that if move-on rules are not appropriate (see SA3.14.2.3), then something else might be. Is what is needed in place, or is something needed to address impacts of FADs that do get lost and come to ground on coral reefs? In this regard, for VMEs, the scoring relies heavily on the limits imposed on the number and type of FADs	The rationale for 2.4.2 has been revised, and with a score <80, a condition has been applied.

				each vessel can and does operate ("*The Echebastar fleet has moved to 100% non-entangling FADs, so as to minimize impact with fish, sea turtles and on coral reefs*") But why are non-entangling FADs any less impacting on coral – what evidence is there for this? The ISSF guide (which Echebastar, to their credit, has signed up to - https://www.echebastar.com/assets/pesca/NON-ENTANGLING-FADS.pdf) does not mention 'habitat' at all. I suggest the rationale needs to be revised.	
2.4.3	No	No	Yes	SIa: "…the FAD gear type has an unknown number of lost FADs interacting with coral reefs. These coral reefs are not considered a main habitat, but are considered a VME for the purpose of this assessment. The distribution of the all coral habitats, and in particular the impacts of the lost FADs on the coral habitats is not known." However, VMEs are also 'main habitats – see SA3.13.3: "The team shall determine and justify which habitats are commonly encountered, vulnerable marine ecosystems (VMEs), and minor (i.e., all other habitats)." I.e., VME habitats are not 'minor, so need to be scored at SG60 and SG80 – the rationale needs to be revised. SIb Helpfully (and correctly), in comparison to SIa, VMEs have been scored as main habitats in SIb, where the condition looks OK.	We agree. The rationale has been redrafted.
2.5.1	Yes	Yes	N/A	Nothing further	Noted.
2.5.2	No	Yes, but see comments	N/A	SIa "There is no need at this time to have measures or a	The rationale has been revised.

				partial strategy to achieve the Ecosystem Outcome of 80 level, as there is no evidence of the purse seine fishery negatively impacting key elements of the ecosystem." However, a score of 80 for 2.4.1 doesn't mean that measures or a partial strategy aren't needed for 2.4.2, and particularly not when 2.4.1 states: "FADs … may also have a number of negative consequences for tropical tunas and marine ecosystems (Dagorn et al., 2013) as they can contribute to the increase of catches of juveniles of yellowfin and bigeye tuna, modifications of the natural behavior of tropical tunas (Hallier and Gaertner, 2008; Marsac et al., 2000; Sempo et al., 2013) and increased levels of bycatch and discard". Essentially, I think there is a partial strategy in place in any case (so the score is fine), but the rationale is not appropriate and needs to be revised.	
2.5.3	Yes	Yes	Yes, possibly	The scoring text is fine. I note that the CAP for the condition is only very loosely defined at this stage. That is probably OK, but the Team should pay close attention at Year 1.	Noted
3.1.1	Yes	Yes	N/A	Nothing further, although see comments on 3.1.2.	Noted.
3.1.2	Yes	Yes, probably	No	SIa The scoring text states: "P3 considers the framework and not the actual response (lack of response cannot be taken as lack of understanding)." I agree with this approach for some but not all SIs within P3, and I suspect this is a typo (i.e., 'P3…' should read 'This SI…'). However, if this is the general approach taken then it calls in to question, for	Noted.

				example, the scoring of 3.1.1 SIa (requires delivery of effective management outcomes – scored 80). I suggest reviewing the text. SIb While the condition and CAP address the identified immediate need to improve access to the management system to national stakeholders, it is not clear that the 'regularly' part of the SG80 'regularly seek and accept' requirement is being addressed. I.e., the focus of the milestones and CAP is on the development of a tuna FMP by year 3, but there is no information on what consultation 'processes' will be put in place to address the ongoing and subsequent need. This should be addressed.	
3.1.3	Yes	Yes	N/A	Nothing further	Noted.
3.2.1	Yes	Yes	Yes	Nothing further. Just a question over what "Furthermore, there are several participants involved in the FIP that will ease to meet the condition." means where it is stated in the CAP?	
3.2.2	Yes	Yes, but see comments	Yes	SIa "While there have been improvements, local stakeholders are still to be convinced of the fairness and effectiveness of the established system as it appears that their interests are not taken into consideration." It is not entirely clear if this is the reason why the fishery is scored down for SIa. Does the Assessment Team concur? The text seems to imply that, otherwise, it would meet SG80? Note also that this PI has 5 SIs scored at SG80. Three	The rationale has been redrafted to strengthen the justification for the score allocated.

				'No' and a two 'Yes' = 65, not 70. Note for the condition (Table A2.3), the rationale and the condition text refer to different SIs (a, b, d versus a, b, c).	
3.2.3	Yes	No	N/A	The text provided for SIb ("Given that the strengthening of MSC [sic.] capacity in the Indian Ocean is a work in process and that capacity may vary between countries ….") makes me question if SIa meets SG100 ("A comprehensive monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability…."). A score of 80 for SIa seems OK, but not 100.	We agree. SIa does not meet SG100.
3.2.4	Yes	Yes	N/A	Nothing further	Noted.

General Comments

1) Section 2 or somewhere nearby – I was surprised that there was not a simple catch table (i.e., total catch, UoA catch, UoC catch etc.) provided for the target species. This would help greatly in understanding where the Echebastar fishery sits in terms of the wider Indian Ocean tuna fishery.
Relevant information is considered under P1. Note the template for the simplified process was considerably different from the normal.

2) I have a concern about the representativeness of the observer data presented relative to the landings data shown.
Table 10 shows the observer data, and indicates that skipjack and yellowfin made up 50.4% and 38.9% of the observed catches, respectively (2014-2016). Table 5 shows the landings data, and indicates that skipjack and yellowfin made up 36.7% and 54.8% of the landed tuna catch, respectively. While there isn't a perfect overlap of years between the two sets of data, no explanation is provided as to why this difference exits, and it is an unwelcome distraction. Tables 10 and 11 show the percentage of the catch for skipjack and yellowfin by set types based on the observer data. Table 10 is for the FAD set type only and skipjack is about 50% and yellowfin is 38%. Table 11 is for the FSC set type, and yellowfin is 72% and skipjack is 14%. Table 5 is all tuna landed and skipjack is 37% and yellowfin is 55%. Fortunately, the landed catch distribution is split between the two set types.

3) Just a comment – Table 10 would be much, much easier to read if it was ordered by % of the catch, starting largest first.
Noted

4) Another comment – the scoring commentary is difficult to read because there are no lines separating the different section as in the conventional scoring tables. If this template is the future, it's not a positive development! Please put the lines back in!

We agree

5) P. 51: "During the site visit the team discussions with the client, the head of the Seychelles observer program, AZTI scientists, the skipper of an Echebastar purse seine vessel, revealed more about the different methods of targeting purse seines. It was clarified to the team that there are multiple ways to distinguish between FAD and FSC sets, and that observers can easily differentiate between the two types of sets when classifying the set type on the observer data forms.".

Please provide more information on how the FAD -vs.- FSC differentiation is achieved in practice, as this is an important point that stakeholders will be interested in.

Information has been added to the introduction.

6) The definition of FSC vs. FAD in the report seems quite confused.

P.51: "Purse seine nets are deployed in two ways:

1. setting the seine on free schooling tuna (FSC), unassociated with any structure or object

2. setting the seine on tuna that are associated with some structure, such as a natural log or on artificial fish aggregating devices (FADs)."

But P.54: "In the traditional FSC method, the purse seine is set on schools of free swimming schools of tuna, or tuna unassociated with floating objects or marine mammals. In the more recently developed FAD method, the purse seine is set on tuna in association with objects including logs and artificial floating fish aggregating devices."

However, 'floating objects and marine mammals' do act as FADs and may be considered as such in other jurisdictions (i.e., sets on such objects would not normally be considered FSC, nor do they follow the P.51 definition), while 'logs' don't appear to meet the FAD specification as set out in IOTC Resolution 15/08: "*For the purpose of this Resolution, the term Fish Aggregating Device means drifting (DFAD) or anchored floating or submerged objects (AFAD)* **deployed for the purpose of aggregating target tuna species."** (my emphasis added – i.e., logs, general debris and marine mammals don't appear to be deemed FADs, at least under this Resolution??).

Importantly, though, Paragraph 10 of Resolution 15/08 states: "All CPCs shall ensure that all fishing vessels as referred to in paragraph 1 shall record fishing activities in association with FADs using the specific data elements found in Annex I (DFAD) and Annex II (AFAD) in the section of the "FAD-logbook"."

Essentially, these contradictory statements and Paragraph 10 of Resolution 15/08 together beg the question as to how the data for FSC and FAD sets (= P2 elements for this assessment) are derived, and whether the FAD and FSC data as presented are actually what the Assessment Team states them to be?? Perhaps this is not a huge issue given that the scoring approach for P2 is to take the lowest element score as the overall PI score, but it would be useful to clarify.

We have revised the text to clarify the distinction.

7) It is noted that the scoring calculations for some PIs (e.g. 2.2.3, 3.2.2) is not consistent with the approach detailed in the CR – a check of scoring is needed.

All scoring has been checked.

14. APPENDIX 6: MEETING NOTES

14.1. Echebastar Fisheries

Meeting Record –Fishery Name			
Date	28 March 2017		
Location Start Time/ Finish Time		Echebastar offices Bermeo 11.30 – 13.30	
Attendees			
Name	Organisation	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Jean-Charles Gordon	MSC	Observer / Simplification Process + Echebastar	
Sergio Cansado	ASI	Witness	
Fong Lee	FCF	Observer	
Miguel Angel Varas	Echebastar	Financial	
Julen Marques		Fleet Manager	
Juan Basagoiti		Commercial Dept	
Jose Luis Jauregui		Director	

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Subjects Discussed:

1. The meeting opened with P2/TL using a pre-prepared PPT presentation to describe the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. The client agreed to the presence of the observers. The UoA was confirmed.
2. The issue of other eligible fishers was raised by Scott and there followed a discussion on certificate sharing, the meaning of other eligible fishers and the concepts introduced under the "simplification" process. The client agreed that the best approach was to request a variation to the assessment process with a change to the scope so there are no other eligible fishers. In effect, this means that if the client agrees, other purse seine companies may seek to share the certificate (if awarded), but this would have to be confirmed following a gap analysis and a subsequent expedited audit to confirm or revise the scoring where substantive difference were identified in comparison to the Echebastar fishery.
3. The client confirmed it had no questions as it had acquired a strong understanding of the MSC process during the previous assessment.
4. The decision to seek certification of the fishery as a single unit reflected the current status of yellowfin and the low proportion of non-associated skipjack in the company catch.
5. This led to a discussion on the what constituted a FAD fishery. Free school tuna may be identified as they are "running" while the tuna aggregate around FADs. This, rather than the potential area of influence of FADs, was used to differentiate between the 2 types of set. Whatever, whether free school or FAD, the client confirmed the purse is set in the same way.

6. Under Res 16/01 IOTC had limited the number of FADs per vessel: 425 active with a limit of 850 to be purchased over the calendar year. Previously, the respective numbers were unlimited and then 550 per vessel with 1,100allowed over the calendar year.
7. Echebastar reported that their 5 vessels each had less than 425 active FADs due to the logistics of servicing them with a single supply vessel. A figure of 325 was noted.
8. When setting, the purse seine encircles the FAD and crew members (on a speed boat) check for any entanglements. The number of entanglements had been reduced due to the need to use non-entangling FADS (ISSF best practices https://www.iattc.org/Meetings/Meetings2013/MaySAC/Pdfs/ISSF-Non-entangling-FADs-Revised-10-18-12.pdf).
9. A FIP covering tuna fisheries in the Pacific, Atlantic and Indian Ocean has been launched by WWF along with OPAGAC (http://wwf.panda.org/?261294/40-large-Spanish-tuna-purse-seiners-commit-to-conservation-improvements). A similar program has been established between ANABAC (including Echebastar) and WWF, with a 5 year process scheduled to start in May 2017 (https://www.wwf.org.uk/updates/new-fishery-improvement-project-launches-indian-ocean). Echebastar will continue to support the new FIP.
10. The client emphasized that it had been asked by MSC if it was interested in participating in a simplification process pilot to assess the Echebastar Indian Ocean purse seine fishery.
11. The client perceives that it is a ”clean” fishery although more data is required, mainly from Seychelles, to confirm this. Observer coverage by sets ay sea is 100%, but is data available to characterize the fishery it was 55 % in 2015 and, thus far, 20 % in 2016. A goal in the future was to increase the size of the percentage of data available, and the client believed this was attainable given the improved logistics with better observer training allied with the opening of the AZTI office in Seychelles.
12. Stokes reported that he was P1 / P2 on the reassessment of the Maldives P&L fishery for skipjack. The site visit had been completed in December 2016, but as yet (28/03/17) the draft client report had not been sent to the client but would be this week or next. In terms of P1, Stokes commented that recent IOTC resolutions had relevance to P1 scoring issues which had caused problems in the previous Echebastar assessment. The prospects for a successful Echebastar assessment would be dependent on the evidence provided by stakeholders and on comments received during the ongoing Maldives process (from client, peer reviewers, and stakeholders).
13. Scott reported that Echebastar had supplied catch data by international waters and the individual EEZs of coastal states. In regard to the latter, for the EU there is a mix of fishing effort through EU SFPAs and bilateral agreements on a company basis, while Seychelles flagged vessels are largely covered by private sector agreements. Echebastar undertook to provide the audit team with examples of on-going agreements.
14. All catches in individual EEZs were reported directly to the jurisdiction (tonnage on board when entering and leaving individual EEZs). This is supported by the compulsory use of electronic log books (since 2013). Occasionally there have been issues when a coastal state thought that a report had not been received but such difficulties were resolved when Echebastar confirmed when and how the information had been transmitted.
15. Echebastar has not been subject to any non-compliances. The sole issue was following a change of government in one country that led to some discrepancy on the terms of the existing fishery agreement.
16. ANABAC has an internal good practice manual. Echebastar will provide copy to the auditors.
17. The client stated that it had not received any subsidy to renew their fleet.
18. The client considered that the EU SFPAs did not provide them with any improved terms for fishery access compared to privately negotiated agreements.
19. The meeting was concluded by Scott presenting a resume of the proceedings. These minutes would be prepared and forwarded to the client for confirmation.

Actions Items:

1. Request MSC approval for the variation on other eligible fishers with posting on the MSC web site as soon as practicable.
2. Inform stakeholders in the remaining meetings of the proposed variation and its meaning.
3. Details are needed on the new FIP between Echebastar and WWF..

4. Echebastar to provide the auditors with fishery agreements.
5. Echebastar to provide auditors with ANABAC GPM.

14.2. AZTI

Meeting Record –Fishery Name			
Date	29 March 2017		
Location Start Time/ Finish Time		15.30 – 17.00 AZTI Offices Sukarrieta	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Jean-Charles Gordon	MSC	Observer / Simplification Process + Echebastar	
Sergio Cansado	ASI	Witness	
Fong Lee	FCF	Observer	
Miguel Angel Varas	Echebastar	Financial	
Julen Marques		Fleet Manager	
Juan Basagoiti		Commercial Dept	
Ane Iriondo	AZTI		
Jon Ruiz			
Marga Andres			
Josu Santiago			By Skype
Hilario Murua			

AZTI team emails:

-Josu Santiago: jsantiago@azti.es

-Hilario Murua: hmurua@azti.es

-Jon Ruiz: jruiz@azti.es

-Marga Andres: mandres@azti.es

-Ane Iriondo: airiondo@azti.es

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. AZTI agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. The concerns of PEW were summarized.
4. The AZTI team introduced themselves.
5. The first topic for discussion was the status of the 2016 data, which are currently incomplete.
6. AZTI reported that the aim up to September was to get 2015 data up to 80-90 % and 2016 data to 50 %. Given data processing issues it was likely that it would not be possible to gain 100 % coverage. The question posed was the coverage required to have confidence in the data and ensure that bycatch estimates were solid. 20% is the minimum MSWC requirement. DeAlteris emphasized the need to get the 2016 data to a minimum of 50% complete.
7. The question was posed as to how the Echebastar catch data compared to the data from other segments of the purse seine fleet. AZTI suggested that all were similar.
8. AZTI considered that reduced bycatch since 2010/11 could be global, but it was not clear why this had proven to be the case i.e. whether it was a change in fishing practices or a change in the ecosystem. AZTI had been involved in the introduction of good practices and related monitoring. AZTI would not anticipate marked differences between the various components of the fleet, although there could be a variation in the efficiency of implementation of the good practices by the different companies.
9. DeAlteris asked AZTI to send examples of the sample sizes needed per species to be able to reasonably characterize bycatch. While mandatory coverage was 5%, the scientific committee recommended 20%. AZTI stated they could list references showing the requirement for 20%.
10. Stokes emphasized that the sample size was a function of the degree of interaction of the fishery with individual species, but especially the rarity of the species.
11. AZTI is responsible for training observers and the implementation of the training program. The protocol was presented in the IOTC Scientific Committee. It is updated on an annual basis.
12. There was a discussion on the potential maximum coverage by the observer program. When the program was first established, the observer output was less than optimal but has since been improved with better training and establishment of the AZTI office in Seychelles (from May 2016). The goal was 100%. It was asked if this is possible if there was just one observer; the response was that the observer had to work when the fishers were working and that fishing stops and starts during daylight hours. The office coordinates training and briefs and debriefs observers.
13. AZTI has a MOU with the Seychelles Fisheries Administration.
14. DeAlteris asked about the number of FADs. AZTI has responsibility for the FAD program. AZTI plans to present verification system to the inter RFMO meeting scheduled for April 2017. The approach was described briefly (individual buoys have ID number, daily records on disposition and velocity). AZTI verifies the data to assess whether the buoy was on-board (>4 nm/h) or at-sea and applies filters (area, if buoy was on-line). If a buoy is deactivated it cannot be reactivated until return to port. This leads to daily information being available on the number of active buoys per vessel. This data is collaborated by observer and VMS data.
15. AZTI described the program for non-entangling FADs. These have been introduced on a voluntary basis by ANABAC and OPAGAC since 2014. It was stated that all Spanish vessels now only use non-entangling FADs.
16. AZTI work program includes skipper workshops (one per year for each skipper). It is perceived that these have proven to be important in reducing interactions with turtles and sharks.
17. AZTI reported that some projects on the impact of derelict FADs on corals had been established. The concept of biodegradable FADs was being developed. Pilot projects aimed at recovering derelict FADs in sensitive areas. AZTI acknowledged the issue of derelict FADs damaging local habitats after beaching. While buoys could be used to track derelict FADs ,as yet this was not being done. There are reports of derelict FADs damaging habitats and the objective was to avoid such incidents. It was stated that an identified research priority for the IOTC FAD working group was the development of mitigation measures. French data indicated that 10% of all derelict FADs ground. and some of these will be in sensitive areas.

18. AZTI commented that Echebastar was the only Spanish company to voluntarily provide detailed data including Echo sounder (with 2 months' delay to protect confidential data). AZTI was reviewing how these data could be used to estimate tuna abundance.
19. AZTI acknowledged there is uncertainty about the nature and scale of the trophic impacts of FADs (feeding habits, migration and distribution). The need for such research on the environmental impacts was under consideration.
20. DeAlteris raised the issue of NE Indian Ocean being a hot spot for interactions with silky sharks. He posed the question whether an aggregated map of the distribution of Echebastar fishing effort could be produced, based on sets and not vessel location.
21. The meeting then turned to the issue of the implementation of the HCR for yellowfin. AZTI commented on some rules and measures for the EU purse seine fleet that looked to reduce catch by about 12 % overall.

Actions Items:

1. AZTI: confirm when more complete set of 2016 data would be available.
2. AZTI: send references on sample sizes.
3. AZTI: send package on training and observer protocol for the Indian Ocean.
4. AZTI to provide copy of MOU with SFA.
5. AZTI to provide advance copy of report on verification system.
6. AZTI to provide heat map of fishing sets (without identifying vessels, time, etc).

14.3. PEW

Meeting Record –Fishery Name			
Date	28 March 2017		
Location Start Time/ Finish Time		BY SKYPE. Echebastar offices. Bermeo. 15.30 – 16.30	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Jean-Charles Gordon	MSC	Observer / Simplification Process + Echebastar	
Sergio Cansado	ASI	Witness	
Fong Lee	FCF	Observer	
Juan Basagoiti (Part)	Echebastar	Commercial Dept	
Dave Gersham	PEW Charitable Trust Washington DC	Senior Associate. Global Tuna Conservation.	Skype
James Gibbon		Senior Associate. Global Tuna Conservation.	
Amanda Nickson		Director, Global Tuna Conservation.	

Subjects Discussed:

1. DeAlteris opened the meeting, commenting that he had sent PEW a PPT on the approach to the meeting. He noted that PEW had indicated an interest in meeting with the team. He described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. The client agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. PEW commented that their interest was centered on 4 issues.
4. **Silky sharks**. Concern – the impact of FADs and derelict FADs on silky sharks. PEW referred to research by Filmalter[19] that reported that annually FADs entangled and killed 480,000 silky sharks in the Indian Ocean.

[19] The auditors subsequently identified 3 papers:
Filmalter JD, Dagorn L, Cowley PD, Taquet M (2011) First descriptions of the behavior of silky sharks, Carcharhinids falciform is, around drifting fish aggregating devices in the Indian Ocean. Bull Mar Sci 87: 325−337

5. DeAlteris commented on the recent implementation of non-entangling FADs.
6. PEW emphasized the need to understand the type of FAD being used in the fishery and the impact on the fishery and what happens when FADs are lost.
7. PEW asked about post release mortality on silky sharks and noted that a paper by Eddy[20] indicated an 80 % - 90 % mortality. DeAlteris stated he would review the paper. [21]
8. PEW then queried the low observation of sets in 2016 (19%). DeAlteris replied that AZTI had to complete the data set, and it was anticipated that this would be available by the end of the site visit. PEW stressed that low level of observation coverage would be a cause of great concern.
9. PEW noted that there was a need to take into consideration the perceived variation in the geographical interaction of the fishery with silky sharks.
10. DeAlteris noted that it was perceived that the main interaction (as reported by another stakeholder) was in the NE Indian Ocean i.e. in an area where the Echebastar fleet was not active.
11. PEW questioned whether the use of non-entangling nets was compulsory and the need for greater precaution when considering the potential impact of the fishery on sharks.
12. Scott explained that if another purse seine fishery wished to use the Echebastar certificate (if awarded) there would need to be a gap analysis with an expedited audit to review the score for those PIs where potential issues were identified.
13. There followed discussion on the definition of an ETP species and if silky shark should be considered under MSC CR 2.0 Component 2.3. DeAlteris noted that the categorization of silky shark would be confirmed in the report.
14. **Yellowfin**: IOTC had agreed to an interim rebuilding plan for yellowfin to MSY in response to recommendations by the scientific committee. PEW's concern was that the stock would not improve and some IOTC CPs had noted that they would not implement the regulation.
15. Stokes noted his initial concern about the catch limits imposed under Res 16/01 with respect to meeting MSC rebuilding requirements, but this was somewhat assuaged by the decision being interim, an expected new assessment in 2017, and considering the advice from the scientific committee was based on catch data for 2014 which were later reduced. It was also noted the 2017 assessment would use a new CPUE index.
16. Stokes noted that the influence of a UoA on the recovery of a PI 2.1 stock would be dependent on the relative importance of that fishery in the context of the overall, take (MSC CR 2.0 Para 3.4.6). There would need to be strong consideration of the interpretation of this given the relatively small amount of the Echebastar UoA, with a robust rational for the allocated score.
17. PEW emphasized that there would need to be strong evidence that Reg 16/01 was being implemented, and they were concerned that anecdotal information (press cuttings) indicated Seychelles was not going to apply the regulation, as, apparently, they wished to start with different baseline data.
18. The team noted it would follow up on this during the site visit in the Seychelles.
19. **Bigeye**. PEW considers that the detail in the scoring rationale for bigeye should contain the same amount of detail as for yellowfin e.g. on PI 2.1.3.

Filmalter JD, Capello M, Deneubourg JL, Cowley PD, Dagorn L (2013) Looking behind the curtain: quantifying massive shark mortality in fish aggregating devices. Front Ecol Environ 11: 291−296
John Filmalter, Paul Cowley, Fabien Forget, Laurent Dagorn Fine-scale 3-dimensional movement behaviour of silky sharks Carcharhinus falciformis associated with fish aggregating devices (FADs) http://www.int-res.com/articles/meps_oa/m539p207.pdf

[20] The auditors identified this as Eddy, C., R. Brill and D. Bernal. 2016. Rates of at-vessel mortality and post-release survival of
pelagic sharks captured with tuna purse seines around drifting fish aggregating devices (FADs) in the equatorial Eastern Pacific Ocean. Fisheries Research 174: 109–17. doi:10.1016/j.fishres.2015.09.008 in the bibliography of Common Ocean Report of the Expert Workshop on Shark Post-Release Mortality Tagging Studies REVIEW OF BEST PRACTICE AND SURVEY DESIGN 24 – 27 January 2017 WELLINGTON, NEW ZEALAND
http://www.fao.org/fileadmin/user_upload/common_oceans/docs/Tuna/Report.pdf

[21] The auditors subsequently identified other references e/g/ Mortality rate of silky sharks (Carcharhinids falciform is) caught in the tropical tuna purse seine fishery in the Indian Ocean François Poisson, John David Filmalter, Anne-Lies Verne, and Laurent Dagorn. file:///C:/Users/owner/Downloads/IOTC-2014-WPEB10-INF13_-_Mortality_rate_FAL.pdf

20. **Habitat** PEW is concerned at the potential impact of derelict FADs on coral reefs as evidenced by a paper by Maufroy.[22] 10% of the deployed FADs were said to run aground in a variety of habitats, including coral which is an ETP species.
21. PEW was also concerned that the deployment of so many FADs was impacting the pelagic habitat. Following discussion on potential impacts on trophic interactions, diet, food web and predator / prey relationships it was agreed that this concern related to PI 2.5 (ecosystems).
22. PEW also questioned whether the limit on active buoys would be circumvented through use of unmarked FADs; essentially PEW considered that the number of FADs in the water would not be reduced; indeed, in theory they could increase (PEW mentioned the potential to go from 10,000 to 18,000).
23. It was noted that the good practices of Echebastar could be used as a model for the other purse seiners in the Indian Ocean.
24. There is a need to carefully define FADs and how vessels operate.
25. PEW concluded that they were not against the use of FADs per se, but that such use needs to be responsible. There is concern about the precedence of certifying a FAD fishery.

- PEW noted that they would prepare a minute on the meeting and looked forward to receiving the auditors minute.
- They did not require a verbal summary of what had been said in the meeting.

[22] The auditors subsequently identified Alexandra Maufroy , Emmanuel Chas sot, Rocio Joko, David Michael Kaplan Large-Scale Examination of Patio-Temporal Patterns of Drifting Fish Aggregating Devices (dads) from Tropical Tuna Fisheries of the Indian and Atlantic Oceans Published: May 26, 2015http://dx.doi.org/10.1371/journal.pone.0128023 http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0128023

14.4. Director, Basque Government Fisheries

Meeting Record –Echebastar Skipjack Purse Seine Fishery			
Date	29 March		
Location Start Time/ Finish Time		Vitoria 10.15 – 11.00	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Ian Scott		P3 expert	
Jean-Charles Gordon	MSC	Observer / Simplification Process + Echebastar	
Sergio Cansado	ASI	Witness	
Fong Lee	FCF	Observer	
Miguel Angel Varas	Echebastar	Financial	
Julen Marques		Fleet Manager	
Juan Basagoiti		Commercial Dept	
Leandro Azkue	Basque Government	Fisheries Director	

Subjects Discussed:

Note: the stakeholder interview was conducted in Spanish with Ian Scott presenting for Acoura and translating the responses for the rest of the team.

1. Scott described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. The stakeholder agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. Azkue described the interest of the Basque government in the MSC assessment process. Its general role in the fishery sector is help and promote improvement and support to the commercial sector and provide support to Echebastar as required.
4. The Basque Government informs the fishery sector of projects and the potential to access funds e.g. from the EU. The Basque government collaborates with te Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente in Madrid. The Ministry is responsible for all direct contact with the EU authorities.
5. For more than a decade, no EU funds have been available to provide subsidies for the construction of fishing vessels.
6. In the past, AZTI was part of the Basque Government, but due to funding issues it has been converted into a public / private sector partnership as a non-profit organization gaining income from contracted project activities. A number of comments were made about the organisation and funding of AZTI.
7. The stakeholder agreed that a verbal summary of the meeting was not required. The audit team confirmed that a written minute would be sent for the approval of Sr Azkue.

Actions Items:

None

14.5. Princess Seafood

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	30 March 2017		
Location Start Time/ Finish Time		By Skype 09.30 – 10.10	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Jean-Charles Gordon	MSC	Observer / Simplification Process + Echebastar	
Sergio Cansado	ASI	Witness	
Fong Lee	FCF	Observer	
Ruth Simpson	Princes Food & Drink Group	Corporate Relations Director	Skype
Andrew Conway		Procurement / Sustainability	

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Princes agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. Princes described the company interest in the fishery. It purchases raw material from Echebastar for canning in its two production facilities in Mauritius. The two companies have been long term partners and Echebastar is one of Princes' main suppliers. The company is interested in all initiatives that would lead to improved sustainability.
4. The stakeholders wished to know more about the simplified process and the onward process.
5. Gordon said that a number of pilot projects would test the simplified process. Following stakeholder comments the time for receipt of written submissions by the audit team had been extended until April 5, 2017 i.e. the final day of the site visit.
6. DeAlteris estimated that the draft client report would be available by end April, although the real schedule could change due to the need to harmonize P1 findings with the on-going reassessment of the Maldives P&L fishery.
7. Gordon clarified the role of stakeholders in the simplified process and the change in comment periods.
8. Princes was enthusiastic that Echebastar had decided to maintain involvement with the recently established FIP despite the new main assessment process.
9. There followed some consideration of the benefits from using non-entangling nets to reduce the fishery interactions with ETP species (C2.3), habitat (C2.4) and ecosystem (C2.5).
10. Princes commented that the Echebastar vessel replacement program had reduced catch capacity.

Actions Items:

1. Gordon to send details of simplified process to Princes via email.

14.6. Thai Union Europe

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	30 March 2017		
Location Start Time/ Finish Time		By Skype 11.00 – 11.30	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Jean-Charles Gordon	MSC	Observer / Simplification Process + Echebastar	
Sergio Cansado	ASI	Witness	
Fong Lee	FCF	Observer	
Tony Lazazzara	Thai Union	Group Fisheries Sustainability and European Fish Procurement Director	Skype

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Thai Union agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. Lazazzara described the TU appreciation of Echebastar: one of the first companies to voluntarily implement 100 % observer coverage; the previous experience of the MSC process; a comprehensive FAD management plan; transparency in activities and policy implementation; strong participation in ISSF programs on sustainability and compliance; and the introduction of a traceability plan that is third party audited to allow them to sell certified free school caught skipjack.

Actions Items:

1. None

14.7. Vice President, Blue Economy, Seychelles

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	3 April 2017		
Location Start Time/ Finish Time		Victoria 09.00 – 10.40	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Stephenie Good	MSC	Observer / Simplification Process + Echebastar	
Antonio Hervas	ASI	Witness	
Sergio Cansado	ASI	Witness	
Jose Luis Jauregui	Echebastar	Director	
Philippe Michaud	Blue Economy Dept, Vice President's Office	Special Adviser Philippe.michaud@statehouse.gov.sc pmichaud@gov.sc	

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Michaud agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. Michaud put the fishery in the context of public policy; a sector in the public domain with a lot of questions and the need for improved transparency, including: educating policy makers and ensuring that local stakeholders form opinions based on good information.
4. The office of the VP is developing a road map that focuses on diversification, security and high value jobs.
5. Michaud is also the Chairman of SFA. This is executive arm of the Min of Ag & Fish formed in 1984, but increasingly the Min is becoming more greatly involved in the sector.
6. Stokes commented on the need to harmonize this fishery with the one in the Maldives. While stock status is good, in the past MSC assessments have had an issue with PI 1.2.2 (harvest control rules). IOTC Res 16/02 had progressed. However, a remaining issue is the application of harvest control tools. This issue is also related to yellowfin (IOTC Res 16/01). The question is what Seychelles is doing to implement the defined HCR based on, for yellowfin. the reduction of catch compared to 2014, a reduction in the number of FADs and a reduction in the number of supply vessels. A Seychelles implementation plan was required at the beginning of 2017.
7. Michaud stated that Seychelles had declined a request from fishing companies for an increase in the number of supply vessels. SFA is ensuring that the FAD reduction is being put in place (observers). The approach to yellowfin management is being fully discussed with stakeholders. and there is a proposal to reduce the number of supply vessels by 20%. A policy paper is currently being prepared and should be available by end-April.

8. Seychelles main concern with IOTC RES 16/01 is the use of 2014 as the base year. The preference would be 2015 which would lead to Seychelles having less disproportionally affected by the reduced catch level. Seychelles did not have all required information when the decision was taken.
9. The issue facing Seychelles is the renewed licensing of purse seiners in 2016 (13) compared to 2014 (8) as vessels returned following "solution: of piracy issues (2008 – 12).
10. Stokes: asked how Seychelles could manage catch limits if the data were not available on a timely basis; and queried whether Seychelles had objected to IOTC Res 16/01.
11. Michaud stated that the problem was based on the lack of experience in catch limits and there was a need to prepare for the new policy initiative. Initially, Seychelles preferred 2015; then the option of 2014 or 2015. Whatever, there would not be an issue on data availability as vessels have electronic log books. Seychelles is gearing up to apply Res 16/01.
12. The new vessels have more capacity than those that exited the Seychelles fleet.
13. DeAlteris noted the potential to delay scoring of the fishery until the Seychelles position is clear. He then commented that Pew was concerned that Seychelles would not comply.
14. Michaud underlined the need to base opinions on official information and not newspaper reports. SFA provided information via their web site and the annual report (but that for 2014 will only be published in the coming weeks).
15. DeAlteris noted the current low sample of observer data available for 2016 and the need to improve. However, the data available indicate that there is reduced impact on sharks and turtles compared to pre-2012. Was the reason for this the introduction of non-entangling FADs? And was the Echebastar experience similar to other segments of the purse seine fleet?
16. Michaud commented that Echebastar had a robust approach to the application of regulations. Another company is working to remove FADs moving towards islands (Island Conservation Society (ICS) and OPAGAC.
17. DeAlteris noted the annual loss of FADs (20%) and the number going on-shore (10 %). There is no data on the interaction of derelict FADs on VMEs such as corals. There is a lot of anecdotal information and the reality may be somewhat different.
18. Michaud noted that Seychelles has been a member of the IOTC since 1996. Seychelles has bilateral fishing agreements with Mayotte, Mauritius and French Southern & Antarctic Lands. A new Fisheries Law was introduced in 2014. There is a need to recognize the significant impact of the tuna sector on the National economy (canning is 6 % of GDP). Seychelles does not have domestic capacity to fish available resources. Some of purse seine by catch is used as bait in domestic line fisheries, and some of the sectoral support funds (from SFPA with EU) benefits the artisanal sector. However, there continued to be anti purse seine sentiments within the Seychelles.
19. The Seychelles Fishermen and Boat Owners Association (SFBOA) (Keith Andre) is a key stakeholder. SFBOA is a member of the IO Artisanal Group (Indian Ocean federation of artisanal fishermen). In Michaud's opinion, the Association should be strengthened with improved cooperation between it and Government. There is also a Seychelles Sports Fishing Club and the Praslin Fisheries Association.
20. Scott asked about the involvement of stakeholders in the decision-making process. Michaud noted that in the past stakeholders may have been muted but SFBOA was now part of the consultation process. While formal consultation is a legal requirement, Government needed to improve its public relations.
21. Michaud reported that the total annual catch by the small boat sector (trap fishery and long line) was about 3,000 t and purse seiners are excluded from certain areas. SFBOA is "suspicious" of FADs.
22. Michaud stated that he did not recall any legal disputes in the Seychelles fishery.
23. Local fishery management is moving from open access to the implementation of FMPs (sea cucumber, lobsters and demersal on Mahe Plateau – in process). Work is being supported by a World Bank project. The import of second hand Sri Lankan long liners had been stopped. Michaud noted the possibility of a tuna FMP. The FMPs are prepared in cooperation with stakeholders.
24. There is an aquaculture master plan.
25. Fisheries enforcement is the role of SFA and the coast guard. New Zealand had supported MCS through technical assistance.
26. Seychelles is signatory to the FIP (WWF OPAGAC).

Actions Items:

1. Michaud to confirm measures adopted by the Minister.
2. Michaud to send auditors copy of 2014 annual report when available.
3. Auditors to contact Island Conservation Society.

14.8. Seychelles Observer Program

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	4 April 2017		
Location Start Time/ Finish Time		Victoria 09.00 – 10.30	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Stephenie Good	MSC	Observer / Simplification Process + Echebastar	
Antonio Hervas	ASI	Witness	
Sergio Cansado	ASI	Witness	
Jose Luis Jauregui	Echebastar	Director	
Fong Lee	FCF	Observer	
Alex Tirant	SFA	Head Observer, SFA Observer Program seychellesobserver@gmail.com	

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Tirant agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. Tirant noted that when there was an IOTC requirement for 10 % observer coverage Echebastar moved to 100 %, to be later followed by all companies. They use the L'Institut de recherche pour le développement (IRD) data base. There is now a move by some companies to replace observers by cameras following an FAO pilot project.
4. Observers identify tuna discard, sample bycatch and the impact of FADs.
5. Initial activities in 2014 were not that successful due to an increase in the number of boats covered (5 to 40) and a lack of capacity/ From 2015, all data has been collected but it has not been tabulated. All 2016 data should be available by end April-2017. In 2017, 75 % to 80 % of the data should be available.
6. The SAF observers cover about 80 % of purse seine activity by Seychelles flagged vessels; Madagascar and the French territories require their own observers. IOTC must be provided with data.
7. DeAlteris commented that there should be a clearing house for all data. There is a possible issue if AZTI does not receive all Spanish data.
8. There followed discussion on FADs and the available data. In addition, the configuration of non-entangling nets. Tirant stated that data are classified as floating logs, free school and associated. Fishers may concentrate on bird radar. There is no by catch in free school sets. The largest purse seiners (capacity

2,000 t to 2,400 t) are unable to operate profitably without FADs. There is strong observer review of unloading with comparison of the data with the log books.

9. There is on-going retraining of observers. There are about 40 observers who work on 2-month vessel trips. They rotate among FVs. There is a new project to certify and verify observers. These are scientific observers; they do not have enforcement duties. They report informally on when tuna is discarded and the reason. The observers work all hours required to observe all sets. They note set time, net closure and end fishing times. They code for different types of FAD.
10. Observers are present on “supply” vessels; Tirant explained the characteristics of these vessels.

Actions Items:

1. Tirant to send audit team their manuals plus relevant forms.

14.9. Ministry of Agriculture and Fisheries

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	5 April 2017		
Location Start Time/ Finish Time		Victoria 11.30 – 12.30	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Stephanie Good	MSC	Observer / Simplification Process + Echebastar	
Antonio Hervas	ASI	Witness	
Sergio Cansado		Witness	
Jose Luis Jauregui	Echebastar	Director	
Michael Nalletamby	Ministry of Fisheries	Principal Secretary Ministry of Agriculture and Fisheries (MAF) mnalletamby@gov.sc	
Roy Clarisse		Adviser rclarisse@gov.sc	

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Andre agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. MAF asked about the MSC process and if the site visit would have gone ahead if the desk review had identified issues with certification. MAF asked if the assessment would cover all purse seiners; MAF would like to see all the sector certified.
4. The response was that transparency was important and the issue of other eligible fishers was explained in detail. There was also a description of conditions to certification, the need for annual audits and the approach to P3.
5. Stokes described the approach to P1, with specific reference to PI 1.2.2 Harvest Control Rules and Tools and IOTC Resolution 16/02. Tools had to be in place and the lack of these led the previous Echebastar assessment to fail. In Maldives, the condition on PI 1.2.2 had been closed at the last surveillance audit. However, for Seychelles the auditors required evidence that the HCR in 16/01 had been applied and how CPs had reacted to Res 16/01 on yellowfin. The yellowfin measures would impact the skipjack fishery.
6. MAF said that at a recent meeting with stakeholders it had been agreed to reduce FADs and the number of supply vessels. Other measures were under discussion. It was difficult to interpret Reg 16/01 with ambiguity in the meaning; this had led MAF to consult with the Attorney General.

7. The meeting then turned to P2 issues. DeAlteris described findings to date with specific reference to the number of derelict FADs reaching shore, the work of ICS and the situation on St Francis Atoll. He asked if coral was an ETP species in Seychelles and if MAF was concerned at the risk to coral posed by FADs. In the Fisheries Act, coral is defined as a species but there is no commercial licensing.
8. MAF said that the best people to answer such specific questions were the Ministry of Environment. There was some concern, but not "alarm" at anecdotal information on damage to the reef but better information was required. SFA is a signatory to the FIP with World Bank and OPAGAC. It would be good if all purse seiners could participate in the FIP.
9. Echebastar stated that it was considering its position but thought that its derelict FADs had minimal impact on corals.
10. MAF was concerned at how to fully incorporate national stakeholders into the decision-making process. Prior to IOTC 2017 there will be a preparatory meeting to define a Seychelles position with related analysis of proposals and consequences. Foreign fishing companies also attend the meetings. However, the meetings are not in a formal setting and they are not minuted.
11. A good example of stakeholder input was the Mahe Plateau FMP. There were public consultations in all fishery districts. However, there are no regulations on stakeholder consultation procedures.
12. There have been no legal disputes.
13. Consultation on Reg 16/01 was with a target group.
14. Currently an action plan is being defined for the FIP.
15. The World Bank regional project on fisheries management related to Seychelles (5FISH3) is under negotiation and will go for approval in about mid-year. The aim is to reinforce and innovation through "Blue Bonds".
16. Local industry has an annual catch of 290 t of yellowfin and bigeye. There are conflicts with local fishers. MAF consider that the stakeholder perception of harm to the Seychelles economy from the activities of purse seiners may be due to poor information and a belief that the total amount of tuna transshipped in Seychelles was caught in the national EEZ. MAF needs to inform stakeholders of the reality of the fishery.
17. There are no major issues with purse seiner compliance e.g. observers, sampling, electronic log books, reporting and VMS. MAF reported that there are trials of an FAO designed camera observation scheme.
18. Seychelles has bilateral agreements with Mauritius and Mayotte. Seychelles does not have any knowledge of private agreements between Seychelles flagged vessels and other coastal states.
19. MAF closed the meeting by reiterating the commitment to sustainability. The Government could not afford to compromise. There was a move towards defining MPAs through an extension of spatial planning in the Min. of Env.

Actions Items:

None

14.10. Seychelles Fishing Authority

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	5 April 2017		
Location Start Time/ Finish Time		Victoria 10.30 – 12.00	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Stephanie Good	MSC	Observer / Simplification Process + Echebastar	
Antonio Hervas	ASI	Witness	
Sergio Cansado		Witness	
Jose Luis Jauregui	Echebastar	Director	
Vincent Lucas	SFA	Chief Fisheries Officer vlucas@sfa.sc	

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Lucas agreed to the presence of the observers. The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. Lucas described the role of the fishery management division including liaison with other international organizations, overseeing the implementation of the observer program and consulting with stakeholders. The fleet development plan that lapsed at the end of 2016 is being updated for the IOTC.
4. Stokes described P1. He stated that he was comfortable about the stock assessment.
5. Lucas believes Seychelles has good data, but clear deficiencies in gill net and artisanal catch data for the IO as a whole. Some activities have been completed to improve data collection This has led to better estimates; so, for example an improved prognosis of stock status in 2016.
6. SFA has estimated impact of the required reduction in yellowfin catch.
7. There was poor follow up by IOTC e.g. the fleet capacity plan.
8. No resolutions had been thought necessary for skipjack due to healthy stock.
9. There is a World Bank funded project to support improved fishery management in the IO.
10. A FAD management plan had been sent to the IOTC.
11. SFP has concerns over by catch and the impact of the fishery on silky sharks.
12. Trials are taking place to test coconut as a material for constructing FADs.
13. Lucas considers that FADs may alter the behaviour of fish with disturbance of migratory patterns. FAD caught fish is of poorer quality than free school.
14. Previously stakeholder consultation was top-down; now changing to bottom-up. The first phase is aimed at minimizing negative impacts on fisheries; it is planned to follow this up with more comprehensive

actions. This should lead to a move away from open access to licensed fisheries in the non- purse seine sector. There is no information on the nature of the recreational fishing sector.

15. Progress will be achieved by implementation of the FIP.
16. One objective is to promote semi-industrial long line, but there is not a fleet development plan for the local fishing sector.
17. The FMPs will be reviewed within a 5-year cycle.
18. Some of the work plan is undertaken by consultants.
19. Some funds are available from EU sectoral support through SFMP.
20. Lucas stated that meetings with stakeholders on FMPs were open to the public.
21. Some funds are available to finance participation of stakeholders in some meetings e.g. SFBOA in IOTC 2016.
22. SmartFish project supports MCS.
23. There have been issues in implementing FMPs based on stakeholder inputs.

Actions Items:

1. Lucas to provide auditors with paper on estimates of impact of catch reductions on the Seychelles vessels.
2. Lucas to send auditors existing FMPs.
3. Lucas to send auditors FAD management plan.
4. Lucas to send auditors copy of FIP.

14.11. PNA

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	6 April 2017		
Location Start Time/ Finish Time		Skype 09.00 – 10.05	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Stephenie Good	MSC	Observer / Simplification Process + Echebastar	
Antonio Hervas	ASI	Witness	
Sergio Cansado	ASI	Witness	
Maurice Brownjohn	PNA	General Manager	Skype
Richard Banks (until 09.15)	PNA	Consultant	

Subjects Discussed:

1. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Brownjohn agreed to the presence of the observers (prior to the meeting he had stated that he did not want the participation of client and FCF). The UoA was confirmed.
2. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
3. PNA noted an ambiguity in the defined UoA. Specifically, how will P2 to be assessed. DeAlteris replied that available data on the Echebastar vessels were comprised free school and FAD, which show differences between the 2 sets. Thus far, the auditors had reviewed the data individually and as a “worst case” scenario i.e. all catches being associated.
4. PNA replied that there was a need to review at the opposite view i.e. all free school due to the high catch of yellowfin. There is a difference in primary and secondary species according to type of set. PNA also questioned the independence and robustness of the observer data since the observer program was not 3 rd. party.
5. DeAlteris described the observer program and the need to improve observer data sets available for 2015 and 2016.
6. PNA referred to Peer Reviewer comment in the Maldives skipjack assessment, that argued that tools had not met SG 80. PNA considers that the 2012 Maldives assessment on PI 1.2.2 was not to the required standard and this should be considered in any harmonization between that and the Echebastar fishery. Stokes replied that since 2012 there had been 4 annual surveillance audits of the Maldives fishery and the reassessment was in process. In addition, Echebastar was using MSC v2.0 and not MSC v1.2. This meant that PI 1.2.2 SI60 could refer to exploitation rates; this was also applicable to SI80 although there was a requirement to consider the tools in use. The resolution is only part of the story and there is a need to see how CPs have implemented. This means there is a need to review what exists in terms of the

implementation of regulations affecting both skipjack and yellowfin, directly and indirectly. A Maldives implementation plan on 16/01 had been defined in the Maldives and this was relevant to the Seychelles. PNA argues that only when CP has been judged to be effective, as part of the Annual Compliance Review, can assessors demonstrate 'There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation'.

7. Banks stated that there was a need to consider all CPs. This point was taken by Stokes.
8. Banks left the meeting.
9. Brownjohn asked if observer coverage on Echebastar vessels was 100 % physical with no cameras in use. DeAlteris confirmed that cameras were not used, although coverage was affected by the requirement of some coastal states to use their own observers. Brownjohn asked if this meant that there were two observers. DeAlteris said the situation would be clarified.
10. In response to Brownjohn's question, DeAlteris confirmed that the Echebastar fleet consisted 5 purse seiners and one supply vessel, and that the associated and non-associated catch was maintained separate after catch. He noted that Echebastar had 3 rd. party chain of custody certification for FAD free fish as required by a main client. However, if the fishery was certified, MSC itself would not require certification on-board.
11. Brownjohn asked if sets on whale sharks had been considered, noting that in the PNA only ex post analysis indicated if there were such sets. He noted this to be a concern for PNA.
12. Brownjohn repeated the question on harmonization with Maldives (2012 MSC V 1,2). Stokes responded that the assessment would use MSC CR 2.0 with harmonization with Maldives reassessment and the findings of the 4 previous annual surveillance reports.
13. Brownjohn asked if the same CAB was carrying out the Maldives and Seychelles. The reply was no; the former by DNV and the latter Acoura. However, Stokes is P1 on both and is also P2 on Maldives.
14. Brownjohn noted the requirement to reduce yellowfin catch by 15 %. Stokes referred to the interim IOTC resolution 16/01 and the need for CPs to define an annual implementation plan. While Maldives had complied, in Seychelles there was continued internal discussion on base year, the number of FADs and the number of supply vessels. He noted that Echebastar had one supply vessel. Also, there was some confusion on the base year – 2014 estimated or final data, and the preference of Seychelles was to use 2015. In conclusion, as yet there was no final outcome. There would be a long delay in reviewing the response of all CPs.
15. Brownjohn emphasized that the implementation of Res 16/01 was an important indicator of the potential to implement other Resolutions and that CPs should meet all resolutions.
16. Brownjohn wanted clarification of skipjacks overall importance in the fishery so e.g. in PNA the catch of bigeye must be limited, in IOTC, there is a similar need for yellowfin exploitation to be controlled and for the management tool to be judged as effective . The response was that there was not a similar need in IOTC,
17. Brownjohn asked when Res 16/01 came into effect. Stokes said 01/01/17 but that CPs had not reached immediately. Brownjohn emphasized that all resolutions had to be implemented. Stokes said he would report back but that CPs needed to make a compliance report. Also, it was possible for the Regulation to be amended; this could be important as the 2016 stock up-date for yellowfin was less pessimistic than the previous year.
18. Brownjohn noted that an important consideration would be the number of vessels returning to the fishery following resolution of the piracy issues.
19. Brownjohn noted the need to demonstrate that the harvest control rules are effective. Stokes replied that the team would carefully assess the situation on the implementation of the harvest control tools.
20. Brownjohn noted the massive variation between sources on the impact of the fishery on shark species. This needed to be tidies up to make the data consistent.
21. DeAlteris noted that available data for 2016 showed a considerable reduction on shark impacts compared to data pre-2012. The catch of sharks can now be reliably estimated although this needs to be confirmed by expanded data for 2016. There had been various comments on how to treat silky shark. Initially, the team had considered them primary species but following internal team discussion they were now considered secondary species. They are not ETP species. There was good data on the release of sharks

and tagging provided indications of post release mortality. However, Pew had pointed to other evidence that showed higher PRM and the team would have to review all sources in coming to a conclusion.

22. Brownjohn wondered if there needed to be a more precautionary approach on sharks due to their vulnerability. DeAlteris said his initial thought that bycatch in purse seine fishery was not high relative to total catch and this was likely not an issue.
23. Brownjohn considered that the deployment of FADs had led to a reduction in school size. DeAlteris noted that this point had been made by other stakeholders. There was some evidence on slower growth. DeAlteris replied that there was some evidence to support this thesis but no consensus on the issue of whether FADs formed an ecological trap.
24. DeAlteris noted evidence of FADs running ashore and there were several studies to quantify potential impacts e.g. ICS in Seychelles. In Seychelles, the ICS / OPAGAC project aimed to collect derelict FADs before they achieved land fall. He noted that the potential damage to corals was a legitimate concern. He noted the potential AZTI / Echebastar project to tack derelict FADs.
25. Brownjohn noted the economic incentive not to use FADs (price reflects better quality taken by non-associated sets. DeAlteris agreed, noting that the difference in quality had been observed on the purse seiners that the auditors visited to witness unloading.
26. Brownjohn noted it was critical to maintain on-board separation of FAD and non-associated catch to allow validation of data. DeAlteris commented that all sets were observed and that the team was reviewing traceability. There are two options – trans shipment via reefer vessels (to Mauritius) and via container (to Africa). Brownjohn raised the need to highlight where the fishery CoC ended and exact weights and species defined.
27. Brownjohn asked if sets on whale sharks were permitted. DeAlteris said there was no evidence of interactions between the fishery and whale sharks.
28. Brownjohn asked how the observers operated. DeAlteris replied that we were awaiting copy of the observer protocol and procedures.
29. Brownjohn asked about on-going assessment process. Good replied that there was an opportunity to review at same time as peer review and later to object to the determination.

Actions Items:

1. Audit team to confirm if a Seychelles / AZTI observer is on-board in the EEZs of other coastal states that require the presence of their own observers.
2. Audit team to review the situation in relation to sets on whale sharks.

14.12. SFBOA

Meeting Record – Echebastar Skipjack Purse Seine Fishery			
Date	6 April 2017		
Location Start Time/ Finish Time		Victoria 11.00 – 13.15	
Attendees			
Name	Organization	Role	Signature
Joe DeAlteris	Acoura	P2 expert & TL	Signatures on record
Kevin Stokes		P1 expert	
Ian Scott		P3 expert	
Stephanie Good	MSC	Observer / Simplification Process + Echebastar	
Antonio Hervas	ASI	Witness	
Sergio Cansado	ASI	Witness	
Keith Andre andrte.kit@gmail.com	SFBOA	Manager	
Beatty Hoarau beatty.hoarau@gmail.com	SFBOA	Committee Member	

Subjects Discussed:

1. Good described the MSC process.
2. DeAlteris described the reason for the meeting (client interview EIO skipjack purse seine fishery in the Indian Ocean), the stakeholder consultation process, confidentiality issues. Andre agreed to the presence of the observers. The UoA was confirmed.
3. The proposed change to the scope of the fishery by excluding other eligible fishers was explained.
4. Beatty described his good understanding of the MSC process and the need for Seychelles to sustainably manage their tuna resource. There are no allocation indicators under the MSC standard.
5. Andre described the current stock status and management measures. He emphasized the need for action within 5 years of the measures being taken if the stock was to recover; yet to-date no substantive actions had been taken.
6. He then described the domestic tuna fishing sector; 28 medium sized (about 16 m) longliners with 1,000 hooks on 10 – 20-day fishing trips and landing 3 t to 6 t of yellowfin and bigeye per month / trip. But lower abundance has reduced catch and made it uneconomic to leave port. He is concerned that the welfare of the domestic sector is not being taken into consideration.
7. Stokes described the 2015 assessment that used estimated data for 2014. The 2016 up-date used confirmed 2014 data and CPUE information for purse seiners and was more optimistic that the previous findings in terms of stock status. There will be a new assessment in 2017 that will use data from the Maldives.
8. Andre noted meetings that have been held with SFA and in the preparation of the (transparent) EU SFPA, but he feels that the sector he represents got the “short end of the stick”. He emphasized that

he is not against purse seine effort *per se*, as the coastal states do not have the capacity but this segment needed careful management given its fishing power. There are strong multiplier benefits to the national economy.

9. Good commented that MSC is considering the inclusion of social objectives in the standard.
10. Andre noted the increased fishing power of purse seiners with introduction of sophisticated electronics, FADs and supply vessels. Yet some purse seine companies continue to push to increase effort, and the fear is that the resource will be over fished and the foreign companies will simply withdraw leaving Seychelles to deal with the consequences.
11. Andre noted that he was circulating a petition (number of FADs, number of supply vessels, impose ban on drift nets, capping the number of purse seiners) to input into Seychelles position in IOTC 2017.
12. He recognized that Echebastar had been proactive in responding to the need for stronger management actions (lower number of FADs, a single supply vessel and investment in relatively small purse seiners (1,000 – 1,200 t compared to norm of 2,000 -2,500 t).
13. Beatty explained the position re purse seiners and the need to ensure sustainable fishing. He commented that P&L and drift nets catch a lot of juvenile yellowfin. Fishing capacity is too high. This has been emphasized by the number and characteristics of FADs. There are no issues with natural FADs. The artificial FADs drift and may damage coral reefs e.g. on the drop-off to the Mahe Plateau.
14. DeAlteris commented on the move to non-entangling FADs and research into the use of biodegradable FADs.
15. Beatty stated that FADs changed the behaviour of fish; these follow drifting FADs and not the oceanographic flows. The fish around FADs was in a poorer condition due to the competition for food around them. EU and Kenya supported catch reduction of yellowfin by 20 %. IT appears that CPUE on FAD sets was declining (2015: 1,221 sets; 2016: 1,400 sets).
16. But the lower fishing costs (economies of scale) means that foreign companies can handle lower CPUE. There is a need for the implementation of precautionary measures.
17. Andre considers that the preparation of FMPs has included stakeholder consultation, but there has been no indication of how stakeholder comments have been used. He wants the implementation of FMPs. He feels that consultation process is cosmetic. He is a member of SFA board and he had gained support for tuna measures; however, he commented that the Chairman did not accept. He is also a member of the Ministry of Environment Marine Spatial Planning Steering Committee.
18. Andre noted that he had been fighting for a voice over an extended period and he was not going to give up. He sent a paper that he had prepared to the Minister. He noted the importance of Seychelles as example to other SIDS.
19. The meeting to discuss implementation of IOTC Res.16/01 was the first ever to which local fishers had been invited.
20. Andre stated that the Government of Seychelles had sent a letter to IOTC requesting reconsideration of the choice of base year (2014) for reduced catch. He stated that Maldives, Japan and EU were contrary to the Seychelles position.
21. He noted the need to review compliance of purse seiners. He claimed that a substantial number of FADs were not marked – unmarked “slipper” FADs were deployed to both sides of marked FADS.
22. He noted that minutes of stakeholder meetings were not taken or available, and therefore proceedings were not transparent.

ACTIONS:

1 Keith Andre is going to send us a copy of the petition.

15. APPENDIX 6: SURVEILLANCE FREQUENCY

a. The report shall include a rationale for any reduction from the default surveillance level following FCR 7.23.4 in Table 10.
b. The report shall include a rationale for any deviations from carrying out the surveillance audit before or after the anniversary date of certification in Table 11.
c. The report shall include a completed fishery surveillance program in Table 12.

Table 70: Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
Years 1-4	On site	2 auditors, P2 and P3 only	The conditions are related to P2 and P3 and therefore the annual surveillances will only require P2 and P3 qualified auditors.

Table 71: Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
1	Enter certificate date anniversary e.g. May 2017	Enter proposed date of surveillance e.g. July 2017	Enter rationale e.g. *Scientific advice to be released in June 2017, proposal to postpone audit to include findings of scientific advice.*

Table 72 - Fishery Surveillance Program

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	On site	On site	On site	On site

16. APPENDIX 8: MEDIATIONS & OBJECTIONS PROCESSES [DELETE IF NOT APPLICABLE]

17. APPENDIX 9: LIST OF ELIGIBLE VESSELS

List eligible fishing vessels here *or* in ECert. If using ECert, delete this appendix.

Include vessel names and if applicable other vessel information such as registration number, owner, PLN, size.

18. APPENDIX 10: REFERENCES

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19. APPENDIX 11: SUPPORT FOR CLIENT ACTION PLAN

19.1. SFA

SEYCHELLES FISHING AUTHORITY
P.O Box 449,
Fishing Port, Mahé,
Republic of Seychelles
Telephone: 4670300 Fax: 4224508 E-mail: management@sfa.sc

Please address all Correspondence to the Chief Executive Officer

Thursday, August 10, 2017

Mr. José Luis Jaurregui Iriarte
Director Operaciones Flota
Hartswater Limited Seychelles
C/O Pesqueras Echebastar, S.A.
Apdo. 39 – 48370 Bermeo

Dear Mr. Jaurregui Iriarte,

RE: SUPPORT FOR ECHEBASTAR MSC ASSESSMENT PROCESS

Reference is made to the above mentioned subject. The Seychelles Fishing Authority as the Competent Authority responsible to manage fisheries hereby reaffirms our commitment to support the process initiated by your company, ECHEBASTAR (Hartswater Ltd.), in the process of obtaining the Marine Stewardship Council certification.

The Seychelles Fishing Authority strongly believes that certification is the future for tuna fishing in the Indian Ocean as a mean of ensuring sustainability of tuna resources and therefore reaffirms our commitments to continue and enhance our collaboration for the improvement of the fishery.

It is to be noted that Seychelles has embarked on a similar initiative for its purse seine fleet and is currently partnering on a Fisheries Improvement Project (FIP), with the aims of achieving standard for MSC certification within five years.

SFA will definitely make the necessary input for successful certification of tuna fishing within the Indian Ocean.

Thanking you for your understanding.

Yours sincerely,

Vincent Lucas (Mr.)
Chief Fisheries Officer
For **Chief Executive Officer**

SESELWA

SEYCHELLES FISHING AUTHORITY

Responsible Fishing For Sustainability

19.2. AZTI

Egoitza Nagusia / Sede Central
Txatxarramendi Ugartea z/g
E-48395 Sukarrieta - Bizkaia (Spain)
Tel.: +34 94 657 40 00 - Fax: +34 94 657 25 55

Parque Tecnológico de Bizkaia
Astondo bidea - Edificio 609
E-48160 Derio - Bizkaia (Spain)
Tel.: +34 94 657 40 00 - Fax: +34 94 657 25 55

Herrera Kaia - Portu aldea z/g
E-20110 Pasaia - Gipuzkoa (Spain)
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azti tecnalia Transforming Science into Business

Jose Luis Jauregui
Pesqueras Echebastar SA
Muelle Erroxape S/N
48370 Bermeo. Spain

10 August 2017

Dear Jose Luis,

It is really good news to know that Echebastar has embarked on the MSC certification process. As you very well know, AZTI has been proactively working towards sustainability principles for the Basque fishing industry and we have a number of examples related to several of our paradigmatic fisheries, including purse seine fleet targeting tropical tunas in different oceans.

In this respect, we will continue the work developed over many years towards contributing g to the sustainability of the tropical tuna populations and their ecosystems. And this objective would not be possible without the collaboration of the Basque fishing industry, and Echebastar has consistently been a leading company in collaborating and promoting initiatives in this direction.

In this letter, we would like to express our commitment to actively collaborate, in everything in our power, with Echebastar to achieve the milestones described in the Fishery Improvement Action Plan of Echebastar for MSC certification.

Best regards,

Dr. Rogelio Pozo
Director of AZTI-Tecnalia

19.3. Seychelles Observer Program

SEYCHELLES FISHING AUTHORITY
P.O Box 449,
Fishing Port, Mahé
Republic of Seychelles
Telephone:4670300Fax: 4224508E-mail:management@sfa.sc

Please address all Correspondence to the Chief Executive Officer

To whom it may concern,

This is to inform you that the company Echebastar (Hartswater Ltd) has been part of the Seychelles Observer Program since January 2014. This company is the first Spanish company that voluntary requested for a 100% human observer onboard all the vessels belonging to that company which includes also one supply vessel that is having 100% Human Observer coverage. Echebastar (Hartswater Ltd)has been fully cooperating with the Seychelles Observer Program, whereby we have a very close relationship and both organization has the same common goal that is Sustainability of the purse seine Skipjack Tuna Fishery.

Please note that Echebastar (Hartswater Ltd) is the only Spanish Company that is having 100% Human Observer coverage on all their fishing activities which include also FAD deployments. All data captured is handed over to the Seychelles Fishing Authority and to AZTI which is a Spanish research institutes.

For any enquiries please don't hesitate to contact me on this email address: atirant@sfa.sc

Yours Sincerely,

SEYCHELLES FISHING AUTHORITY

Alexander Tirant (Mr.)
Observer Logistic Coordinator

Resp SESELWA ility

19.4. Basque Fishing Authority.

EUSKO JAURLARITZA GOBIERNO VASCO

EKONOMIAREN GARAPEN ETA AZPIEGITURA SAILA
Arrantza eta Akuikultura Zuzendaritza

DEPARTAMENTO DE DESARROLLO ECONÓMICO E INFRAESTRUCTURAS
Dirección de Pesca y Acuicultura

CARTA DE DECLARACIÓN DE INTERÉS DE PROYECTO

D. LEANDRO AZKUE MUGICA, con DNI 72.440.726 H, como Director de Pesca y Acuicultura del Departamento de Desarrollo Económico e Infraestructuras del Gobierno Vasco, con domicilio social en c/ Donostia-San Sebastián, nº 1 C.P. 01010 de Vitoria-Gasteiz,

DECLARA

Tener conocimiento y apoyar el proyecto de Echebastar Fleet en el proceso de certificación, disposición y compromiso de un continuo esfuerzo común para trabajar a favor de la sostenibilidad del recurso y así contribuir activamente para lograr los objetivos necesarios

Y para que conste a los efectos oportunos ante quien proceda, firma la presente en Vitoria-Gasteiz, a 17 de agosto de 2017

EUSKO JAURLARITZA
GOBIERNO VASCO
EKONOMIAREN GARAPEN ETA AZPIEGITURA SAILA
DEPARTAMENTO DE DESARROLLO ECONÓMICO E INFRAESTRUCTURAS

Leandro Azkue Mugica
Director de Pesca y Acuicultura
Gobiern Vasco

Translation

D. Leandro Azkue Mugica, with DNI 72.440.726 H, as Director of the Basque Government's Economic Development and Infreastructures' Fisheries and Aquaculture Department based in c/Donostia, San Sebastian, N° 1, 01010, Vitoria-Gasteis

Declares:

To be informed of and support the project of the Echebastar fleet in the process of certification, availability and commitment of continuous joint effort to work towards resource sustainability and thus actively contribute to meeting the necessary objectives.

And to record for the appropriate effects to the appropriate person, sign the present in Vitoria-Gasteis on the 17th August 2017.

19.5. FBOA – Fishermen Boat Owners Association

FBOA SEYCHELLES
Fishermen Boat Owners Association

c/o Seychelles Fishing Authority, Fishing Port, Victoria

Tel: 00248 4610307 Email: fboa.labelproject@sfa.sc

11th August 2017

TO WHO IT MAY CONCERN

The FBOA, Fishermen and Boat Owners Association, Seychelles fully support and appreciate any effort by any Industrial Fishing Company to promote a sustainable and responsible exploitation of the stocks.

We believe that the efforts of Echebastar should be recognised as a model for purse seine fishery and should initiate a catalytic effect towards more responsible practices within that fishery as a whole.

Looking forward to future collaboration in line with such initiatives.

Signed in Mahe, Seychelles the 11th of August 2017

Keith Andre

CHAIRMAN

FBOA – Fishermen and Boat Owners Association - Registered in Seychelles No: A431416

19.6. Seychelles ministry of Fisheries and Agriculture

Republic of Seychelles

Ministry of Fisheries and Agriculture

The Minister

21st August 2017

Mr. Jose Luis Jauregui
EchebastarFleet/HartswaterLtd
MuelleErroxape S/N -48370
Bermeo.
Spain

Dear Mr. Jauregui

Re: Marine Stewardship Council Certification

As you are well aware, Seychelles is a major player in the tuna industry of the Indian Ocean and this fishery contributes significantly to the socio-economic development of the country through important contributions to the country's gross domestic product, foreign exchange earnings, economic activities, employment creation amongst others.

In this light, it is absolutely important that this fishery remains sustainable for as responsible citizens and leaders of today, we need to ensure that we do pass on to our future generations an ocean space, marine resources and fishery that is healthy.

The country's commitment to this ideal is clearly illustrated in the championing of the concept of the Blue Economy. This is further reinforced by the pioneering role that Seychelles played alongside the World Wide Fund for Nature (WWF) in introducing the Fisheries Improvement Plan for the tuna purse seine fishery of the South West Indian Ocean.

That this fishery is not only seen to be sustainable but actually remains sustainable is of paramount importance to the Government of Seychelles and just as much to the private stakeholders in the tuna industry.

It is therefore with immense pleasure that I and the Ministry of Fisheries & Agriculture of Seychelles have learned of your company, Echebastar (Hartswater Ltd)'s engagement in the process for the Marine Stewardship Council Certification.

I would like on my own behalf and on behalf of the Ministry and the Government of Seychelles to wish you and your company all the success in this process. I sincerely wish that this process comes to a positive conclusion, with Echebastar (Hartswater Ltd) ending up with the MSC Certification.

.../2

2nd Floor, Maison Collet, Palm Street, Mahé, Seychelles, Tel: (248) 467 23 06

- 2 -

In view of the importance of the sustainability of this fishery, I would like to reiterate my Ministry's commitment to continue working with you and all other stakeholders for its improvement. I am sure we can also count on you and your company to ensure the continued sustainability of the Indian Ocean's tuna fishing industry.

Yours sincerely

Mrs Pamela Charlette
Minister

20. ANNEX 12: FISHERY AGREEMENTS

20.1. Comoros

UNION DES COMORES

Unité – Solidarité – Développement

MINISTERE DE LA PRODUCTION,
DE L'ENVIRONNEMENT, DE L'ENERGIE,
DE L'INDUSTRIE ET DE L'ARTISANAT

ACCORD DE PECHE ENTRE LE GOUVERNEMENT DE L'UNION DES COMORES REPRESENTE PAR LE MINISTERE DE LA PRODUCTION, DE L'ENVIRONNEMENT, DE L'ENERGIE, DE l'INDUSTRIE ET DE L'ARTISANAT (LE MINISTERE EN CHARGE DE LA PECHE) ET
L'ASOCIACION NACIONAL de AMADORES de BUQUES ATUNEROS CONGELADORES (ANABAC), ESPAGNE

.....

DANS LA ZONE ECONOMIQUE EXCLUSIVE DES COMORES

Le Gouvernement de l'Union des Comores représenté par le Ministère en charge de la production, de l'Environnement, de l'Energie et de l'Artisanat ci-après dénommée **Ministère en charge en charge de la Pêche, d'une part ;**

Et l'Asociacion Nacional de Amadores de Buques Atuneros Congeladores dénommée ANABAC basée en Espagne d'autre part ;

Il est convenu de ce qui suit:

Article 1:
Le Ministère en charge de la Pêche e s'engage à délivrer des licences de pêche à Senneurs de surface de l'ANABAC pour une période de 3 ans allant de janvier 2015 à décembre 2017.
A la demande de l'ANABAC le Ministère en charge de la pêche peut accorder également des licences à des bateaux d'appui.
Le tonnage de jauge brute de chaque Senneur doit être compris entre 1500 et 4000 TJB. (

Article 2:
La procédure de demande et de délivrance des licences autorisant les navires de l'ANABAC à pêcher dans la ZEE des Comores est la suivante:

a) L'ANABAC présente au Ministère en charge de la pêche une demande de licence pour chaque navire, formulée par l'armateur qui souhaite exercer une activité de pêche au titre du présent accord, au moins trois semaines avant le début de la période de validité souhaitée. La demande doit être faite au moyen du formulaire prévu à cet effet par les Comores selon le format présenté en annexe I.

b) Toute licence est délivrée à l'armateur pour un navire déterminé et la copie de licence de pêche doit être conservée à bord en permanence. Deux semaines après la demande de licence, le Ministère en charge de la pêche envoie la licence à l'ANABAC ou au représentant agrée. Cette procédure est également requise pour la demande de prolongation et celle de remplacement.

c) La période de validité de la licence est de 12 mois. Toutefois, dans le cas où un armateur voudrait prolonger la période de validité, il devra en faire la demande selon la procédure décrite au point 2 (a).

d) La licence est délivrée moyennant le paiement anticipatif au Ministère en charge de la pêche d'une somme de euros) par an et par Senneur de surface.

e) Le Ministère en charge de la pêche communique les modalités de paiement du droit de licence notamment les renseignements relatifs au compte bancaire du Gouvernement et à la monnaie à utiliser.

Article 3:

Le licence délivrée pour un Senneur ou un bateau d'appui déterminé peut être, et en cas de force majeure, constatée par les deux parties, remplacée par une licence pour un autre Senneur ou un autre bateau d'appui de l'ANABAC sans redevance additionnelle et selon la procédure décrite au point 2 (a).

Article 4:

Le Ministère en charge de la pêche communique la date de prise d'effet, la validité ainsi que le nombre de licences accordées aux services compétents et plus particulièrement à la capitainerie des ports et à la Gendarmerie Maritime aux fins d'éviter des saisies inopportunes.

Article 5:

Le navire autorisé à pêcher dans la ZEE des Comores doit disposer à son bord une copie de sa licence valide sur la passerelle.

Chaque navire autorisé devra tenir un rapport journalier des captures conformément au formulaire appliqué dans la région pour la pêche et notifier au Ministère en charge de la pêche par fax ou autres moyens similaires les informations ci-après:

a) Entrée: 6 heures avant l'entrée en zone de pêche:
b) Sortie: 6 heures avant la sortie en zone de pêche:
c) Rapport hebdomadaire des captures:

L'ANABAC s'assure que le rapport hebdomadaire des captures selon le formulaire requis sera envoyé au Ministère en charge de la Pêche dans les délais impartis par courrier électronique aux adresses suivantes : dg.peche@comorestelecom.km et cncsp@comorestelecom.km .

Article 6:

Afin de ne pas nuire à la pêche artisanale dans les eaux comoriennes, les Senneurs de l'ANABAC ne sont pas autorisés à pêcher à l'intérieur de 12 miles marins à partir la ligne de base ni dans un rayon de 3 miles marins autour des Dispositifs de Concentration de Poissons installés par le Ministère en charge de la pêche et dont les emplacements seront communiqués à l'ANABAC.

L'ANABAC s'engage à ne pas concurrencer les pêcheurs comoriens et à faire appel, dans la mesure du possible, à la main d'œuvre locale et à travailler en étroite collaboration avec les différentes structures concernées par la filière.

Article 7:

Tout cœlacanthe (Latimeria Chalumnae) capturé par les Senneurs de l'ANABAC autorisés à opérer dans la ZEE des Comores au titre du présent accord est la propriété de l'Union des Comores et doit être remis, dans les plus brefs délais et dans le meilleur état possible, sans frais, aux autorités portuaires des Comores.

Article 8:

Le Ministère en charge de la pêche et l'ANABAC conviennent de promouvoir, à travers la coopération Comoro-Espagnole en matière de pêche, des actions visant au développement de la pêche aux Comores notamment :

- L'attribution de bourses de formation et de stages au bénéfice des jeunes comoriens dans les écoles et structures spécialisées d'Espagne.
- L'échange de savoir-faire et d'expérience entre le personnel du département en charge de la pêche des Comores et les experts identifiés en Espagne.
- La facilitation des inscriptions et des admissions en stage dans les structures spécialisées de l'Espagne.

Article 9:

Le navire ayant obtenu une licence doit se conformer aux dispositions relatives au système VMS en vigueur dans la région de la Commission de l'Océan Indien et plus particulièrement aux Comores.

Article 10 :

Le Ministère en charge de la pêche, après réception des preuves de paiement des droits de licence, pourrait autoriser les navires de l'ANABAC à rentrer dans ses eaux, en attendant l'envoi des licences originales.

Article 11 :

Tout Senneur ou bateau d'appui de l'ANABAC opérant dans la ZEE des Comores permet et facilite la montée à bord pour l'exercice de ses fonctions à tout fonctionnaire des Comores chargé de l'inspection et du contrôle des activités de pêche.

La présence de ce fonctionnaire à bord ne doit pas dépasser le temps nécessaire pour une vérification des captures par sondage ainsi que toute autre inspection relative aux activités de pêche.

Le fonctionnaire dispose de toutes les facilités y compris l'accès aux locaux et documents nécessaires à l'exercice de sa fonction. Il est pris en charge pendant sa présence à bord.

Si un Senneur ayant à son bord un fonctionnaire comorien sort de la ZEE des Comores, toute mesure doit être prise pour assurer son retour aux Comores aux frais de l'armateur.

Article 12:

La partie comorienne demande aux armateurs de l'ANABAC de bien vouloir notifier aux autorités comoriennes sur la présence de bateaux, notamment de pêche, étrangers opérant dans ladite ZEE.

Article 13:

En cas de différend sur l'interprétation ou l'application des dispositions du présent accord, le Ministère en charge de la pêche et l'ANABAC s'accordent à les régler par des consultations conjointes aussitôt que possible après la réception par l'une des parties d'une requête formelle de l'autre partie.

Si le contentieux, persiste, il sera fait recours à une juridiction qui sera acceptée par les deux parties

Article 14:

Le Ministère en charge de la pêche et l'ANABAC s'engage à procéder annuellement à une évaluation de la mise en œuvre du présent accord et en cas de besoin, les deux parties réviseront les termes et les conditions de pêche. Cette évaluation peut se faire par échange de correspondance entre les deux parties ou par le biais d'une réunion.

Article 15:

Le présent accord entre en vigueur à compter du 1er janvier 2015 et demeure valide pour 3 ans. Il est renouvelé par tacite reconduction, sauf dénonciation notifiée à l'autre au moins un mois avant la date d'expiration de la durée de l'accord.

Les signataires du présent accord représentent les deux parties et sont autorisées à procéder à la signature de cet accord.

Fait en deux exemplaires, en français, à Madrid, le 18 octobre 2014.

Pour le Gouvernement de l'Union des Comores,

ABDOU NASSUR MADI

Pour L'ANABAC

Le GERANT

20.2. French Antarctic Territories

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE
TERRES AUSTRALES
ET ANTARCTIQUES FRANÇAISES

AFFICHÉ LE
08 FEV. 2017
TERRES AUSTRALES ET
ANTARCTIQUES FRANÇAISES

Arrêté n°2017-10 du 5 février 2017
prescrivant les règles encadrant l'exercice de la pêche aux thons et autres poissons pélagiques dans les zones économiques exclusives des Iles Éparses (Glorieuses, Juan de Nova, Bassas da India, Europa, Tromelin)

Le préfet, administrateur supérieur des Terres australes et antarctiques françaises, Chevalier de la Légion d'honneur, Officier de l'Ordre national du Mérite,

Vu la convention des Nations unies sur le droit de la mer (ensemble neuf annexes) du 10 décembre 1982 ;

Vu la convention internationale de 1973 pour la prévention de la pollution par les navires (ensemble deux protocoles et une annexe) faite à Londres le 2 novembre 1973, telle que modifiée par le protocole de 1978 relatif à ladite convention (ensemble une annexe) fait à Londres le 17 février 1978, publié par le décret n° 83-874 du 27 septembre 1983 ;

Vu la Convention entre le Gouvernement de la République française et le Gouvernement de la République des Seychelles relative à la délimitation de la frontière maritime de la zone économique exclusive et du plateau continental de la France et des Seychelles, signée à Victoria le 19 février 2001, publiée par décret n° 2001-456 du 22 mai 2001 ;

Vu le code rural et de la pêche maritime ;

Vu la loi n° 55-1052 modifiée du 6 août 1955 portant statut des Terres australes et antarctiques françaises et de l'île de Clipperton ;

Vu la loi n° 76-655 du 16 juillet 1976 modifiée relative à la zone économique au large des côtes du Territoire de la République, notamment son article 5 ;

Vu le décret n° 90-618 modifié du 11 juillet 1990 relatif à la pêche maritime de loisir ;

Vu le décret n° 2010-1582 du 17 décembre 2010 relatif à l'organisation et aux missions des services de l'Etat dans les départements et les régions d'outre-mer, à Mayotte et à Saint-Pierre-et-Miquelon ;

Vu le décret n° 2008-919 du 11 septembre 2008 pris pour l'application du statut des Terres australes et antarctiques françaises ;

Vu le décret n° 2012-245 du 22 février 2012 portant création du parc naturel marin des Glorieuses ;

Vu l'arrêté n° 13 du 18 novembre 1975 du Préfet de la Réunion classant les îles Tromelin, Glorieuses, Europe et Bassas da India en réserves naturelles ;

Vu l'arrêté n° 2006-23 du 20 avril 2006 modifié relatif à l'exercice des fonctions d'observateur des pêches dans les zones économiques exclusives françaises du canal du Mozambique ;

Vu l'arrêté n° 2010-151 du 9 décembre 2010 portant interdiction de la pêche dans les eaux territoriales des îles Bassas da India, Europa, Juan de Nova, Glorieuses et dans les 10 milles marins autour du banc du Geyser (district des îles Éparses) ;

Vu l'arrêté n° 2014-137 du 21 octobre 2014 autorisant par dérogation la pêche dans les eaux de la zone économique exclusive des îles Glorieuses (District des îles Éparses), à l'exception de la mer territoriale, aux navires de pêche artisanale immatriculé et basés à Mayotte d'une longueur hors tout inférieure à 15 m et aux navires de plaisance et à vocation touristique français basés à Mayotte ;

Vu l'arrêté n° 2012-48 du 12 juin 2012 fixant les conditions de demande de licence de pêche dans les Terres australes et antarctiques françaises ;

Vu les recommandations de la Commission thonière de l'océan Indien, ensemble les résolutions par la Commission thonière de l'océan Indien (CTOI) et rendus applicables dans les zones économiques exclusives des îles Éparses et de Mayotte ;

Vu les recommandations de l'Institut pour la Recherche et le Développement du 26 février 2016 et de l'avis du 27 janvier 2017 ;

Vu les recommandations du Muséum national d'histoire naturelle en date du 8 mars 2016 et de l'avis du 27 janvier 2017 ;

Vu l'avis du ministère chargé des outre-mer en date du 1 février 2017 ;

Vu l'avis du ministère chargé des affaires étrangères en date du 26 janvier 2017 ;

Vu l'avis du ministère chargé de la pêche maritime en date du 1er février 2017 ;

Considérant la nécessité d'assurer la conservation à long terme et l'utilisation optimale des ressources halieutiques dans les zones économiques exclusives des Iles Éparses ;

Sur proposition du directeur de la mer sud océan Indien (DMSOI) et du secrétaire général des TAAF,

Arrête :

Art. 1er : Le présent arrêté réglemente la pêche aux thons et aux autres poissons pélagiques dans les zones économiques exclusives des Iles Éparses (Glorieuses, Juan de Nova, Bassas da India, Europa, Tromelin), définies en annexe I. Ces activités de pêche sont conduites dans le souci d'une gestion durable des ressources exploitées et la préservation des écosystèmes dans lesquels vivent ces dernières.

Art. 2 : L'exercice de la pêche dans les eaux mentionnées à l'article 1er, y compris à des fins expérimentales ou scientifiques, est subordonné annuellement à la délivrance d'une autorisation de pêche.

Le nombre total d'autorisations pouvant être délivrées peut faire l'objet d'un contingentement fixé par arrêté particulier de l'administrateur supérieur des TAAF.

Par dérogation, la pêche dans la ZEE des Glorieuses par les navires de pêche artisanale d'une longueur hors tout inférieure à 15 mètres immatriculés et basés à Mayotte ainsi qu'aux navires de plaisance et aux navires à vocation touristique français basés à Mayotte, est soumise à déclaration, dans les conditions fixées par l'arrêté n° 2014-137 du 21 octobre 2014 susvisé.

Art. 3 : La pêche des thonidés et autres poissons pélagiques est ouverte chaque année du 1er janvier au 31 décembre.

Les demandes d'autorisation de pêche sont transmises conformément à l'appendice 3 de l'annexe V et au plus tard deux mois avant le début de l'activité de pêche prévue par le demandeur.

La pêche ciblée des espèces listées au c) de l'annexe II est interdite. Toute prise accessoire ou accidentelle de ces espèces devra faire l'objet d'une déclaration conformément aux prescriptions détaillées en annexe II.

Art. 4 : L'attribution d'une autorisation de pêche tient compte notamment du respect des obligations du demandeur, constaté lors de la campagne précédente. Le refus opposé à une demande d'autorisation doit être motivé et notifié à l'armateur.

Art. 5 : Les techniques de la palangre pélagique, de la senne tournante et coulissante, de la canne et de la ligne traînée sont autorisées, à l'exclusion de toute autre.
Tout projet d'utilisation d'une autre technique de pêche et tout système ou toute technique nouvelle utilisée ayant une interaction avec le milieu naturel devra faire l'objet d'une autorisation par le préfet administrateur supérieur. La demande doit lui être adressée au moins deux mois avant l'appareillage du navire.

Art. 6 : Les navires d'assistance aux senneurs prennent part activement à la pêche et sont de fait, soumis à toutes les règles encadrant la pêche à la senne. Le nombre total de navires d'assistance par armement ou groupement d'armements, relevant des parties contractantes de la CTOI, ne devra pas excéder la moitié du nombre de senneurs autorisés.

Art. 7 : Tout transbordement à la mer de produits de la pêche dans les zones économiques exclusives des îles Éparses est interdit.

Art. 8 : Chaque navire doit disposer d'un système de suivi et de positionnement satellitaire (VMS) qui assure la communication automatique et continue de sa position, toutes les heures, au centre de surveillance des pêches de son Etat du pavillon. Le CSP de l'Etat du pavillon assure la transmission automatique au Centre national de surveillance des pêches (CSP France), qui la retransmettra simultanément au CROSS Réunion. Chaque armement est tenu de s'assurer de cette transmission auprès du FMC de son Etat du pavillon, dans les conditions précisées en annexe I et appendice 2 à l'annexe V.

Art. 9 : L'embarquement d'un(e) observateur(trice) des pêches, dans les conditions définies en annexe III est obligatoire pour l'exercice de la pêche maritime dans les ZEE des îles Éparses. L'observateur des pêches est chargé de vérifier le respect de l'application des prescriptions du présent arrêté et de collecter les données scientifiques destinées à atteindre l'objectif visé à l'article 1er.

Il informe le capitaine de tout manquement au respect de la réglementation et en rend compte sans délai au préfet, administrateur supérieur des TAAF.

Tout navire autorisé doit informer l'administration des TAAF de son intention d'exercer son activité dans les ZEE des îles Éparses et demander l'embarquement à son bord d'un observateur des pêches. L'armateur devra spécifier les dates prévisionnelles de la marée ainsi que les ports d'embarquement et de débarquement de l'observateur.

Art. 10 : Cette obligation d'embarquement d'un observateur des pêches peut faire l'objet d'une dérogation accordée par le préfet, administrateur supérieur des TAAF, sur demande justifiée lors de la demande d'autorisation de pêche.

Le suivi par vidéo embarqué ne dispense pas de l'embarquement d'un observateur de pêche. En cours de campagne, dans le cas où aucun observateur n'est disponible, ou si dans le cadre de leurs activités dans d'autres zones de pêche que celle des TAAF le navire a déjà un observateur à bord ou est sous l'obligation formelle d'embarquer un observateur pendant la campagne de pêche concernée, le CROSS Réunion, sur demande de l'administration des TAAF, adressera une dérogation ponctuelle au navire, pour la ZEE considérée, qui devra être présentée en cas d'inspection en mer.

Art 11 : Le non-respect des dispositions des articles 9 et 10, notamment le refus d'embarquement pourra entrainer la suspension temporaire de l'autorisation de pêche de manière à permettre l'acheminement d'un observateur jusqu'à un port de prise en charge par le navire.

Art. 12 : En cas de manquement aux conditions d'exercice de la pêche maritime dans les ZEE des Iles Eparses et notamment aux dispositions du présent arrêté, le préfet administrateur supérieur peut prononcer une suspension de l'autorisation de pêche en cours pour une durée maximum de deux mois, et/ou refuser l'attribution d'une autorisation pour la campagne à venir.

Les intéressés sont informés au préalable par le directeur de la Mer Sud océan Indien (DMSOI) des faits relevés à leur encontre, des dispositions qu'ils ont enfreintes et des sanctions qu'ils encourent. Ils peuvent demander à être entendus par lui, accompagnés le cas échéant du conseil de leur choix.

Ces sanctions administratives sont infligées sans préjudice des sanctions pénales éventuellement encourues.

Art. 13 : Les actions de pêche y compris la recherche active de poissons ou d'objets flottants sont strictement interdites dans les mers territoriales des îles Glorieuses, Juan de Nova, Bassas da India, Europa et Tromelin.

Art. 14 : Les prescriptions techniques et les obligations des armateurs, des capitaines et leurs équipages sont détaillées en annexes du présent arrêté.

Art. 15 : La pêche maritime de loisir est soumise aux dispositions du présent arrêté ainsi qu'à celles des dispositions du décret n° 90-618 susvisé.

Art. 16 : L'arrêté n° 2014-51 du 23 avril 2014 est abrogé.

Art. 17 : Le secrétaire général des Terres australes et antarctiques françaises, le directeur de la mer sud océan indien (DMSOI), le chef de district des Iles Éparses et les observateurs de pêche sont chargés, chacun en ce qui le concerne, de l'application du présent arrêté qui sera publié au *Journal officiel* des Terres australes et antarctiques françaises et notifié aux armements intéressés.

Le préfet, administrateur supérieur des Terres australes et antarctiques françaises,

Cécile POZZO di BORGO

ANNEXE I

Zone de pêche autorisée et modalité d'exploitation dans l'espace et dans le temps

1/ La pêche peut être restreinte dans l'espace et dans le temps par un arrêté particulier du préfet, administrateur supérieur.

2/ Les zones économiques exclusives sont définies par le Code rural et de la pêche maritime à son article R 958-1, et portées sur les cartes du Service Hydrographique et Océanographique de la Marine dont les références suivent :

FR 6672 (INT 701) ;

FR 6673 (INT 702).

ANNEXE II

Exercice de la pêche et mesures de protection de l'environnement

1) Prescriptions communes à tous navires

a) Le capitaine a obligation de tenir un journal de bord, rempli lisiblement et dont les pages entièrement remplies sont signées[1].

b) Le modèle utilisé est le journal de bord communautaire pour les navires battant pavillon communautaire, et le journal de bord spécifique de la Commission des Thons de l'Océan Indien pour les autres navires. Il doit être retiré à la direction de la mer du sud océan indien (DMSOI), 11 rue de la Compagnie à Saint Denis, rempli après chaque opération de pêche, il est transmis dans les 48 heures suivant le retour au port, à la DMSOI.

c) Les documents électroniques ou en version papier, transmis à l'administration de tutelle, doivent impérativement rendre compte des captures accessoires et accidentelles et tout particulièrement des captures de requins, raies, tortues marines, oiseaux et mammifères marins relatives à chacune des opérations de pêche réalisées.

d) La découpe et la détention à bord des nageoires de requin est strictement interdite. Les navires devront tout mettre en œuvre pour remettre à l'eau les requins arrivés vivants sur le pont.

e) Captures accidentelles et accessoires[2]

i. La pêche ciblée, la collecte intentionnelle et la conservation en cale des espèces suivantes, considérées comme captures accidentelles, est strictement interdite : thon rouge du sud (*Thunnus maccoyii*), requin renard (*Alopias vulpinus*), requin nourrice fauve (*Nebrius ferrugineus*), requin citron (*Negaprion acutidens*), requin soyeux (*Carcharinus falciformis*) raies manta (*Manta* spp.), raie pastenague à taches noires (*Taeniura meyeni*), raie pastenague porc-épic (*Urogymnus asperrimus*), mérou sellé (*Plectropomus laevis*), mérou lancéolé (*Epinephelus lanceolatus*), poisson perroquet vert (*Bolbometopon muricatum*), napoléon (*Cheilinus undulatus*), nautile (*Nautilus sp.*), requin océanique (*Carcharhinus longimanus*), requin-marteau halicorne (*Sphyrna lewini*), grand requin-marteau (*Sphyrna mokarran*), requin-marteau commun (*Sphyrna zygaena*), tortue à dos plat (*Natator depressus*), tortue verte (*Chelonia mydas*), tortue imbriquée (*Eretmochelys imbricata*), Tortue-luth (*Dermochelys coriacea*), tortue caouanne (*Caretta caretta*), tortue olivâtre (*Lepidochelys olivacea*).

ii. Le capitaine a obligation de dénombrer, en les distinguant par espèces dans la mesure du possible ou par famille, et d'évaluer le poids de toutes les captures accidentelles et accessoires. Les informations les concernant doivent apparaître dans le journal de bord.
Toute prise accidentelle d'espèce protégée, telle que définies dans le répertoire CITES (Annexe 1), doit donner lieu à une déclaration spécifique indiquant l'état des individus au moment de la remise à l'eau.

iii. La remise à l'eau des requins et des raies arrivés vivants sur le pont doit être une priorité de l'équipage. La manipulation doit être réalisée conformément aux codes de bonnes pratiques, de manière à optimiser leur chance de survie.

iv. Les opérateurs de navire enregistrent dans leurs registres de pêche tous les incidents impliquant

1 Cf. article 6 du règlement CE n° 2847/93 du 12 octobre 1993 instituant un régime de contrôle des pêches
2 Pour les besoins du présent arrêté, les captures accessoires sont définies comme étant des captures non ciblées commercialisables ou non. Les captures accidentelles sont définies comme étant des captures d'espèces non visées par la pêcherie et pouvant être protégées.

des tortues de mer durant les opérations de pêche et en font rapport aux autorités compétentes. Ils doivent disposer à bord de dispositifs adaptés à la manipulation des tortues marines et les utiliser autant que de besoin. La remise à l'eau la plus rapide possible des tortues marines est obligatoire. La manipulation doit permettre de limiter au maximum le stress des animaux et d'augmenter au maximum leur chance de survie.

v. L'outillage présent à bord doit permettre de décrocher ou couper les lignes, filets ou hameçons dans lesquels les requins et les tortues de mer sont enchevêtrés.

f) Les rejets à la mer des captures accessoires mortes, tout particulièrement les poissons porte-épées, (Marlin rayé *(Tetrapturus audax)*, Marlin noir (*Makaira indica*), Marlin bleu (*Makaira nigricans*), voilier Indo-Pacifique (*Istiophorus platypterus*) doivent être réduits au minimum. Les espèces consommables peuvent être consommées à bord.

g) Marquage des engins de pêche et protection des bouées océanographiques

i. Les lignes et autres engins en mer doivent être munis le jour de balises à fanion ou réflecteurs radar et la nuit d'un dispositif lumineux supplémentaire permettant d'indiquer leur position et étendue.

ii. Les balises de marquage, les objets flottants similaires destinés à signaler la position des engins de pêche fixés et les balises attachés aux dispositifs de concentration de poisson doivent permettre d'identifier clairement et à tout moment, le navire auquel elles appartiennent.

iii. Il est strictement interdit de pêcher intentionnellement dans un rayon de un mille marin autour des bouées océanographiques, ou de les remonter à bord.
Les bouées océanographiques repérées devront être signalées au Centre Régional Opérationnel de Surveillance et de Sauvetage de la Réunion.
Toute bouée océanographique emmêlée dans un engin de pêche devra être signalée avant toute opération de démêlage et de remise à l'eau.

2) Prescriptions spécifiques aux navires pêchant à la senne

a) Le rejet à la mer de tout thonidé, est strictement interdit. Il est également fortement recommandé d'éviter les rejets à la mer de toute autre espèce commercialisable.

b) Aucun thonidé capturé par un senneur ne pourra être rejeté après le moment où le filet est complétement boursé et où plus de la moitié du filet a été virée. Si un problème technique affecte le processus de boursage et de virage de telle façon que cette règle ne puisse être appliquée, l'équipage devra faire tous les efforts possibles pour libérer les thons aussi vite que possible.

c) Par dérogation, les patudos, listaos et albacores considérés par le capitaine comme impropres à la consommation humaine, selon la définition ci-dessous peuvent être rejetés à la mer mais tout rejet de thons majeurs devra être justifié par un compte rendu circonstancié prouvant que le produit est effectivement impropre à la consommation humaine :

- « impropres à la consommation humaine » inclut entre autre, les poissons qui :
  - sont maillés ou écrasés dans la senne ;
  - sont abîmés par la déprédation ;
  - sont morts et se sont décomposés dans le filet à cause d'une panne qui a empêché la remontée de la senne et les efforts pour relâcher les poissons vivants ; et
- « impropres à la consommation humaine » n'inclut pas les poissons qui :
  - sont considérés indésirables en terme de taille, de commercialisation ou d'espèce ;
  - sont décomposés ou contaminés du fait d'une omission ou d'une action de l'équipage du navire de pêche.

d) Lorsque le capitaine du navire détermine qu'il n'y a pas assez d'espace dans les cales pour stocker tous les thons (patudo, albacore, ou listao) capturés au cours de la dernière calée d'une marée, ces poissons ne pourront être rejetés que si :

- le capitaine et l'équipage essaient de relâcher les thons (patudo, albacore ou listao) vivants aussi rapidement que possible ;
- aucune autre opération de pêche n'est conduite après le rejet, tant que les thons (patudo, albacore ou listao) à bord du navire n'auront pas été débarqués.

e) Le capitaine a obligation de déclarer le nombre de balises de Dispositif de Concentration de Poissons dérivants (DCP) détenues à bord lors de l'entrée et de la sortie de la ZEE au Centre Régional Opérationnel de Surveillance et de Sauvetage de la Réunion (CROSSRU).

f) Le nombre de bouées instrumentées actives suivies par un senneur est limité à un maximum de 425 bouées toutes zones maritimes confondues.

g) La pose de Dispositifs de Concentration de Poissons dérivants (DCP), ainsi que la pêche sur ces dispositifs, sont strictement interdites dans la ZEE des Glorieuses, classée en parc naturel marin. La pêche sur banc libre ou sur objet flottant d'origine naturelle non balisé est autorisée.

h) L'usage de lumière artificielle de surface ou immergée dans le but d'agréger des poissons autours des DCP est strictement interdit.

i) L'usage des filets de type senne est interdit à moins de vingt-quatre milles marins des lignes de base, ainsi qu'à moins de dix milles marins du centre du lagon du récif du Geyser dont les coordonnées sont : 12°20' S – 046°33' E.

j) Les navires équipés d'un dispositif de remise à l'eau des captures accessoires depuis le faux pont doivent impérativement le mettre en action lors de toute opération de pêche. Les navires ne disposant pas d'un tel système doivent tout mettre en œuvre pour évacuer rapidement à la mer tout requin capturé.

k) Le capitaine a obligation de remplir :

- pour les navires battant pavillon communautaire, le journal de bord communautaire ;
- pour les navires battant un autre pavillon, le journal de bord spécifique de la Commission des Thons de l'Océan Indien (CTOI).

l) Le capitaine a obligation :

- de numéroter les dispositifs de concentration de poissons dérivants (DCP) qu'il détient et/ou fabrique, et met en œuvre selon une numérotation bord ;
- de tenir un registre des DCP, mentionnant les numéros de DCP (références des balises GPS), date, heure et position lors de toute mise à l'eau ou récupération de DCP.

m) Les DCP dérivant mis à l'eau doivent être conçus de préférence avec des matériaux biodégradables, et de telle manière qu'ils ne comportent pas de risque d'enchevêtrement des espèces non ciblées et des tortues de mer.

n) Les DCP comportant des filets susceptibles de constituer un danger pour la faune marine et dérivant dans les eaux françaises des TAAF doivent être récupérés et considérés comme déchet non organique.

o) L'abandon en mer, sans balise de repérage, d'une épave modifiée ou d'un radeau artificiel est strictement interdit.

p) Toute manœuvre d'encerclement de mammifère marin ou de requin-baleine (*Rhincodon typus*) est strictement interdite. Au cas où des animaux sont involontairement encerclés par une senne coulissante, le capitaine du navire doit :

- enregistrer la capture conformément à la résolution 13-03 de la CTOI ;
- prendre toutes les mesures raisonnables pour garantir la libération des animaux indemnes, tout en assurant la sécurité de l'équipage ; ces mesures devront, entre autre, suivre les lignes directrices des bonnes pratiques pour la libération et la manipulation indemne des cétacés ou des requins baleine, élaborées par le Comité scientifique de la CTOI ;
- signaler l'incident aux autorités compétentes de l'État du pavillon, avec les informations suivantes (espèce identifiée, nombre d'individus concernés, description précise de l'interaction, localisation de l'incident et mesures prises pour s'assurer de la libération indemne).

q) L'encerclement de tortue marine doit être évité autant que possible, et en cas d'encerclement ou d'emmêlement accidentel la tortue doit être dégagée le plus rapidement possible selon les lignes directrices figurant dans les cartes d'identification de la CTOI.

3) **Prescriptions spécifiques aux navires pêchant à la palangre, à la canne ou à la ligne traînante**

a) Le capitaine a obligation d'utiliser des hameçons circulaires (circle hooks).

b) La totalité des hameçons doit être retiré avant le rejet à la mer éventuel des déchets de production.

c) Le capitaine devra, remplir le journal de bord spécifique de la Commission des Thons de l'Océan Indien (CTOI).

d) Lors d'opération de filage de palangre en présence d'oiseaux marins s'attaquant aux appâts, le capitaine s'engage à mettre en place simultanément au moins deux des trois mesures suivantes :
- système de lignes d'effarouchement du type décrit en appendice 1 de l'annexe II ;
- filage de nuit avec éclairage minimum du pont ;
- lestage des lignes et des avançons.

e) Tout rejet alimentaire est interdit :
- dans l'heure précédant le début du filage ;
- durant toute la phase de virage.

4) **Protocole expérimental et /ou mesures dérogatoires**

Pour l'application de ces règles, le préfet administrateur supérieur peut autoriser, sur proposition du directeur de la mer sud océan indien (DMSOI) et après avis des organismes scientifiques, des protocoles expérimentaux ou des dérogations pour une durée déterminée. Les demandes d'expérimentation et de dérogation devront être adressées au directeur de la mer sud océan indien (DMSOI) avec un préavis suffisant pour permettre la mise en place le cas échéant, de protocoles scientifiques d'évaluation.

ANNEXE III

L'observateur scientifique des pêches embarqué

1) Chaque navire possédant une autorisation de pêche est tenu d'accepter à son bord un observateur des pêches embarqué habilité par le préfet administrateur supérieur des TAAF.

2) Le demandeur d'une autorisation de pêche aux thons et autres poissons pélagiques dans les zones économiques exclusives des îles Éparses s'engage à supporter les frais de déplacement et, le cas échéant, de logement des observateurs des pêches qu'il sera amené à embarquer sur son navire dans le cadre de cette licence.

3) Le demandeur d'une autorisation de pêche aux thons et autres poissons pélagiques dans les zones économiques exclusives des îles Éparses s'engage à disposer à bord de son navire d'au moins un officier maitrisant suffisamment la langue française, à défaut l'anglais, de manière à permettre une communication efficace avec l'observateur à bord lorsqu'il est embarqué, avec le CROSS Réunion et les équipes d'inspection des pêches engagées dans la surveillance de la campagne de pêche.

4) L'observateur des pêches à rang d'officier et doit bénéficier :

   a) D'une cabine si possible individuelle, d'un lieu de stockage sécurisé pour son matériel et d'emplacements dédiés en passerelle, sur les ponts et s'il y a lieu à l'usine, propres à tenir raisonnablement de poste de travail.

   b) De moyens de communication téléphoniques et électroniques sécurisés, lui permettant de contacter librement les services du Préfet, administrateur supérieur des TAAF, le CROSS Réunion ou un autre observateur des pêches. Le capitaine garantit la confidentialité de ces communications et ne doit en aucun cas s'opposer aux échanges professionnels de l'observateur des pêches.

   c) D'un accès à tout lieu de stockage de matériel ou de traitement et d'une façon générale à toute partie du navire utilisée directement pour les activités de pêche, ou dont la destination est couverte par la présente réglementation.

   d) D'un accès à tout document ou appareil de bord ayant rapport aux activités de pêche et notamment aux carnets, autorisations, dossiers de suivis de pêche papier ou informatique, appareils de navigation.

   e) D'un accès à tout matériel ou engin de pêche, à tout produit de la pêche, afin d'effectuer les opérations liées à sa mission scientifique ou de contrôle (prélèvement d'échantillons, analyse biologique ou statistique, contrôle de conformité à la réglementation).

   f) De l'information concernant les activités de pêche du navire avec un préavis propre à assurer la réalisation de sa mission.

   g) Du matériel suivant fourni par le bord :

      i) Une planche à mesurer le poisson comportant un réglet gradué en millimètre ;

      ii) Un minimum de 3 bacs perforés à poissons d'une capacité de 50 litres chacun.

5) Le capitaine du navire détenteur d'une autorisation de pêche doit apporter son concours à la réalisation de la mission de l'observateur embarqué et notamment :

a) A la collecte d'informations (prises de vues photographiques, vidéos, prélèvement d'échantillons scientifiques et techniques), demandées par le préfet, administrateur supérieur des TAAF ou le CROSS Réunion ;

b) Au recueil de données concernant les campagnes de marquage ;

c) A l'enregistrement du nombre, du type et des circonstances de chaque interaction du navire avec la faune ;

d) Au recueil détaillé de l'activité d'autres navires éventuellement rencontrés à la mer dans la zone économique exclusive.

ANNEXE IV

Gestion des déchets et des eaux usées

1) Il est interdit d'évacuer dans la mer tous les objets en matière plastique, y compris les cordages et les filets de pêche en fibre synthétiques, ainsi que les sacs à ordures plastiques et toutes les autres ordures, y compris les objets en papiers, les chiffons, les objets en verre, les objets métalliques, les ustensiles de cuisine, le fardage et les matériaux de revêtement d'emballage. Seuls sont autorisés les rejets de déchets alimentaires et organiques d'usine putrescibles à plus de 25 milles marins de la côte.

Les navires doivent être équipés de contenants permettant de conserver à bord les déchets dont le rejet est interdit et de les séparer des déchets pouvant être rejetés conformément au paragraphe ci-dessus.

2) Sur les navires de plus vingt-cinq mètres, un cahier de suivi des rejets des déchets et des eaux usées est tenu sous la responsabilité du capitaine, selon le modèle présenté en appendice 1 de la présente annexe.

ANNEXE V

Éléments à fournir par les armements à l'administration

Chaque armement transmet les éléments suivants aux adresses suivantes :

- surpeche-crossru@developpement-durable.gouv.fr
- cnsp-france@developpement-durable.gouv.fr
- dpqm@taaf.fr

1) Concernant les coordonnées du navire

En début de campagne et à chaque modification en cours de campagne, les numéros de téléphone (Inmarsat, Irridium, ...), ainsi que les adresses électroniques de son ou ses navires.

2) Concernant le programme de pêche

a) Au 1er janvier le programme prévisionnel à venir des marées de son ou ses navires, selon le modèle en appendice 1 de l'annexe V.
b) Au 1er janvier et au 1er juillet, de chaque année un tableau récapitulatif du prix de vente déclaré par l'armement ou le groupement d'armement, par espèce, et pour toutes les espèces commercialisées.
c) A chaque modification du programme le nom des ports, les dates prévues d'appareillage et d'accostage.
d) A l'issue de chaque marée, un tableau récapitulatif précisant les quantités débarquées par espèce.

3) Concernant le système de suivi des navires (SSN)*

a) En début de campagne, l'autorisation donnée par le capitaine ou l'armateur du navire au FMC de son Etat du pavillon de mettre à disposition du préfet administrateur supérieur et du Centre national de surveillance des pêches les données émises par les balises. Le Centre national de surveillance des pêches transmet simultanément ces données au CROSS Réunion, chargé du contrôle opérationnel.

b) A chaque fois qu'elles sont modifiées, les coordonnées de son système de suivi satellitaire.

4) Concernant l'équipage du navire*

Avant le début de chaque marée, la liste d'équipage et des éventuels passagers, en précisant les noms, prénoms, fonctions, dates de naissance et nationalités. En cas de modification à l'appareillage, une liste définitive est fournie le jour même.

Ces documents sont destinés à un usage strictement interne de l'administration. Ils sont conservés au CROSS et doivent être transmis systématiquement pour information au préfet, administrateur supérieur et à la direction de la mer sud océan Indien (DMSOI).

* Les navires battant pavillon français transmettent déjà ces données dans le cadre de leurs obligations légales et réglementaires et ne sont donc pas soumis à ces dispositions.

Appendice 2 à l'ANNEXE V

Obligation de signalement et de suivi

1) Obligation de signalement

Tout navire de pêche ou aménagé pour le transport de poisson, pénétrant dans la zone économique exclusive, a obligation de signaler son entrée dans ladite zone et de déclarer le tonnage de poisson détenu à son bord auprès du CROSS Réunion. Il devra le faire selon les procédures suivantes :

a) Lors de sa première entrée en zone économique exclusive, le navire devra annoncer son intention d'entrée prévue avec un préavis de 24 heures.

b) Lors d'entrées ultérieures en zone économique exclusive, le navire est tenu d'annoncer son intention et sa position d'entrée avec un préavis de trois heures.

c) Le navire est tenu d'annoncer son intention de sortir de la zone économique exclusive avec un préavis d'une heure.

d) Dans l'heure qui suit chaque entrée ou sortie de la zone économique exclusive, si ce n'est pas fait dans la déclaration d'entrée/sortie le navire communique au CROSS Réunion par transmission du journal de bord électronique (ERS) ou, si il n'en est pas équipé, par télécopie, par courrier électronique ou par tout autre moyen, sa position, le tonnage de chaque espèce de poisson détenu à bord, en utilisant les codes FAO et le nombre de balise de DCP réellement à bord.

2) Obligation de suivi

a) Lorsque le navire se trouve dans la zone économique exclusive, un système de suivi du navire (SSN) par satellite doit assurer toutes les heures la transmission des informations suivantes au CNSP (Cross Etel) et au CROSS Réunion :

i) L'identification du navire.

ii) La position du navire (longitude, latitude) avec une erreur de positionnement de moins de 500 m pour un intervalle de confiance de 99%.

iii) La date et l'heure TU dudit relevé de la position du navire.

b) Si ce système connaît une avarie temporaire, le navire de pêche est tenu d'en avertir le CNSP et le CROSS Réunion et de leur transmettre sa position toutes les deux heures au maximum, par fax ou par mél.

c) Ce système doit apporter toutes les garanties de fiabilité et d'inviolabilité. Il devra être scellé et équipé d'un dispositif de détection d'intrusion. Pour les navires non communautaires, il doit être approuvé par le préfet, administrateur supérieur des TAAF, sur proposition du directeur de la mer sud océan indien (DMSOI).

Appendice 3 à l'ANNEXE V

Demandes d'autorisation de pêche

1) Les demandes d'autorisation de pêche sont transmises par lettre recommandée avec accusé de réception à l'adresse indiquée ci-dessous :

Monsieur le Préfet administrateur supérieur des TAAF

Service des Affaires juridiques et internationales des TAAF

1, rue Gabriel Dejean

97410 Saint-Pierre de la Réunion

2) Le formulaire de demande doit être conforme à l'arrêté n°2012-48 fixant les conditions de demande de licences de pêche dans les Terres australes et antarctiques françaises.

3) Ce formulaire est téléchargeable sur le site internet des TAAF : www.taaf.fr

20.3. Madagascar

mrhp

REPOBLIKAN'I MADAGASIKARA

PROTOCOLE D'ACCORD

ENTRE

LE MINISTERE DES RESSOURCES HALIEUTIQUES ET DE LA PECHE

(MINISTERE CHARGE DE LA PECHE)

ET

LA SOCIETE ANABAC
(SOCIETE)

SUR LA CONDUITE D'UNE PECHE COMMERCIALE DES THONS
DANS LA ZEE MALGACHE

< CAS DES NAVIRES THONIDES DES SOCIETES ETRANGERES
BATTANT PAVILLON ETRANGER >

(Ce protocole comprend vingt-quatre pages y compris celle-ci et les appendices)

Protocole d'accord de pêche MRHP / Sté ANABAC

Article 0 : Conditionnalité du protocole

En vue de la mise en vente des licences de pêche par la République de Madagascar, les deux parties se conviennent de mener une pêche commerciale de thonidés dans les eaux sous juridiction malagasy.

Pour chaque campagne de pêche, le présent protocole est conditionné par le paiement d'une avance de par navire. Cette avance est défalquée au prorata de la grille de redevance pour chaque navire au moment de la délivrance de la licence. En cas de non-exécution du protocole selon les clauses de l'article 8, le protocole devient caduc et la somme versée n'est plus remboursable.

Cette avance sera payée auprès de la Banque Centrale de la République de Madagascar avec le libellé

La copie de la quittance de paiement fera partie intégrante du protocole. La date de signature du protocole ne doit pas être antérieure à celle de la quittance de paiement.

Article Premier : Zone de pêche

La zone de pêche dans laquelle s'applique ce Protocole d'Accord concerne la Zone Economique Exclusive sous juridiction de Madagascar au-delà de la bande de 20 miles nautiques à partir des lignes de base conformément à la réglementation malagasy. La ligne de base tiendra compte des îles suivantes : Nosy Be, Nosy Lava sur la côte Ouest et Sainte Marie sur la côte Est.

Par ailleurs, afin de préserver l'exploitation durable de certaines espèces demersales par les opérateurs nationaux, les zones du Banc de Leven et du Banc de Castor, dont les coordonnées sont indiquées à l'appendice n°9 sont interdites aux activités de pêche des navires couverts par le présent protocole.

La délimitation ainsi que les coordonnées des points marquant les zones de pêche malagasy sont en appendice 9.

Article 2: Les espèces cibles

Seules les espèces de thons et les espèces assimilées (voir appendice 1) sont autorisées pour chaque campagne de pêche couverte par le présent protocole.

Le poids des prises accidentelles d'autres familles ne doit pas dépasser 05% du poids de la capture totale de chaque navire. Par ailleurs, il est interdit de détacher les ailerons de la carcasse de requins (résolution CTOI n°05/05).

Toutes les espèces prohibées et défendues, soit par les réglementations nationales ou internationales notamment les requins, les tortues et les mammifères marins doivent être remises à l'eau dans les meilleures conditions possibles.

Article 3 : Bateaux et techniques de pêche

Pour la réalisation de la pêche, la SOCIETE est autorisée à utiliser au total navire de type SENNEUR battant pavillon étranger non membre de l'Union Européenne.

La technique de pêche pouvant être utilisée à la capture est:

- SENNE TOURNANTE

Aucun engin de pêche outre celui précisé ci-dessus ne doit être présent à bord des navires.

Les caractéristiques des navires, dûment certifiées par les autorités compétentes du pays où ils ont été enregistrés, doivent être jointes à la demande de licence (Appendice 2) à adresser au Ministère chargé de la Pêche. La date de délivrance de ce certificat ne doit pas dépasser trois (03) mois.

Les navires doivent être conformes aux dispositions réglementaires du Code Maritime.

Tous les navires doivent être autorisés par la Commission des Thons de l'Océan Indien (CTOI) à exercer dans la zone Océan Indien.

Les navires doivent arborer les marques d'immatriculation et l'indicatif d'appel conformément aux normes internationales et à la réglementation Malagasy. Toutes les marques devraient être apposées sur les deux côtés du navire (bâbord et tribord). Les dimensions minimales de chaque lettre sont de 45 cm de hauteur et de 6 cm de largeur. Ces marques doivent être peintes en blanc sur fond noir ou en noir sur fond blanc. L'indicatif d'appel doit être écrit sur la partie latérale la plus visible du navire et aussi haut que possible.

Article 4: Conditions d'exercices de la pêche

a) Utilisation de balise Inmarsat C ou Argos (EC TRACK), une position par heure et 24 positions par jour selon les dispositions définies en appendice 4.

b) Prise en charge des coûts d'un observateur malagasy sur chaque navire (obligatoire).

c) Sur demande du Ministère chargé de la Pêche, prise en charge des indemnités et des coûts d'un observateur scientifique dont les conditions sont définies en appendice 3.

d) Débarquement de la totalité de la capture à quai ou en rade. Aucun transbordement en mer ne peut être effectué. Pour le suivi des captures un journal de bord (Log book) doit être institué.

e) La détention à bord des espèces prohibées et défendues n'est pas autorisée.

Article 5: Contrôle du navire avant le début de campagne

Avant de pouvoir exercer, chaque navire demandeur de licence doit faire obligatoirement l'objet d'une inspection, par le Centre de Surveillance des Pêches de Madagascar, dans un port de Madagascar convenu d'un commun accord entre les deux parties. L'armateur du navire est ainsi tenu d'informer au préalable le Centre pour définir le port d'inspection. Sont notamment inspectés et contrôlés les installations de pêche, les locaux servant au traitement et à la conservation du poisson (à bord), la balise satellite, le système de communication HF/VHF, ainsi que le plan de cale certifié.

De plus, il est tenu de déposer le croquis et les caractéristiques détaillés des engins de pêche au Centre de Surveillance des Pêches. Le navire ne peut quitter le port sans l'avis favorable du Centre.

Toutefois, le Centre de Surveillance des Pêches peut faire des contrôles et inspections inopinés en cours de campagne.

Article 6 : Licence de pêche

La pêche ne peut être effectuée que par un navire muni d'une licence de pêche délivrée par le Ministère chargé de la Pêche. La licence de l'année en cours est délivrée suivant les mois correspondants aux redevances payées et la validité de celle-ci ne doit pas dépasser le 31 décembre. Une autre licence est délivrée pour les mois restants de l'année suivante au prorata des redevances payées. Le renouvellement se fait obligatoirement sur demande écrite à adresser au Ministère chargé de la Pêche. L'original de la licence doit être détenu à bord du navire pour être présenté aux agents officiels de la République de Madagascar.

Le dossier de demande de nouvelle ou de renouvellement de licence incluant les descriptions détaillées des engins de pêche et la preuve de paiement des redevances doit être déposé auprès de la Direction chargée de la Pêche au moins quinze (15) jours ouvrables avant la date souhaitée de début de campagne. La licence ne peut être délivrée qu'après virement effectif auprès de la Banque Centrale de Madagascar et inspection par le Centre de Surveillance des Pêches du navire.

Article 7 : Remplacement d'un navire

La licence n'est pas transférable automatiquement. En conséquence, le remplacement d'un navire par un autre ne peut se faire que sur autorisation du Ministère chargé de la Pêche après analyse des caractéristiques du navire remplaçant. Le cas échéant, le navire de remplacement sera muni d'une nouvelle licence de pêche à délivrer par le Ministère chargé de la Pêche suivant les conditions stipulées dans le présent Protocole.

Article 8 : Durée du protocole et renouvellement

La durée du Protocole qui prend effet à partir de sa date de signature par les parties concernées est de trente-six (36) mois. Si aucune licence n'est demandée dans un délai de trois (3) mois à la date de la signature du protocole, celui-ci devient caduc et non avenu.

La demande de renouvellement doit être adressée au Ministère chargé de la Pêche par la Société trois (3) mois avant la fin de la période du présent Protocole.

Nonobstant le paragraphe premier, le Ministère chargé de la Pêche peut en tout temps annuler le présent protocole si des indications de surexploitation de la ressource sont enregistrées ou démontrées sur le fondement de critères techniques. Néanmoins, les licences délivrées pour l'année en cours resteront valides jusqu'au 31 décembre, mais ne seront plus renouvelées.

Article 9 : Redevance

En termes du présent protocole, la société versera à la République de Madagascar les redevances totales se rapportant à la grille des redevances portées en appendice 7.

En sus des redevances sur l'obtention de la licence, chaque navire doit payer un droit d'entrée dans la Zone Economique Exclusive. Ce droit d'entrée est valable pour une seule campagne de pêche dont le montant est fixé à Il sera versé dans le compte

Article 10 : Mode de paiement des redevances

La redevance est payable d'avance uniquement en devises par chèque certifié auprès de la Banque Centrale de la République de Madagascar avec le libellé [illegible]

Article 11 : Rapports de pêche

Pendant ses activités dans la Zone Economique Exclusive malgache, le capitaine du navire est tenu de remplir une fiche de pêche suivant le modèle porté en appendice 6.

Cette fiche de pêche remplie en deux (2) exemplaires sera retournée par voie recommandée avec accusé de réception au Ministère chargé de la Pêche. Le 1er exemplaire à Monsieur Le Directeur de la Pêche B.P. 1699 ANTANANARIVO 101 et le 2e à Monsieur Le Directeur Exécutif du Centre de Surveillance des Pêches, B.P. 60114 ANTANANARIVO 101. Les fiches de pêche doivent être parvenues au plus tard vingt (20) jours après la date de débarquement signalée par l'Armateur ou le capitaine du navire.

Parallèlement à cela, le capitaine doit transmettre au Centre de Surveillance des Pêches un résumé succinct de ses activités (zone de pêche, capture, effort de pêche) une fois par semaine. Un modèle de fiche de rapport succinct sera remis au capitaine lors de la délivrance de la licence (CSP).

En outre, le capitaine établira également un rapport sur les autres navires qu'il a vus pêcher dans la Zone Economique Exclusive malagasy en indiquant notamment leur nom, pavillon, type, indicatif d'appel, position, date où il les a observés. La Société enverra ce rapport de pêche au Centre de Surveillance des Pêches.

Le Ministère chargé de la Pêche peut exiger à la Société d'autres renseignements complémentaires si besoin est.

Article 12 : Déclaration d'entrée et de sortie de la Zone Economique Exclusive malagasy

La Société ou le Capitaine du navire doit signaler 03 heures à l'avance leur intention de rentrer dans la Zone Economique Exclusive malagasy. Le Capitaine du navire pratiquant la pêche doit notifier au moins vingt-quatre heures à l'avance, au Centre de Surveillance des Pêches de Madagascar, par télécopieur (n°261-20-22 49014) (Inmarsat 00 873 762 060 796) leur intention de sortir de la zone de pêche malagasy.

Il doit notifier également les quantités estimées de captures (par espèce) effectuées pendant son séjour dans la zone de pêche malagasy, lors de la notification de son intention de sortir.

Les messages doivent s'effectuer pendant les heures et jours ouvrables applicables à Madagascar.

Article 13 : Observateur

Chaque navire qui opérera dans la Zone Economique de Madagascar doit prendre un observateur malagasy à bord. A la demande du Ministère chargé de la Pêche et à partir d'un port convenu au préalable entre les deux parties au présent protocole, lequel est situé sur le territoire de la République de Madagascar, chacun des sept (07) navires énumérés à l'article 3 doit prendre UN (01) observateur. Chaque observateur doit être titulaire d'une carte professionnelle et d'un fascicule de marin et il est tenu en outre de respecter les instructions de sécurité établies à bord.

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L'armateur ou son consignataire remboursera la prise en charge des frais de déplacement de l'observateur de son domicile au port d'embarquement auprès du Centre de Surveillance des Pêches. Les frais de mobilisation et de démobilisation de l'observateur à l'extérieur de Madagascar sont à la charge de l'armateur. Par ailleurs, il doit payer l'indemnité de l'observateur qui est fixée à Le capitaine est tenu de fournir tous les documents et éléments demandés par ces observateurs de façon à faciliter leur mission conformément à l'Appendice 3.

L'armateur ou son consignataire informe le Centre de Surveillance des Pêches au moins deux (2) jours avant l'arrivée du navire dans un port malgache.

Au cas où le navire ne se présente pas au moment convenu dans un port fixé à l'avance pour embarquer un observateur, l'armateur est tenu de régler les frais relatifs à l'immobilisation de l'observateur durant l'attente au port (hébergement, nourriture).

Article 14 : Embarquement des marins.

Pour chaque navire, au moins deux (02) marins malgaches sont embarqués en permanence pendant la durée de la campagne de pêche dans la zone de pêche malgache. Le salaire du marin embarqué est fixé de commun accord entre la Société ou son consignataire et les intéressés sans toutefois être inférieur ou égal à . Ce salaire doit couvrir les avantages de la sécurité sociale.

Les contrats d'engagement de ces marins sont passés entre la Société ou son consignataire et les intéressés avec une copie adressée au Ministère chargé de la Pêche.

En cas de non embarquement de marins, une compensation est fixée à par marin non embarqué et ce, couvrant toute la durée de la campagne. Elle sera versée dans le compte

Parallèlement aux embarquements respectifs d'observateurs du Centre de Surveillance des Pêches et des marins malgaches, l'armateur a la possibilité d'embarquer d'autres observateurs et techniciens de nationalité de son choix.

Article 15 : Inspections et surveillance des activités de pêche

La montée à bord et l'accomplissement des tâches de tout agent dûment mandaté par la République de Madagascar chargé de l'inspection et de contrôle de surveillance des pêches doivent être facilités.

Procédure en cas d'arraisonnement :

a) Transmission de l'information

Le Centre de Surveillance des Pêches informe la Société dans un délai maximum de 48 heures, de tout arraisonnement d'un navire de pêche opérant dans le cadre du protocole. De même, la Société est tenue informée du déroulement des procédures entamées et des sanctions prises.

b) Règlement de l'arraisonnement

Conformément aux dispositions de la loi des pêches et des règlements y afférents, l'infraction peut se régler :

- soit par voie transactionnelle, et dans ce cas, le montant de l'amende est appliqué conformément aux dispositions de la loi à l'intérieur d'une fourchette comprenant un minimum et un maximum prévu dans la législation malagasy

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- soit par voie judiciaire au cas où l'affaire n'a pas pu être réglée par la procédure transactionnelle

Pour les deux cas, la main levée du navire est obtenue et son équipage est autorisé à quitter le port :

- soit dès l'accomplissement des obligations découlant de la procédure transactionnelle sur présentation du récépissé du règlement ;

- soit dès le dépôt d'une caution bancaire destinée à garantir le paiement des amendes, confiscation et frais encourus en attendant l'accomplissement de procédure judiciaire, sur présentation d'une attestation de dépôt de caution.

Article 16 : Suivi satellitaire

En application de l'arrêté 1613/2002 du 31 juillet 2002 (appendice 5) portant adoption d'un système de suivi satellitaire à bord de tout navire opérant dans le secteur de la pêche, le navire énuméré à l'article 3 doit être équipé d'une balise satellite de positionnement Inmarsat C ou Argos durant toutes ses activités à l'intérieur des eaux sous juridiction malagasy.

A cet effet, le navire doit transmettre au Centre de Surveillance des Pêches une position par heure et 24 positions par jour. Par ailleurs, la société consent à leur échange entre les Etats Coopérants au dispositif régional d'échange de données sur les activités de pêche selon un protocole approuvé.

Les renseignements à transmettre par l'armateur au Centre de Surveillance des Pêches pour le bon déroulement du système sont en appendice 4. En cas de non fonctionnement de la balise, le navire doit se référer à l'appendice 4.

Article 17 : Prévention

Le capitaine du navire prendra toutes les mesures qui s'imposent pour prévenir la pollution ou toute autre action portant préjudice à la nature de l'océan et des ressources biologiques marines.

Article 18 : Autres dispositions

Toutes modifications d'une ou plusieurs clauses du présent protocole feront l'objet d'un nouveau protocole.

Le non-respect des dispositions citées ci-dessus entraînera le retrait de la ou des licences d'appui.

Article 19 : Règlement des différends

Tout différend résultant de l'application du présent Protocole sera réglé à l'amiable. Si le règlement à l'amiable s'avère impossible, le litige sera soumis à l'examen d'un arbitrage dont la composition sera arrêtée par les deux parties.

Article 20 : Respect des mesures de gestion

Toutes infractions aux dispositions du présent protocole seront constatées, poursuivies et réprimées conformément aux textes en vigueur en matière de pêche.

Tous les navires autorisés à exercer dans le cadre de ce protocole sont tenus en outre de se soumettre aux mesures de conservation et de gestion adoptées par les organisations régionales de gestion des pêcheries de la région Océan Indien dont la Commission des Thons de l'Océan Indien.

Article 21 : Dénonciation ou renonciation

L'une des deux parties peut renoncer au Protocole si ce dernier est déjà exécuté, en informant l'autre au moins trois (3) mois avant la date à laquelle, elle pense rendre effective sa renonciation. Pendant ce temps, les deux parties régleront entre elles tout problème en suspens.

Article 22 : Langue utilisée pour le protocole

Le présent protocole est élaboré en version française. La Société peut traduire en d'autres langues. Toutefois seule la version française est signée par les deux parties et est valable en cas de litige ou de discussion.

Article 23 : Adresses pour les correspondances

Pour leurs correspondances, les deux parties utiliseront toutes les formes de communication comprenant notamment l'envoi postal, le courrier express par avion, le télégrammne, le télex, le fax, ... aux adresses suivantes :

Pour la République de Madagascar
Ministère des Ressources Halieutiques
et la Pêche

BP : 1699 Antananarivo
Tél : 261 20 22 406 50
Fax : 261 20 22 409 00 ou 490 14

Pour la Société ANABAC

TXIBITXIAGA 24 Entreplanta
Apartado 48370 Bermeo Espagne
Tél : 34 94 68 32 82 806
Fax : 34 94 68 85 017
E-mail : Juanpablo@anabac.org

Fait à Antananarivo le, 27 JUIN 2015

Pour la République de Madagascar
Le Ministre des Ressources Halieutiques
et de la Pêche

AHMAD

Pour la Société

SOCIÉTÉ ARMATEURS MARITIMES DE MADAGASCAR
Le Directeur Commercial,

A. RATSIMBAZAFY Manda

APPENDICE 1

LISTE DES THONIDES ET ESPECES ASSIMILEES

Nom scientifique	Nom anglais	Nom français
Thunnus albacares	Yellowfin tuna	Albacore
Katsuwonus pelamis	Skipjack tuna	Listao
Thunnus obesus	Bigeye tuna	Thon obèse
Thunnus alalunga	Albacore	Germon
Euthynnus affinis	Kawakawa	Thonine orientale
Acanthocybium solandri	Wahoo	Thazard-bâtard
Allothunnus fallai	Slender tuna	Thon élégant
Auxis rochei	Bullet tuna	Bonitou
Auxis thazard	Frigate tuna	Auxide
Coryphaenidae	Dolphinfish	Coryphène
Cybiosarda elegans	Leaping bonito	Bonite à dos tacheté
Euthynnus alletteratus	Little tunny	Thonine commune
Euthynnus lineatus	Black skipjack	Thonine noire
Gasterochisma melampus	Butterfly kingfish	Thon papillon
Istiophorus platypterus	Indo-Pacific sailfish	Voilier indo-pacifique
Lepidocybium Flavobrunneum	Oilfish smooth skin	Escolier noir
Makaira indica	Black marlin	Makaire noir
Makaira nigricans	Blue marlin	Makaire bleu
Orcynopsis unicolor	Plain bonito	Palomette
Sarda spp	Bonitos nei	Bonites nca
Scomberomorus spp	Seerfishes nei	Thazard nca
Taractichthys Lonigipinnis	Angel fish, Pomfret	
Tetrapturus angustirostris	Shortbill spearfish	Makaire à rostre court
Tetrapturus audax	Striped marlin	Marlin rayé
Tetrapturus georgei	Roundscale spearfish	Makaire épée
Tetrapturus pfluegeri	Longbill spearfish	Makaire bécune
Tetraroge barbata	Bearded roguefish	
Thunnus atlanticus	Blackfin tuna	Thon à nageoires noires
Thunnus maccoyii	Southern bluefin tuna	Thon rouge du Sud
Thunnus tonggol	Longtail tuna	Thon mignon
Xiphias gladius	Swordfish	Espadon
Sphyraenan spp	Barracudas nei	Bécunes nca
Ruvettus prestiosus	Oilfish	Rouvet

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APPENDICE 2:

FORMULAIRE DE DEMANDE DE LICENCE[1]

1. Nouvelle demande [1] ou renouvellement [2]
2. Numéro de la licence de pêche en cas de renouvellement, licence jointe) :

   .....
3. Nom du navire : .....
4. Nationalité : .....
5. Pavillon antérieur : .....
6. Pavillon du Navire : .....
7. Durée de validité : du ___/___/___ au ___/___/___
8. Année de construction : ..... A .....
9. Nom de l'armateur :
10. Adresse de l'armateur :.....

    .....
11. Nom et adresse de l'affréteur, si différent des points 4 et 5 : .....

    .....
12. Nom et adresse du représentant officiel à Madagascar : .....

    .....
13. Nom du Capitaine du navire : .....
14. Type du navire :

    Senneur : ☐

    Palangrier : ☐

    Chalutier d'eaux profondes : ☐

    Autres à préciser : .....
15. Numéro d'immatriculation : .....
16. Identification extérieure du navire : ...../.....
17. Port et pays d'enregistrement : .....
18. Indicatif d'appel radio et fréquence : .....
19. Longueur Hors Tout du navire : .....mètres
20. Largeur Hors Tout du navire : .....mètres
21. Tonnage Jauge Brut (TJB) : .....
22. Tonnage Jauge Net (TJN) : .....

[1] Toutes les informations demandées sont obligatoires. Une omission peut entraîner la non délivrance de licence.
[2] Cocher la case correspondante

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23. Puissance du moteur principal : CV
24. Marque du moteur principal : .....
25. Capacité de congélation : .....tonnes par jour
26. Nombre de cales de stockage : .....
27. Capacités respectives des cales :
    Cale 1 : .....m^3
    Cale 2 : .....m^3
    Cale 3 : .....m^3
    Cale 4 : .....m^3
    Cale 5 : .....m^3
    Cale 6 : .....m^3
    Total : ....m^3
28. Autres équipements de communication :
    Téléphone : .....
    Fax : .....
    Télex : .....
    E-mail : .....
29. Equipement d'aide à la pêche : .....
30. Effectif de l'équipage par nationalité : .....
    .....
31. Moyens de détection et de communication :
    Radio HF : .....
    Radio VHF : .....
    SATELLITE : .....
    INMARSAT A : .....
    INMARSAT B : .....
    INMARSAT C : .....
    RADAR : .....
    SONAR : .....
    SONDEUR : .....
    NET SONDE : .....
    TRACEUR DE ROUTE : .....
    PILOTE AUTOMATIQUE : .....
    AUTRES : .....

32. Type de balise :

ARGOS : ☐

Identification : .....

INMARSAT C : ☐

Identification : .....

DNID : .....

Numéro de membre : .....

AUTRES A PRECISER :

.....

.....

Je soussigné,....., certifie l'exactitude des renseignements donnés ci-dessus et m'engage à les respecter.

....

(Cachet et signature de l'armateur) (Date) :

APPENDICE 3

EMBARQUEMENT DES OBSERVATEURS

Les navires cités à l'article 3 du protocole d'accord autorisés à pêcher, prennent à bord un observateur du Centre de Surveillance des Pêches muni d'une carte professionnelle et d'un livret maritime. Le temps de présence de l'observateur à bord est fixé par le Centre de Surveillance des Pêches, sans que pour autant il ne dépasse, en règle générale, les délais nécessaires pour effectuer ses tâches.

A bord, l'observateur :

1. Observe, enregistre et rapporte les activités de pêche des navires ;
2. Vérifie la position des navires engagés dans des opérations de pêche ;
3. Procède à des opérations d'échantillonnage biologique dans le cadre de programmes scientifiques ;
4. Fait le relevé des engins de pêche utilisés et prend des photos des activités ;
5. Collecte les données de captures relatives à la zone de pêche pendant sa présence à bord ;
6. Prend toutes les dispositions appropriées pour que les conditions de son embarquement ainsi que sa présence à bord du navire n'interrompent ni entravent les opérations de pêche ;
7. Respecte les biens et équipements qui se trouvent à bord, ainsi que la confidentialité de tous documents appartenant au dit navire ;
8. Rédige un rapport de marée qui est transmis au Centre de Surveillance des Pêches de Madagascar.

A cet effet, l'armateur ou le capitaine du navire de pêche doit :

1. permettre à l'observateur de monter à bord du navire pour y exercer ses fonctions et de rester à bord du navire pendant la période précisée dans la demande ;
2. fournir une aire de travail appropriée qui comporte une table et dont l'éclairage est suffisant ;
3. fournir les renseignements qu'il possède sur les activités de pêche dans la zone de pêche malgache ;
4. donner la position du navire (longitude et latitude);
5. envoyer et recevoir ou permettre d'envoyer et de recevoir des messages au moyen du matériel de communication se trouvant à bord du navire ;
6. donner accès à toutes les parties du navire où se déroulent les activités de pêche, de transformation et d'entreposage ;
7. permettre de prélever des échantillons ;
8. fournir des installations d'entreposage convenables pour ses échantillons, sans porter préjudice aux capacités de stockage du navire;
9. prêter assistance pour examiner et mesurer des engins de pêche à bord du navire ;
10. permettre d'emporter les échantillons et les documents obtenus pendant son séjour à bord ;
11. lorsque l'observateur reste à bord du navire pendant plus de quatre heures consécutives, lui assurer le gîte et les vivres, le traitant à cet égard au même titre que les officiers du navire.

APPENDICE 3

EMBARQUEMENT DES OBSERVATEURS

Les navires cités à l'article 3 du protocole d'accord autorisés à pêcher, prennent à bord un observateur du Centre de Surveillance des Pêches muni d'une carte professionnelle et d'un livret maritime. Le temps de présence de l'observateur à bord est fixé par le Centre de Surveillance des Pêches, sans que pour autant il ne dépasse, en règle générale, les délais nécessaires pour effectuer ses tâches.

A bord, l'observateur :

1. Observe, enregistre et rapporte les activités de pêche des navires ;
2. Vérifie la position des navires engagés dans des opérations de pêche ;
3. Procède à des opérations d'échantillonnage biologique dans le cadre de programmes scientifiques ;
4. Fait le relevé des engins de pêche utilisés et prend des photos des activités ;
5. Collecte les données de captures relatives à la zone de pêche pendant sa présence à bord ;
6. Prend toutes les dispositions appropriées pour que les conditions de son embarquement ainsi que sa présence à bord du navire n'interrompent ni entravent les opérations de pêche ;
7. Respecte les biens et équipements qui se trouvent à bord, ainsi que la confidentialité de tous documents appartenant au dit navire ;
8. Rédige un rapport de marée qui est transmis au Centre de Surveillance des Pêches de Madagascar.

A cet effet, l'armateur ou le capitaine du navire de pêche doit :

1. permettre à l'observateur de monter à bord du navire pour y exercer ses fonctions et de rester à bord du navire pendant la période précisée dans la demande ;
2. fournir une aire de travail appropriée qui comporte une table et dont l'éclairage est suffisant ;
3. fournir les renseignements qu'il possède sur les activités de pêche dans la zone de pêche malgache ;
4. donner la position du navire (longitude et latitude);
5. envoyer et recevoir ou permettre d'envoyer et de recevoir des messages au moyen du matériel de communication se trouvant à bord du navire ;
6. donner accès à toutes les parties du navire où se déroulent les activités de pêche, de transformation et d'entreposage ;
7. permettre de prélever des échantillons ;
8. fournir des installations d'entreposage convenables pour ses échantillons, sans porter préjudice aux capacités de stockage du navire;
9. prêter assistance pour examiner et mesurer des engins de pêche à bord du navire ;
10. permettre d'emporter les échantillons et les documents obtenus pendant son séjour à bord ;
11. lorsque l'observateur reste à bord du navire pendant plus de quatre heures consécutives, lui assurer le gîte et les vivres, le traitant à cet égard au même titre que les officiers du navire.

APPENDICE 4

Conditions particulières pour la transmission de données VMS appliquées à tous les navires en activités dans la ZONE ECONOMIQUE EXCLUSIVE Malagasy

1- Obligation pour les navires d'être équipés d'un dispositif de repérage par satellite

Tout navire couvert par le protocole doit être équipé d'un dispositif de repérage par satellite Inmarsat – C ou Argos. Les navires de pêche dûment autorisés à pêcher dans les eaux sous juridiction Malagasy doivent s'assurer du bon fonctionnement du dispositif de repérage par satellite avant de pénétrer dans les eaux sous juridiction Malagasy et activer leur balise dès qu'ils entrent dans ces mêmes eaux.

2- Installation et enregistrement du dispositif de repérage par satellite

L'achat du dispositif de repérage par satellite est à la charge du propriétaire ou de l'armateur du navire de pêche.

Le propriétaire ou l'armateur du navire de pêche fait procéder à l'installation du dispositif repérage par satellite à bord du navire de pêche par un installateur agréé par le fournisseur dudit dispositif.

Le propriétaire ou l'armateur du navire de pêche ou leur représentant fournit, dans la forme prescrite, au Centre de Surveillance des Pêches la fiche d'information relative au dispositif de repérage par satellite dûment complétée et signée (fiche enregistrement localisation des navires par satellite).

Après avoir vérifié les informations fournies par le propriétaire ou l'armateur du navire ou leur représentant, le Centre de Surveillance des Pêches envoie, par courrier recommandé avec accusé de réception, au propriétaire ou armateur du navire ou leur représentant un récépissé d'enregistrement du dispositif de repérage par satellite et un récépissé de fonctionnement à réception de la première émission de ce dispositif.

3- Caractéristiques des dispositifs de repérage par satellite

Les dispositifs de repérage par satellite installés à bord des navires de pêche assurent, à tout moment, la transmission automatique au Centre de Surveillance des Pêches des données relatives à :

(a) l'identification du navire ;
(b) la position géographique la plus récente du navire exprimée en latitude et en longitude ;
(c) la date et l'heure de la position géographique du navire exprimée en temps universel coordonné (TUC) ; et
(d) la vitesse et le cap du navire.

Les dispositifs de repérage par satellite ne doivent permettre ni la réception ni la transmission de position erronées et doivent être protégés contre tout dérèglement ou interférence manuelle.

4- Périodicité de la transmission des données

Le rapport de positionnement est transmis une fois par heure au Centre de Surveillance des Pêches.

Le Centre de Surveillance des Pêches peut décider de demander ces informations à intervalles plus rapprochés pour assurer la surveillance de certaines zones de pêche ou de certains navires.

Lorsqu'un navire de pêche est à quai dans un port Malagasy, il est autorisé à déconnecter son dispositif de repérage pour autant que le Centre de Surveillance des pêches en soit préalablement informé et que le relevé suivant montre que la position du navire n'a pas changé depuis le dernier relevé transmis.

5- Responsabilités du capitaine relatives aux dispositifs de repérage par satellite

Le capitaine d'un navire de pêche veille à ce que le dispositif de repérage par satellite soit en permanence pleinement opérationnel et assure bien la transmission des rapports de positionnements.

Le capitaine d'un navire de pêche veille notamment à ce que :

(a) les données ne soient en rien modifiées ;
(b) rien ne fasse obstruction à l'antenne ou aux antennes reliées aux dispositifs de repérage par satellite ;
(c) l'alimentation électrique du dispositif de repérage par satellite ne soit interrompue à aucun moment ;
(d) le dispositif de repérage par satellite ne soit pas enlevé du navire ou déplacé de son lieu d'installation à bord du navire ;
(e) tout remplacement d'un dispositif de repérage par satellite soit dûment déclaré au Centre de Surveillance des Pêches et fasse l'objet de la remise d'une fiche d'information au Centre de Surveillance des pêches conformément aux dispositions du point 2 paragraphe 3.

6- Défaillance technique ou non fonctionnement du dispositif de repérage par satellite

(a) En cas de défaillance technique ou de non fonctionnement du dispositif de repérage par satellite installé à bord d'un navire de pêche, le capitaine, l'armateur, le propriétaire du navire , ou leur représentant communique toutes les 2 heures la dernière position géographe du navire au Centre de Surveillance des Pêches, par courrier électronique, télex ou télécopie à partir du moment de la détection de la panne ou du moment auquel il a été informé par le Centre de Surveillance des pêches de la défaillance technique ou du non fonctionnement du dispositif de repérage par satellite.

(b) Le dispositif de repérage par satellite défectueux sera réparé ou remplacé dans un délai de 7 jours. A défaut, le navire doit quitter les eaux sous juridiction Malagasy à l'expiration de ce délai ou se rendre dans un des Ports de Madagascar de leur choix.

(c) Aucun navire de pêche, se trouvant dans un port Malagasy, dont le dispositif de repérage par satellite installé à bord a connu une défaillance technique ou un épisode de non fonctionnement ne peut quitter le port avant que le Centre de surveillance des Pêches ait constaté que ledit dispositif fonctionne à nouveau correctement.

7- Confidentialité des données

Les données communiquées au Centre de surveillance des pêches, conformément aux dispositions du présent arrêté, sont exclusivement destinées au contrôle et à la surveillance des activités de pêche.

Seuls les agents habilités du Centre de surveillance des Pêches sont autorisés à accéder aux données de surveillance et de contrôle enregistrées dans la base de données du Centre de surveillance des Pêches. Ces données ne pourront en aucun cas être communiquées à d'autres parties sauf avec le consentement écrit du propriétaire ou de l'armateur du navire de pêche concerné.

APPENDICE 5

REPOBLIKAN' I MADAGASIKARA
Tanindrazana-Fahafahana-Fandrosoana
****

MINISTERE DE L'AGRICULTURE
ET DE L'ELEVAGE

SECRETARIAT D'ETAT A LA PÊCHE
ET AUX RESSOURCES HALIEUTIQUES

Arrêté N°1613/2002 portant adoption d'un système de suivi satellitaire à bord de tout navire opérant dans le secteur de la Pêche

Le Secrétaire d'Etat chargé de la Pêche et des Ressources Halieutiques,

- Vu la Constitution,
- Vu la Loi n° 85-013 du 11 Décembre 1985 fixant les limites des zones maritimes (mer territoriale, plateau continental et Zone Economique Exclusive),
- Vu la loi No 99-029 du 03 Février 1999 portant refonte du Code Maritime,
- Vu l'Ordonnance N°93-022 du 04 Mai 1993 portant réglementation de la Pêche et de l'Aquaculture,
- Vu le Décret N°94/112 du 18 Février 1994 portant organisation générale des activités de pêche maritime,
- Vu le Décret N°2002/450 du 16 Mai 2002 portant nomination du Premier Ministre, Chef du Gouvernement,
- Vu le Décret N°2002/451 du 18 Mai 2002 et No 2002/496 du 02-07-02 portant nomination des membres du Gouvernement,
- Vu le Décret N°2002/412 du 06 Juin 2002 fixant les attributions du Secrétariat d'Etat à la pêche et aux Ressources Halieutiques, ainsi que l'organisation générale de son Département,
- Vu l'arrêté N°13277/2000 du 01 Décembre 2000 portant réorganisation du Centre de Surveillance des Pêches,

ARRETE:

Article premier:
Tout navire opérant dans les eaux maritimes sous juridiction malagasy à des fins de recherche, de prospection ou de pêche, de quelque ressource que ce soit, doit être équipé d'une balise satellitaire de positionnement, plus précisément Argos ou Immarsat-C dont la forme et les modalités de transmission de données sont définies en annexe laquelle constitue partie intégrante du présent arrêté.

De ce fait, la délivrance de toute autorisation dans le cadre du secteur Pêche sera conditionnée par l'existence au préalable d'une balise satellitaire de positionnement fonctionnelle à bord du navire.

Article 2 :
Le non-respect des dispositions énumérées respectivement dans l'article 1er et l'annexe du présent arrêté par les navires autorisés à opérer dans les eaux sous juridiction malagasy constitue une infraction vis à vis de la réglementation en vigueur et sera poursuivi et réprimé suivant les dispositions des titres VI et VII de l'ordonnance 93.022 du 04.05.02 ainsi que les dispositions qui pourront être prises en vue de l'amélioration du système de surveillance dans le cadre de la gestion des pêcheries, telles que le retrait temporaire ou définitif de l'autorisation délivrée.

Article 3 :
En raison de l'urgence et conformément aux dispositions de l'article 4 de l'Ordonnance N°62.041 du 19 Septembre 1962 relative aux dispositions générales de droit interne et de droit international privé, le présent arrêté entre immédiatement en vigueur dès qu'il aura reçu une publicité suffisante, notamment par émission radiodiffusée ou affichage indépendamment de son insertion au Journal Officiel de la République de Madagascar.

Antananarivo, le 31 juillet 2002.

Signé : Le Contre-Amiral RARISON RAMAROSON Hippolyte
Secrétaire d'Etat chargé de la Pêche
et des Ressources Halieutiques

APPENDICE 5 : FICHE DE PECHE SENNEUR/LOGBOOK TEMPLATE

DEPART / SALIDA / DEPARTURE		ARRIVEE / LLEGADA / ARRIVAL	
PORT / PUERTO / PORT :		PORT / PUERTO / PORT	
DATE / FECHA / DATE :		DATE / FECHA / DATE	
HEURE / HORA / HOUR :		HEURE / HORA / HOUR	
LOCH / CORREDERA / LOCH :		LOCH / CORREDERA / LOCH	

NAVIRE / BARCO / VESSEL			
Nom du navire :		Nom du capitaine :	
Pavillon :		Nombre du nombre d'équipage	
N° d'immatriculation :		Armateur	
Tonnage brut :		Adresse	
Longueur hors tout (m) :			
Capacité de cale (m³) :		Cale du rapport	
Indicatif radio :		Nom du déclarant	

Nombre de jour en mer	
Nombre de jour de pêche	
Nombre de jour de pêche dans ZEE malagasy	

OPERATION DE PECHE		CALEE LANCE SET				CAPTURE ESTIMEE ESTIMACION DE LA CAPTURA ESTIMATED CATCH												ASSOCIATION ASSOCIACION ASSOCIATION						COMMENTAIRES OBSERVATIONES COMMENTS		COURANT CORRIENTE CURRENT	
DATE FECHA DATE	POSITION (chaque calée ou midi) POSICION (cada lance o mediodia) POSITION (each set or midday)	Portant / Positivo / Successful	Nul / Nulo / Nil	Heure / Hora / Time Préciser / especificar / specify TU+	N° Cuve / Cuba / Well	ALBACORE RABIL YELLOWFIN		LISTAO LISTADO SKIPJACK		PATUDO PATUDO BIGEYE		AUTRES ESPECES préciser le(s) nom(s) OTRA ESPECIE dar ellos nombre(s) OTHER SPECIES give name(s)			REJETS préciser le(s) nom(s) DISCARTES dar ellos nombre(s) DISCARDS give name(s)			Banc libre/Banco libre/Free school	Banc capturé / Banco capturado / Captured school (naturel/natural), Artificiel/artificial	Balleau d'assistance/Barco de apoyo / Supply	Baleine / Ballena / Whale	Requin/Tiburon/Baleine / Shark/whale	Baleine / Ballena / White	Recherche, problèmes divers, type d'épave (naturel/artificielle, balise, banc, poisson accessoire, taille du banc, autres associations,... Ruta/Busca, problemas varios, tipo de objeto (natural/artificial, con baliza, banco), captura accesoria, talla del banco, otras asociaciones,... Stopping/Searching, miscellaneous problems, log type (natural/artificial, with radio beacon, vessel), by-catch, school size, other associations,...	T° Mer / Mar / Sea	Direction / Dirección / Direction : Degrés / Grados / Degrees	Vitesse / Velocidad / Speed : Nœuds / Nudos / Knots
						Taille Talla Size	Capture Captura Catch	Taille Talla Size	Capture Captura Catch	Taille Talla Size	Capture Captura Catch	Nom Nombre Name	Taille Talla Size	Capture Captura Catch	Nom Nombre Name	Taille Talla Size	Capture Captura Catch										
Une calée par ligne / Uno lance cada linea / One set by line																											
Quantité débarquée (en kg)																											

1. Rapportez les informations agrégées par mois et attachez en annexe les feuilles remplies par marée
2. Position : la position géographique de la calée au milieu de l'activité de pêche, SVP : Lat et Long sont des décimaux à 2 chiffres après la virgule, noter les orientations N/S et E/O
3. Quantité débarquée : à remplir uniquement à la fin de la série de pêche, indiquez le port réel au moment du débarquement
4. Toutes les informations ci-incluses resteront strictement confidentielles

APPENDICE 7

GRILLE DES REDEVANCES

APPENDICE 8

REPOBLIKAN'MADAGASIKARA
MINISTERE CHARGE DE LA PECHE
CENTRE DE SURVEILLANCE DES PECHES

CSP FMC	FORMULAIRE	01/B

FICHE D'ENREGISTREMENT
LOCALISATION DES NAVIRES PAR SATELLITE
NAVIRE PAVILLON ETRANGER

Localisation des navires par satellite
Fiche d'enregistrement obligatoire à retourner au Centre de surveillance des pêches (CSP)

BP 60114 Ampandrianomby – Antananarivo 101 – MADAGASCAR
Tel 261 20 22 400 65 Fax 261 20 22 490 14 Email csp-mprh@blueline.mg

Nom du navire: .....Pavillon.....

1. *Information concernant l'exploitant du navire*

Nom de la société .....

Nom et prénom du responsable.....

Adresse :.....

.....

.....

Téléphone : ..... Mobile.....

Fax .....

Adresse Email : .....

2. *Information concernant l'agent du navire à Madagascar*

Nom de la société .....

Nom et prénom du responsable.....

Adresse :.....

.....

Téléphone : ..... Mobile.....

Fax .....

Adresse Email : .....

3. *Information concernant le navire*

Nom du navire :..... Indicatif Radio.....

Pavillon :.....

Numéro d'immatriculation :.....

Numéro Commission Thonière de l'Océan Indien *:.....

Puissance moteur (kW) .....

Tonnage jauge brute (Tjb)..... Tonnage UMS .....

Longueur Hors Tout ..... Longueur entre perpendiculaires .....

Type de navire .....

Type d'engin de pêche.....

Numéro d'appel du navire (Téléphone, Fax, Email, Télex)

.....

.....

.....

4. *Information concernant la balise de localisation par satellite :*

- Caractéristiques techniques :

Type de Balise :.....Marque :.....

Modèle.....N° de série :.....

- Caractéristiques de l'abonnement.

☐ Argos : Numéro d'identification de la balise (5 chiffres) :.....

☐ Inmarsat :

- N° Inmarsat (9 chiffres) :.....
- N° Identifiant DNID (3 chiffres).....
- N° Membre dans le DNID (3 chiffres).....

Dans le cas de l'opérateur Inmarsat, l'abonnement de type « Data report » doit obligatoirement se faire auprès de la station terrestre de France Télécom (Aussaquel)/ SATELLITE AIR TIME Ltd ,
Tel 00 230 631 23 07, Fax 00 230 631 24 13, Mail sataitime@sataitime.com

Toute modification de l'une des informations contenues dans ce formulaire doit faire l'objet d'un signalement immédiat auprès du CSP à l'aide de l'imprimé joint (disponible également sur demande au CSP)

Fait à ..... Le .....

Signature

APPENDICE 9

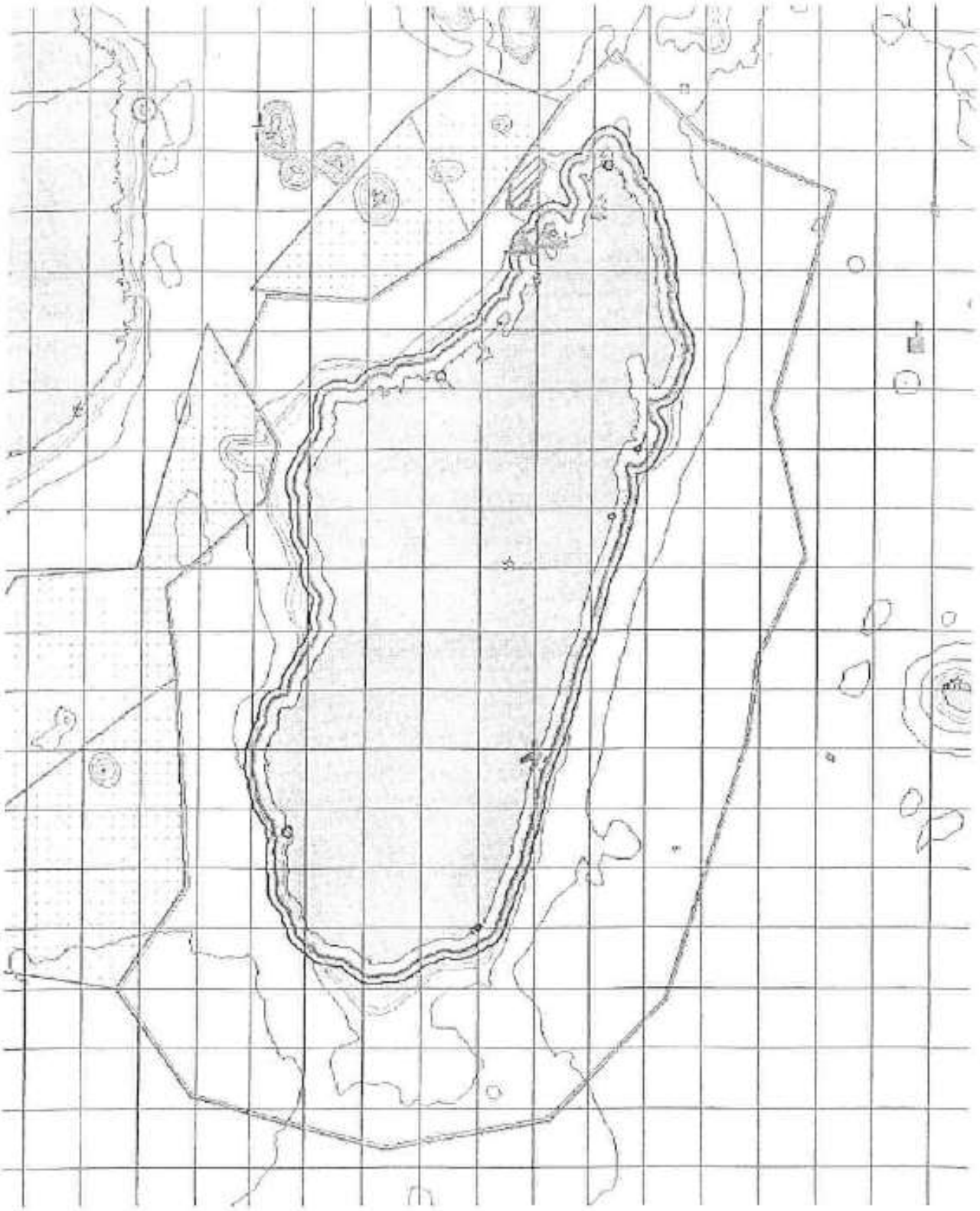
Coordonnées de la zone de pêche malagasy

	[illegible]		[illegible]	
[illegible]	S	V	S	V
A	[illegible]	[illegible]	[illegible]	[illegible]
B	[illegible]	[illegible]	[illegible]	[illegible]
C	53,3	[illegible]	[illegible]	[illegible]
D	53,2	[illegible]	[illegible]	[illegible]
E	52,8	[illegible]	[illegible]	[illegible]
F	52	[illegible]	[illegible]	[illegible]
G	[illegible]	[illegible]	[illegible]	[illegible]
H	50,4	[illegible]	[illegible]	[illegible]
I	[illegible]	[illegible]	[illegible]	[illegible]
J	[illegible]	[illegible]	[illegible]	[illegible]
K	[illegible]	[illegible]	[illegible]	[illegible]
L	[illegible]	26	[illegible]	[illegible]
M	[illegible]	[illegible]	[illegible]	[illegible]
N	[illegible]	[illegible]	[illegible]	[illegible]
O	[illegible]	[illegible]	[illegible]	[illegible]
P	[illegible]	[illegible]	[illegible]	[illegible]
Q	[illegible]	[illegible]	[illegible]	[illegible]
R	[illegible]	[illegible]	[illegible]	[illegible]
S	[illegible]	[illegible]	[illegible]	[illegible]
T	[illegible]	[illegible]	[illegible]	[illegible]
U	[illegible]	[illegible]	[illegible]	[illegible]
V	[illegible]	[illegible]	[illegible]	[illegible]

Délimitation de la zone protégée / restricted area (en degré minutes)

Point	Latitude	Longitude
1	12°18.44S	47°35.63
2	11°56.64S	47°51.38E
3	11°53S	48°00E
4	12°18S	48°14E
5	12°30S	48°05E
6	12°32S	47°58E
7	12°56S	47°47E
8	13°01S	47°31E
9	12°53S	47°26E

Carte de la Zone de pêche de Madagascar



20.4. Mauritius

REPUBLIC OF MAURITIUS

In reply please quote

FCR/50/2/2/B $^{1/2}$

Ministry of Fisheries
4th Floor, L.I.C.I. Centre
Port Louis - Mauritius
Tel. No.: 211 2470 – 75
Fax No.: 208 1929
E-mail: fishadmin@mail.gov.mu
Web Site: http://fisheries.gov.mu

16 April 2013

Dear Sir,

***Subject*: Bilateral Fishing Agreements between the Republic of Mauritius and Seychelles**

Please refer to your letters dated 10 and 12 April 2013 regarding the above subject.

2. Find enclosed herewith a copy of the bilateral Fishing Agreements signed between the Government of the Republic of Mauritius and the Government of the Republic of Seychelles on fishing in each other's waters.

Yours faithfully,

(D.Mauree)
for Permanent Secretary

Mr N. Rault
Operations Manager
IBL- Fishing & Port Agency
Froid Des Mascareignes Complex
Freeport Zone 21
Mer Rouge
P. Louis

Encl/.

AGREEMENT

BETWEEN

THE GOVERNMENT OF THE REPUBLIC OF MAURITIUS

AND

THE GOVERNMENT OF THE REPUBLIC OF SEYCHELLES

ON

FISHING IN MAURITIUS WATERS

AGREEMENT

Between the Republic of Mauritius and the Republic of Seychelles on fishing in Mauritius waters

THE REPUBLIC OF MAURITIUS, (herein after referred to as "Mauritius"), and **THE REPUBLIC OF SEYCHELLES**, (hereinafter referred to as "Seychelles");

CONSIDERING the spirit of cooperation and good relations which exist between Mauritius and Seychelles;

RECALLING that, Mauritius exercises its sovereignty or jurisdiction over a zone extending up to 200 nautical miles from its baseline;

TAKING INTO ACCOUNT the signature by both parties of the United Nations Convention on the Law of the Sea;

DETERMINED to conduct their relations in a spirit of mutual trust and respect for each other's interest in the sphere of sea fishing;

DESIROUS of establishing the terms and conditions governing activities of common interest to both parties,

HAVE AGREED AS FOLLOWS:

Article 1

The purpose of this Agreement is to establish the terms and conditions under which vessels registered in and flying the flag of Seychelles (hereinafter referred to as "Seychelles vessels") may carry out tuna fishing in the waters over which Mauritius has jurisdiction or sovereignty (hereinafter referred to as Mauritius waters) in accordance with the provisions of the United Nations Convention on the Law of the Sea and other rules of international law and practice, subject to para 8 of Annex I.

Article 2

"agent" means a person in Mauritius who is –

(a) appointed by an owner or operator of a vessel operating under a licence issued under the Fisheries and Marine Resources Act; and

(b) authorised to receive, and capable of responding to, any legal process issued in Mauritius against his principal

"contracting party" refers to Mauritius or Seychelles.

"Mauritius waters" includes –

(a) the territorial waters;

(b) the exclusive economic zone; and

(c) areas where Mauritius has traditional or historic rights as may be determined under the Maritime Zones Act.

"owner" in relation to a vessel –

(a) means a person who owns a vessel; and
(b) includes –
  (i) a charterer, whether bareboat, time or voyage;
  (ii) a person who acts in the capacity of a charterer; and
  (iii) a party upon whom control over the destination, function or operation of the vessel is conferred under a management agreement or a similar agreement.

"tuna" includes tuna-like species.

Article 3

3.1. Mauritius shall permit fishing of tuna by Seychelles vessels in Mauritius waters for the period specified in Article 11 of this Agreement.

3.2. The number and types of Seychelles vessels covered by this Agreement are specified in Annex II.

3.3. The fishing activities under this Agreement shall be subject to the terms and conditions set out in this agreement and to the laws of Mauritius.

Article 4

4.1. Seychelles undertakes to take all necessary steps to ensure that Seychelles vessels observe the provisions of this Agreement relating to fishing in Mauritius waters consistent with the provisions of the United Nations Convention on the Law of the Sea and other rules of international law and practice.

4.2. The authorities of Mauritius shall notify Seychelles of any proposed change to its laws.

Article 5

5.1. Fishing in Mauritius waters may be carried out by Seychelles vessels only pursuant to a licence issued by the authorities of Mauritius at the request of Seychelles.

5.2. The issue of a licence shall be subject to payment of the licence fees by the ship-owners concerned.

5.3. The formalities for making applications for licences, the amount of the fee and the methods of payment shall be as specified in Annex I.

Article 6

The parties undertake to coordinate action, either directly or within international organizations, to ensure the management and conservation of the living resources in the Indian Ocean, and particularly in respect of highly migratory species, especially in and around Mauritius waters and Seychelles waters.

Article 7

7.1. Without prejudice to the exercise of sovereignty or jurisdiction by Mauritius over Mauritius waters, the parties agree to consult on questions relating to the implementation and proper functioning of this agreement. To this effect, a Joint Committee shall meet at the request of either contracting party. The composition of the Joint Committee is at Annex III.

7.2. In the event of a dispute concerning the interpretation or application of this Agreement, such dispute shall be the subject of consultation between the parties.

7.3 Where any dispute arises out of, or in respect of, or concerning the interpretation or application of this Agreement, it shall be settled amicably by the parties through diplomatic channel, failing which it shall be referred to arbitration.

7.4 The Arbitration Panel shall be composed of three persons as follows –
(a) An independent Chairperson to be mutually agreed upon and one member designated by each party.
(b) The Arbitration Panel may take a majority decision.
(c) The decision of the Arbitration Panel shall be final and binding upon the parties to the dispute.

Article 8

Nothing in this Agreement shall affect or prejudice in any manner the view of either party with respect to any matter relating to the Law of the Sea.

Article 9

The Annexes attached to this Agreement form an integral part of this Agreement and, unless otherwise specified, a reference to this Agreement shall constitute a reference to them.

Article 10

Should the authorities of Mauritius decide, as a result of developments in the state of living tuna stocks in Mauritius waters, to take conservation measures which affect the activities of Seychelles vessels, consultations shall be held between the parties in order to adapt Annex I & Annex II

Article 11

11.1. This Agreement shall be concluded for an initial period of two years from the date of its entry into force.

11.2. At the end of the initial period of two years, this Agreement shall automatically be renewed for further periods of two years each.

11.3. Any party to this Agreement may terminate same by giving notice to that effect to the other party at least six months before the date of expiry of this Agreement.

11.4. Should circumstances arise which call for a modification to this Agreement, this may be made by mutual consent given by the parties in writing.

11.5. Proposals in this respect from one party shall be given due consideration by the other party.

Article 12

A notice required to be served under this Agreement shall be deemed to have been served if sent by fax or registered mail:

(a) in the case of Seychelles, to -

The Managing Director
Seychelles Fishing Authority
P.O. Box: 449
Mahe-Seychelles
Fax No.: (248) 224 508

(b) in the case of Mauritius, to -

The Permanent Secretary
Ministry of Fisheries
4th Level LICI Building
John Kennedy Street
Port Louis
Mauritius
Fax No. : (230) 211 3407

Article 13

This Agreement shall enter into force on the date of signature.

IN WITNESS WHEREOF the authorised representatives of the parties have signed this Agreement in two originals on this 11th day of March, 2005 at Port Louis, Mauritius.

(Georges Pierre LESJONGARD)

For and on behalf of the Government of the Republic of Mauritius

(Patrick PILLAY)

For and on behalf of the Government of the Republic of Seychelles

1. LICENCE APPLICATION AND ISSUING FORMALITIES

The procedure for applications for and issue of licences enabling Seychelles vessels to fish in Mauritius waters shall be as follows -

1.1 Seychelles shall present to Mauritius an application made by a ship-owner or agent, in respect of each fishing vessel that wishes to fish under this Agreement at least 20 days before the date of commencement of the period of validity requested. The application shall be made on the form provided for that purpose by Mauritius, a specimen of which is annexed as Appendix I to this Annex.

1.2 Every licence shall be issued for only one designated vessel. At the request of Seychelles, the licence for a vessel, in case of force majeure, shall be replaced by a licence for another Seychelles vessel.

1.3 A licence shall be delivered by the authorities of Mauritius to the ship-owner or his agent with copy to the authorities of Seychelles.

1.4 The licence must be kept on board at all times. Whilst awaiting receipt of the licence, a fax copy of this licence may be obtained and shall be kept on board, which will authorise the vessel to fish, pending delivery on board of the licence.

1.5 The authorities of Mauritius shall communicate to the authorities of Seychelles after the date of entry into force of the Agreement the arrangements for payment of the licence fees, and in particular the details of the bank accounts.

1.6 Ship-owners shall nominate and appoint an agent who shall be resident in Mauritius and whose powers shall include representation of the ship-owners in any legal process. The ship-owners shall notify to the authorities of Mauritius the name and address of their agent or agents as the case may be.

2. VALIDITY OF LICENCES AND PAYMENT

2.1 Licences shall be issued as follows -

(a) an initial period of 90 days for longliners, and

(b) an initial period of 90 days for purse seiners

2.2 For longliners, the licence fee shall be US$ 6000 for an initial period of 90 days and US$ 2000 for any additional period of 30 days or part thereof.

2.3 For purse seiners, the licence fee shall be US$ 5 000 for each period of 90 days.

2.4 Subject to Annex II, the licence issued under paragraph 2.2 may be extended for periods of 30 days up to a maximum of 270 days from the expiry of the initial period of 90 days.

3. DECLARATION OF CATCHES

3.1 Seychelles vessels licensed to fish in Mauritius waters shall fill a fishing logbook as set out in Appendices II and III, for each trip it undertakes in Mauritius waters. In the absence of catches, the fishing forms shall still have to be filled in.

3.2 Fishing logbooks must be completed legibly and be signed by the master of the vessel or the ship-owner or his representative or by the representative of the ship-owner's association. In addition, they must be completed by all Seychelles vessels which have obtained a licence, even if they have not carried out any fishing activity.

3.3 The fishing logbooks shall be forwarded to the authorities of Mauritius not later than 45 days after the end of the period of validity of the licence.

4. VESSEL MONITORING SYSTEMS

Seychelles vessels fishing under the Agreement shall be monitored inter alia, by vessel monitoring systems, without discrimination, under the conditions to be agreed by the parties.

5. COMMUNICATIONS

5.1 Within three hours of each entry and exit of the zone and within every three days of their fishing activities in Mauritius waters, Seychelles vessels shall communicate directly to the authorities of Mauritius, in priority by fax or, in the event of failure, by radio their position and the volume of catches held on board.

5.2 The number of fax and the radio frequency shall be indicated on the licence.

6. OBSERVERS

6.1 Any vessel shall, at the request of the authorities of Mauritius, take on board an observer designated by these authorities. The observer shall have all facilities necessary for the performance of his duties, including access to places and documents. He must not be present for longer than the time required to fulfil his duties. He shall be granted the status of an officer whilst on board.

6.2 Whilst on board, the observer -
(a) must take all appropriate steps to ensure that the conditions under which he is taken on board and his presence on board do not interrupt or hamper fishing activities; and

(b) must respect the material and equipment on board and the confidentiality of all documents belonging to the vessel.

6.3 The officer shall be provided with suitable food and accommodation whilst on board. All expenses incurred in connection with the boarding and maintenance and return of the observers to Mauritius shall be borne by the owner of the vessel. The salary and social contributions of the observer shall be borne by the authorities of Mauritius.

6.4 Once on board, the observer shall be allowed to -

(a) observe the fishing activities of the vessels;
(b) verify the position of vessels engaged in fishing operations;
(c) note the fishing gear used;
(d) verify the catch data for Mauritius waters recorded in the fishing logbook; and
(e) communicate with the authorities of Mauritius if required.

7. INSPECTION

Vessels shall also allow on board and assist in the accomplishment of their duties, any other Mauritian official responsible for inspection and monitoring.

8. FISHING ZONE

A Seychelles vessel shall not fish –

(a) in the case of the island of Mauritius and the Island of Rodrigues, within forty (40) nautical miles from the baseline of these two islands; and

(b) in the case of any other islands, within fifteen (15) nautical miles from the baseline of such islands, or within a three (3) nautical miles radius around any fish-aggregating device placed by Mauritius, the geographical position of which shall be communicated to the ship-owners representatives or agents.

9. SANCTIONS

9.1 Failure by any Seychelles vessel to observe any one of the above rules, and to take into consideration the management and conservation of living resources measures or to abide by the Mauritian legislation may be penalised by suspension, revocation or non-renewal of the vessel's fishing licence.

9.2 Seychelles will immediately be fully informed of any such suspension or revocation and of all relevant facts related thereto.

10. ARREST OF FISHING VESSELS

The authorities of Mauritius shall inform Seychelles within 48 hours, of the arrest of any Seychelles vessel fishing under the Agreement in Mauritius waters and shall transmit a brief report of the circumstances and reasons leading to such arrest. Seychelles shall be kept informed of any proceedings initiated and penalties imposed.

11. TRANSHIPMENT

11.1 Ship-owners shall endeavour to tranship the catches of their vessels in a Mauritius Port and shall not engage in transhipment at sea.

11.2 All transhipments taking place in a Mauritius port shall be notified to the authorities of Mauritius 48 hours in advance.

12. SUPPLY TO FISH PROCESSING PLANTS

Seychelles vessels shall endeavour to sell all or part of their catch to Mauritian processing plants.

ANNEX II

Number of vessels authorised to fish in Mauritius waters:

a) Purse seiners: 10 vessels

b) Tuna longliners: 20 vessels

ANNEX III

Composition of the Joint Committee

A. Mauritius

(i) the Permanent Secretary of the Ministry of Fisheries;
(ii) a representative of the Prime Minister's Office;
(iii) a representative of the Ministry of Finance and Economic Development;
(iv) a representative of the Ministry of Foreign Affairs, International Trade and Regional Cooperation;
(v) a representative of the Attorney General's Office; and
(vi) a representative from the private sector.

B. Seychelles

(i) the Chairman of Seychelles Fishing Authority;
(ii) the Managing Director of Seychelles Fishing Authority;
(iii) a representative of the Attorney General's Office;
(iv) a representative of the Ministry of Environment and Natural Resources; and
(v) a representative of the Ministry of Foreign Affairs.

C. Additional members may be co-opted with mutual consent depending on circumstances.

REPUBLIC OF MAURITIUS
Ministry of Fisheries

APPLICATION FOR A FISHING LICENCE (Foreign Vessel)

Name of applicant: .....New Application/Renewal

Address of applicant: .....

Name and address of charterer of vessel (if different from above): .....

.....

Name and address of agent in Mauritius: .....

.....

Name of master:.....

Name of vessel: .....

Name and address of owner: .....

Type of Vessel: longliner, purse seiner, trawler, others (specify) .....

Place, date & material of built: .....

Date, port & country of registry: .....

Registration No.:.....(please attach copy of certificate of present registry)

Port & country of previous registry: ..... Registration No: .....

Length of vessel: ..... Width of vessel: .....

Engine Horse Power: .....Fish hold capacity in m^3.....

Gross Registered Tonnage: .....Net Registered Tonnage:. .....

Radio call sign: .....Frequency:.....

Fishing vessel external identification: .....

Specification of VMS transponder: .....

Fax number of vessel: .....e-mail:.....

Number of crew.: .....

Description of fishing operations: .....

Areas where fishing are to be conducted .....

Species of fish to be caught: .....

Mode of preservation / processing:.....

Period of validity requested: From..... to.....

I certify that the above particulars are true and correct.

Date: .....

Signature of applicant/agent: .....

Company's Seal

For official use

Date received .....

Reference number .....

Official Seal

TERMS AND CONDITIONS

1. LICENCE APPLICATION AND ISSUING FORMALITIES

The procedure for applications for and issue of licences enabling Seychelles vessels to fish in Mauritius waters shall be as follows -

1.1 Seychelles shall present to Mauritius an application made by a ship-owner or agent, in respect of each fishing vessel that wishes to fish under this Agreement at least 20 days before the date of commencement of the period of validity requested. The application shall be made on the form provided for that purpose by Mauritius, a specimen of which is annexed as Appendix I to this Annex.

1.2 Every licence shall be issued for only one designated vessel. At the request of Seychelles, the licence for a vessel, in case of force majeure, shall be replaced by a licence for another Seychelles vessel.

1.3 A licence shall be delivered by the authorities of Mauritius to the ship-owner or his agent with copy to the authorities of Seychelles.

1.4 The licence must be kept on board at all times. Whilst awaiting receipt of the licence, a fax copy of this licence may be obtained and shall be kept on board, which will authorise the vessel to fish, pending delivery on board of the licence.

1.5 The authorities of Mauritius shall communicate to the authorities of Seychelles after the date of entry into force of the Agreement the arrangements for payment of the licence fees, and in particular the details of the bank accounts.

1.6 Ship-owners shall nominate and appoint an agent who shall be resident in Mauritius and whose powers shall include representation of the ship-owners in any legal process. The ship-owners shall notify to the authorities of Mauritius the name and address of their agent or agents as the case may be.

2. VALIDITY OF LICENCES AND PAYMENT

2.1 Licences shall be issued as follows -

(a) an initial period of 90 days for longliners, and

(b) an initial period of 90 days for purse seiners.

2.2 For longliners, the licence fee shall be US$ 6000 for an initial period of 90 days and US$ 2000 for any additional period of 30 days or part thereof.

2.3 For purse seiners, the licence fee shall be US$ 5 000 for each period of 90 days.

2.4 Subject to Annex II, the licence issued under paragraph 2.2 may be extended for periods of 30 days up to a maximum of 270 days from the expiry of the initial period of 90 days.

3. DECLARATION OF CATCHES

3.1 Seychelles vessels licensed to fish in Mauritius waters shall fill a fishing logbook as set out in Appendices II and III, for each trip it undertakes in Mauritius waters. In the absence of catches, the fishing forms shall still have to be filled in.

3.2 Fishing logbooks must be completed legibly and be signed by the master of the vessel or the ship-owner or his representative or by the representative of the ship-owner's association. In addition, they must be completed by all Seychelles vessels which have obtained a licence, even if they have not carried out any fishing activity.

3.3 The fishing logbooks shall be forwarded to the authorities of Mauritius not later than 45 days after the end of the period of validity of the licence.

4. VESSEL MONITORING SYSTEMS

Seychelles vessels fishing under the Agreement shall be monitored inter alia, by vessel monitoring systems, without discrimination, under the conditions to be agreed by the parties.

5. COMMUNICATIONS

5.1 Within three hours of each entry and exit of the zone and within every three days of their fishing activities in Mauritius waters, Seychelles vessels shall communicate directly to the authorities of Mauritius, in priority by fax or, in the event of failure, by radio their position and the volume of catches held on board.

5.2 The number of fax and the radio frequency shall be indicated on the licence.

6. OBSERVERS

6.1 Any vessel shall, at the request of the authorities of Mauritius, take on board an observer designated by these authorities. The observer shall have all facilities necessary for the performance of his duties, including access to places and documents. He must not be present for longer than the time required to fulfil his duties. He shall be granted the status of an officer whilst on board.

6.2 Whilst on board, the observer -
(a) must take all appropriate steps to ensure that the conditions under which he is taken on board and his presence on board do not interrupt or hamper fishing activities; and

(b) must respect the material and equipment on board and the confidentiality of all documents belonging to the vessel.

6.3 The officer shall be provided with suitable food and accommodation whilst on board. All expenses incurred in connection with the boarding and maintenance and return of the observers to Mauritius shall be borne by the owner of the vessel. The salary and social contributions of the observer shall be borne by the authorities of Mauritius.

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fish aggregating device placed by Mauritius, the geographical position of which shall be communicated to the ship-owners representatives or agents.

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