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PUBLIC CERTIFICATION REPORT

Initial assessment of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery

PT. CITRARAJA AMPAT CANNING

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Assessment of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tunafishery fishery against MSC Fisheries Standards v2.0.

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ABBREVIATIONS & ACRONYMS

ACOM	Advisory Committee on fisheries Management (ICES)
AP2HI	The Indonesian Pole and Line and Handline Fisheries Association
AW	Archipelagic Waters
ASTUIN	Indonesian Tuna Association
ATLI	Tuna Long Line Association
BT	Bottom Trawl
CAB	Conformity Assessment Body
CCRF	Code of Conduct for Responsible Fisheries
CFP	Common Fisheries Policy
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMM	Conservation management Measures
DKP	Dinas perikanan MMAF province
DFPO	Danish Fishermen's Producers Organization
DPPO	Danish Pelagic Producer Organization
DNV GL	Det Norske Veritas Germanischer Lloyd
EAFM	Ecosystem Approach to Fisheries Management
EC	European Commission
EEZ	Exclusive Economic Zone
EMODnet	European Marine Observation and Data Network
ERS	Electronic Recording and Reporting System
ETP	Endangered, threatened and protected species
EU	European Union
FAD	Fish Aggregation Device
FAO	Food and Agriculture Organization
GT	Gross Tonnage
HCR	Harvest Control Rule
HERAS	International acoustic survey in the North Sea, West of Scotland and Malin Shelf is collectively known as the HERAS survey program
IBTS	International Bottom Trawl Survey. Bottom trawl survey covering the North Sea and adjacent waters
IBWSS	International Blue Whiting Spawning Stock Survey
ICES	International Council for the Exploration of the Sea
ICJ	International Court of Justice
IESNS	International Ecosystem Survey in the Nordic Seas
ISBF	Introduced Species Based Fisheries
ITQ	Individual Transferable Quota
ITLOS	International Tribunal for the Law of the Sea
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unregulated and Unreported Fishing
IWC	International Whale Commission
LTMS	Long-Term Management Strategy
MCS	Monitoring, Control and Surveillance
IMR	Marine Research Institute (of Norway)
NAMMCO	North Atlantic Marine Mammal Commission
NEAFC	The North East Atlantic Fisheries Commission
NEA	North-East Atlantic
NE	North East
NFA	Norwegian Fishermen's Association
NGO	Non-Governmental Organisation
NPOA	National Plan of Action
MMAF	Ministry of Marine Affairs and Fisheries
MDPI	Yayasan Masyarakat dan Perikanan Indonesia
NGO	Non Government Organisations
OSPAR	Oslo-Paris Convention (Convention for the Protection of the Marine Environment of the North-East Atlantic)
PAC	Pelagic Advisory Council
P and L	Pole and Line
PCA	Permanent Court of Arbritation
PRI	Point of Recruitment Impairment
PS	Purse seine
PSDKP	The Director general of surveillance, Control and Monitoring of Fish Stocks
PT	Pelagic trawl

RAC	Regional Advisory Council
RFMO	Regional Fisheries Management Organisation
RSW	Refrigerated Sea Water
SAM	State-Space Assessment Model [ICES fish stock assessment model]
SC	WCPFC Science Committee
SESAM	Seasonal SMS stock assessment method[ICES fish stock assessment model]
SFSAG	Scottish Fisheries Sustainable Acreditation Group
SIMWG	Stock Identification Methods Working Group (ICES)
STECF	EU Scientific, Technical and Economic Committee on Fisheries
TAC	Total Allowable Catch
TBC	To be confirmed
TCC	WCPFC Technical Compliance Committee
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
WCPFC	Western Central Pacific Fisheries Commission
WCPO	Western Central Pacific Ocean
WGIPS	Working Group on International Pelagic Surveys (ICES)
WGWIDE	Working Group on Widely Distributed Stocks (ICES)
WGNPBW	Working Group on Northern Pelagic and Blue Whiting Fisheries (ICES)
WKBWMSE	Workshop on the blue whiting long-term management strategy evaluation (ICES)
WPP	Wilayah Pengelolaan Perikanan) Fishing Areas
WWF	World Wildlife Fund

STOCK ASSESSMENT ACRONYMS AND REFERENCE POINTS

B_{lim}	Minimum biomass below which recruitment is expected to be impaired or the stock dynamics are unknown.
B_{MSY}	Biomass corresponding to the maximum sustainable yield (biological reference point); the peak value on a domed yield-per-recruit curve.
B_{pa}	Precautionary biomass below which SSB should not be allowed to fall to safeguard it against falling to Blim.
$B_{trigger}$	Value of spawning stock biomass (SSB) that triggers a specific management action.
CI	Confidence Interval
Cpue	Catch per unit effort: The quantity of fish caught (in number or in weight) with one standard unit of fishing effort; e.g. number of fish taken per 1000 hooks per day or weight of fish taken per hour of trawling. Cpue is often considered an index of fish biomass (or abundance). Sometimes referred to as catch rate.
F	Instantaneous rate of fishing mortality
F_{cap}	Maximum fishing mortality accepted for calculation of advised TAC
F_{lim}	Limit reference point for fishing mortality (mean over defined age range)
Fpa	Precautionary buffer to preclude true fishing mortality being at Flim when the perceived fishing mortality is at Fpa.
F_{max}	F where total yield or yield per recruit is highest (biological reference point)
F_{MSY}	F giving maximum sustainable yield (biological reference point)
HCR	Harvest Control Rules
MSY	Maximum Sustainable Yield
MSY $B_{escapement}$	Minimum biomass required to produce MSY with high probability
MSY $B_{trigger}$	Precautionary biomass level at which the management plan initiates specific harvest control rules to minimise the risk of further decline in biomass and concomitant risk to recruitment.
SBF=0	The estimated recent average spawning biomass in the absence of fishing
SB or SSB	Spawning Stock Biomass
TAC	Total Allowable Catch
yr	Year

MSC ABBREVIATIONS AND ACRONYMS

CAB	Conformity Assessment Body
CR	Certification Requirements
ETP	Endangered, Threatened and Protected species
FCR	Fisheries Certification Requirements
LTL	Low Trophic Level (species)
MSC	Marine Stewardship Council
PI	Performance Indicator
P1	Principle 1
P2	Principle 2
P3	Principle 3
SG	Scoring Guidepost
SI	Scoring Issue
UoA	Unit of Assessment
UoC	Unit of Certification
VME	Vulnerable Marine Ecosystem

1 EXECUTIVE SUMMARY

This report provides information on the initial assessment of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery against Marine Stewardship Council (MSC) Fisheries Standard. The report is prepared by DNV GL for the client organization PT. CITRARAJA AMPAT CANNING.

The full-assessment was announced on the MSC website 26 June 2017 followed by a supporting notice to stakeholders issued by the MSC on the same date. Direct email notification was also sent to the stakeholders identified for this fishery, inviting interested parties to contact the audit team. The initial assessment audit was performed as an on-site audit in Sorong, Indonesia. The assessment activities were carried out by DNV GL team leader and CoC expert Anna Kiseleva and Independent MSC Fisheries experts Kevin Stokes and Jo Akroyd during 3 -8 August 2017. The assessment team gathered input from the various stakeholders, including the Ministry of Fisheries, Fisheries surveillance services, Fishery Polytechnic, Sorong Fishermen's Association, Observer programme and the client fishery.

The initial assessment activities were carried out using the assessment audit methodology, as defined in the Fisheries Certification Requirements (FCR) (version 2.0) and in the subsequent MSC Guidance for the Fisheries Certification Requirements (version 2.0). The default assessment tree as set out in the FCR v2 was used for this assessment. The RBF methodology was applied for one species (white anchovy) for PI 2.2.1 (secondary species). The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any of the individual MSC Criteria.

Scope of certification is up to the point of landing and chain of custody commences at the transfer of the ownership from the catching vessel to the single processing facility in Sorong owned by the PT. CITRARAJA AMPAT CANNING and starts at the point of landing at shore. The PT. CITRARAJA AMPAT CANNING processing factory receiving skipjack tuna and yellowfin tuna is not covered by the MSC Fisheries certificate and must have separate Chain of Custody certification.

1.1 Authorship and Peer reviewers

Table 1 Assessment team

Name:	Role:
Kevin Stokes	Principle 1 and 2 expert
Jo Akroyd	Principle 3 expert
Anna Kiseleva	DNV GL team leader and CoC responsible
Sandhya Chaudhury	DNV GL teamleader and CoC respondible (from 01.08.2018)
Bert Keus	Peer Reviewer
Giuseppe Scarcella	Peer Reviewer

1.2 Assessment timeline

Table 2 Assessment timeline

Event	Date
Announcement of assessment:	26 June 2017
Site visit and stakeholder consultations:	3 -8 August 2017
Expected date of certification:	15 December 2018
Target eligibility date:	Date of PCDR issue (23.07.2018)
Actual eligibility date:	23.07.2018

1.3 Principle level scores

Table 3 Principle level scores

Skipjack tuna

Principle	Principle level score
Principle 1	86, 7
Principle 2	86, 3
Principle 3	80, 8

Yellowfin tuna

Principle	Principle level score
Principle 1	82, 5
Principle 2	87, 3
Principle 3	80, 8

1.4 Main strengths and weaknesses of the client's operation

Table 4 strengths

Principle	Performance Indicator	Comment
1	1.1.1 (both stocks); 1.1.2 (SKJ)	Skipjack and yellowfin tuna are both well above the PRI, with skipjack also assessed to be still above Bmsy with high certainty.
	1.2.4 (both stocks)	Skipjack and yellowfin tuna are both subject to state of the art stock assessments, providing an excellent basis for status determination.
2	2.1.1/2.2.1/2.3.1	Recent observer data show high selectivity for the target species and very low catches of all other species.
	2.1.3/2.2.3/2.3.3	The data cover both species caught in operations providing bait and in the main pole and line fishery.
	2.4.1	The fishery is very small scale and relies on anchored FADs for which the anchors are in known locations and have been in place for the history of the fishery. There is a very small footprint.
	2.5.1	The fishery removes a very small fraction of the target species with a consequently small footprint on the ecosystem.
3	3.1 and 3.2	The fisheries take place in the WCPFC convention area. This regional body is responsible for 60 percent of the worlds tuna catch
	3.1	The national overarching legislation and regulations are well developed
	3.2	At the local level, consultation, decision making and compliance are excellent

Table 5 weaknesses

Principle	Performance Indicator	Comment
1	1.2.1/1.2.2 (SKJ and YFT)	Harvest Strategy (HS) and Harvest Control Rules (HCR) are considered at the wider WCPFC level at 3.1.1 due to primary stock control through WCPFC and PNA, and harmonisation requirements. The fishery, however, takes place in Indonesian Archipelagic Waters (AW) and management within AW is not transparent. There remains a need to develop HS and HCR for Indonesian fisheries, including in AW, and for much greater transparency of the linkage between existing controls and catching opportunity.
3	3.1.1	Implementation of WCPFC CMMs by the Indonesian government is behind schedule.
	3.2	Fishery specific objectives are weak in addressing RFMO requirements and P2 issues.

1.5 Determination

The PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery achieved a score of 80 for each of the three MSC Principles, but scored under 80 for six of the set MSC criteria.

As the fishery achieved a score of below 80 against six scoring indicators, the assessment team has set six conditions (Table 6) for continued certification that the client is required to address. The conditions are applicable to improve performance to at least the 80 level within the period set by the assessment team. The assessment team also made one recommendation for the fishery (Table 7).

Based on the evaluation of the fishery presented in this report the assessment team recommends the certification of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery for the client PT Citraraja Ampat.

The Technical Reviewer at DNV GL adheres to the recommendation of the assessment team and approves the certification of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery for the client PT Citraraja Ampat Canning.

1.6 Conditions and recommendations for certification and time-scale for compliance

As the fishery achieved a score of below 80 against 6 scoring indicators, the assessment team has set 6 conditions (Appendix 1.3 Conditions) for continued certification that the client is required to address. The conditions are applicable to improve performance to at least the 80 level within the period set by the assessment team.

Table 6 Conditions and recommendations for certification (full text in Appendix 1.3)

Condition number	PI	Condition	Time-scale for compliance
1 SKJ	1.2.1	The client must be in a position to demonstrate that a) the harvest strategy is responsive to the state of the stock, and b) the elements of the harvest strategy work together towards achieving management objectives.	4th surveillance
2 SKJ	1.2.2	The client must be in a position to demonstrate that a) Well defined harvest control rules shall be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; b) The selection of the harvest control rules shall take into account the main uncertainties; c) Evidence shall be available that indicates that tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	4th surveillance
3 YFT	1.2.1	The client must be in a position to demonstrate that a) the harvest strategy is responsive to the state of the stock, and b) the elements of the harvest strategy work together towards achieving management objectives.	4th surveillance
4 YFT	1.2.2	The client must be in a position to demonstrate that a) Well defined harvest control rules shall be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; b) The selection of the harvest control rules shall take into account the main uncertainties; c) Evidence shall be available that indicates that tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	4th surveillance
5 SKJ and YFT	3.1.1	The client must be in a position to demonstrate that the there is an effective national legal system and an organised and effective cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2.	4th surveillance
6 SKJ and YFT	3.2.1	The client must be in a position to demonstrate that 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	4th surveillance

Table 7 Recommendations (full text in Appendix 1.3)

Recommendation number	PI	Recommendation
1	Multiple P2	The client should ensure full year coverage by observers, ideally for multiple years, to ensure continued information availability for PIs 2.1, 2.2, and 2.3.

2 AUTHORSHIP AND PEER REVIEWERS

2.1 Assessment team

Table 8 Assessment team

Role	Name	Qualifications
Team leader	Anna Kiseleva	Anna is a senior assessor and a Global service responsible for MSC Fisheries at DNV GL Business Assurance. She holds MSc degree in International fisheries management from the University of Tromsø and MSc degree in Business Management from Murmansk State Technical University. She has over 10 years of experience in the global seafood industry incl. assessment services, consultancy and project management. She is an experienced project management with proven ability to lead cross-disciplinary teams. She has been involved in the delivery of the MSC Fisheries assessment services since 2008. She was a team leader for the client's fisheries currently undergoing re-assessment since 2015. Anna's qualifications meet the competence criteria defined in the MSC Certification requirements v.2.0, annex PC, for the Team-Leader. She passed MSC Fisheries team leader training course, for CR v. 1.3 and v.2.0. She has no conflicts of interest in relation to the UoA.
Team Leader & CoC responsible	Sandhya Chaudhury	Sandhya Chaudhury is a Principal Specialist at DNV GL Business Assurance. She holds a Bachelor degree in Biological sciences and a MBA. Sandhya Chaudhury has been the Lead Auditor/Team Leader for various MSC Pre- and Full Assessments since 2005. She has participated in various MSC workshops introducing certification methodology for MSC Fisheries and Chain of Custody to workshop participants. She is well-versed in project management with proven ability to lead cross-disciplinary teams. Sandhya has auditor experience with other quality management standards since 2002 and industry experience since 1991. Sandhya has been previously involved with the assessment of this fishery until 2013. Sandhya has no conflicts of interest in relation to the fishery under assessment. She meets the competence criteria in MSC Certification requirements v. 2.0, annex PC, in having appropriate skills related to Chain of Custody requirements. She also has the knowledge of the country, language and local fishery She is trained as a team leader, incl. traceability, according to v. 1.3 and 2.0. She has been traceability responsible for several MSC assessments and is a qualified MSC CoC auditor and technical reviewer and has also been responsible for both the Fisheries and CoC schemes.

Principle 1 & 2 expert	Kevin Stokes	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. 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. 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 review 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. He meets the competence criteria in the MSC Certification requirements v.2.0, annex PC, concerning knowledge of the country and has substantial and appropriate skills related to Principle 1 and 2. He is trained as a team leader, incl. RBF, according to CR v. 2. Kevin has no conflicts of interest in relation to the fishery under assessment.

Principle 3 expert	Jo Akroyd	Jo Akroyd is Director and Principal Consultant of Jo Akroyd Ltd, an International consultancy company specializing in marine fisheries policy and marine ecosystem and community based management. She has also provided services in quality system implementation and training in project management and negotiation skills. Prior to a career in consultancy, she was manager of International Projects at the Auckland University of Technology and Director of Quality and Strategic Management and Assistant Director of Marine Research at the Ministry of Agriculture & Fisheries, Wellington, New Zealand. Her specific experience relating to MSC assessments includes acting as Lead auditor and team member on the assessment of NZ albacore tuna, Fiji yellowfin and albacore tuna, Japan pole and line skipjack and albacore tuna, NZ deepwater fisheries including hoki, hake, ling, southern blue whiting, Hokkaido scallops Japan, NZ southern scallop and providing specialist inputs on Principle 3 (Fisheries management) for the the Ross Sea Toothfish fishery She meets the competence criteria in the MSC Certification requirements v.2.0, annex PC, concerning knowledge of the country and has substantial and appropriate skills related to Principle 3. She is trained as a team leader according to CR v. 2. Jo has no conflicts of interest in relation to the fishery under assessment.

2.2 Peer reviewers

Based on experience with the relevant MSC Fishery programme and components of the Unit of Certification, the peer reviewers listed in Table 9 were selected in accordance with MSC Fishery Certification Requirements on qualifications and competencies.

Table 9 Peer reviewers

Peer reviewer	Name
Peer reviewer 1	**Bert Keus** Bert Keus is an independent consultant based in Leiden, the Netherlands. He holds degrees in biology and law, and started his career at the Netherlands Institute for Fisheries Investigation (RIVO-DLO). Later he held the position of Head of the Environmental Division of the Dutch Fisheries Board (Productschap Vis). Particular areas of expertise are environmental impact assesments of fisheries in the Natura 2000 framework, fisheries management plans, natural resource policy, and programme and project evaluations. He has long association with the several fisheries in the Netherlands, and he has been involved in efforts to achieve MSC certification of the North Sea brown shrimp fishery – acting as technical advisor to this multi-stakeholder initiative. Through this work and several other MSC certifications he has become particularly familiar with the MSC certification process. Between the years 1998 and 2003 he was a Member of the European Sustainable Use Specialist Group (ESUSG), Fisheries Working Group of IUCN. He passed MSC Fisheries team member training course for CR 2.0. He has no conflicts of interest in relation to the fishery under assessment.
Peer reviewer 2	**Giuseppe Scarcella** Participated in projects since 2000 regarding the management and assessment of fisheries resources, the monitoring of artificial reefs and the evaluation of the environmental impact of off-shore gas platforms. He worked as a researcher on board research and fishing vessels as well as at landing sites to perform a wide variety of technical and supervisory studies. He was responsible for setting up the experimental designs and carrying out the statistical analyses of different research projects. He participated in the sampling activity and in the drawing up of the reports and of the related scientific papers. Moreover he actively participates in the development of fishery management plans and the evaluation of socio-economic impact, related both to fishing activities and the deployment of artificial structures for anti-trawling and fish restocking. He also participates, within the framework of the EU-STECF expert groups and FAO-GFCM working groups, in the stock assessment analyses for different species in different GSAs of Mediterranean Sea, in the discussion of the methodologies to be used and in the drawing up of the reports. Finally he is participating at the experimental trawl survey Medits, conducted in GSA 25 (Cyprus) within the Data Collection Framework (DCF) in compliance with the Regulations of the European Council. He passed MSC Fisheries team member training course for CR 2.0. He has no conflicts of interest in relation to the fishery under assessment.

3 DESCRIPTION OF THE FISHERY

3.1 Unit(s) of Assessment (UoA) and scope of certification sought

DNV GL Business assurance confirms that the fishery entering assessment meets the scope requirements (FCR 7.4) for MSC fishery assessments [FCR 7.8.3.1].

- The fishery is within scope of the MSC standard, (i.e. it does not operate under a controversial unilateral exemption to an international agreement, use destructive fishing practices, target amphibians, birds, reptiles or mammals and is not overwhelmed by dispute);
- The fishery has not failed an assessment within the last two years;
- IPI stocks are not caught;
- The fishery is not regarded as enhanced.
- The fishery is not based on an introduced species; and
- the fishery does not include an entity that has been successfully prosecuted for violations against forced labour laws.

Skipjack tuna and yellowfin tuna are not identified as a Low Tropic Level species (LTL) (FCR v2.0 Section SA2.2.10, Box SA1).

Tropic levels are as follows:

	Trophic level (from http://www.fishbase.org)
Skipjack tuna	4.4 ±0.5se
Yellowfin tuna	4.4 ±0.4se

3.1.1 UoA and Proposed Unit of Certification (UoC)

MSC certification is specific to the fishery holding the certificate, the Unit of Certification. The assessment team may choose to assess a wider unit, the Unit of Assessment, to which the certificate may be extended under specific circumstances.

3.1.2 Unit of Assessment

The Unit of Assessment defines the full scope of what is being assessed, and includes the Unit of Certification and any other eligible fishers.

The Unit of Assessment includes the target stock(s), the fishing method or gear type/s, vessel type/s and/or practices, and the fishing fleets or groups of vessels, or individual fishing operators pursuing that stock, including any other eligible fishers that are outside the Unit of Certification. The Unit of Assessment for this fishery assessment is specified in Table 10.

Table 10 Units of Assessment (UoAs)

UoA 1: Skipjack tuna

Species:	Skipjack tuna (*Katsuwonus pelamis*)
Stock:	West and Central Pacific (WCP) Skipjack tuna
Geographical area:	West Pacific Ocean, WPP 715 and WPP 717 in Exclusive Economic Zone (EEZ) of Indonesia
Harvest method:	Pole & line
Management:	Local: Indonesian / Sorong Management Regional: WCPFC
Client group:	PTCA Identified vessels: 35 vessels are included in the initial Unit of Certification (UoC). See Appendix 7 for list of vessels.
Other eligible fishers:	All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions.. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

UoA 2: Yellowfin tuna

Species:	Yellowfin Tuna (*Thunnus albacares*)
Stock:	West and Central Pacific (WCP) Yellowfin tuna
Geographical area:	West Pacific Ocean, WPP 715 and WPP 717 in Exclusive Economic Zone (EEZ) of Indonesia
Harvest method:	Pole & line
Management:	Local: Indonesian / Sorong Management Regional: WCPFC
Client group:	PTCA Identified vessels: 35 vessels will be included in the initial Unit of Certification (UoC). See Appendix 7 for list of vessels.
Other eligible fishers:	All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

3.1.3 Proposed Unit of Certification

The Unit of certification is the unit entitled to receive an MSC certificate.

The proposed Unit of Certification include the target stock (s), the fishing method or gear type/s, vessel type/s and/or practices, the fishing fleets or groups of vessels or individual fishing operators pursuing that stock including those client group members initially intended to be covered by the certificate.

The MSC FCR v2.0 specifies that the Unit of Certification is defined as *"The target stock or stocks (= biologically distinct unit/s) combined with the fishing method/gear and practice (including vessel type/s) pursuing that stock and any fleets, groups of vessels, or individual vessels of other fishing operators."*

The proposed Unit of Certification is provided in Table 11.

Table 11 Proposed Unit(s) of Certification (PuoC) at the start of the certificate (prior to any certificate sharing)

PUoC 1: Skipjack tuna	
Species:	Skipjack tuna (*Katsuwonus pelamis*)
Stock:	West and Central Pacific (WCP) Skipjack tuna
Geographical area:	West Pacific Ocean, WPP 715 and WPP 717 in Exclusive Economic Zone (EEZ) of Indonesia
Harvest method:	Pole & line
Management:	Local: Indonesian / Sorong Management Regional: WCPFC
Client group:	PTCA Identified vessels: 35 vessels will be included in the initial Unit of Certification (UoC). See Appendix 7 for list of vessels.
Other eligible fishers:	All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

PUoC 2: Yellowfin tuna	
Species:	Yellowfin Tuna (*Thunnus albacares*)
Stock:	West and Central Pacific (WCP) Yellowfin tuna
Geographical area:	West Pacific Ocean, WPP 715 and WPP 717 in Exclusive Economic Zone (EEZ) of Indonesia
Harvest method:	Pole & line
Management:	Local: Indonesian / Sorong Management Regional: WCPFC
Client group:	PTCA Identified vessels: 24 vessels will be included in the initial Unit of Certification (UoC). See Appendix 7 for list of vessels.
Other eligible fishers:	All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

3.1.4 Other eligible fishers at the start of the certificate (prior to any certificate sharing)

All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant rules and conditions.

List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

3.1.5 Final UoC(s)

The Unit of Certification covered by the MSC Fishery certificate at the time of certification is described in Table 12.

Table 12 Unit(s) of Certification at the time of certification

UoC 1: Skipjack tuna	
Species:	Skipjack tuna (*Katsuwonus pelamis*)
Stock:	West and Central Pacific (WCP) Skipjack tuna
Geographical area:	West Pacific Ocean, WPP 715 and WPP 717 in Exclusive Economic Zone (EEZ) of Indonesia
Harvest method:	Pole & line
Management:	Local: Indonesian / Sorong Management Regional: WCPFC
Client group:	PTCA Identified vessels: 35 vessels will be included in the initial Unit of Certification (UoC). See Appendix 7 for list of vessels.
Other eligible fishers:	All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

UoC 2: Yellowfin tuna	
Species:	Yellowfin Tuna (*Thunnus albacares)*
Stock:	West and Central Pacific (WCP) Skipjack tuna
Geographical area:	West Pacific Ocean, WPP 715 and WPP 717 in Exclusive Economic Zone (EEZ) of Indonesia
Harvest method:	Pole & line
Management:	Local: Indonesian / Sorong Management Regional: WCPFC
Client group:	PTCA Identified vessels: 35 vessels will be included in the initial Unit of Certification (UoC). See Appendix 7 for list of vessels.
Other eligible fishers:	All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

Rationale for any changes to the proposed UoC(s): No changes.

3.1.6 Final other eligible fishers at the time of certification

All Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant PTCA rules and conditions.

List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports.

3.1.7 Total Allowable Catch (TAC) and Catch Data

Table 13 TAC and catch data for pole and line Skipjack tuna

TAC	Year	2015	Amount	NA*
UoA share of TAC	Year	2015	Amount	NA*
UoC share of TAC	Year	2015	Amount	NA*
Total Catch	Year	2015	Amount	1,831,440 mt
UoA/UoC share of Total Catch	Year	2015	%	0.13 %
Total green weight catch by UoC	Year (most recent)	2016	Amount	2,647 mt
	Year (second most recent)	2015	Amount	2,404 mt

*No TAC is available since it's not a TAC based fishery

Table 14 TAC and catch data for pole and line Yellowfin tuna

TAC	Year	2015	Amount	NA*
UoA share of TAC	Year	2015	Amount	NA*
UoC share of TAC	Year	2015	Amount	NA*
Total Catch	Year	2015	Amount	575, 901 mt
UoA/UoC share of Total Catch	Year	2015	%	0.07 %
Total green weight catch by UoC	Year (most recent)	2016	Amount	543 mt
	Year (second most recent)	2015	Amount	452 mt

*No TAC is available since it's not a TAC based fishery

3.1.8 Scope of Assessment in Relation to Enhanced Fisheries

The UoAs comprise pole and line vessels fishing around anchored Fish Aggregating Devices (FADs). The MSC defines modified habitats as habitats modified in order to increase production or favour desirable species. FADs are included in the MSC list of examples of modified habitats. The MSC also defines enhanced fisheries as any activity aimed at, *inter alia*, raising total or elemental production, including, potentially, by habitat modification. The UoA is a habitat modified fishery as defined by MSC. Enhanced fisheries, including habitat modified fisheries, may be subject to an alternative assessment tree and it is necessary to consider whether the UoA may be assessed using the default assessment tree.

It is important to note that habitat modified fisheries may be assessed using the default assessment tree (see FCR G7.4.3) and that scope criteria for enhanced fisheries at FCR 7.4.3 (Table 1) are relevant. Table 1 notes that habitat modified fisheries can only be considered for MSC certification if they are in scope, specifically that any modifications to the habitat are reversible and do not cause serious harm to the natural ecosystem's structure and function. FCR7.7.4.1 says that the CAB shall review and if necessary modify the default assessment tree taking into account the PIs required to assess the enhancements, in particular the impacts of habitat modification under the habitats and ecosystem components (i.e., PI2.4 and PI2.5). Consideration needs to include i) 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; and ii) the types and extent of habitat modifications and the possibility of these causing serious or irreversible impacts. We have considered these matters and given the scale and intensity of the UoA (20 anchored FADs across major deepwater areas with relatively small removal of biomass from the epipelagic habitat/system), that the default tree PISG are adequate.

We note also that many tuna fisheries use anchored or drifting FADs. To date, large scale tuna fisheries using purse seines in the WCPFC and Indian Ocean have not been regarded as enhanced fisheries and have been assessed using the default tree, even though many thousands of FADs are involved. The Maldives pole and line fishery uses 50 anchored FADs for some of its activity. That fishery has also not been considered as an enhanced fishery. The UoA under consideration uses a total of 20 anchored FADs across two large management areas (WPP715 and WPP717). The FADs are used to attract target species for a period of time and to increase catch rates. They are an efficiency-enhancing device but are not expected to increase total production of the stock. In line with the other FAD-using tuna fisheries certified as meeting the MSC standard, the UoA is scored using the default assessment tree.

3.1.9 Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF)

The fishery is not ISBF.

3.2 Overview of the fishery

3.2.1 Client name and contact information

Table 15 Client contact data

Client name:	PT. CITRARAJA AMPAT CANNING
Contact person:	Gareth McKeown
Address:	Jl. Jend. A. Yani, Irian Jaya 98414 Sorong, Indonesia
Telephone:	+441344 356969
Email:	Gareth.McKeown@worldwisefoods.co.uk

3.2.2 Client information

PT Citraraja Ampat Canning (PT CRA) is a fish- packing, processing and exporting company, based in Indonesia. One of its main products is canned Indonesian tuna, which it sources from single vessel fisheries. PT CRA has agreements in place with a fleet of pole-and-line vessels. Its canned products are exported to Singapore, Malaysia and Europe.

The CEO of the factory is Ali Wibisono, who is also CEO of the factory for PT CRA's parent company PT Deho Canning. The client is a member of the International Pole & Line Foundation (Source: http://ipnlf.org/who-we-are/members/pt-citraraja-ampat-canning, 20180213).

3.2.3 General overview of the fishery, including vessels and catches

Indonesian vessels in the UoA target YFT and SJT in the Indonesian management areas WPP715 and 717. Statistics for both areas are reported to the WCPFC and are used for both skipjack and yellowfin tuna stock assessments (confirmed by P. Williams, SPC). WPP717 is classified as within the WCPFC Convention Area. Indonesia identifies itself as an Archipelagic State and WPP 715 is defined as within Indonesian Archipelagic Waters (AW); see Figure 2. The WCPFC has jurisdiction in the EEZ and international waters of the WCPO, but not over designated AW such as WPP715.

The total number of pole and line vessels greater than 30 mt licensed to fish in WPP715 and WPP717 over the period 2001-2004 has varied from 25 in 2010 to 149 in 2004, with an average of 87.5 (see Table 16; figures supplied through the client). The UoA currently consists of 35 vessels, all but one of which is greater than 30 mt. Not all 35 vessels have current licenses, some vessels are inactive and not engaged in the fishing activities. Nearly all (circa 90%) UoA activity is within WPP715.

Table 16 Numbers of licenses by year for greater than 35 mt GRT vessels issued for WPP 715 and WPP717

Year	No. Licenses	Year	No. Licenses
2001	103	2010	25
2002	61	2011	63
2003	30	2012	86
2004	149	2013	101
2005	70	2014	90
2006	68	2015	81
2007	84	2016	80
2008	47	2017	44
2009	37	2018 (as of July)	35

Fishing is exclusively by pole and line. The gear is used to catch skipjack and yellowfin tuna in surface waters around anchored FADs. Live bait is used to attract the target species (so-called "chumming"). Fishing is labour intensive, being carried out by hand by a large crew. Hooks are barbless, unweighted and unbaited. The method is highly selective for the target species with little bycatch, no discarding and no ETP species are caught.

Fishing by the UoA is exclusively on anchored Fish Aggregating Devices (FADs) which have been in place since 1975. There is a total of twenty FADs, with two in North Waigeo (WP717), three in Gag (WPP715) and fifteen in South Misool (WPP715). Figure 13 (in section P2 background) shows exact FAD positions. Eighteen out of twenty (90%) FADs used by the UoA are in WPP715. That is, the large majority of the fishery takes place in Indonesian AW.

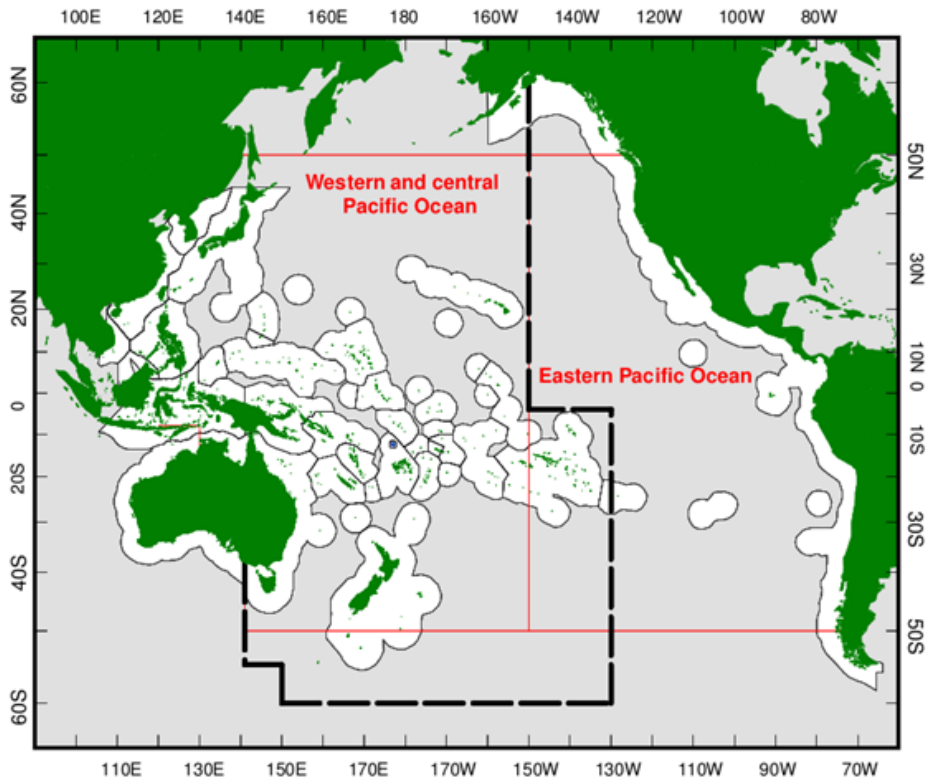


Figure 1 WCPO and EPO area definitions, and WCPFC area of competence (dashed lines) (Source: Williams and Terawasi, 2015)

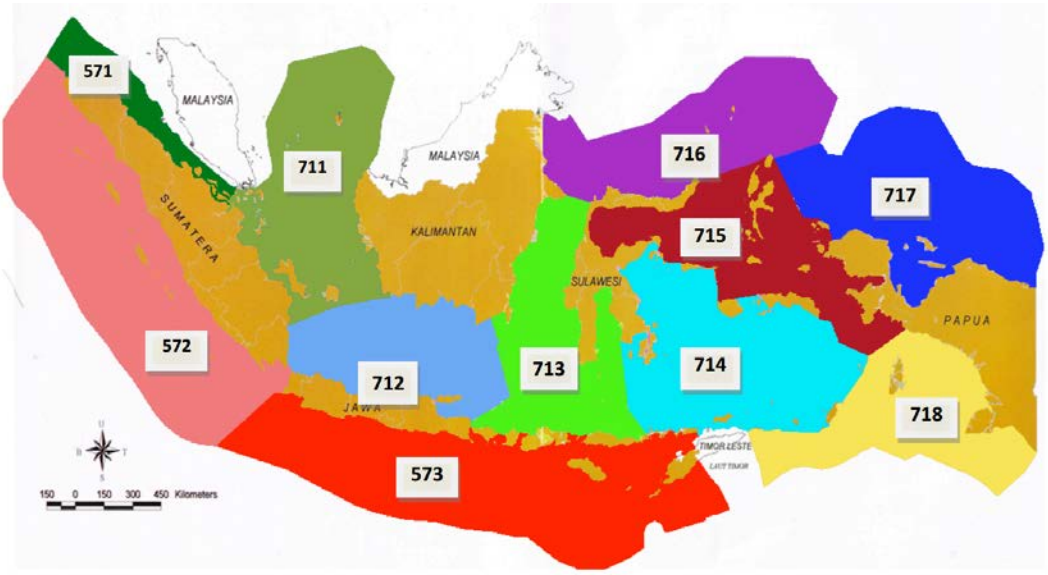


Figure 2 Indonesian fishery management areas (WPP). (Source: NPOA 2012)

The total reported and verified catch of skipjack tuna by the UoA was 3,216 mt in 2014, 2,404 mt in 2015, and 2,647 mt in 2016. The total reported and verified catch of yellowfin tuna was 353 mt in 2014, 452 mt in 2015, and 543 mt in 2016.

The UoA catch split by WPP is not readily available, but assuming an even distribution of effort and catch is likely about 10% from WPP717 and 90% from WPP715. That is, fishing is largely in AW.

WCPO catch information on skipjack, yellowfin and other tuna and related species, is available annually from the WCPFC in the form of the WCPFC Tuna Fisheries Handbook (WCPFC, 2015; https://www.wcpfc.int/system/files/YB_2015.pdf). The total WCPO catch of skipjack in 2015 was 1,831,440 mt. The total 2015 pole and line catch was 152,600 mt and Indonesian domestic total catches were 263,319, of which 78,838 were by pole and line. The total WCPO catch of yellowfin in 2015 was 575,901 mt. The total 2015 pole and line catch was 36,260 mt and Indonesian domestic total catches were 146,020 mt, of which 32,435 were by pole and line.

The UoA catches in 2015 therefore represent the following percentages of skipjack and yellowfin totals.

Table 17 Percentages of catches of Skipjack tuna and Yellowfin tuna by UoA in 2015.

	Skipjack	Yellowfin
2015 UoA catch as % WCPFC total (all gears)	0.13	0.07
2015 UoA catch as % all WCPFC pole and line	1.58	1.17
2015 UoA catch as % Indonesian pole and line	3.05	1.31
2015 Indonesian domestic catch as % WCPFC	14.38	25.36

Pole and line catches in the WCPFC, especially of skipjack, have decreased over the past two decades (see Figure 3). This has coincided with a major increase in purse seine fishing in the WCPO. Recent catches of skipjack are at an all-time high. Figure 4 shows WCPO catches by gear and tuna species (WCPFC, 2014).

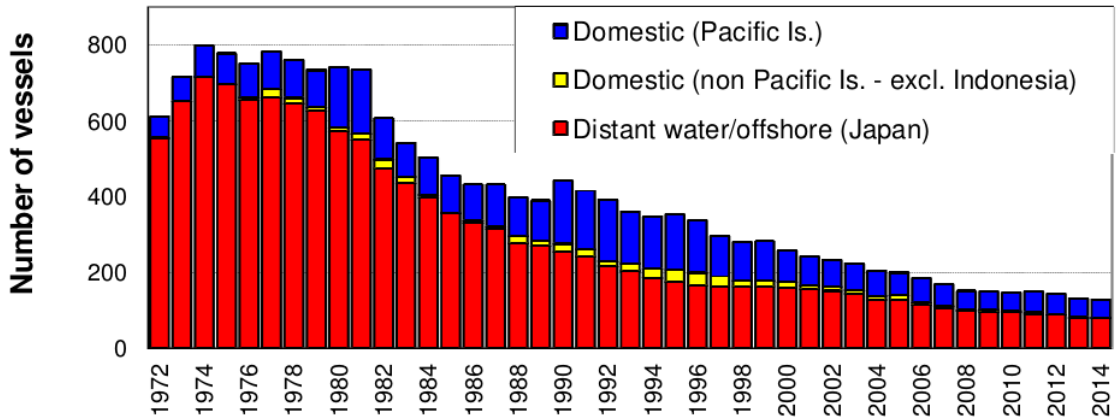
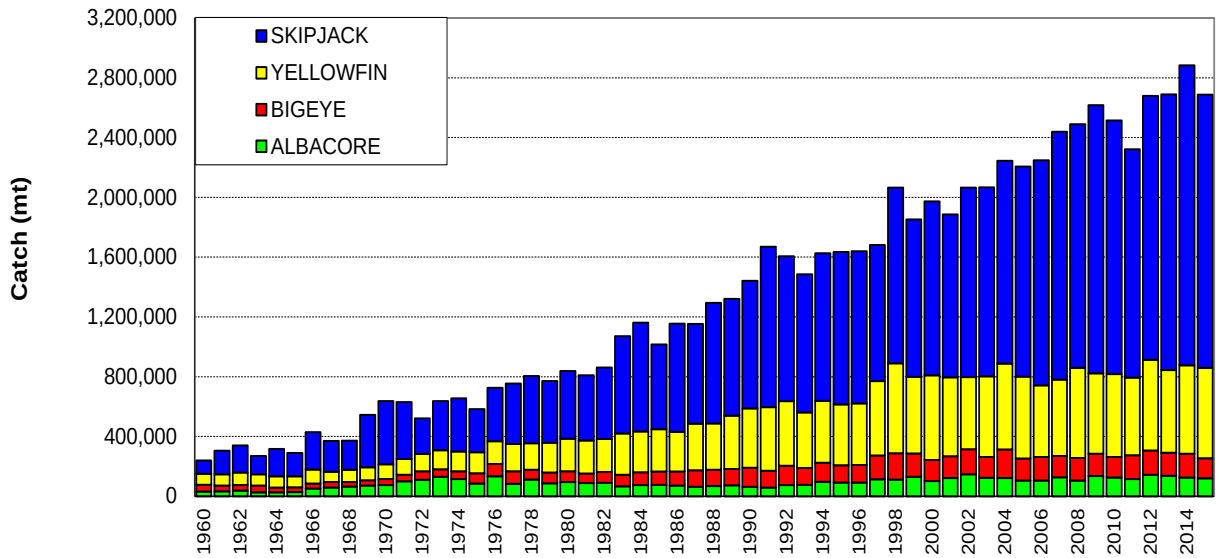


Figure 3 Pole and line vessels operating in the WCPFC Convention Area
(excluding vessels from the Japanese Coastal and Indonesian domestic fisheries). (Source: Williams and Terawasi, 2015).



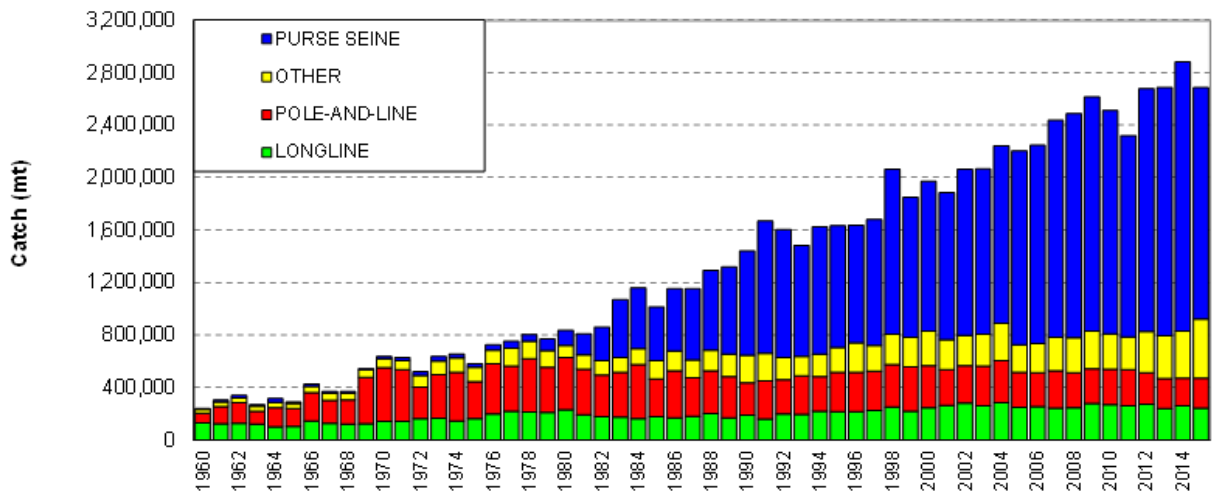


Figure 4 Top panel: Catch (mt) of albacore, bigeye, skipjack and yellowfin tunas in the WCPFC Statistical Area. Bottom panel: Catch (mt) of albacore, bigeye, skipjack and yellowfin tunas in the WCPFC Statistical Area, by longline, pole-and-line, purse-seine and other gear types.
(Source: WCPFC, 2016)

Skipjack catches are predominantly taken from equatorial waters, especially by purse seine, the dominant gear type. Catches by 5-degree square, averaged over 2003-12 are shown in Figure 5. The figure also shows clearly the dominance of pole and line fishing in Indonesian waters (Region 4 of the skipjack stock assessment). Figure 6 shows the assessment estimates of fishery impacts by assessment regions. Indonesian AW fisheries are in Region 4.

Yellowfin catches are predominantly taken from equatorial waters, by longline vessels across the main WCPO (yellowfin regions 3, 4, and 8) and in Indonesian waters (region 7) and increasingly by purse seine in the WCPO. The catch by other gears, predominantly handline, has increased dramatically in Indonesian waters since the mid 1970s but especially in the past twenty years. Time series of catches by stock assessment region and gear are shown in Figure 5. The figure shows clearly the dominance of handline fishing in Indonesian waters (Region 7 of the yellowfin stock assessment). Figure 6 shows the assessment estimates of fishery impacts by assessment regions. Indonesian AW fisheries are in Region 7.

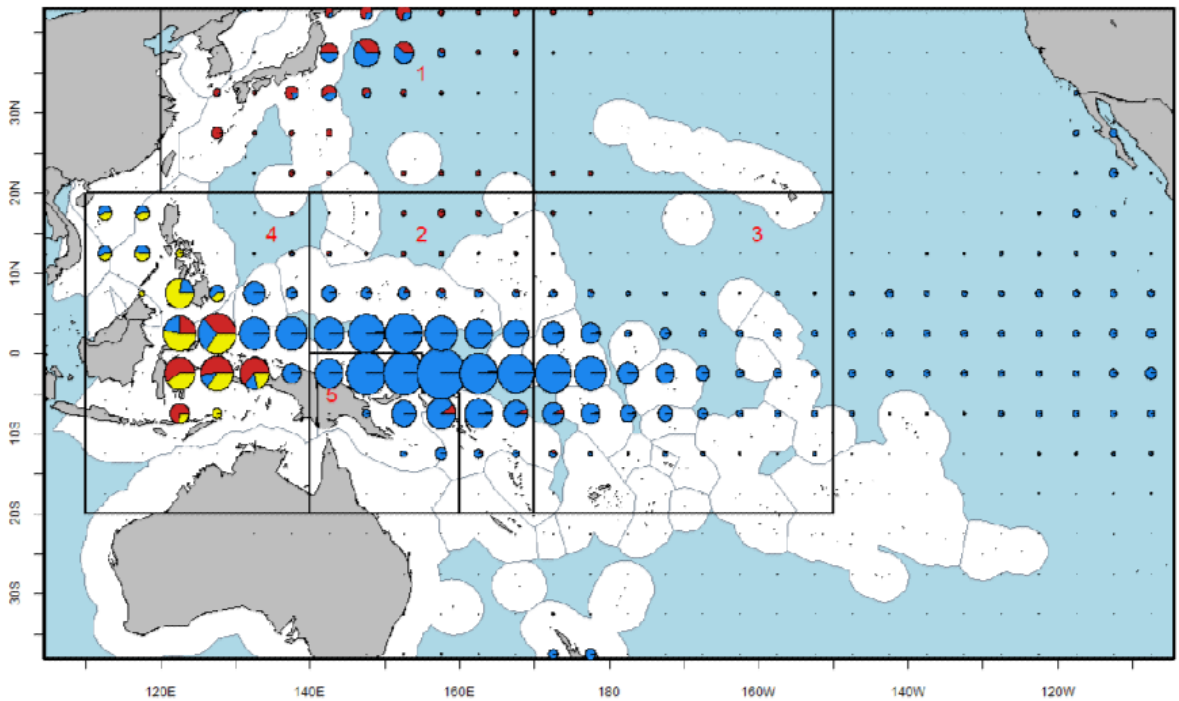


Figure 5 Catch distribution of skipjack tuna (2003-2012) by 5 degree squares of latitude and longitude and fishing method: longline (green), purse-seine (blue), pole-and-line (red), and other (yellow).
Note the break at 170 E in Region 1 is incorrect. (Source: figure and caption copied from Rice *et al*, 2014). Note the numbered regions (1-5) refer to spatial divisions used in the stock assessment (the top two boxes are both Region 1).

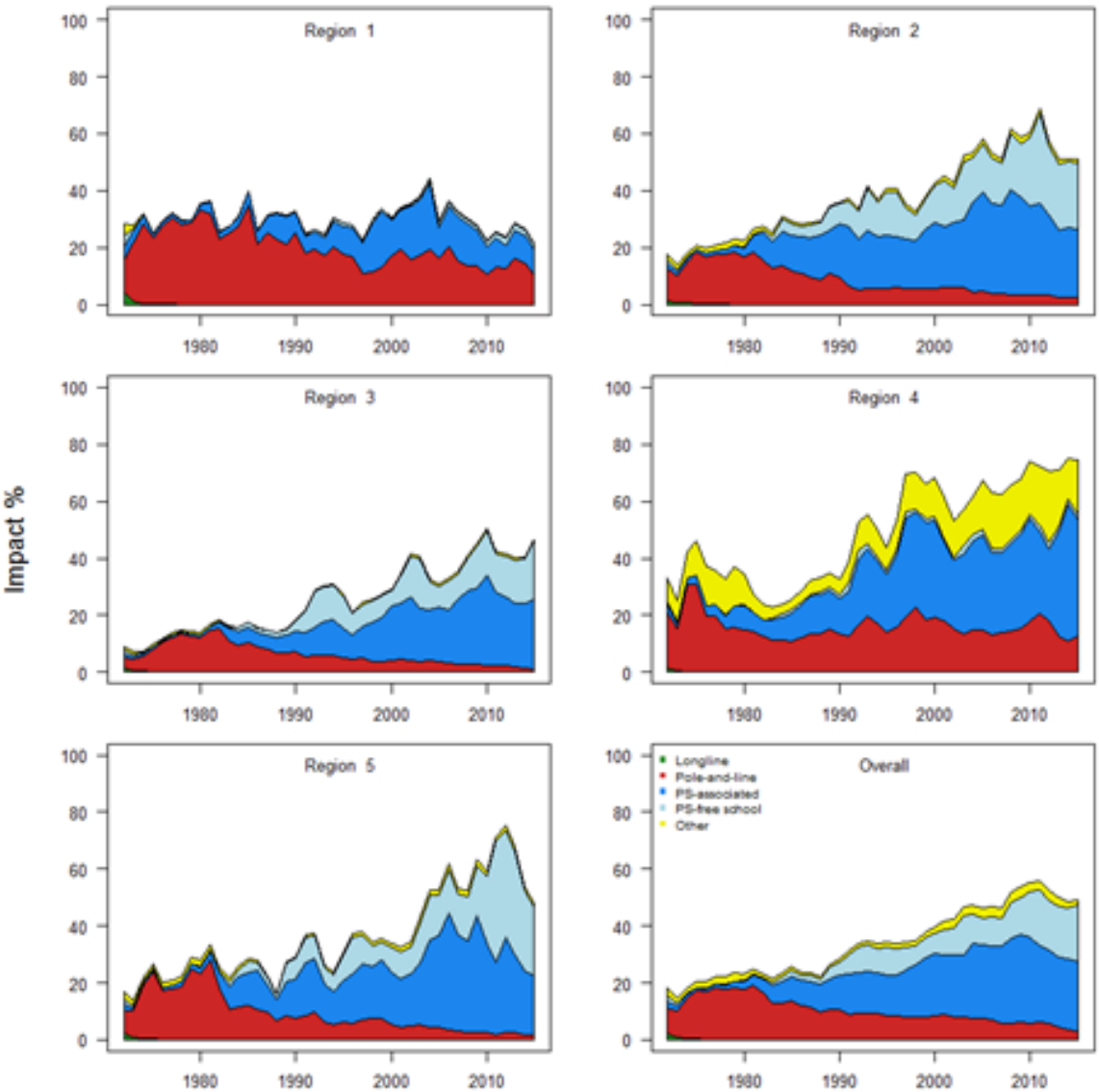


Figure 6 Estimates of reduction in spawning potential of skipjack tuna due to fishing (fishery impact = 1-SBt/SBt,F=0) by region and for the WCPO attributed to various fishery groups for the reference case model. (Source: WCPFC, 2016).

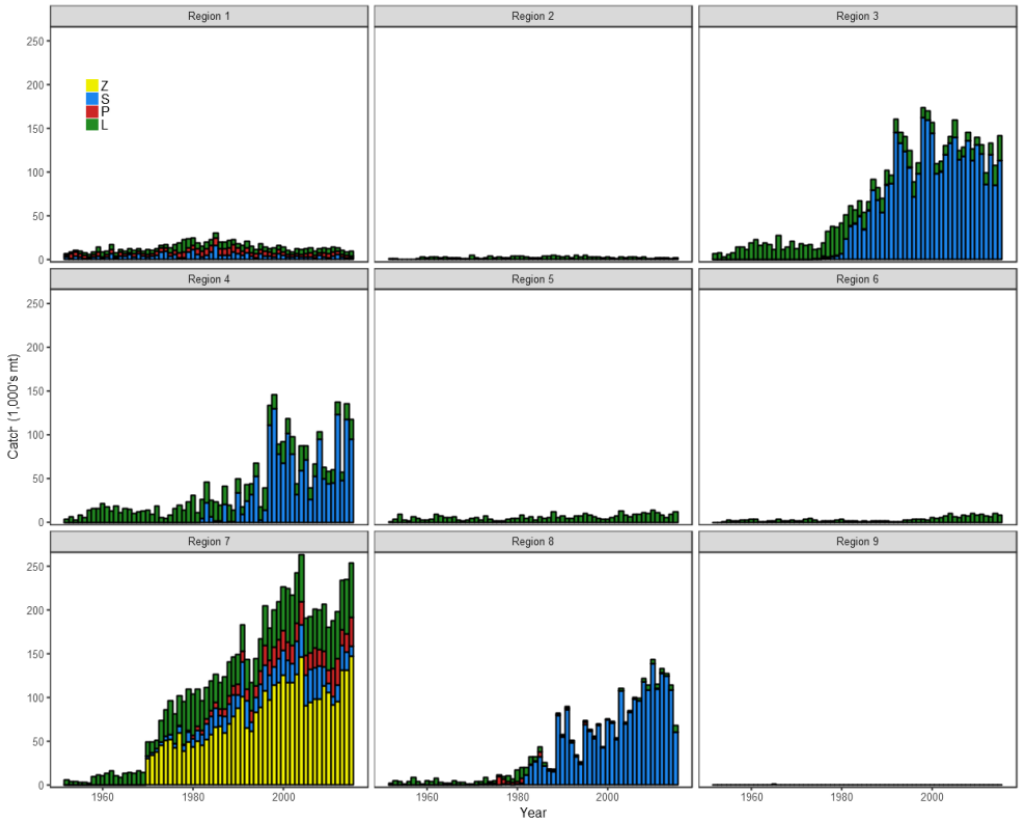


Figure 7 Time series of total annual catch (1000's mt) by fishing gear and assessment region. From the diagnostic case model over the full assessment period. The different colours denote longline (green), pole-and-line (red), purse seine (blue) and miscellaneous (yellow) (Source: Tremblay-Boyer *et al*, 2017)

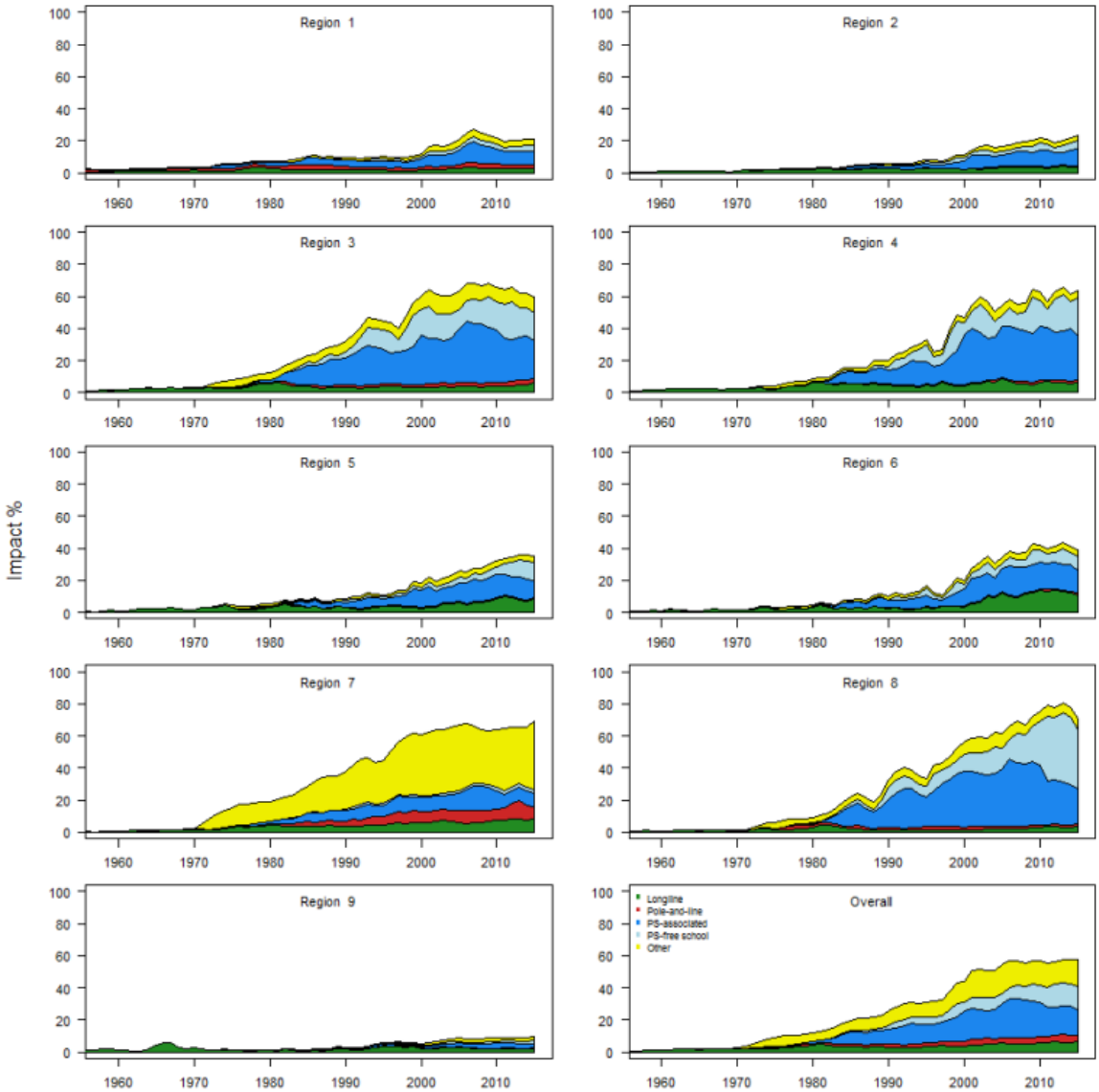


Figure 8 Estimates of reduction in spawning potential due to fishing (fishery impact = 1-*SBlatest*=*SBF* =0) by region, and over all regions (lower right panel), attributed to various fishery groups for the diagnostic case model. (Source: Tremblay-Boyer et al, 2017)

3.3 Principle One: Target Species Background

As noted in section 4 (harmonisation), the most recent, final report and determination that includes skipjack and yellowfin tuna is the PNA Western and Central Pacific skipjack and yellowfin, unassociated/non FAD set, tuna purse seine fishery, available at: https://fisheries.msc.org/en/fisheries/pna-western-and-central-pacific-skipjack-and-yellowfin-unassociated-non-fad-set-tuna-purse-seine/@@assessments. The final report and determination for this fishery was published on 5th September 2017.

The PNA final report and determination is used as a basis for harmonisation of this certification. As explained in section 4, fishery specific aspects of this certification related to Indonesian Archipelagic Waters (AW) harvest strategies and control rules are addressed under Principle 3 in the scoring of "effective management" under PI 3.1.1 and do not require harmonisation. This approach was adopted after extensive discussion, including also with other CABs and MSC (see section 4.1).

Rationales and scoring in this report in Appendix 1 copy the PNA P1 text (clearly identified as such), with additional text only as necessary for elaboration or update (e.g., at various PI for yellowfin tuna, given a new stock assessment available since the PNA assessment was conducted). With the agreement of the CAB (Acoura) responsible for the PNA certification, we also attach the PNA assessment Principle 1 Background sections, together with references for that report, as Appendix 6. This main background section (3.3) does not repeat the PNA material, providing only additional material as necessary. Aspects of the AW management are described here for completeness but are considered under scoring at PI3.1.1.

3.3.1 Consideration of metapopulations

For Principle 1, the MSC requires that fishing is assessed at a level that is sustainable for the stock but recognises that the application of "stock" may vary depending on knowledge and management complexity. Consideration needs to be made as to whether the stock is unitary or consists of metapopulations. The level of assessment expected is laid out in FCR V2 Table G2.

Following Table G2, it is necessary to consider whether the areas used for stock assessment imply local populations with partial isolation and minimal connectivity, local populations with moderate connectivity, or a single metapopulation with maximum connectivity. The choice/decision, has implications for scoring.

Both skipjack tuna and yellowfin tuna are assessed by the WCPFC assuming multiple areas, connected by movement. The relative biomass and exploitation rate of either species within assessment areas varies considerably and for both skipjack and yellowfin, the relative stock size within the area covering WPP715 and WPP717 is lower than in other areas, with correspondingly higher exploitation rates. However, there are no apparent adverse impacts on recruitment within these assessment areas. A single stock-recruitment relationship is assumed for assessment purposes and connectivity between areas (estimated in the model and informed by tagging data) appears to be high.

In considering the assessment and recruitment, and for consistency with all other WCPO tuna certification assessments, *we assume that both skipjack and yellowfin stocks are single metapopulations, effectively unitary stocks to be treated and scored at Principle 1 as single stocks*. Management must ensure the whole metapopulation (i.e. stock) is above the Point of Recruitment Impairment (PRI) to ensure recruitment is sustained. However, attention is needed in reference point setting to ensure the sub-area population structure is not impacted by fishing and information and uncertainties related to stock structure need to be considered.

In the case of the UoA, with fishing and management at both WCPFC and Indonesian (for AW) levels, these factors need to be kept under consideration when scoring.

3.3.2 Stock assessment process (both P1 species)

Stock assessments are undertaken by the Oceanic Fisheries Programme (OFP) of the Secretariat of the Pacific Community (SPC), as science provider to the WCPFC.

The WCPFC Scientific Committee (SC) conducts assessments annually, with priorities reflecting current concerns with status of stocks or uncertainty in the assessments. Procedures and stock assessment methodology for the assessments are now fine-tuned amongst members and cooperating non-members of the WCPFC, though important technical changes are made in response to methodological advances, working papers presented, and external reviews (e.g., Ianelli *et al*, 2012). A Pre-assessment Workshop (PAW) is typically held annually at the SPC in Noumea, New Caledonia, during the first quarter of the year, with members and cooperating non-members providing data and input. The completed assessments (by SPC) are presented to the WCPFC SC meeting, held annually in August. The SC reviews the assessments and issues an agreed statement on the current status of the stocks, management advice, and implications. The statement is forwarded to the WCPFC annual session for consideration and endorsement of any recommended management actions to be taken. External reviews have been carried out by Chen (2011a, b) and Cordue (2011).

SPC, as data provider and manager to the WCPFC, maintains a central database for the catch, effort, size frequency, tagging, biological data, observer, sampling and other data from the tuna fisheries. This allows the SC to use these data for stock assessments and advisory processes.

Skipjack and yellowfin were last reviewed by the WCPFC SC in August 2017 (WCPFC, 2017), with the report, including management advice, being available to the WCPFC at its annual meeting in December 2017. Skipjack was assessed by Rice *et al* (2014; *https://www.wcpfc.int/node/18998*), updated by McKechnie et al, 2016 (*https://www.wcpfc.int/node/27490*). Yellowfin was assessed by Davies et al, 2014;) with a recent, new assessment by Tremblay-*Boyer et al*, 2017: *https://www.wcpfc.int/node/29519*).

3.3.3 Stock Status

Skipjack stock status is covered in Appendix 6, with reference to the stock assessments in 2014 and 2016.

Appendix 6 includes status estimates of yellowfin tuna up until 2014. The most recent stock assessment has only recently become available (Tremblay-Boyer *et al*, 2017).

The latest assessment is a progressive development from the 2014 reference case, with data updates, revised cpue, slightly amended regional structure and a change in the recruitment estimation timestep. Overall, however, the new assessment should be viewed as progression rather than different and provides an updated but compatible insight as to status and trends. As in 2014, structural uncertainty was explored using a grid of alternative assumptions and weightings. There is no single reference or base case.

Table 18 shows that the latest estimate of spawning biomass (2015) is above the level that will support MSY (SB_{recent}/SB_{MSY} = 1.37; with a minimum and maximum grid estimate of 0.81-1.81). Also shown is the mean estimate of $SB_{MSY}/SB_{F=0}$ = 0.25 (with a minimum and maximum grid estimate of 0.16-0.35); this is the WCPFC adopted LRP for yellowfin tuna (see Appendix 6). Recent (fishing mortality is estimated from the grid to be below that associated with MSY (mean: 0.79, min:0.58, max: 1.13).

Table 18 Summary of derived estimates of reference points over all 48 individual models in the structural uncertainty grid used for the 2017 yellowfin tuna stock assessment
(source: simplified from Tremblay-Boyer *et al*, 2017, Table 6).

Derived estimate	Mean	Minimum	Maximum
F_{recent}/F_{MSY}	0.79	0.58	1.13
$SB_{MSY}/SB_{F=0}$	0.25	0.16	0.35
SB_{recent}/SB_{MSY}	1.37	0.81	1.81

Yellowfin tuna, therefore, appears to be neither overfished (SSB is above SSBMSY and the agreed LRP) nor experiencing overfishing (fishing mortality is below FMSY). However, the assessment provides clear evidence that the stock has been experiencing increasing fishing mortality, including on juveniles (Figure 9), while spawning biomass has been declining overall and across all regions (Figure 10).

There is no reference (base) case Kobe or Majuro Plot summary available. Figure 11 shows a Kobe Plot with median estimates from the stock assessment grid.

Management advice by the WCPFC SC (WPCFC, 2017) is as follows (bracketed numbers are SC Summary Report paragraphs):

> *279. Based on the uncertainty grid adopted by SC13 the spawning biomass is highly likely above the biomass LRP and recent F is highly likely below Fmsy, and therefore noting the level of uncertainties in the current assessment is appears that the stock is not experiencing overfishing 96% probability) and it appears that the stock is not in an overfished condition (92% probability).*
>
> *280. Based on the diagnostic case, both juvenile and adult fishing mortality show a steady increase since the 1970s. Adult fishing mortality has increased continuously over most of the time series, while juvenile fishing mortality has stabilized since the late 1990s at a level similar to that now estimated for adult yellowfin.*
>
> *281. SC13 reiterates its previous advice from SC10 that WCPFC could consider measures to reduce fishing mortality from fisheries that take juveniles, with the goal to increase to maximum fishery yields and reduce any further impacts on the spawning potential for this stock in the tropical regions.*
>
> *282. SC13 also reiterates its previous advice from SC10 that measures should be implemented to maintain current spawning biomass levels until the Commission can agree on an appropriate target reference point (TRP).*

Figure 9 Estimated annual average juvenile and adult fishing mortality for the diagnostic case model. (Source: Tremblay-Boyer *et al*, 2017; Fig 34)

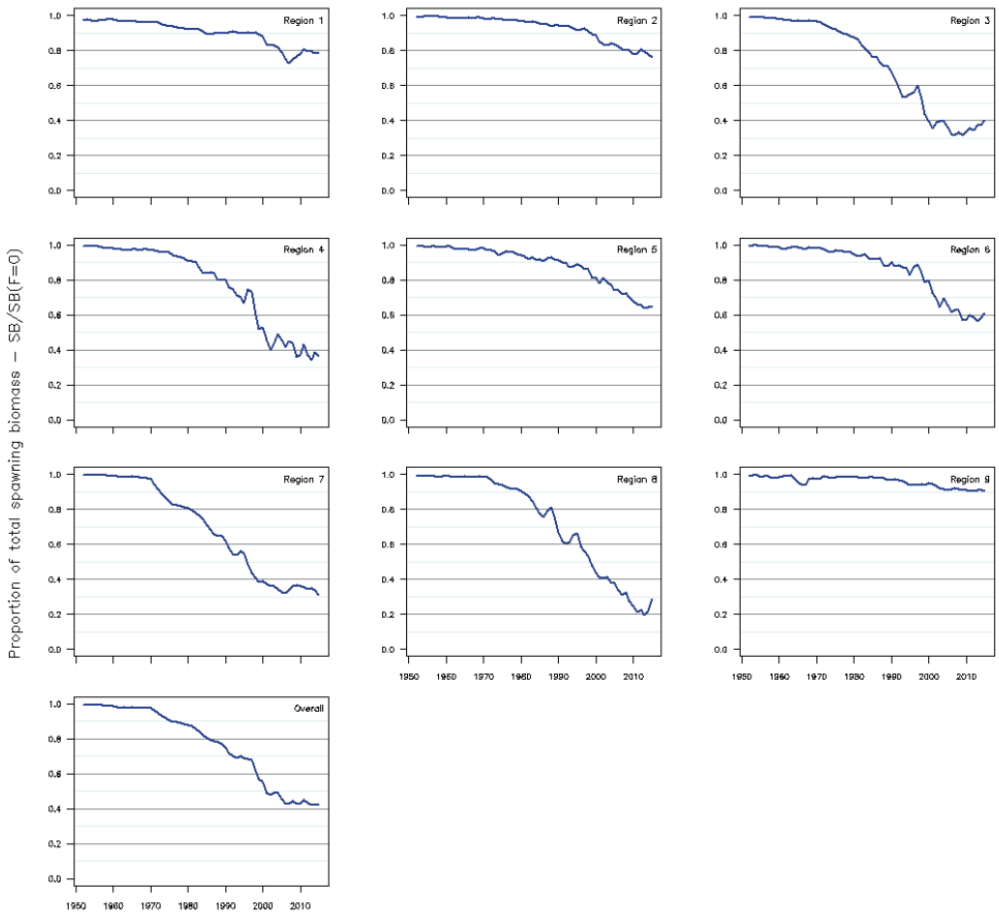


Figure 10 Ratio of exploited to unexploited spawning potential SBlatest/SBF =0, for each region, and overall, for

the diagnostic case model. (Source: Tremblay-Boyer *et al*, 2017; Fig 43)

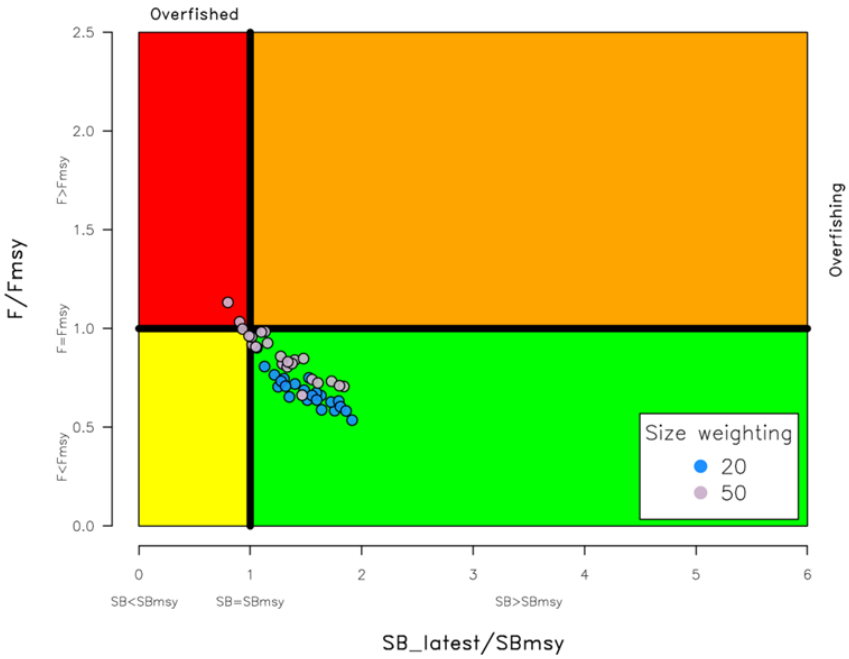


Figure 11 Kobe plot summarising the results for each of the models in the structural uncertainty grid. The points represent SBlatest/SBMSY, the colours depict the models in the grid with the size composition weighting using divisors of 20 and 50. (Source: WCPFC, 2017; Fig YFT-8)

3.3.4 Harvest strategy

MSC scoring of Principle 1 relates not to the UoA, but to the stock as a whole (as assessed by the WCPFC and covered in Appendix 6) and to harvest strategy (including reference points, harvest control rules, information and stock assessment) components. The stock exists in waters under WCPFC jurisdiction and in archipelagic waters (AW) which are outside the jurisdiction of WCPFC. As noted above, because of harmonisation requirements, we do not score AW harvest strategy and harvest control rules under Principle1, but instead consider them as a whole under "effective management" scoring at PI3.1.1. For completeness, however, we describe them here.

<u>Current Indonesian harvest strategy</u>
The management of fisheries resources in Indonesian AW is not based on catch quota. As described to the assessment team, the system in use by the Indonesian Ministry of Marine Affairs and Fisheries (MMAF) is based on input control by *allocating the number of fishing vessels by WPP*. MMAF has an established central data base for Provinces and MMAF to link provincial vessel registers to a national database system.

Licensing of fishing vessels and reporting requirements are based on vessel size with vessels smaller than 5 gross tonnes (GT) being considered artisanal and not required to report, but they must be registered at the district/provincial level. Where registration of artisanal vessel is carried out, it is done annually and with an automatic renewal system, if there are no reported changes to the vessel. Intermediate vessels (10-30 GT) are licensed at Provincial level and larger vessels are *normally* licensed at the national level. Licenses are renewed annually and then automatically issued at the provincial offices if there are no changes to the vessel or its equipment. All vessels over 5GT are required to be inspected for safety by the Ministry of Sea Communications and Transport prior to being licensed for fishing by the Ministry. MMAF and the Directorate General for Sea Transport at the Ministry of Transport (SEACOM) entered into an MoU in 2015 to address the issue of vessels > 30 GT seeking to register in the provinces.

The connection between the issuing of license and need for input restrictions is unclear. Site visit discussions and subsequent requests for information suggest license issuance is informed annually by WCPFC assessments on stock status and potential. The details of allocation, however, are subject

to confidentiality, though numbers of Indonesian fishing vessels and type which are permitted to operate in Indonesian fisheries management areas are publically available at http://www.perizinan.kkp.go.id/ (in Bahasa Indonesia). As license renewal is generally automatic, it is unclear how any control rule, though none is clear, could be implemented.

Status considerations are updated annually in the NPOA Tuna and are reflections of status summaries by the WCPFC, with little consideration of the uncertainty associated with stock structure and the regional relative stock status or exploitation rate, or exploitation pattern (e.g. of juveniles). According to documentation supplied by MMAF after the site visit, the current status summaries used reflect that for both skipjack and yellowfin tuna, overall WCPO exploitation rates are below those associated with achieving maximum sustainable yield (MSY) while spawning biomass levels are above those associated with MSY. However, for both skipjack and yellowfin tuna, exploitation rates in Indonesian waters are higher than in other areas. The precautionary approach to fisheries management is set in legislation (see section 3.5) and is recognised in the Indonesian NPOA Tuna. The use of stock wide status as benchmarks for management may not be precautionary.

A translated document (107-Kepmen-KP/2015; http://www.ap2hi.org/?tribe_events=sosialisasi-dan-bedah-kepmen-kp-no-107-tentang-rencana-pengelolaan-perikanan-tuna-cakalang-dan-tongkol) provided by MMAF after the site visit does indicate the scope of advice on status for stocks by WPP provided to managers. For WPP713, 714, and 715, it is stated clearly that for skipjack and yellowfin tuna, “potential estimation” and “level of utilization” are “uncertain”. It is unclear how this advice on uncertainty is reflected in license issue or renewal. The same advice document also notes the high catch rate of juvenile yellowfin tuna in purse seine fisheries in Indonesian AW. In response to this, purse seining has been restricted under Ministry of Fishery and Maine Affairs Decree no 71/2016 (provided by MMAF); specifically, large purse seiners have been restricted in all WPP, including cessation of fishing by the one large purse seine vessel in WPP715, while smaller, group purse seine operations have bene curtailed in WPP717. We note that the lack of clarity may be due to incomplete information and translation. However, we also note the decree (translated as: *Socialization and Decision of Ministerial Decree No. KP. 107 on the Tuna Fish Management Plan, Skipjack and Tongkol*) is that on implementation/update of the NPOA Tuna, rather than on annual decision-making related to ongoing management.

Regarding data, all craft over 30 GT are required to carry VMS. Multiple example VMS records were available at site visit for the UoA, confirming observer reports on positions. All vessels in excess of 10 GT are required to register a sailing declaration that must be carried on board. Fish landings are checked against log-book declarations. The logbook regulation is covered by Ministerial Decree 48/2014, and is supported by a sanction system. Vessels not completing logbooks are denied an operational permit. MMAF is undertaking a significant amount of socialisation to promote the use of logbooks generally, implying that for vessels outside the UoA, there may not be full compliance. During discussion it was suggested that the overall logbook compliance rate may be as low as 10% (though not for the UoA).

Indonesia is also assessed as being non-compliant or partially compliant with the provision of scientific data supplied to WCPFC (WCPFC Compliance Report, 2016).

Development of new harvest strategy

The UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8 all require countries with archipelagic waters to respond to transboundary management obligations. Article 8 of the WCPFC Convention (WCPFC, 2000) requires compatible measures to be adopted in Archipelagic and territorial waters. Indonesia is therefore obliged to adopt for AW management, measures compatible with all WCPFC CMM.

The Indonesian Ministry of Marine Affairs and Fisheries (MMAF) has started the development of fisheries specific management plans, which are to be extended to incorporate not just national, but also Provincial and District level management.

The first fishery specific plan (NPOA Tuna, 2014) is for “Tuna, skipjack, and neritic tuna”, including skipjack tuna and yellowfin tuna. The Forum for Coordination of the plan is Fisheries Resources Utilization and Management (FCMUFR), comprising MMAF and multiple Provincial administrations. It is working to provide input into decisions from relevant research, monitoring, and evaluation. There is one FCMUFR national committee, and 11 regional committees, 1 for each WPP. The science provider, Research Centre for Fishery Management and Conservation of Fishery Resources (P4KSDI)

sits on all committees. Each Provincial body sits on the relevant regional FCMUFR, and membership may include more than one Province. The Committees meet every two years at national level, and once a year at WPP level.

Since 2015, a series of workshops involving all relevant stakeholders has taken place, with some meetings scheduled after the site visit for the certification:

Dates	***Meeting type***	***Location***
November 2014	Preparation meeting	Bogor, Java
March 25-27, 2016	Harvest strategy preparation and introduction meeting	Bogor, Java
May 18-22,2015	Stakeholder consultation and expert meeting	Bogor, Java
August 10, 2015	Pre-workshop for data analysis	Bogor, Java
November 16-18,2015	Stakeholder consultation	Kuta, Bali
November 19-20	Baseline data to develop harvest strategies	Kuta, Bali
April 4-7, 2016	First technical meeting for harvest strategy development	Bogor, Java
November 10-11,2016	Second technical meeting for harvest strategy development	Denpasar, Bali
November 14-16,2016	Stakeholder consultation	Bogor, Java
March 6-7, 2017	Third technical meeting for harvest strategy development	Jakarta, Java
March 8-10, 2017	5th Stakeholder consultation	Jakarta, Java
July 12-13, 2017	6th Stakeholder consultation	Loka tuna, Bali
October 2017	4th technical meeting	TBD
November 2017	7th Stakeholder consultation	TBD

The NPOA Tuna contains aims and objectives and outlines the geographical boundaries of the plan. These are:

- To ensure the sustainability of tuna
- The implementation of management measures
- To increase compliance in national regulations including target species measures and bycatch limits
- To increase the competitiveness of Indonesian tuna in the World market
- To ensure thee sufficiency of supply to the domestic market.

To date, the harvest strategy development process has led to agreement on setting a limit reference point for tuna stocks at 20% (consistent with WCPFC agreement for skipjack and yellowfin, see Appendix 6). It has also resulted in improved reporting systems from Provinces to MMAF, better awareness of logbook reporting, and, improved port sampling. However, while the process appears robust, participatory and well-organised, it is unclear what specific harvest strategy or harvest control outcomes have been agreed and implemented or what might eventuate and when. It appears from discussion and materials provided after the site visit that there is a strong preference for management tools that include limits on FADs (in purse seine fisheries), spatial exclusions/closures, effort (day) restrictions on semi-industrial and industrial gears, and vessel number/license restrictions. Output controls do not seem to be under consideration and it is unclear how any controls and linkages to catching opportunities will relate to developing harvest control rules in the WCPFC or the PNA Vessel Day Scheme (see Appendix 6).

3.4 Principle Two: Ecosystem Background

3.4.1 Species caught in operations

For certification purposes, MSC splits non-target species in to two categories: i) primary species, and ii) secondary species. Species which are endangered, threatened or protected (ETP) are considered separately. Primary species are those for which there are management tools controlling exploitation as well as known reference points in place. Secondary species are those which are neither primary nor ETP.

The UoA pole and line fishery targets skipjack tuna (*Katsuwonus pelamis*) and yellowfin tuna (*Thunnus albacares)* and is highly selective. In addition to the target species, catches also include bigeye tuna (*Thunnus obesus*), bonito (*Sarda spp*.), dolphin fish (*Coryphaena hippurus*) and rainbow runner (*Elagatis bipinnulata*).

The pole and line operations use bait bought from separate bagan (bait station) operations which are not part of the UoA, but the bait species caught are considered for certification purposes. Bait species caught are white anchovy (*Stoleporus indicus*), blue anchovy, ponyfish (*Eubleekeria rapsoni*), squid (*Loligo spp*), sardine (*Sardinella spp*), Indian mackerel (*Rastrelliger kanagurta*), Mackerel scad (*Decapterus spp*), Yellowstripe scad (*Selaroides leptolepis*) and walo walo.

Of the species caught in pole and line operations, only bigeye tuna is managed using reference points. It is therefore considered here as a primary species while all other species caught in pole and line operations are treated as secondary. There is limited information on any bait fish species and all are treated as secondary.

The MSC also distinguishes between main and minor species. Main species are generally, though not only, distinguished based on their contribution by weight to the total catch. The usual percentage criterion for a species to be considered as main, is 5%, or 2% for less resilient species (GSA3.4.2). Using these criteria, there are no main, primary species and just one main, secondary species (white anchovy). Detailed catch and percentages of total catch are provided in Table 19 based on observer data collected during 2017. The percentages observed in 2017 are regarded as typical annual percentages by all stakeholders present during the site visit (the Ministry of Fisheries, Fisheries surveillance services, Fishery Polytechnic, Sorong Fishermen's Association). Given the very low 2017 percentages for all but the target species and one bait species, it is regarded as highly improbable that any other species would approach the 5% (or 2%) trigger value for designation as main.

Table 19 Total catch by species across all observed trips in 2017, with percentage contribution by species from total pole and line catches and bait used.
*(Figures derived from raw data supplied by independent observer scheme; * indicates catch less than 4 kg)*

Species (common name)	Catch (tonnes)	Percentage of total catch (plus bait)
Pole and Line catches		
Skipjack tuna	374.0	64.2
Yellowfin tuna	135.6	23.1
Bigeye tuna	1.0	0.2
Bonito	1.8	0.3
Dolphinfish	0.7	0.1
Rainbow runner	0.3	0.1
Bait species used		
White anchovy	51.6	8.9
Blue anchovy	3.9	0.7
Ponyfish	1.3	0.2
Squid	0.8	0.1
Sardine	4.1	0.7
Indian mackerel	4.2	0.7
Yellowstripe scad*	-	0
Walo walo*	-	0

3.4.1.1 Primary Species

Bigeye tuna is assessed and managed by the WCPFC with measures in place expected to achieve management objectives reflected in reference points. Catches of bigeye tuna in the UoA are low. Reported UoA catches for the full fishing years 2014, 2015, and 2016 respectively are 200kg, 648kg, and 114kg tonnes. Based on observer data, catch in the main 2017 season was 987kg. Based on the observer data in 2017, the percentage of bigeye caught on a single fishing trip may reach 5% but is typically zero, with only 5 non-zero catches in 50 observed trips. The overall catch of bigeye tuna is 0.2% of the total observed UoA catch in 2017. All catches of bigeye are retained and used.

With the catch of bigeye tuna being 0.2%, it is not considered a main species for MSC scoring purposes. For completeness, however, bigeye stock status is summarised here.

The latest stock assessment summary information is in the Summary Report of the (WCPFC) 13th Regular Session of the Scientific Committee (available at https://www.wcpfc.int/meetings/sc13). Interpretation is difficult as there is no single stock assessment run used as a basis for advice. Instead, a grid of 72 assessment models was used to explore uncertainty. Overall, it is possible the stock may be below the PRI but assessment runs using updated information suggest it is likely above. All models show a substantial decline in spawning biomass over time.

In more detail, the median (of the 72 runs) SSB recent/SSBmsy is 1.23 with a range of 0.63 to 1.66, where "recent" refers to the last three years of the assessment. WCPFC has an adopted limit reference point of 20% SSB0. The median SSB recent/SSB0 is 0.32, suggesting the bigeye stock is likely above the limit. A number of the individual grid runs, however, suggest the stock is below the limit and interpretation of the assessment needs to be treated with some caution.

The total WCPFC bigeye catch is of the order of 150,000t per year. The UoA component of total catch from 2014-2017 varied from 114kg to 987kg and is therefore a very small percentage of the WCPFC total catch.

Scoring for primary species at the SG60 and SG80 levels relates to main species only.

Information/data collection systems for bigeye tuna at the WCPFC level and as used for stock assessment are the same as for the target species. At the UoA level, information is available from catch records from 2014-2016 and from independent observers for the first half, and main season, of 2017. Catches are recorded in logbooks at sea and by weighing to the single point of landing. Ministry of Marine Affairs and Fisheries observers work at sea and for all landings and weighing. There is a high degree of confidence in the information, including bigeye tuna catch and landings. Independent observers in 2017 have also recorded catch weights for all species by trip. Observers were trained by the local polytechnic which was contracted by the client. Overall, combining WCPFC stock assessment estimates and UoA catch information, there is good quantitative information which is adequate to estimate the impact of the UoA with respect to status. The information on bigeye tuna catch by the UoA, at the trip level, is also adequate to support and monitor a strategy to manage bigeye tuna should one be implemented.

All craft over 30 GT (all but one of the UoA vessles) are required to carry VMS. Multiple example VMS records were available at site visit, confirming observer reports on positions. All vessels in excess of 10 GT but less than 30 GT (one in the UoA) are required to register a sailing declaration that must be carried on board. Fish landings are checked against log-book declarations. The logbook regulation is covered by Ministerial Decree 48/2014, and supported by a sanction system. Vessels not completing logbooks are denied an operational permit. MMAF is undertaking a significant amount of socialisation to promote the use of logbooks generally. For the UoA, PTCA only accepts fish from vessels with valid logbooks. During the site visit, a port inspection was witnessed at which all documentation was inspected.

Scoring for primary species at the SG60 and SG80 levels relates to main species only, requiring measures or partial strategies to be in place, if necessary, to ensure the UoA activities are expected to maintain the stock above the PRI, or not hinder rebuilding. Bigeye tuna is caught in very small quantities by the UoA and is therefore considered as a minor species for MSC scoring purposes. It is also estimated as likely to be above the PRI. Management is articulated in the Indonesian National Plan of Action: Tuna, Skipjack, and Neritic Tuna Fishery Management Plan (NPOA Tuna) established in 2015 through the enactment of Ministerial Decree of Marine Affairs and Fisheries of the Republic of Indonesia Number: 107/KEPMEN-KP/2015.

The NPOA Tuna covers all Indonesian waters, including those in IOTC and WCPFC Convention areas and Archipelagic Waters (AW). The UoA includes management areas WPP717 and WPP715. WP717 is under the WCPFC while WP715 is AW. The NPOA lays out overarching objectives and work plans, processes for consultation, and provides guidance and direction to central and local government in the implementation of all tuna management.

The NPOA includes annual updating and review, and possible amendment, with consideration of WCPFC assessment of species, how well Indonesian fisheries management measures are achieving objectives, etc. It is an extensive document including species and WPP-specific information and guidance, formulated through scientific inputs and consultative processes. The general tuna objectives include ensuring stocks are above agreed (i.e. IOTC and WCPFC) limits and within a target range (not specified but Bmsy related). Objectives included also relate to achieving 100% data collection within specified time periods (5 years/2020), implementation of harvest control rules, ecological risk assessments, gear restrictions, compliance and chains of custody.

Guidance to managers is both general and at the stock and fishery (gear) level, pertinent to both local and national decisions on licensing and other measures. In general, for all species, guidance is to not increase and possibly decrease catches in purse seine or longline fisheries while looking for development of pole and line and other gears.

The NPOA is a comprehensive management plan and articulation of broad objectives and processes, which is reviewed and updated. For any specific WPP and species it is a starting place for management decisions but is not yet a comprehensive strategy for any one stock or fishery with detailed stock objectives. It is a work in progress with constant consultation. For example, at the time of the site visit a number of technical and consultation meetings on harvest strategy development (for various species) were scheduled. These meetings have since taken place within the timescale of this report writing and the outcome of those meetings and plans for future meetings are not yet available.

3.4.1.2 Secondary species

Secondary species caught in pole and line operations are bonito (*Sarda spp*), dolphin fish (*Coryphaena hippurus*) and rainbow runner (*Elagatis bipinnulata*). The pole and line operations use bait bought from separate bagan (bait station) operations which are not part of the UoA, but the bait species caught are considered for certification purposes. Bait species caught are white anchovy (*Stoleporus indicus*), blue anchovy, ponyfish (*Eubleekeria rapsoni*), squid (*Loligo spp*), sardine (*Sardinella spp*), Indian mackerel (*Rastrelliger kanagurta*), Mackerel scad (*Decapterus spp*), Yellowstripe scad (*Selaroides leptolepis*), and walo walo.

Of the species caught in pole and line operations (see Table 19), none are caught in large quantities. For certification purposes, no pole and line caught secondary species are considered to be main as defined by MSC and are not considered further.

Bait species comprised 12% of the total catch across all 50 trips observed in 2017. Of the eight bait species caught, only white anchovy is above the 5% threshold used to define main species. All others are less than 1%. For certification purposes, the Risk Based Framework (RBF) is applied only to white anchovy, the single main species. Following MSC guidance, the RBF for secondary species is carried out using Productivity Susceptibility Analysis (PSA).

Application of the PSA requires the use of productivity and susceptibility attributes. Productivity attributes are inherent to the species and drawn from literature. They cannot be changed through management practice. Susceptibility attributes, in contrast, depend on the behaviour of the fishery, and data depend on fishery operation.

The PSA workings for white anchovy are shown in Appendix 1.2.2. During the site visit, stakeholder consultation and information gathering took place to enable the PSA.

All secondary species, including bait species, have been monitored in 2017 during an independent observer scheme initiated by the client fishery and carried out by the local polytechnic using trained

observers. All trips were recorded during the main 2017 fishing season, with both pole and line operations and bait (bagan) operations monitored. The observer data have allowed a quantitative analysis of bait usage by species as well as confirming logbook and catch landing records for those trips. Catch records for 2014-2016 have been collected by the Ministry of Marine Affairs and Fisheries.

Catch records to date provide insight in to the low impact of the UoA on all secondary species but do not provide information on trends or status. Given the very low impact, however, it is reasonable to assume that the UoA impact on any species is small.

PSA-related information is available from multiple sources but is primarily sourced through Fishbase.org (http://www.fishbase.org/summary/Spratelloides-gracilis.html), see Appendix 1.2.2. Most, but not all, productivity attributes have some quantitative information available.

Scoring for secondary species at the SG60 and SG80 levels relates to main species only, requiring measures or partial strategies to be in place, if necessary, to ensure the UoA activities are expected to maintain the stock above biologically based limits, or not hinder rebuilding. Only one species, white anchovy, is defined as main. Given data deficiency, that species is scored using the RBF. While the catch of white anchovy is estimated to be near 9% of the UoA total catch and bait usage in 2017, it is a small proportion of all white anchovy catch in WPP715, and WPP717, or wider Indonesian waters. The species is widespread and the bagan usage for the UoA is highly restricted (see Figure 12). Other fisheries use bait caught in separate bagans (e.g., Gillett, 2014). According to the NPOA Tuna, the average skipjack+yellowfin+bigeye tuna catch by Indonesian pole and line vessels was 145,000t from 2005-2012. The average for the UoA between 2014 and 2016 was 3,200t, about 2% of the total. Assuming all pole and line bait usage is similar, the UoA is unlikely to be contributing more than a similar percentage of the total white anchovy catch. It is highly unlikely to be close to 30%, a cut-off used in scoring. This is underscored by the numbers of bagans even within WPP717 (at least 39 in the Raja Ampat and Fakfak baiting areas according to Gillett, 2014 – compared to 3 for the UoA in WPP717, as shown in Figure 12).There is no clear strategy in place for managing secondary species. However, in licensing of UoA vesssels, FADs and bagan, local and national agencies must take account of the NPOA Tuna, including tuna species and ecological matters. There have been no clear restrictions to date for the UoA activities, including FADs and bagans.

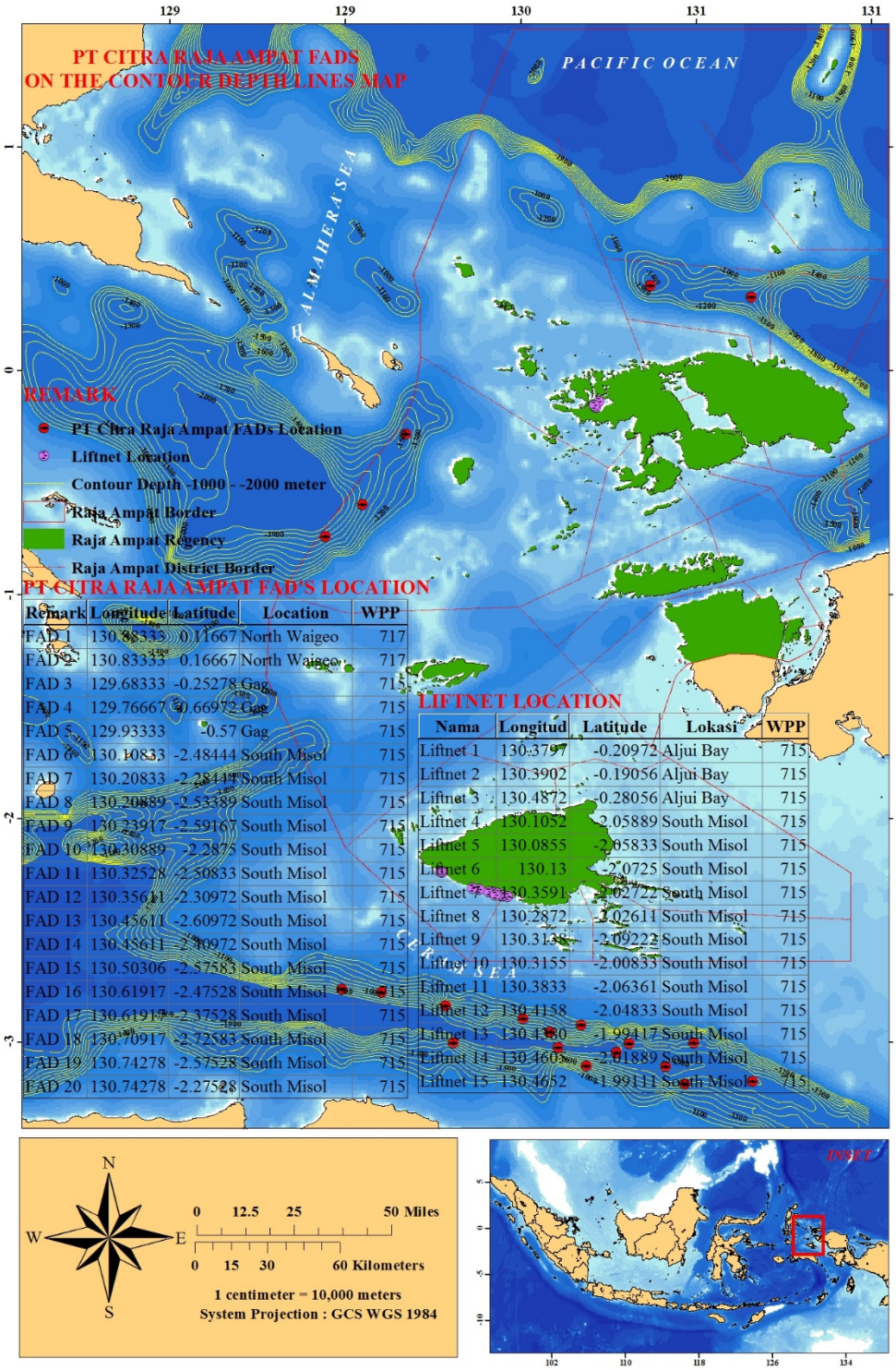


Figure 12 ***Positions of FADs and Bagan used for the UoA. (Source: Client)***

3.4.1.3 Endangered, Threatened and Protected (ETP) species

Pole and line gear is used to catch skipjack and yellowfin tuna in surface waters around anchored FADs. Live bait is used to attract the target species (so-called "chumming"). Fishing is labour intensive, being carried out by hand by a large crew. Hooks are barbless, unweighted, and unbaited. The method is highly selective for the target species with little bycatch, no discarding, and no ETP species are caught.

Catch recordings in 2014-2016, at-sea observations over many years, and independent observer reports in 2017, all indicate that there are no ETP interactions or catches in the UoA operations. There are no anecdotal records of ETP catch. There is therefore a high degree of confidence that there are no significant or detrimental direct effects of the UoA on ETP. The UoA removes only a small percentage of the biomass of species caught in pole and line and other tuna operations, spread throughout the year across a wide area (either WPP715 and WPP717, or wider). The UoA removals averaged a little over 3,000 tonnes in 2014-2016 compared to total tuna removals averaging about 480,000 tonnes from 20015-2012. Indirect effects have been considered and there is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.

The logbooks and at sea observations provide for ETP recording and monitoring. No ETP have been recorded as caught and there are no anecdotal reports of interactions or catches. All evidence suggests this is accurate, including 100% observer coverage during the main 2017 fishing season. Information available is adequate to assess that the UoA impact on ETP is zero and unlikely to be a threat to any ETP species.

Catch records are for 2014-2016 only and observer data are only for the first half of 2017. While observer records cover all fishing events in the main fishing period, a longer series of observation is needed to afford a high degree of certainty as to continuing lack of impact.

3.4.2 Habitats

The UoA pole and line fishery operates entirely at the surface in deep, oceanic water. The nature of the gear, the areas in which the fishery operates and the species that are landed all provide evidence that the fishery is highly unlikely to ever come in to contact with the seabed, while there is no mechanism by which the fishery could impact pelagic habitats in anything other than an imperceptible and highly transient manner. Based on limited data available for oceanic pelagic species, benthic-pelagic linkages are predictably weak (see, e.g., Grober-Dunsmore et al, 2008).

However, the UoA pole and line operations take place exclusively around twenty anchored Fish Aggregating Devices (FADs) which have been in place since 1975 across three locations (see Figure 13). FADs are set in deep water (1,000-2,000m) and consist at the surface of a buoy and palm leaf attractors. The devices are anchored by three concrete blocks, each about 1m in diameter or on the square. Buoys are in constant use and are maintained and replaced as necessary, typically every one or two years. In total, there are twenty FADs (15 in south Misool, 3 in Gag and 2 in Waigeo) with no FAD deployed within 10nm of any other. The total, constant FAD anchor footprint is 20x3x1m2=60m^2.

Precise habitat definition is not known in terms of substratum, geomorphology and biota (SGB), but given the spatial overlap of the FAD anchors with any possible SGB combination within the management areas covered, it is arguable that none are commonly encountered. Given the very small FAD footprint, it is considered to be highly unlikely that the anchored FADs would reduce structure and function of commonly encountered habitats, if any, to the point where there would be serious or irreversible harm as defined by MSC.

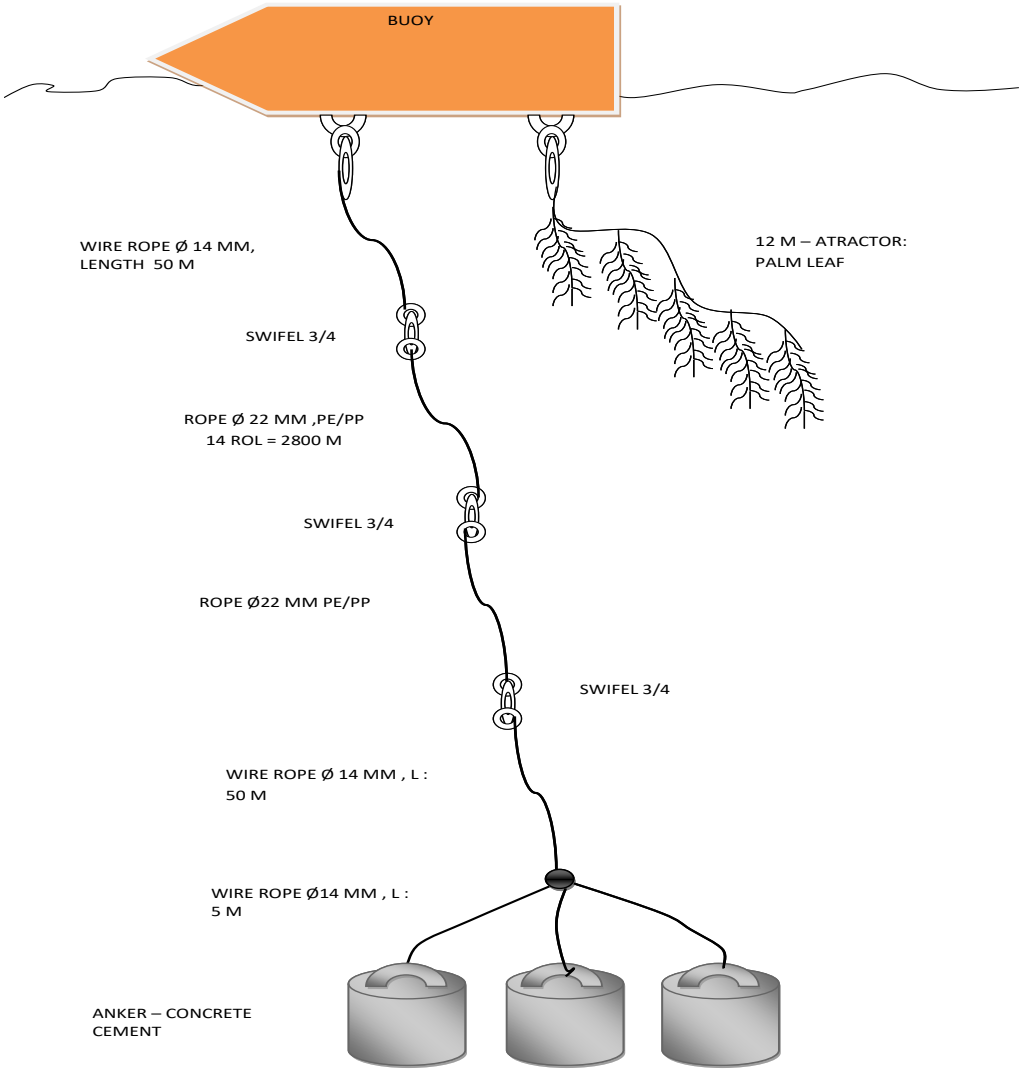


Figure 13 ***Schematic of FAD construction as used across the UoA***
(Figure provided by client; confirmed by MMAF).

3.4.3 Ecosystems

No major impacts have been identified in relation to retained species, bycatch, ETP species and habitat. Key ecosystem elements relative to the scale and intensity of the fishery are, therefore, highly likely to be restricted to removals of skipjack and yellowfin tuna.

The UoA catch of skipjack is of the order of 3,000t per year, or 0.002% of the total annual skipjack catch in the WCPO. The catch of yellowfin is of the order of 500t per year, or about 0.001% of the total WCPFC catch. Both catches are small not just in percentage terms but also in overall tonnages. Within Indonesian waters which are part of the WCPFC Convention area, including WPP715 and WPP717, the catches represent about 0.01% of the skipjack catch and 0.004% of the yellowfin catch (based on domestic Indonesian vessel figures reported through WCPFC: https://www.wcpfc.int/system/files/YB_2015.pdf).

Key ecosystem elements which need to be considered are the depletion of top predators and potential trophic cascades caused by depletion of the target species as a prey/forage species (Sibert

et al. 2006; Allain 2007, 2010). Given the very low percentage or volume removals by the UoA, there is evidence that the UoA fishing is highly unlikely to disrupt the relevant key elements (predator–prey, prey–predator relationships) underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.

However, while pole and line fishing is highly unlikely to cause direct disruption of the structure and function of the ecosystem, Leroy et al. (2013) suggest the presence of FADs has the potential to disrupt the distribution and migration of tunas. FADs have been shown to influence the behaviour and movement patterns of skipjack, yellowfin, and bigeye tuna, with the juveniles of each species occupying shallower habitats when associated with FADs. Recent evidence indicates that FADs both attract and retain tuna, and may affect distribution and migrations of tuna. Leroy et al. (2013) document residence time of tunas up to 55 days and hypothesised that dense fields of anchored FADs may entrain fish for extended periods. They noted that the ways in which FADs interact with the biotic components of tuna environmental preferences, through prey concentration, increased feeding on juvenile conspecifics, or incorrect habitat utilization, need further investigation, including tuna foraging and the effect of FADs on the behaviour of other important species in the pelagic ecosystem. The hypotheses of Leroy et al (2013) have not been tested and relate to dense fields of FADs.

Main interactions between the fishery and all of the key elements (trophic structure and function) identified can be inferred from existing information and have been investigated at the WCPO scale (Cox *et al*, 2002a,b; Hinke *et al* 2004; Sibert *et al*, 2006). Ecosystem models (Sibert *et al*. 2006, Allain 2007, 2010) of the pelagic ecosystem use existing information to evaluate main interactions. This investigation especially considers trophic structure and demonstrates the relative stability of the pelagic ecosystem in spite of removals of top predators by the fishery.

Continuing catch monitoring and compliance inspections are adequate to detect changes in risk associated with target and primary species catch and composition, ETP, and all secondary species catches. General reporting and inspection procedures are adequate to monitor any changes that might occur in FAD usage.

Monitoring, combined with knowledge from ecosystem models, provides sufficient information to support development of strategies for the UoA. It is noted, however, that information on the effects of anchored FADs on the distribution and migration of tunas cannot readily be obtained for the UoA given its scale and longevity. NPOA Tuna (2014) considers tuna management by WPP, but there is no explicit strategy and plan for managing the impacts of tuna fishing on the ecosystem. However, the persistent low catches of target, primary, secondary, and ETP species, low or negligible habitat impact, and highly unlikely impact on trophic structure are such that no formal strategy may be required in practice.

3.5 Principle Three: Management System Background

3.5.1 Area of operations of the fishery under which jurisdiction it falls

The fisheries take place in the Western and Central Pacific Ocean Area, specifically in Indonesian archipelagic waters (Fisheries Management Area WPP715) and the Indonesia EEZ (Fisheries Management Area WPP 717 (Table 14). Fishing is concentrated on anchored FADs, of which there are 18 in WPP715 (the main fishing area) and a further two in WPP 717. Fishing may also occur on free schools or schools associated with naturally occurring FADs.

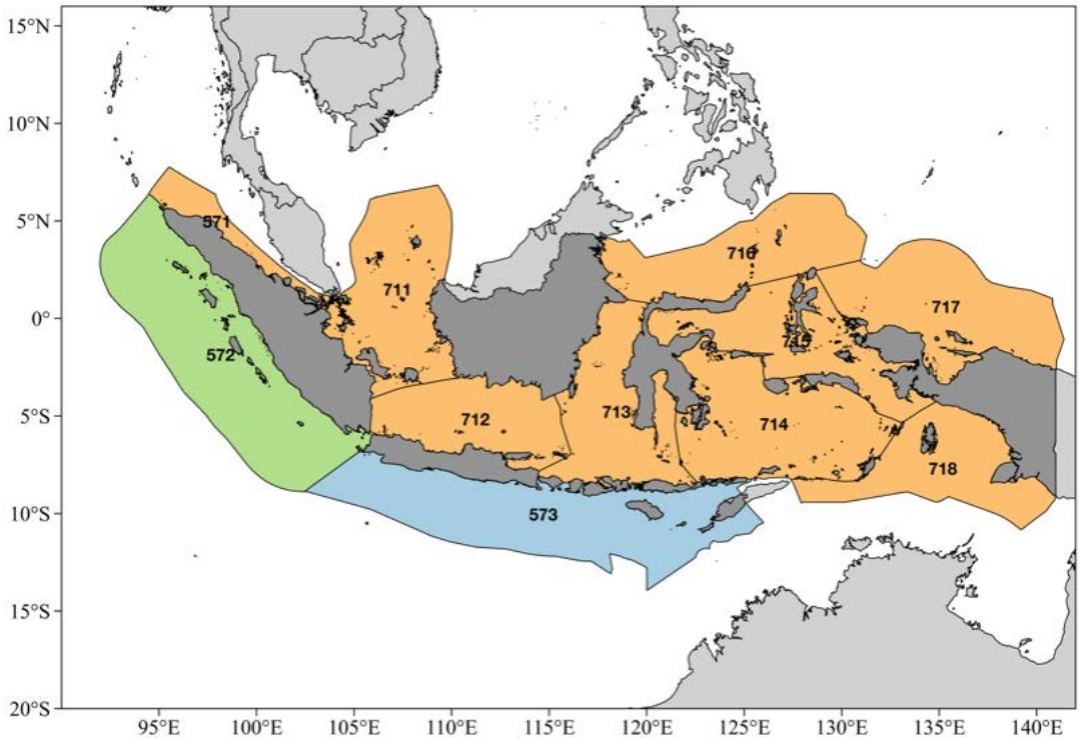


Figure 14 WPP (Wilayah Pengelolaan Perikanan) Fishing Areas.

For the purpose of this section, the key components of governance and fishery management framework are the Western Central Pacific Fisheries Commission (WCPFC), the Indonesian Government and Sorong (Provincial and District) level.

WCPFC sets conservation and management measures and policies for the WCPFC Convention Area, excluding archipelagic waters.The Indonesian Government is responsible for ensuring management measures applied within Indonesia's EEZ including archipelagic waters are compatible with those of the WCPFC. This includes a commitment from Indonesia as a signatory to the Convention (Article 8, WCPFC, 2000), that:

> *- conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible in order to ensure conservation and management of highly migratory fish stocks in their entirety; and*
>
> *- the coastal State shall ensure that the measures adopted and applied by it to highly migratory fish stocks within areas under its national jurisdiction do not undermine the effectiveness of measures adopted by the Commission under this Convention in respect of the same stocks.*

WCPFC's CMM 2016-01 for management of skipjack and yellowfin tuna encourages coastal states to take measures to reduce fishing mortality on juvenile bigeye and yellowfin in archipelagic waters and territorial seas and inform WCPFC Secretariat accordingly of the measures that will be applied (CMM 2016-01, para. 12).

3.5.1.1 The Western and Central Pacific Fisheries Commission

The WCPFC is a Regional Fishery Management Organisation (RFMO), established under Convention entering into force in 2004. WCPFC is responsible for sixty per cent of the world's tuna catch. The Commission has 27 Members, of which most are small island developing states (SIDSs). All major coastal and fishing states in the WCPO are Members, except for Vietnam, which has co-operating non-member (CNM) status. Current members are: Australia, Canada, People's Republic of China, Cook Islands, European Union (EU), Federated States of Micronesia (FSM), Fiji, France, **Indonesia,** Japan, Kiribati, Korea, Republic of the Marshall Islands (RMI), Nauru, New Zealand, Niue, Palau, Papua New Guinea (PNG), Philippines, Samoa, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, United States of America (USA) and Vanuatu.
Several other states are granted cooperating non-member (CNM) status on an annual basis, agreeing to comply with WCPFC measures, participating as observers, and entitled to authorize their vessels to fish in the WCPO within set limits.
The WCPFC Convention (WCPFC, 2000) follows closely the provisions of the UNFSA, including in particular:

- The objective of ensuring, the long-term conservation and sustainable use of highly migratory fish stocks (Article 2)
- The general principles in Article 5 of the UNFSA including the application of the precautionary approach, incorporating the UNFSA Annex II Guidelines For The Application Of Precautionary Reference Points (Article 5)
- The application of these principles by Parties in their cooperation under the Convention, including the application of these principles in areas under national jurisdiction (Article 7)
- Compatibility of measures established for the high seas and those adopted for areas under national jurisdiction (Article 8)
- Application of the dispute settlement provisions of the UN Fish Stocks Agreement to disputes between WCPFC Members (Article 31)
- Recognition of the interests of small scale and artisanal fishers, and of communities and small island states dependent for their food and livelihoods on tuna resources. (Article 30)

The roles and responsibilities of WCPFC members are clearly described in the Convention, especially Articles 23 and 24, the Commission Rules of Procedure, Conservation and Management measures, and other Commission rules and decisions, including the Rules for Scientific Data to be Provided to the Commission, and the Rules and Procedures for Access to and Dissemination of Data Compiled by the Commission.
In addition to Member participation, the WCPFC allows participation by non-members and participating territories, with particular opportunities for CNMs, and allows observers to participate in meetings of the Commission and its subsidiary bodies, including the Scientific Committee, the Technical and Compliance Committee and the Northern Committee. The Finance and Administration Committees assist the work of the Commission. As part of the conditions for CNM status, applicants are required to provide annually *"a commitment to cooperate fully in the implementation of conservation and management measures adopted by the Commission and to ensure that fishing management measures adopted by the Commission."* (CMM-2009-11, para 2b).

The records of Commission meetings show that the Commission takes a wide range of advice and inputs from its subsidiary bodies, members and observers before implementing decisions, including the adoption of conservation and management measures. Scientific advice clearly identifies the extent to which different sources of information have been taken into account.

The WCPFC Convention requires the Scientific Committee to *"recommend to the Commission a research plan, including specific issues and items to be addressed by the scientific experts or by other organizations or individuals, as appropriate, and identify data needs and coordinate activities that meet those needs*". The WCPFC Strategic Research Plan (SRP) 2007–2011 was adopted by the Scientific Committee and approved by consensus by the WCPFC in 2006. The Plan has subsequently been revised, with a new SRP for 2012-2016 adopted at SC7.

The Plan addresses four overall research and data collection priorities:

i. collection and validation of data from the fishery
ii. monitoring and assessment of stocks
iii. monitoring and assessment of non-target associated species and the pelagic ecosystem
iv. evaluation of existing CMMs and potential management options.

With this structure, the Plan is substantially directed towards providing information to enable the Commission to avoid overfishing or depletion of targeted stocks and the application of an ecosystem approach. However, the implementation process in the Plan is also designed to contribute to improving governance and policy, through the development of management information tools such as Management Strategy Evaluation (MSE), and the development of relevant scientific and technical capacities in developing country Commission members, as follows:

Key WCPFC measures relevant to the management of the Indonesian pole-and-line fisheries can be sourced from the WCPFC webisite (www.wcpfc.int/conservation- and - management measures).

3.5.1.2 Indonesia - International

Fishing for tuna by Indonesian flagged vessels may occur in selected high seas within the WCPFC Convention Area, EEZs of other Pacific Island countries (provided they are licenced to do so) and within the Indonesian EEZ and archipelagic waters.
The PT Citraraja Ampat (PTCA) pole and line fishery undergoing this assessment, currently only fishes within national waters; primarily in archipelagic waters (WPP715) and occasionally, in the EEZ (WPP 717).

Indonesia ratified UNCLOS 1982 in February 1986 and the Agreement relating to the implementation of Part XI of the Convention in June 2000. The UN Fish Stocks Agreement (UNFSA) was ratified in 2010.

Indonesia became a full Cooperating Commission Member (CCM) of the WCPFC in December 2013. The country now participates in the Western and Central Pacific Fisheries Commission (WCPFC) General Session, as well as Scientific and Technical Working Groups. Indonesia is also a member of:

- CCSBT: Commission for the Conservation of Southern Bluefin Tuna
- IOTC: Indian Ocean Tuna Commission
- BIMP-EAGA: Brunei, Indonesia, Malaysia, Philippines – East Asia Growth Area
- SEAFDEC: South East Asian Fisheries Development Centre
- NACA: Network of Aquaculture Centres in Asia-Pacific

Indonesia actively participates in the following regional fisheries related bodies:
Conventions to which Indonesia is a party

- IOMAC: Indian Ocean Marine Affairs Cooperation
- SEAFDEC: South East Asian Fisheries Development Centre

Indonesia also identifies itself as an Archipelagic State. Of the eight Indonesian Fishery Management zones, two are classified as within the WCPFC Convention Area (including WPP717). Area WPP715 is defined as within Archipelagic Waters (AW).
Article 8 of the WCPFC Convention (WCPFC, 2000) requires compatible measures to be adopted in Archipelagic and territorial waters and the UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8 all require countries with archipelagic waters to respond to transboundary management obligations.

Compatible harvest strategies are being developed for Indonesia's AW and territorial seas. A series of workshops commenced in 2015, supported by scientific inputs from Australia's CSIRO. Further workshops are planned to review the AW Indonesian tuna harvest strategy, including harvest control tool options.
Indonesia has taken several actions with respect to international mandates and initiatives including:

- Familiarisation/socialisation training on the Code of Conduct for Responsible Fisheries (CCRF);
- A National Plan of Action for Illegal, Unregulated and Unreported (IUU) Fishing to be implemented, 2012-2016;
- Preparations for implementation in the NPOA for reducing catches of seabirds in long-line fisheries.

- An NPOA for conservation and management of sharks (2015)
- A draft of national plan of fishing capacity was finalized in 2007. However, the implementation has not taken place until now.
- A National Action Plan / Management Plan for tuna (skipjack, neritic tunas), 2014

Work on the Shark NPOA is complete, demonstrating a commitment to the protection of sharks and rays within Indonesian Law. There is a moratorium on the export the hammerhead and oceanic white tip shark and fins (Decree 59/PERMEN-KP/2014) both now CITES Appendix II species and listed as Endangered and Highly Endangered on IUCN. The core WCPFC ETP CMMs are as yet not incorporated into the Decrees including: CMM 2010-07 (covering sharks and finning requirements), CMM 2011-04 and silky sharks CMM 2013-08. IUCN Vulnerable and Endangered sharks are also included as an MSC requirement. There is no specific reference to shark finning in the NPOA, but pole and line fleets land all bycatch including sharks, with fins attached.

3.5.1.3 Indonesia Provincial -District

Indonesia is a Parliamentary democracy supported by a House of Representatives or Dewan Perwakilan Rakyat (DPR). The President of the Republic of Indonesia executes governmental administration. There are 33 provinces and 354 regencies in Indonesia. A governor heads a Province, while the regency or municipal level of government is headed by a regent or mayor. Following the implementation of decentralization beginning on 1 January 2001, the Provinces and districts or regencies have become the key administrative units responsible for providing most government services.

The legal system of Indonesia is based on Roman-Dutch law. Laws are formulated by Parliament and transferred into a Government Regulation or Presidents Decree and subsequently into the Ministers Decree and then to Provincial and District Decrees. Fisheries policies are set out through the Directorate General for Capture Fisheries, Ministry of Marine Affairs and Fisheries (MMAF - established in 2000) but go through the various processes of adoption, if requiring implementation at Provincial and District levels under the Autonomy Law No. 22/1999 and modified by Law No. 32/2004. The Ministry, in the devolution of authority to the provinces and districts, assumes a facilitation and coordination role to guide these authorities in the management of their respective jurisdictions, consistent with national laws. The Ministry then focuses on implementation of these policies.

The current national core fisheries laws are enshrined in Law (UU) No. 25/2004 concerning Planning System for National Development, UU No. 31/2004 concerning Fisheries and the Presidential regulation No. 7/2005 concerning the National Development Plan for medium phase (RPJMN) during 2004-2009, and modified by Act No. 45/2009. The Act includes specific reference to protection of the livelihoods of community fishers.

Further, indirectly-related legislation that impacts on marine capture fisheries includes:
- Endangered species legislation
- Export/import/trade legislation
- Biodiversity legislation
- Oceans policy legislation
- Marine park/sanctuary/reserves legislation
- Port management legislation
- Coastal management legislation

Other relevant laws:
- Fishing gears
- Fishing areas
- Licenses
- Fisheries sanctions
- Prohibition of trading protected fish species
- Prevention of pollution
- Fishery environmental destruction
- Minimum fish size/weight

MAFF is responsible for the pole and line fleet in Sorong. All the pole and line vessels must be registered with MMAF. As per MAF Reg 30 /2012 .

Vessel operations are controlled by the Fishery Surveillance Office (PSDKP) Jakarta by monitoring the VMS for all vessels. All incoming fish are reported to Regional Fishery Surveillance Office in Sorong for verification and the Fishery Port of Sorong.

Indonesia's fisheries management framework is complex with many overlapping laws and regulations. In recent years there has been an increase in more comprehensive management plans such as the Tuna Management Plan, which includes the target species, and the regulations on transhipments and FAD management.

However, these regulations and plans are compromised by inconsistencies and there are difficulties and differences of interpretation and inadequate implementation. For example, Law No. 23, 2014 defines jurisdictions and responsibilities between central, provincial and municipality. Nevertheless, there is often confusion in enacting central government regulations and establishing *Perda* (local regulations) in a timely manner. The local/provincial government is the managing body for pole-and-line fishing activities within the 12nm zone. This includes the bagans for bait.

The National Tuna Management Plan (Tuna, Skipjack (cakalang) and Neritic Tuna (tongkol)) sets the management framework, stock status/baseline and strategic management objectives and time-bound milestones for the different types of tuna fisheries (per WPP area) for Indonesia. This has several strategic objectives relevant to pole-and-line fisheries as part of the general management targets.

3.5.2 Recognized groups within the fishery

Ministry of Marine Affairs and Fisheries (MMAF)
The main task of the Ministry of Marine Affairs and Fisheries is assisting the President in implementing governmental tasks in the marine fisheries sectors. These functions include:

1. Formulation of the national policy, implementation policy, technical policy in marine affairs and fisheries;
2. Implementation of governmental affairs appropriate with the task area.
3. Management of goods and wealth owned by state;
4. Monitoring and evaluation of task implementation;
5. Issuing evaluation reports, suggestions and recommendations to the President.

In terms of implementation of the main tasks and functions, the organization structure of MMAF, as stipulated by the Presidential Regulation No, 10/2005, consists of 8 (eight) working divisions, namely:

1. **Secretariat General**
   To carry out the coordination in implementation tasks as well as providing departmental administration supports
2. **Directorate General of Capture Fisheries**
   To formulate as well as implement policy and technical standardization on capture fisheries sector
3. **Directorate General of Aquaculture**
   To formulate as well as implement policy and technical standardization on aquaculture sector
4. **Directorate General of Surveillance and Control on Marine and Fisheries Resources**
   To formulate as well as implement policy and technical standardization on surveillance and control on marine and fisheries resource sectors
5. **Directorate General of Marine, Coasts and Small Islands**
   To formulate as well as implement policy and technical standardization on marine, coasts, and small islands sectors
6. **Directorate General of Fish Processing and Marketing**
   To formulate as well as implement policy and technical standardization on fish processing and marketing sectors
7. **Inspectorate General**
   To carry out surveillance on the task implementation in department environment

8. **Agency for Marine Affairs and Fisheries Research**
To conduct researches in marine and fisheries sectors

Provisional and District Governments
Fisheries management falls under the joint responsibility of the Ministry of Marine Affairs and Fisheries (MMAF) and the provincial and district governments. MMAF devolves management authority to the provinces and district levels under Decentralisation Law No. 22.

- Districts manage through District Decrees (called Perda) for the area 0-4 nautical miles from their coasts;
- Provinces from 0-12 nm (the overlap being for coordination and consistency between districts at the provincial level); and
- the National government and agencies take responsibility for fisheries management and implementation outside the 12 nm zone.

In implementing the fisheries surveillance function, (Law 45/2009), the Sorong Fishery Office, the Sorong Surveillance office and the Navy coordinate with one another.
The Fishery office of Sorong is under City of Sorong Government and carries out surveillance on the pole and line boats in the Sorong City area. The Surveillance Office of Sorong is under MMAF and its scope includes Sorong, Raja Ampat, South Sorong and Tambraw areas. The Sorong Navy is under Navy headquarters and does surveillance in the all the waters of West Papua

Other agencies
There are several agencies whose mandates interact and overlap with fisheries. Consequently, the legislation of these agencies either directly or indirectly impacts on fisheries policies, laws, and management practices. Some of these agencies include:

- Ministry of Local and Interior Government – for devolution of management authority to both the provinces (0-12 nautical miles) and districts (0-4 nautical miles), and vessel licensing of vessel size groups. National legislation covering boats in excess of 30 GT, provinces covering boats of 0-10 GT) and districts (< 10 GT).
- Ministry of Forestry – that has taken management authority for all marine parks;
- Ministry of Environment for maritime environment issues;
- Navy and Maritime Police for their maritime enforcement roles.
- Ministry of Tourism, Ministry of Transportation,
- State Ministry of Research and Technology and Indonesian Institute for Science.

The liaison between the MMAF and other agencies, is facilitated through the National Maritime Council chaired by the Minister of MMAF

Pole and Line Fisherman's Association
There is an effective Pole and Line (P&L) Fishermen's Association, liaising on a regular basis with MMAF and other organisations. The formation of such an association is a government requirement. Meetings with skippers may take place on a weekly or monthly basis. Consultation meetings with government take place every 2-3 months. This provides an opportunity for Ministry views to be explained to fishermen and to receive feedback.

At the local Sorong level, there is clearly good cooperation between the Pole and Line Fishermen's Association and the Ministry.

Traditional Fishers

At the district level Informal local policies in some areas come from traditional, unwritten laws handed down from generation to generation. These are referred to as "customary law" or locally as *sasi* or *adat* law. It occurs only in a specific Province such as "sasi" in Maluku Province and "panglima laot" in Aceh Province. Traditional conservation policies are passed on to future generations. The "sasi" is also found in some Sorong areas such as Makbon (Sorong area), North and South Waigeo (Raja Ampat Area).

NGOs
NGOs are actively involved in coastal resource development programmes and are working with communities to encourage them to assume stewardship roles in the collaborative government and community management schemes for coastal areas.

New policies, legislative instruments and evolving management structures will be required to fully implement these initiatives.

3.5.3 Consultations

The WCPF convention describes the functions roles and responsibilities of member states and the committees established by the Commission related to consultative processes. The Rules of Procedure in the Convention have clearly defined the roles and responsibilities of members and non-members. Stakeholders including Non-Government Organisations (NGOs) and other interested parties meaningfully engage with WCPFC activities through attendance as an observer at Commission and related meetings (including SC and TCC).

The Commission actively assists and facilitates the regular and timely provision of fisheries information on its website in advance of and following meetings and workshops. The Commission actively uses information from the fishery and its member states to inform fisheries management discussions and the formulation of management measures, as demonstrated by reports and outcomes of WCPFC meetings.

National, provincial and district governments implement a consultation process whereby the industry is consulted on and informed of policy decisions. The industry confirms that this is an open process and is applied at national level with higher level associations such as the Indonesia Tuna Association (ASTUIN), Tuna Long line Association (ATLI) and the Indonesian Pole and Line and Handline Association (AP2HI), as well as at NGO level (WWF and Masyarakat Dan Perikanan Indonesia (MDPI)), company and fisher levels in the port locations. The consultation process is applied by both MFMR and FKPPS in the designated Fisheries Management Areas. Examples of consultation processes in action include current discussions in the development of the Indonesia tuna harvest strategy, where over the course of the last 2 years, DG Capture fisheries has engaged with industry. A series of workshops involves all relevant stakeholders, seeking not only participation but accepting relevant information. The work program for tuna harvest strategy included the following:

- Adoption of a TRP and harvest strategy for skipjack, yellowfin and bigeye tuna in IOTC at 0.4 BMSY
- Adoption of an interim target reference Point (TRP) for WCPFC skipjack at 0.5 BMSY. This TRP is likely to be endorsed at the WCPFC General session in December 2017.
- Research into development into a harvest strategy for AW, with the possibility of an outline structure by December 2016
- A strengthening of data collection and supporting systems including national and provincial enumerator collection, integrated national and provincial data bases, the adoption of catch logsheets throughout the Indonesian tuna fleets and the deployment of observers, consistent with the RFMO requirements
- A strengthening of fleet licensing requirements that now integrates Provincial and National licensing
- Tighter controls on the definition of vessel limits (GRT), preventing large vessels being licensed under provincial jurisdiction
- The incorporation of the Ecosystem Approach to Fisheries Management (EAFM) into national fisheries management objective and the tuna management plan
- Data collection on bycatch species and ETPs.

3.5.4 Decision Making

The WCPFC has a consensus-based decision-making process, with provision for a two-chambered voting process requiring a 75% majority in both chambers if all efforts to reach a decision by consensus have been exhausted. In addition, there are provisions for a decision to be reviewed by a review panel at the request of a Member (WCPFC, 2000 Article 20, paras 6- 9). The subsidiary bodies of the Commission provide extensive, detailed reports to the Commission, including advice and recommendations.
Decision-making is open, with the process, outcomes and basis for decisions recorded in detail in records of Commission sessions and publicly available papers.
MFMR is a party to all decisions at WCPFC level including participation in the Scientific Committee,

Technical Compliance Committee, Northern Committee and WCPFC general sessions where final decisions are taken at regional level. These decisions adhere to the basic principles that serious and other important issues are identified in relevant research, monitoring, evaluation and consultation; that Information on fishery 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. Decision making at WCPFC is based on consensus. Agreed measures are linked to international obligations and are binding on the members to implement. As such, there is no process for legal challenge.

Decision making by DGCF (Director General Capture Fisheries) Indonesia and FCMUFR (Forum of management and utilisation of Fisheries resources) Indonesia, demonstrate established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives and decisions take account of serious and other important research, monitoring and evaluation, as well as the wider implications of decisions.

For example, Ministry of Marine Affairs and Fishery Regulation No 35/PERMEN-KP/2013 re Procedure for Determining Fish Species Protection, has passed through the following steps
- Public Consultation
- Policy Analysis
- Scientific Recommendation.

At national level although management decision-making can be shown to respond to serious and important issues, a very large number of 'issues' are identified during research and monitoring. Management does not respond formally to all of these. The assessment team does not have full evidence that decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.

3.5.5 Fisheries Objectives

The WCPFC (WCPFC 2000) has set the following objectives:

- adopt measures to ensure long-term sustainability of highly migratory fish stocks in the Convention Area and promote the objective of their optimum utilization;
- ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States in the Convention Area, particularly small island developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global;
- apply the precautionary approach in accordance with this Convention and all relevant internationally agreed standards and recommended practices and procedures;
- assess the impacts of fishing, other human activities and environmental factors on target stocks, non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks;
- adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species, both fish and non-fish species, and impacts on associated or dependent
- species, in particular endangered species and promote the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;
- protect biodiversity in the marine environment;
- take measures to prevent or eliminate over-fishing and excess fishing capacity and to ensure that levels of fishing effort do not exceed those commensurate with the sustainable use of fishery resources;
- take into account the interests of artisanal and subsistence fishers;
- collect and share, in a timely manner, complete and accurate data concerning fishing
- activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programs; and
- implement and enforce conservation and management measures through effective monitoring, control and surveillance.

The Indonesian National Fisheries Master Plan (2009-2015) contains a number of core objectives:

I. To strengthen an integrated Marine and Fisheries' Human Resources and institution;
a. Demand oriented Marine and Fisheries' Rules and Regulation, based on National and Global requirement, and implemented as a synergy of cross sectors, central and regional governance
b. Integrated, accountable and real time planning, implementing and reporting process based on real time and accurate data
c. Competent and requirement-based Marine and Fisheries' Human Resources

II. To sustainably manage marine and fisheries resources;
a. Optimal and sustainable utilization of marine and fisheries resources
b. Conservation area and protected aquatic organisms are managed sustainably
c. Small islands are develop to become islands with high economic value
d. Indonesia is free from Illegal, Unreported and Unregulated (IUU) Fishing and destructive activities to marine and fisheries resources

III. To increase scientific based productivity and competitiveness
a. All areas with fisheries potential become Minapolitan areas with bankable businesses
b. All marine and fisheries production centers have superior commodities, supported by the implementation of innovative technology with guaranteed packaging and quality
c. All marine and fisheries facilities and infrastructures are built integrated and able to support and produce domestic requirement

IV. To extend the access of the Domestic and International Market
a. All villages have markets to facilitate the fisheries product trading process
b. Indonesia becomes the world's market leader and the main destination of marine and fisheries investment destination

Both the precautionary and ecosystem approaches to fisheries management have been introduced as a component of the government's core management objectives (Decree PMKDPRI 15/MEN/2012 (National Strategy on Fisheries Management). The ecosystem approach to fisheries management has been incorporated as an objective into the Indonesia Tuna Action Plan. A number of MMAF familiarisation workshops (IMACS/WWF) have also taken place on the Ecosystem approach to Fisheries Management.
While there are short and long-term objectives they are weak in applying the RFMO requirements and weak in addressing P2 issues

3.5.6 Management Plan and Review

Indonesia recognizes that, as biggest tuna producer in the world, it has responsibility to ensure sustainable management practice and conservation of tuna, skipjack, and neritic tuna re- sources, in accordance with the principles adopted in Code of Conduct for Responsible Fisheries (CCRF), FAO 1995.

The National Plan of Action Tuna, Skipjack and Neritic Tuna, Management Plan of Indonesia, 2014 was established through the enactment of Ministerial Decree of Marine Affairs and Fisheries of the Republic of Indonesia Number: 107/KEPMEN-KP/2015. This is implementation of article 33 paragraph (3) of the 1945 Constitution of the Republic of Indonesia that mandates that "the land, water and the natural riches contained therein shall be controlled by the State and shall be made use of for the people".
The Indonesian tuna management plan (NPOA) for skipjack and neritic tunas was finalized in 2014.

The Plan contains objectives as follows:

- To ensure the sustainability of tuna
- To implement management measures
- To increase compliance in national regulations including target species measures and bycatch limits
- To increase the competitiveness of Indonesian tuna in the World market
- To ensure the sufficiency of supply to the domestic market.

The management scope includes:

- Skipjack, bigeye, yellowfin and neritic tunas
- Identification of data requirements, analysis planning, fish resource allocation, consultation, decision-making, law enforcement and implementation.
- Areas covered by the RFMO Conventions: IOTC areas 571, 572, 573, and WCPFC 716 and 717; and Indonesian archipelagic waters 7111, 712, 713, 714, 715 and 718

Stakeholders were involved in the development of this plan The Plan is envisioned to promote tuna, skipjack, and neritic tuna resources management policy. It is intended to provide direction and guidelines for both central and local government in the implementation of Tuna, Skipjack, and Neritic tuna fishery management. Its aim is to create sustainable fisheries management of tuna, skipjack, and neritic tuna for the welfare of the fishing communities.
The plan is to be implemented over a five-year period with a full review in 2020, coordinated by the Directorate General of Capture Fisheries. The review will include an evaluation to measure the success of the NPOA in respect of:

a. input needed relating to fund, human resource, facility, and institution to implement the action plan;
b. target achievement;
c. implementation of the action plan that has been set;
d. whether or not an amendment to the action plan is needed in order to obtain the defined objectives.

The review will be based on

- global development of the tuna, skipjack, and neritic tuna fisheries;
- updated scientific information;
- amendment of the national policy and the amendment of the laws and regulations;
- change of action plan;
- the results achieved and the problems encountered; and
- other factors that affect the fishing activity of tuna, skipjack, and neritic tuna.

The Directorate General carried out an annual review of the NPOA in 2016. The results are confidential; however, it can be reflected in the documents and implementation of activities conducted by Directorate General of Capture Fisheries implemented in 2017. For example, in the document plan for the 2017 fiscal year, Indonesia has included a budget to finance the activity for developing Harvest Strategy (HS) particularly for archipelagic and coastal tuna. The HS work-activities are being implemented in a collaborative approach, in cooperation with WCPFC, CSIRO and involving all interested stakeholders (Central-Local Governments, Academia, NGO, Association and Representatives of fishermen).

3.5.7 Monitoring, Control, Surveillance and Enforcement

3.5.7.1 WCPFC

Fisheries monitoring, control and surveillance (MCS) consists of three distinct, integrated activities, defined by the Food and Agriculture Organization (FAO) as follows:

- monitoring - the continuous requirement for the measurement of fishing effort characteristics and resource yields (and catches);
- control - the regulatory conditions under which the exploitation of the resource may be conducted; and
- surveillance - the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities.

Several elements of the Commission's MCS Scheme (regulatory framework) were elaborated during the Preparatory Conference process from 2001 to 2004 and became operational on adoption during the Commission's Inaugural Session in December 2004. These included the WCPFC Record of Fishing Vessels and Authorizations to Fish on the High Seas in the Convention Area (CMM 2013-10, which

replaced CMM 2004-01 and CMM 2009-01), Procedures for Cooperating Non-members (CMM 2009-11, which replaced 2004-02) and Specifications for the Marking and Identification of Fishing Vessels (CMM 2004-03).

The Commission has since adopted:

- High Seas Boarding and Inspection Procedures consistent with Articles 21 and 22 of the United National Fish Stocks Agreement (CMM 2006-08);
- Regional Observer Programme (ROP), which pursuant to CMM 2007-01 (Annex C) the ROP became operational on 31 December 2008;
- Centralised Vessel Monitoring System (Commission VMS) activated on 1 April 2009 (CMM 2011-02, which replaced CMM 2007-02);
- WCPFC IUU List (CMM 2010-06, which replaced CMM 2007-03);
- Prohibition on use of large-scale driftnets (CMM 2008-04);
- Regulation on Transshipment (CMM 2009-06);
- Rules for FAD and purse seine catch retention in high seas (CMM 2009-02);
- Charter Notification Scheme (CMM 2012-05);
- Compliance Monitoring Scheme (CMM 2013-02, which replaced CMM 2010-03, CMM 2011-06 and CMM 2012-02);
- Standards, Specifications and Procedures for the Record of Fishing Vessels (CMM 2013-03); and
- Conservation and Management Measure for WCPFC Implementation of a Unique Vessel Identifier (UVI) (CMM 2013-04).

The Compliance Monitoring Scheme (CMS) was established by CMM 2010-03 Conservation and Management Measure for Compliance Monitoring Scheme and was implemented in 2011, 2012, 2013, 2014 and 2015 as an initial trial. A further revised Conservation and Management Measure for Compliance Monitoring Scheme was implemented in 2016 and 2017.

With most of the fishing taking place in national waters, the broad strategy of the WCPFC compliance program is to focus on controlling high seas fishing, strengthening the exercise of control by coastal states CCMs, and monitoring compliance with CCM obligations throughout the range of application of Commission measures. Compliance failures by vessels are addressed by the application of the WCPFC IUU listing procedure. Compliance failures by CCMs, rather than vessels, are currently addressed through Commission processes of monitoring, reporting and accountability under the WCPFC's Compliance.

WCPFC's Technical Compliance Committee (TCC) through the Compliance Monitoring Scheme (CMM 2014-07) assesses WCFPC's member and cooperating non-members' (CCM) compliance performance with the implementation of WCPFC CMMs, annually on an obligation-by-obligation basis. If a CMM has not complied with a specific obligation of a CMM, it is given a 'non-compliant' rating for several CMMs (see below).

3.5.7.2 Indonesia

Indonesia became a full member of the WCPFC in 2014. As such it is bound to implement CMMs as agreed by the Commission. Management activities in WCPFC are governed by adherence to Conservation and Management Measures (CMMs). In an IPNLF Compliance report (it was reported that Indonesia was non-compliant with several CMMs some of which directly relate to this fishery. In the recent WCPFC14 summary report it was stated that "Indonesia confirmed its commitment to implement the conservation and management measures of the Commission as evident by the significant improvement in the level of Indonesia's compliance in recent years. Indonesia has taken actions under its National Plan of Action to Prevent and Combat IUU Fishing (2012). Indonesia made efforts to be compatible with CMM 2016-01 on the Conservation and Management Measures for bigeye, yellowfin and skipjack tuna in the WCPO. It hoped that the new measure will ensure the sustainability of tropical tuna resources and an opportunity to re-develop its fisheries after a great reduction of fishing effort through moratorium and ensuring the livelihood of small scale fishers and communities reliant on such fisheries. Indonesia has commenced to develop Harvest Strategy Framework for Indonesia's tuna archipelagic waters since 2014 consistent with the objectives of the commission for the sustainability of tuna resources."

Indonesia is now compliant with all measures under 'Scientific Data' except 'Section 03 (vi) – Operational Level Catch and Effort Data' for which 'Capacity Assistance is Needed.

Indonesia, while acting as a cooperating member of the WCPFC, is not fully compliant with all WCPFC management requirements (WCPFC14 Summary report)

3.5.7.3 Indonesia and Sorong- Province and District

Compliance with fisheries laws is executed through Directorate General of Surveillance and Control on Marine and Fisheries Resources PSDKP, the local provincial and district fisheries administrations, and the navy and maritime police agency. Fisher groups are being urged, through several coastal resource development programmes, to assume greater input into the management planning, policy development, and the implementation process. This latter task is often being undertaken with the support of non-government organizations (NGOs). PSPK resources 26 patrol craft 80 GT and above, operating throughout Indonesia. These craft usually work collectively with the Navy and Marine police.

In Sorong, the Navy, Marine Police, the Fishery Office of Sorong and the Fishery Surveillance Office carry out surveillance activities.

All craft over 30 GT are required to carry VMS. Vessels more than 60 GT are subject to continuous monitoring, while the activities of others, below 60 GT, are assessed on return to port. All vessels in excess of 10 GT are required to register a sailing declaration that must be carried on board. Fish landings are checked against log-book declarations.
MMAF fisheries inspectors receive regular training in case processing, penalties and prosecutions, regulations, Intelligence gathering and utilisation and VMS. Training is undertaken at regular intervals.

The logbook regulation is covered by Ministerial Decree 48/2014, and supported by a sanction system. Vessels not completing logbooks will be denied an operational permit. MMAF is undertaking a significant amount of training to promote the use of logbooks. All P&L vessels included in this assessment have been completing logbooks.
The Fishery Act 31/2004 sets out penalty schedules. Enforcement includes the graduated fiscal penalties, suspension or cancellation of licenses, refusal for new licenses and full removal from the fishery as penalty options. A revision issued in 2009 No 45. lists penalties and fines to deal with specific violations. The range of fines was increased 10 fold with a penalty range from USD 25,000 and up to USD 500,000 or a jail for 6 years. PSPKP maintain a record of infractions, but this information is confidential. Indications for the Indonesian pole-and-line fishery in general, and Sorong P&L in particular, are that the level of infractions is low.

3.5.8 Performance review

3.5.8.1 WCPFC

The WCPFC was subject to an external performance review (WCPFC, 2012, summarized in FAO 2015) carried out in 2012 that found the WCPFC convention is almost completely up to-date with the most recent standards in international fisheries management. The peer review found that the convention was consistent with the UNCLOS and the UNFSA, and it allowed the WCPFC to bring in Port State measures that are consistent with the FAO Port State Measures Agreement. The peer review noted that the convention assigned responsibility for conservation and management, as well as the application of the precautionary principle and the ecosystem approach, to the members, not the Commission. This means that the WCPFC has little scope for action other than through its members. The peer review further noted legal questions as to whether WCPFC measures are applicable in member States' territorial waters and archipelagic waters (i.e., Indonesia) as well, or only in the EEZs and the high seas. Members are divided over this question. The peer review, suggested that archipelagic States have full sovereignty over archipelagic waters; and that the convention, which proclaims its consistency with both of these treaties, only applies to EEZs and the high seas.

An independent review (MRAG, 2009) of the Commission's science structure and functions has been conducted resulting in revamping the operation of the Scientific Committee, and the adoption of a peer review process and other changes to the data and science functions.

3.5.8.2 Indonesia

A performance review structure is in place for MMAF, Indonesia and Provincial DKP (Fisheries offices at provincial and District level). An annual internal review on programme planning and performance evaluation is undertaken by the Inspectorate General (Echelon I of MMAF), once a year. The Finance Audit Agency (BPK) and Finance and Development Audit Agency (BPKP) undertake an external review at least once a year.

A performance review also takes place for the Research Centre for Fisheries Management and Conservation of fisheries resources (P4KSI) and its subsidiary research groups. This includes an internal review on research and program planning by Inspectorate General (Echelon I of MMAF), every three months, and monitoring and evaluation of Balitbang KP (Echelon I) of MMAF (every month).

An external review of programmes is conducted by the Finance Audit Agency (BPK) twice a year during planning and evaluation, and the university conducts an external review of the research plan once a year.

The effectiveness of each department is reviewed internally and externally.

- The Fishery of Sorong Office is audited by Inspectorate, Finance and Development Audit Agency (BPKP) and Finance Audit Agency (BPK).
- The Surveillance office is audited by the General Inspectorate of MAF, and Finance Audit Agency (BPK).
- The Navy is audited by Finance Audit Agency (BPK).
- The Coastal Fishing Port of Sorong is audited by the Finance Audit Agency (BPK) and the Inspectorate.

Audits are done at least annually. Audit reports are confidential.

4 EVALUATION PROCEDURE

4.1 Harmonised Fishery Assessment

4.1.1 General

Harmonisation of overlapping fisheries is required under FCR v2 clause 7.4.16 and annexes PB and GPB. Harmonisation needs to ensure consistency of outcomes for overlapping fisheries and can require considerable coordination between assessment teams and CABs, especially where there are multiple overlapping fisheries. For skipjack tuna and yellowfin tuna in the Western Central Pacific Ocean (WCPO) there are 6 certifications for skipjack and 7 for yellowfin (see Table 12), taken in various gears together or with other certified stocks. All are running on different schedules and information updates become available continuously, especially due to WCPFC processes. In addition, MSC processes allow for complaints and objections which need to be taken into account.

For this harmonisation process, where relevant to WCPFC-related assessment and management, we used the most recently published final determination that included both species.

Current Western Central Pacific Ocean skipjack tuna assessments (6) are listed on the MSC Track Fisheries web pages at: https://fisheries.msc.org/en/fisheries/@@search?q=skipjack&start=0&stop=10&__start__=fishery_name%3Asequence&__end__=fishery_name%3Asequence&__start__=species%3Asequence&species=Tuna+%28skipjack%29&__end__=species%3Asequence&__start__=gear_types%3Asequence&__end__=gear_types%3Asequence&__start__=locations%3Asequence&locations=western+central+pacific+%28fao+area+71%29&__end__=locations%3Asequence&__start__=status%3Asequence&__end__=status%3Asequence

The most recent, final report and determination that includes skipjack and yellowfin tuna is the PNA Western and Central Pacific skipjack and yellowfin, unassociated/non FAD set, tuna purse seine fishery, available at: https://fisheries.msc.org/en/fisheries/pna-western-and-central-pacific-skipjack-and-yellowfin-unassociated-non-fad-set-tuna-purse-seine/@@assessments. The final report and determination was published on 5th September 2017, within one month of the site visit for this assessment. An objection process started in response to the final determination was concluded on 28th February 2018; the final determination was upheld (see: https://fisheries.msc.org/en/fisheries/pna-western-and-central-pacific-skipjack-and-yellowfin-unassociated-non-fad-set-tuna-purse-seine/@@assessment-objection-documentsets?documentset_name=2018028+IA+Final+Decision+PNA&phase_name=Final+assessment+report+and+determination&start_date=2016-08-04&title=Re-Assessment)

The PNA final report and determination is used as the base for harmonisation. With the agreement of the CAB responsible for the PNA certification (Acoura) and the P1 expert (K McLoughlin), we attach the Principle 1 Background and References sections as Appendix 6. The background section for this report does not repeat the PNA material, providing only additional materials relevant to this evaluation. The scoring tables include clearly identified text from the PNA assessment, together with additional materials only as necessary. For skipjack tuna the PNA scoring, text is used extensively. For yellowfin tuna there is a newer stock assessment and the scoring text is modified accordingly, though scoring remains the same.

The FCR and Guidance are not clear as to how to treat AW fisheries. Aspects of this certification related to Indonesian Archipelagic Waters (AW) harvest strategy and harvest control rules might arguably be considered in an elemental approach at Principle 1 but, given Principle 1 must be considered at the whole stock level (FCR G7.4.7), and, given harmonisation requirements, are considered instead under “effective management” requirements at Principle 3 (PI 3.1.1). This has been discussed with other CABs and assessors and with the MSC.

Essentially, we follow the logic of the Walker Seafood Australian albacore, yellowfin tuna, and swordfish longline (https://fisheries.msc.org/en/fisheries/walker-seafood-australian-albacore-yellowfin-tuna-and-swordfish-longline/@@assessment-documentsets?documentset_name=Public+certification+report&phase_name=Public+certification+report+and+certificate+issue&start_date=2014-03-13&title=Initial+Assessment). That is, management strategy is considered at three levels: WCPFC, PNA, and Indonesia. From a stock perspective, WCPFC is most important, but so too is the PNA which puts in place measures

(especially the Vessel Day Scheme, VDS) that impact the majority of the catches. Indonesian measures are of relevance but represent lower proportions of the catches (circa 14% for skipjack tuna and 25% for yellowfin tuna, see Table 17).

There is no distinct cut off for percentages but we note GSA 3.4.6 (re primary species) that provides guidance as to the percentage of catch by a UoA that might in general be considered not influential in hindering recovery and hence nothing the UoA does would "change the situation". The GSA 3.4.6 guidance is for a cut off of 30%. This is not a definitive reason to support scoring at PI3.1.1 instead of at P1, but taken with the practicalities of harmonisation we consider it the best approach possible.

We are aware that meetings of the WCPFC could change the information base for this certification. Any changes due to WCPFC decisions and outputs will need to be harmonised across all of the WCPO overlapping fisheries at an appropriate time.

4.1.2 Overlapping fisheries

Table 20 Overlapping fisheries

Fishery	Gear	Geographical area	Assessment status
WPSTA Western and Central Pacific skipjack and yellowfin free school purse seine	Surrounding Nets - With purse lines (purse seines)	Eastern Central Pacific Western Central Pacific	Certified
Solomon Islands skipjack and yellowfin tuna purse seine and pole and line	Hooks And Lines - Handlines and pole-lines	Western Central Pacific	Certified
Tri Marine Western and Central Pacific Skipjack and Yellowfin Tuna	Surrounding Nets - With purse lines (purse seines)	Eastern Central Pacific Western Central pacific	Certified
PNA Western and Central Pacific skipjack and yellowfin, unassociated / non FAD set, tuna purse seine	Surrounding Nets - With purse lines (purse seines)	Western Central Pacific	Certified
Fiji Albacore and Yellowfin Tuna longline	Hooks And Lines - Longlines	Western Central Pacific	Certified
SZLC CSFC & FZLC FSM EEZ Longline Yellowfin and Bigeye Tuna	Hooks And Lines - Longlines	Western Central Pacific	In assessment
French Polynesia albacore and yellowfin longline fishery	Hooks And Lines - Longlines	Western Central Pacific	In assessment
WPSTA Western and Central Pacific skipjack and yellowfin free school purse seine	Surrounding Nets - With purse lines (purse seines)	Eastern Central Pacific Western Central Pacific	In assessment
SZLC, CSFC & FZLC Cook Islands EEZ South Pacific albacore & yellowfin longline	Hooks And Lines - Longlines	Eastern Central Pacific Western Central Pacific	Certified
Talley's New Zealand Skipjack Tuna Purse Seine	Surrounding Nets - With purse lines (purse seines)	Southwest Pacific (FAO Area 81)	Certified

4.1.3 Harmonisation activities

Communication with CABs and assessors involved in overlapping fisheries is continuous. Prior to scoring of the UoA fisheries, e-mail exchanges were made that considered use of an elemental approach to P1 scoring cf use of PI3.1.1, and about the metapopulation definition and regional consideration for both tuna stocks. The MSC was also consulted on the issue of treating Indonesian AW management using an elemental approach at P1 or under PI3.1.1. Further discussions were held with multiple CABs in London during April, 2018.

The CAB responsible (Acoura) for the most recently published assessment of both skipjack tuna and yellowfin tuna was approached to discuss use of materials in Appendix 6. We are grateful for the cooperative approach taken by Acoura.

During the PR stage, the WPSTA Western and Central Pacific skipjack and yellowfin free school purse seine was certified (June, 2018). We have checked to ensure there are no inconsistencies with that latest certification of both skipjack and yellowfin tuna. We have also checked to ensure no new stock assessment information or harvest strategy progress makes a material difference ot rationales and scores based on prior information.

4.1.4 Harmonisation outcomes

Harmonisation discussions led to the use of existing rationales and scores for skipjack tuna. For yellowfin tuna, with a new stock assessment available, details within rationales were amended but the logic and scores retained. Indonesian harvest strategies and control rules are generally considered under effective management at PI3.1.1 rather than at PI1.2.1/2 (see above).

4.2 Previous assessments

Not applicable. The fishery has not been assessed before.

4.3 Assessment Methodologies

Table 21 Assessment methodologies

Standard	MSC Fishery Certification Requirements and Guidance version 2.0.
Report template	MSC Full Assessment Reporting Template v2.0
Assessment tree	Default assessment tree, RBF used for PI 2.2.1 Secondary species outcome

4.3.1 The MSC fisheries standard

The MSC fisheries standard sets out requirements that a fishery must meet to enable it to claim that its fish come from a well-managed and sustainable source. The MSC standard applies to wild-capture fisheries that meet the scope requirements as confirmed in section 3.1.

The MSC fisheries standard comprises three core principles:

Principle 1: Sustainable target fish stocks

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

Principle 2: Environmental impact of fishing

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Principle 3: Effective management

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

4.3.2 The assessment tree structure

The default tree structure is divided into four main levels for the purposes of scoring, as summarised below and illustrated in Figure 15:

- Principle: The Principles represent the overarching basis for the assessment tree
- Component: A high level sub-division of the Principle
- Performance Indicator (PI): A further sub-division of the Principle
- Scoring Issue (SI): A sub-division of the PI into related but different topics. Each PI has one or more scoring issues against which the fishery is assessed at the SG 60, 80, and 100 levels.

The detailed assessment tree used in this assessment is included in Appendix 1.

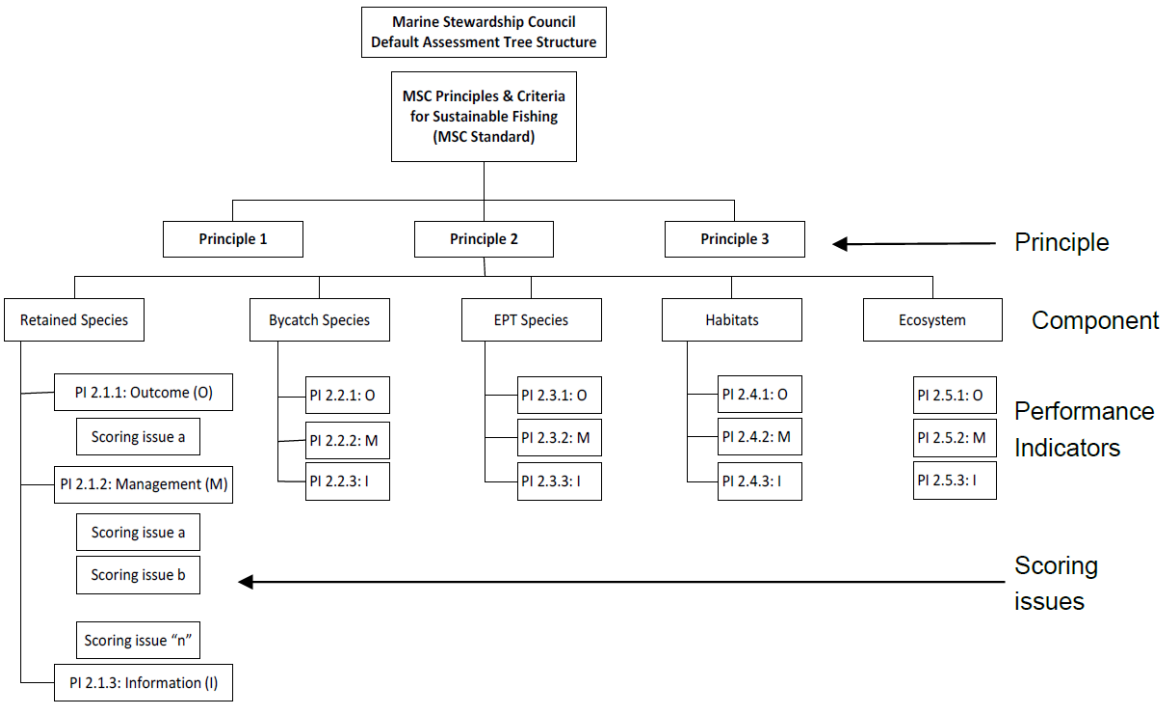


Figure 15 The assessment tree structure

4.4 Evaluation Processes and Techniques

4.4.1 Site Visits

Table 22 Itinerary of field activities

Date	Main activities and locations inspected	Names of individuals contacted during field inspections
3-8 August 2017	On-site audit, including: Stakeholder meetings open RBF scoring session for PI 2.2.1 Inspection of landings Vessel Inspection Factory inspection (PT. CITRARAJA AMPAT CANNING) Chain of custody review	The Ministry of Fisheries, Fisheries surveillance services, Fishery Polytechnic, Sorong Fishermen's Association, Observer programme, the client fishery (PT. CITRARAJA AMPAT CANNING) Names of the individuals contacted are available upon request.

4.4.2 Consultations

4.4.2.1 Site visit consultations

The assessment team met with relevant stakeholders as outlined in Table 22 above. Information gathered is presented in this report and in the enclosed scoring tables.

4.4.2.2 Process consultations

Several stakeholders have been identified and contacted during the assessment of the Sorong pole & line skipjack and yellowfin tuna fishery. Information was made publicly available at different stages of the assessment (Table 23). Notifications on the MSC website (www.msc.org) were distributed to listed stakeholders in directed mails.

Table 23 Process announcements and consultations

Consultation subject	Consultation date	Consultation channels
Announcement of full assessment	26 Jun 2017	www.msc.org, e-mails to identified stakeholders
Use of RBF	26 June 2017	www.msc.org, e-mails to identified stakeholders
Nomination of assessment team	27 Jun 2017	www.msc.org, e-mails to identified stakeholders
Notification of assessment timeline	27 Jun 2017	www.msc.org
Notification of new information review	27 March 2018	www.msc.org, e-mails to identified stakeholders
Revised Timeline	07 June 2018	www.msc.org, e-mails to identified stakeholders
Proposed Peer Reviewers	07 June 2018	www.msc.org, e-mails to identified stakeholders
Peer Review confirmation	18 July 2018	www.msc.org, e-mails to identified stakeholders
Public comment draft report	23 July 2018	www.msc.org, e-mails to identified stakeholders
Revised Timeline	10.September 2018	www.msc.org, e-mails to identified stakeholders

Change of Team Leader	11 September 2018	www.msc.org, e-mails to identified stakeholders
Final report	25 October 2018	www.msc.org, e-mails to identified stakeholders
Public certification report	22 November 2018	www.msc.org, e-mails to identified stakeholders

4.4.3 Evaluation Techniques

4.4.3.1 Announcements

The start of the assessment process was announced on 26 June 2017 on the MSC website www.msc.org to reach international and local stakeholders.

4.4.3.2 Methodology used

The methodology used, included sample-based means of acquiring a working knowledge of the management operation and sea base.

4.4.3.3 The scoring process

The scoring process consisted in short of the following main steps:

- The client prepared extensive materials prior to the site visit
- Draft scoring was carried out at the site visit. After all relevant information was compiled and analysed, the assessment team scored the Unit of Assessment against the Performance Indicator Scoring Guideposts (PISGs) in the final tree. The team discussed evidence together, weighed up the balance of evidence and used their judgement to agree on a final score following MSC FCR processes and based on upon consensus.
- Discussion regarding use of P1.2.1/1.2.2 cf 3.1.1 for scoring of fishery specific management issues in AW (incl. issues of HS and HCR) took place during the site visit, including with one other CAB (MRAG). Further consideration was given to the use of P1 vs PI3.1.1, including further CAB, assessor, and MSC consultation and decision was made to address fishery specific issues under PI 3.1.1. P1 PIs are now fully harmonised between all overlapping fisheries, including this fishery.

Species considered main and not main

There is one Primary species – bigeye tuna. As outlined in section 3.4, catches of bigeye tuna in the UoA are low. Reported UoA catches for the full fishing years 2014, 2015, and 2016 respectively are 200kg, 648kg, and 114kg tonnes. Based on observer data, catch in the main 2017 season was 987kg. Based on the observer data in 2017, the percentage of bigeye caught on a single fishing trip may reach 5% but is typically zero, with only 5 non-zero catches in 50 observed trips. The overall catch of bigeye tuna is 0.2% of the total observed UoA catch in 2017. Following MSC FCT SA3.4.1-3.4.5, Bigeye tuna is therefore not considered as a main species.

A number of secondary species are taken in the pole and line operations, as well as in the separate bait fisheries. Of the species caught in pole and line operations, none are caught in large quantities. For certification purposes, no pole and line caught secondary species are considered to be main as defined by MSC FCR SA3.7.1 and are not considered further.

Bait species comprised 12% of the total catch across all 50 trips observed in 2017. Of the eight, bait species caught, only white anchovy is above the 5% threshold used to define main species. All others are less than 1%. White anchovy is the only species considered as main.

Table 24 Scoring elements

Component	Scoring elements	Main / not main	Justification for main/not main [primary and secondary species]	Data-deficient or not
P1	Skipjack tuna (Katsuwonus pelamis)	NA	NA	NA
PI	yellowfin tuna (Thunnus albacares)	NA	NA	NA
Primary	Bigeye tuna (Thunnus obesus)	Not main	<1% total catch	No
Secondary	White anchovy	Main	5% total catch (precautionary approach taken)	Yes
Secondary	bonito (Sarda spp.), dolphin fish (Coryphaena hippurus) and rainbow runner (Elagatis bipinnulata), blue anchovy, ponyfish (Eubleekeria rapsoni), squid (Loligo spp), sardine (Sardinella spp), Indian mackerel (Rastrelliger kanagurta), Mackerel scad (Decapterus sp), Yellowstripe scad (Selaroides leptolepis), and walo walo.	Not main	all <1%, most very low	Yes
ETP	None identified	NA	NA	NA

4.4.3.4 Risk Based Framework

RBF was used for scoring at 2.2.1 Secondary Species Outcome because there are no stock status reference points or stock assessment for the single, main species (white anchovy). Please note that following PF4.1.4/5.3.2.1, minor species are not considered.

The RBF stakeholder consultation strategy:

Summary of the information obtained from the stakeholder meetings: During the site visit RBF session, information was sought on PSA Susceptibilty attributes. Discussions focused on descriptions of bagan operations and on the distribution of white anchovy. Input was received from fishermen's representatives, government officials, researchers and observers. All were in agreement as to factors influencing areal overlap, encounterability, gear selectivity and post capture mortality. There were no disagreements or alternative opinions expressed.

Issues that have been discussed or evaluated in the assessment:

The main issues that were discussed in this part of the assessment were the following:

- Areal Overlap: the number of bagans by WPP; the nature of bagans (shore or boat based).
- Attraction radius of bagans and the distribution of white anchovy.
- Encounterability: method of bagan operation, including depths of location and deployment; attraction distance of fish (as also for areal overlap).
- Selectivity of gear type: mesh and retention size; size at maturity.
- Post capture mortality: fate of discarded fish.

The issues discussed are considered in more detail in assessment scoring table in Appendix 1 and in RBF Appendix 1.2.

5 TRACEABILITY

5.1 Eligibility Date

Target eligibility date will be the date of the publication of the Public Comment Draft Report (23 July 2018). Rationale for selecting an earlier target eligibility date is to allow fishery to sell their products as MSC labelled once the fishery completed certification. All the traceability and segregation systems in the fishery are implemented to allow for an earlier set TED.

5.2 Traceability within the Fishery

All P&L vessels in the UoA fish exclusively within the 200 mile EEZ and specifically in Indonesian archipelagic waters (Fisheries Management Area WPP715) and the Indonesia EEZ (Fisheries Management Area WPP 717 (Table 14). Fishing is concentrated on anchored FADs, of which there are 18 in WPP715 (the main fishing area) and a further two in WPP 717. Fishing may also occur on free schools or schools associated with naturally occurring FADs. All vessels are licensed by the Ministry of Marine Affairs and Fisheries (MMAF), responsible for the pole and line fleet in Sorong. All the pole and line vessels must be registered with MMAF as per MAF Reg 30 /2012 .

Vessel operations are controlled by the Fishery Surveillance Office (PSDKP) Jakarta by monitoring the VMS for all vessels. All incoming fish are reported to Regional Fishery Surveillance Office in Sorong for verification and the Fishery Port of Sorong.

All craft over 30 GT are required to carry VMS. Vessels more than 60 GT are subject to continuous monitoring, while the activities of others, below 60 GT, are assessed on return to port. All vessels in excess of 10 GT are required to register a sailing declaration that must be carried on board. Fish landings are checked against log-book declarations.

MMAF fisheries inspectors receive regular training in case processing, penalties and prosecutions, regulations, Intelligence gathering and utilisation and VMS. Training is undertaken at regular intervals.

The logbook regulation is covered by Ministerial Decree 48/2014, and supported by a sanction system. Vessels not completing logbooks will be denied an operational permit. MMAF is undertaking a significant amount of training to promote the use of logbooks. All P&L vessels included in this assessment have been their completing logbooks.

The Fishery Act 31/2004 sets out penalty schedules. Enforcement includes the graduated fiscal penalties, suspension or cancellation of licenses, refusal for new licenses and full removal from the fishery as penalty options. A revision issued in 2009 No 45. lists penalties and fines to deal with specific violations. The range of fines was increased 10 fold with a penalty range from USD 25,000 and up to USD 500,000 or a jail term for 6 years. PSPKP maintain a record of infractions, but this information is confidential. Indications for the Indonesian pole-and-line fishery in general, and Sorong P&L in particular, are that the level of infractions is low.

5.3 Processing on board

No processing takes place at sea and fish are landed whole for on-shore processing prior to export. Almost all catches are exported. All tuna is sorted and weighed at landing.

5.4 Points of landing

All product from the UoA is landed at the processing facility belonging to the PT. CITRARAJA AMPAT CANNING. PT. CITRARAJA AMPAT CANNING has a full overview of fishing licenses, including up- to-date volumes landed by the respective vessels. The vessel log-books specify volume of fish caught and this is verified at landing when fish are weighed at the processing plant in the presence of authorities who are informed of every landing. Landing information is thereby available to the

authorities and the factory. At landing, vessels receive a sales receipt from the factory which include following information:

- Name of vessel
- Vessel registration number
- Licence number
- Name of the captaint
- landing site

There is no transhipment at sea.

Processing facility under ownership of the PT. CITRARAJA AMPAT CANNING is not covered by the MSC Fisheries certificate and must have separate Chain of Custody certification.

5.5 Traceability risk factors

Table 25 Traceability risk factors within the fishery

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Potential for non-certified gear/s to be used within the fishery	None: There is no risk of mixing of Pole and Line skipjack tuna and Yellowfin tuna with Skipjack and Yellowfin tuna caught by other gears as the vessels operate with a single gear (P&L) only.
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	None: UoC vessels do not fish outside the UoC or in different geographical areas (on the same trips or different trips)
Potential for vessels outside of the UoC or client group fishing the same stock	Negligible: There is a small number of vessels which are not members of the PT. CITRARAJA AMPAT CANNING client group, which can target YFT and SJT in the same area. However, products from these vessels will not be able to enter CoC, as only vessels delivering catches directly to PT. CITRARAJA AMPAT CANNING are covered by the certification and PT. CITRARAJA AMPAT CANNING do not receive catches from non-member vessels. CoC will always be required to start at the PT. CITRARAJA AMPAT CANNING facility and risk of mixing of certified product with non-certified is therefore minimal.
Risks of mixing between certified and non-certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction)	None:There is no risk of mixing certified and non-certified tuna, during storage, transport, or handling activities as all P&L tuna landed at the PT. CITRARAJA AMPAT CANNING facility will be covered by the MSC certificate. There are clear visual differences between skipjack, yellowfin and Big eye tuna and Big eye tuna are separated from skipjack and yellowfin tuna at landing. Sorting activities are controlled by inspector and processer and quantities of fish are recorded in the sales notes and reported to the authorities.

Risks of mixing between certified and non-certified catch during processing activities (at-sea and/or before subsequent Chain of Custody)	None: There is no processing on board the vessels. When tuna is caught, it is placed in plastic boxes which are iced. All tuna is sorted at landing. Harvest vessels land their catch directly at the canning site of PT. CITRARAJA AMPAT CANNING which is CoC certified. There are no other entities involved between the vessel and the canning company. Sorting activities are controlled by processer company and quantities of fish are recorded in the sales notes and reported to the authorities through log books and factory returns.
Risks of mixing between certified and non-certified catch during transhipment	None: There is no transhipment at sea.
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required	None

5.6 Eligibility to Enter Further Chains of Custody

CoC required at the transfer of the ownership from the catching vessel to the processing company and CoC starts at the point of landing at the processing facility owned by the PT. CITRARAJA AMPAT CANNING.

Processing facility under ownership of the PT. CITRARAJA AMPAT CANNING is not covered by the MSC Fisheries certificate and must have separate Chain of Custody certification.

Table 26 Eligibility to enter further chains of custody

Conclusion and determination	Tuna products will be eligible to enter further certified chain of custody and be sold as MSC certified or carry the MSC ecolabel.
List of parties, or category of parties, eligible to use the fishery certificate and sell product as MSC certified	The eligible parties are Indonesian vessels licensed for pole and line fishing within the UoA.
Point of intended change of ownership of product	At the transfer of the ownership from the catching vessel to the processing company PT. CITRARAJA AMPAT CANNING. Change of ownership takes place at shore.
List of eligible landing points (if relevant)	Processing facility under PT. CITRARAJA AMPAT CANNING ownership.
Point from which subsequent Chain of Custody is required	At the point of landing at processing facility of PT. CITRARAJA AMPAT CANNING.

5.7 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to Enter Further Chains of Custody

There are no IPI stocks involved in the certification of this fishery.

6 EVALUATION RESULTS

6.1 Principle Level Scores

Table 27 Final Principle scores

Skipjack tuna

Principle	Principle level score
Principle 1	86, 7
Principle 2	86, 3
Principle 3	80, 8

Yellowfin tuna

Principle	Principle level score
Principle 1	82, 5
Principle 2	87, 3
Principle 3	80, 8

6.2 Summary of PI Level Scores

6.2.1 Skipjack tuna

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
One	Outcome	0,333	1.1.1	Stock status	1,0	100
			1.1.2	Stock rebuilding	0,0	
	Management	0,667	1.2.1	Harvest strategy	0,25	70
			1.2.2	Harvest control rules & tools	0,25	60
			1.2.3	Information & monitoring	0,25	95
			1.2.4	Assessment of stock status	0,25	95
Two	Primary species	0,2	2.1.1	Outcome	0,333	90
			2.1.2	Management strategy	0,333	80
			2.1.3	Information/Monitoring	0,333	90
	Secondary species	0,2	2.2.1	Outcome	0,333	80
			2.2.2	Management strategy	0,333	80
			2.2.3	Information/Monitoring	0,333	80
	ETP species	0,2	2.3.1	Outcome	0,333	100
			2.3.2	Management strategy	0,333	100
			2.3.3	Information strategy	0,333	80
	Habitats	0,2	2.4.1	Outcome	0,333	90
			2.4.2	Management strategy	0,333	90
			2.4.3	Information	0,333	85
	Ecosystem	0,2	2.5.1	Outcome	0,333	80
			2.5.2	Management	0,333	80
			2.5.3	Information	0,333	90
Three	Governance and policy	0,5	3.1.1	Legal &/or customary framework	0,333	75
			3.1.2	Consultation, roles & responsibilities	0,333	95
			3.1.3	Long term objectives	0,333	90
	Fishery specific management system	0,5	3.2.1	Fishery specific objectives	0,25	60
			3.2.2	Decision making processes	0,25	80
			3.2.3	Compliance & enforcement	0,25	80
			3.2.4	Monitoring & management performance evaluation	0,25	80

6.2.2 Yellowfin tuna

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
One	Outcome	0,333	1.1.1	Stock status	1,0	90
			1.1.2	Stock rebuilding	0,0	
	Management	0,667	1.2.1	Harvest strategy	0,25	70
			1.2.2	Harvest control rules & tools	0,25	60
			1.2.3	Information & monitoring	0,25	90
			1.2.4	Assessment of stock status	0,25	95
Two	Primary species	0,2	2.1.1	Outcome	0,333	100
			2.1.2	Management strategy	0,333	80
			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	80
			2.2.3	Information/Monitoring	0,333	80
	ETP species	0,2	2.3.1	Outcome	0,333	100
			2.3.2	Management strategy	0,333	100
			2.3.3	Information strategy	0,333	80
	Habitats	0,2	2.4.1	Outcome	0,333	90
			2.4.2	Management strategy	0,333	90
			2.4.3	Information	0,333	85
	Ecosystem	0,2	2.5.1	Outcome	0,333	80
			2.5.2	Management	0,333	80
			2.5.3	Information	0,333	90
Three	Governance and policy	0,5	3.1.1	Legal &/or customary framework	0,333	75
			3.1.2	Consultation, roles & responsibilities	0,333	95
			3.1.3	Long term objectives	0,333	90
	Fishery specific management system	0,5	3.2.1	Fishery specific objectives	0,25	60
			3.2.2	Decision making processes	0,25	80
			3.2.3	Compliance & enforcement	0,25	80
			3.2.4	Monitoring & management performance evaluation	0,25	80

6.3 Summary of Conditions

Table 28 Summary of Conditions

Condition number	Condition	Performance indicator	Related to previously raised condition?
1. Skipjack	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) The harvest strategy is responsive to the state of the stock, and b) the elements of the harvest strategy work together towards achieving management objectives reflected in PI1.1.1 SG80.	1.2.1	NA
2. Skipjack	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) Well defined harvest control rules shall be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; b) The selection of the harvest control rules shall take into account the main uncertainties; c) Evidence shall be available that indicates that tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	1.2.2	NA
3. Yellowfin	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) The harvest strategy is responsive to the state of the stock, and b) the elements of the harvest strategy work together towards achieving management objectives reflected in PI1.1.1 SG80.	1.2.1	NA
4. Yellowfin	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) Well defined harvest control rules shall be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; b) The selection of the harvest control rules shall take into account the main uncertainties; c) Evidence shall be available that indicates that tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	1.2.2	NA
5. Skipjack and yellowfin	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) There is an effective national legal system and organised and effective cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2.	3.1.1	NA
6. Skipjack and Yellowfin	By the 4th surveillance , 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	NA

6.4 Recommendations

The assessment team has made one recommendation:

The observer program used for much of the P2 scoring is for a limited duration in 2017. It provides excellent information but for surveillance and future assessments there is a need to ensure continuing observer coverage. The program to date covers the main fishing season but not the whole year, and only one year. Future proofing requires full year coverage and for multiple years.

Table 29 Summary of Recommendations

Recommendation number	Recommendation	Performance indicator
1	The client should ensure full year coverage by observers, ideally for multiple years, to ensure continued information availability for PIs 2.1, 2.2 and 2.3.	2.1.1, 2.1.3, 2.2.1, 2.2.3, 2.3.1, 2.3.3

6.5 Draft determination with supporting rational

The PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery achieved a score of 80 for each of the three MSC Principles, but scored under 80 for six of the set MSC criteria.

As the fishery achieved a score of below 80 against six scoring indicators, the assessment team has set six conditions (Table 6) for the continued certification that the client is required to address. The conditions are applicable to improve performance to at least the 80 level within the period set by the assessment team. The assessment team also made one recommendation for the fishery (Table 7).
Based on the evaluation of the fishery presented in this report the assessment team recommends the certification of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery for the client PT Citraraja Ampat.

Final determination: The Technical Reviewer at DNV GL adheres to the recommendation of the assessment team and approves the certification of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery for the client PT Citraraja Ampat Canning.

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APPENDIX 1 SCORING AND RATIONALES

Appendix 1.1 Performance Indicator Scores and Rationale

Principle 1 - Skipjack tuna

NOTE: The most recent, final report and determination that includes skipjack and yellowfin tuna is the PNA Western and Central Pacific skipjack and yellowfin, unassociated/non FAD set, tuna purse seine fishery, available at: https://fisheries.msc.org/en/fisheries/pna-western-and-central-pacific-skipjack-and-yellowfin-unassociated-non-fad-set-tuna-purse-seine/@@assessments. The final report and determination was published on 5th September 2017.

The PNA final report and determination is used as the base for harmonisation. With the agreement of the CAB responsible for the PNA certification (Acoura) and the P1 expert (K McLoughlin), we attach the Principle 1 Background and References sections as Appendix 6. The background section for this report (section 3.3) does not repeat the PNA material, providing only additional materials relevant to this evaluation. The scoring tables here include clearly identified text (as *red, italic*) from the PNA assessment, together with additional materials only as necessary. The repeated text itself draws on extensive harmonisation with other fishery certifications of overlapping stocks, coordinated by multiple assessors/authors, including the P1/2/3 experts involved in this certification.

Evaluation Table for PI 1.1.1 – Stock status

PI 1.1.1		**The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing**		
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?	Y	Y	Y
	Justification	*The reference case model of the 2014 stock assessment estimated the 2011 level of spawning potential to be at approximately 48% of the unfished level, well above the LRP of 20%SBF=0 agreed by WCPFC (WCPFC 2014a). Rice et al (2014) does not present explicit confidence intervals on spawning biomass but does include a graph showing the approximate 95% confidence intervals for the reference case.* *Also, Pilling et al. (2014) used stochastic projections under status quo conditions to estimate that it was exceptionally unlikely (<1%) that the skipjack stock would fall below either the LRP or SBMSY level by 2032, or that fishing mortality will increase above FMSY levels, under future recruitment assumptions.* *An updated assessment of skipjack was presented at the 2016 SC meeting. The reference case model of the 2016 stock assessment estimated the 2015 level of spawning potential to be at approximately 58% of the unfished level for the reference case model, well above the LRP of 20%SBF=0 agreed by WCPFC (WCPFC 2016b). SBlatest/SBF=0 was relatively close to the adopted interim target reference point (0.5SBF=0) for all models explored in the assessment (structural uncertainty grid: median = 0.51, 95% quantiles = 0.39 and 0.67) (WCPFC 2016b).* *As with previous assessments, the 2016 stock assessment examines structural uncertainty using a crosswide grid of model runs incorporating the main sources of uncertainty (54 models). The results of the structural uncertainty analysis are consistent with the results of previous assessments of tuna stocks in the WCPO*		

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
		that used the same uncertainty axes. The quantiles across the full grid for all quantities suggested a relatively healthy stock status. Most models in the uncertainty analysis were spread relatively closely around the target reference point and well away from the limit reference point, and no models met, or even approached the thresholds of formal definitions of "overshing" or "overfished" (Figure 52 of McKechnie et al. 2016). *Stochastic 10-year projections using the proposed reference case model and assuming future status quo catches at 2015 levels were performed for the 2016 assessment. In 2025, median SB/SBF=0 was estimated to be 0.49, and there was zero risk of the stock falling below the limit reference point (McKechnie et al. 2016).* Overall, there is a high degree of certainty that the stock is above the PRI, meeting the requirements of the scoring issue at the SG60, SG80 and SG100 levels.		
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?		Y	Y
	Justification	*The skipjack assessment provides probabilistic estimates of parameters of interest and uncertainty has been extensively explored using a crosswise grid of sensitivity tests (WCPFC 2014a, WCPFC 2016b). The 2014 assessment estimates of 2011 spawning biomass are above the level that will support the MSY (SB2011/SBMSY = 1.74 for the base case and range 1.45–2.10 across the sensitivity models explored) (WCPFC 2014a). Fishing mortality has generally been increasing over time, however, current fishing mortality is below the MSY level (F2008-11/FMSY=0.61 for the base case and range 0.45–0.82 across the sensitivities). The 2016 assessment estimates of spawning biomass are above the level that will support the MSY (SB2015/SBMSY = 2.56 and SB2011-2014/SBMSY = 2.31 for the base case) (WCPFC 2016b). Fishing mortality has generally been increasing over time, however, current fishing mortality is below the MSY level (F2011-14/FMSY=0.45 for and range 0.40–0.59 across the sensitivities for the reference case).* *In 2015, CMM 2015-06 was adopted at the Commission, setting the TRP for skipjack tuna at an (initial) value of 50%SBF=0, subject to review no later than 2019. The stock assessment estimates spawning biomass to be close to this level.* *Overall, assessment outputs indicate that SG80 and SG100 requirements are met.*		
References		*Rice et al. 2014, Pilling at al. 2014, McKechnie et al. 2016, WCPFC 2014a, WCPFC 2016b.* *NB References as listed in Appendix 6*		

PI 1.1.1	The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue	SG 60	SG 80	SG 100
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)	*a) Level of spawning biomass in the absence of fishing*	*a) 20%SBF=0*	*a) SBrecent = 52%SBF=0;* *SBlatest = 58%SBF=0;* *where 'recent' is over the period 2011-14 and 'latest' is 2015.*
Reference point used in scoring stock relative to MSY (SIb)	*a) Level of spawning biomass in the absence of fishing* *b) FMSY*	*a) 50%SBF=0* *b) F(28%SBF=0)*	*a) SBrecent = 52%SBF=0;* *SBlatest = 58%SBF=0;* *SBlatest/SBMSY = 2.56;* *SBrecent/SBMSY = 2.31* *b) Frecent/FMSY = 0.45* *where 'recent' is over the period 2011-14 and 'latest' is 2015.*
OVERALL PERFORMANCE INDICATOR SCORE:			**100**
CONDITION NUMBER (if relevant):			**N/A**

Evaluation Table for PI 1.1.2 – Stock rebuilding- Skipjack tuna – NOT APPLICABLE

PI 1.1.2		**Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Rebuilding timeframes**			
	Guide post	A rebuilding timeframe is specified for the stock that is **the shorter of 20 years or 2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock.
	Met?	(Y/N)		(Y/N)
	Justification	Not scored		
b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, **or it is likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	There is **strong** evidence that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.
	Met?	(Y/N)	(Y/N)	(Y/N)
	Justification	Not scored		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**N/A**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 1.2.1 – Harvest strategy- Skipjack tuna

PI 1.2.1		**There is a robust and precautionary harvest strategy in place**		
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?	Y	N	Not scored
	Justification	*MSC guidance defines a harvest strategy as the combination of monitoring, stock assessment, harvest control rules and management actions. It is intended that these elements work together towards achieving management objectives. The current harvest strategy is not formalised but consists of the elements considered at PIs 1.2.2, 1.2.3, and 1.2.4.* *The operational harvest strategy for WCPO skipjack tuna has several contributing components, with WCPFC, PNA and national and archipelagic waters management actions being supported by a robust stock assessment and extensive monitoring frameworks. CMM 2015-01 and its predecessors are fundamental in the current harvest strategy for skipjack tuna. The primary objective of CMM 2015-01 is that "Compatible measures for the high seas and exclusive economic zones (EEZs) are implemented so that bigeye, yellowfin and skipjack tuna stocks are, at a minimum, maintained at levels capable of producing their maximum sustainable yield as qualified by relevant environmental and economic factors including the special requirements of developing States in the WCPFC-CA as expressed by Article 5 of the Convention." CMM 2015-01 lays out catch controls, measures for FAD set managements, and capacity limitation measures. Tools adopted by WCPFC include effort limits in major purse seine fisheries, FAD closures, high seas closures, and a discard ban in purse seine fisheries. Additional FAD measures are also in place for 2016 and 2017. Purse seine effort controls are in place in coastal states EEZs.* *Explicit LRPs have been adopted for biomass and the fishing mortality rate. In December 2015, the Commission adopted an explicit MSY-related biomass TRP. At this point, harvest control rules have not been adopted. There is an extensive information base from a wide range of biological studies and from a diverse range of fisheries. The information is sufficient to support a state-of-the-art stock assessment that provides probabilistic estimates of key parameters and their relationship to reference points. Advice from the stock assessment is provided by the Scientific Committee and additional work is carried out by the scientific provider, SPC, to the Commission. Annual decision-making is articulated through CMMs and is supported by good scientific decision-support systems. CMM 2014-06 spells out the future direction for strengthening the harvest strategy, including the development of harvest control rules, and a work plan has been agreed to implement this.* *As indicated above, there are measures in place that are intended to control fishing mortality for purse seine fishing, including effort and capacity limits. A major*		

PI 1.2.1		There is a robust and precautionary harvest strategy in place
		measure is the PNA Vessel Day Scheme (VDS) which determines Total Allowable Effort (TAE) and Party Allocations of Effort (PAE). *MSC CRv2.0 (PB3.1) states that "CABs assessing overlapping fisheries shall ensure consistency of outcomes so as not to undermine the integrity of MSC fishery assessments". As discussed earlier in the report (Section 4.8), a meeting was held in Hong Kong in April 2016 to consider harmonisation of the P1 components of tuna fisheries in the Pacific. An outcome of this was a review of the requirements for meeting SG80 requirements for PI 1.2.1a.* *The original PNA skipjack assessment (Banks et al. 2011) scored the fishery as meeting the SG80 level for 1.2.1a on the basis that "The elements of the harvest strategy work together in that the implementation of the purse seine effort limit systems is based on the FFA and WCPFC VMSs, the WCPFC management actions in respect of the purse seine fisheries are largely based on the PNA actions" and that "the Commission responded to the change in the results of the skipjack assessment and the more cautionary tone of the scientific advice in 2010 by deciding to address the management of skipjack explicitly in the preparation of a CMM to replace CMM 2008-01 beyond 2011." Overall, the original score for PI 1.2.1 for the PNA fishery was 80.* *Other skipjack fisheries considered at the Hong Kong meeting have concluded that SG80 is not met for 1.2.1a and have awarded an overall score of 70 for PI 1.2.1 (Table 21), and suggest that the PNA score should align with this score. It was agreed that the current management measures are expected to ensure that fishing mortality and spawning biomass remain at levels that will achieve the stock management objective, meeting SG60 requirements. The basis for SG80 not being met is predominantly that the majority of Hong Kong meeting participants considered that there is no clear linkage between potential catch and allocated effort, that the processes for determining VDS TAE and PAE are not transparent and that it is unclear how the TAE is determined, based on stock status advice. Overall, it was agreed at the harmonisation meeting that for the WCPFC tuna fisheries, including those under the PNA's VDS, there is insufficient evidence that the harvest strategy is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving management objectives, hence it was concluded that a score of 70 is warranted for PI 1.2.1 and a Condition of Certification (#1) is set on UoA 1 of the PNAFTF.* It is noted that the harmonisation of the scoring for this scoring issue has been an ongoing matter of discussion between CABs. The assessment team undertook discussions in October and November 2016 with other CABs involved in the Hong Kong meeting, the majority view being that the score should remain at 60. In keeping with MSC requirements for harmonisation, scoring issue 1.2.1a is scored as having met SG60 requirements but not SG80. Noting the points on harmonisation (see Box 1, P.87 [of PNA assessment report]), and the MSC Technical Oversight (see MSC comments, P.299 [of PNA assessment repor]t), the rationale for this score can be found in relevant fishery reports on the MSC website. These rationales are largely based on the lack of a clear linkage between potential catch and allocated effort mentioned above. We note that as discussed in the introductiory sections, the harvest strategy for Indonesian archipelagic waters is considered under PI 3.1.1. We note also CMM adopted at the the latest WCPFC meeting (WCPFC CMM 2017-01) confirm existing interim arrangements until the work plan to develop a skipjack harvest strategy is complete.

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
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?	Y	Y	N
	Justification	*The harvest strategy management objectives for skipjack are to ensure that the spawning stock does not fall to the LRP (20%SBF=0); to ensure fishing mortality does not exceed FMSY (F/FMSY<1); and to maintain the stock at least as high recently adopted TRP (50%SBF=0). The latest assessments (Rice et al. 2014, McKechnie et al. 2016) indicate that the stock is well above the biomass LRP and that fishing mortality is well below FMSY. Recent biomass is estimated to be 52%SBF=0, just above the TRP. Also, stock projections suggest that by 2025 median SB/SBF=0 was estimated to be 0.49, and there was zero risk of the stock falling below the limit reference point (McKechnie et al. 2016* *The requirements for SG80 are met. The performance of the harvest strategy has not been fully evaluated, thus 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?	Y		
	Justification	*WCPFC has monitoring systems in place to record catch and effort for all vessels catching skipjack tuna in the WCPO. Monitoring of the purse seine fishery includes mandatory logbooks with records of catch and effort for each fishing operation, a VMS, 100% observer coverage of most fishing operations including detailed recording of catch composition, tagging data, biological studies and port inspections. These monitoring systems support a sophisticated stock assessment process that provides robust estimates of stock status that are sufficient to determine whether the harvest strategy is working. SG 60 requirements are met.*		
d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Not scored
	Justification	The harvest strategy for skipjack tuna has not been formalised and is not subject to a formal review process. SG100 is potentially not met on this basis. However, there is ongoing review of the elements of the harvest strategy and revisions are made as evidenced by the adoption of updated CMMs and the adoption of an LRP and TRP.		
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.

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Met?	Not relevant	Not relevant	Not relevant
	Justification	The target species, skipjack tuna, is not a shark. The scoring issue is not scored.		
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 relevant	Not relevant	Not relevant
	Justification	There is no unwanted catch as defined at SA3.1.6. The scoring issue is not scored.		
References		*Banks et al. 2011, Rice et al. 2014, McKechnie et al. 2016, PNA 2016a, WCPFC 2014a, WCPFC 2016b, WCPFC CMMs.* *NB References as listed in 2*		
OVERALL PERFORMANCE INDICATOR SCORE:				**70**
CONDITION NUMBER (if relevant):				**1**

Evaluation Table for PI 1.2.2 – Harvest control rules and tools- Skipjack tuna

PI 1.2.2		**There are well defined and effective harvest control rules (HCRs) in place**		
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?	Y	N	N
	Justification	*CMM 2014-06 established a process for the adoption of harvest control rules, however, well-defined harvest control rules are not currently in place and SG80 is not met.* *Following the MSC Notice, "Scoring of 'available' Harvest Control Rules (HCRs) in CRv1.3 fisheries" of 24th November 2014, PI 1.2.2 si(a) has been scored using CRv2.0 provisions for SG60 (as above) scoring for a number of fisheries, including several tuna fisheries. MSC have also provided further comment on HCRs with their notice of 16 December, 2015 "Interpretation on Harvest Control Rules (HCR)".* *MSC CRv2.0 lays out two conditions for acceptance of HCR being available sufficient to justify scoring at the SG60 level (MSC 2014).* *First, CR v2.0 SA2.5.2a provides for HCR being recognised as available, "…if stock biomass has not previously been reduced below BMSY or has been maintained at that level for a recent period of time".* *The MULTIFAN-CL software used for skipjack assessment provides probabilistic estimates of parameters of interest, and uncertainty has been extensively explored using a crosswise grid of sensitivity tests. Previous skipjack assessments indicate that SB has not been reduced below SBMSY. The 2014 assessment estimates of spawning biomass (2011) are also above the level that will support the MSY (SBlatest/SBMSY = 1.74 for the base case and from 1.45 to 2.10 across the grid of model runs used in the assessment) (WCPFC 2014a). WCPFC (2014a) also indicated that "Future status under status quo projections (assuming 2012 conditions) was robust to assumptions on future recruitment. Under either assumption, spawning biomass remained relatively constant and it is exceptionally unlikely (0%) for the stock to become overfished (SB2032<0.2SBF=0) or for the spawning biomass to fall below SBMSY, and it is exceptionally unlikely (0%) for the stock to become subject to overfishing (F>FMSY)".* *An updated 2016 assessment provides conclusions that are largely consistent with previous assessments based on the results of the reference case model and*		

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
		consideration of the results of sensitivity runs (McKechnie et al. 2016). The reference case model of the 2016 stock assessment estimated the 2015 level of spawning potential to be at approximately 58% of the unfished level for the reference case model, well above the LRP of 20%SBF=0 agreed by WCPFC (WCPFC 2016b). SBlatest/SBF=0 was relatively close to the adopted interim target reference point (0.5SBF=0) for all models explored in the assessment (structural uncertainty grid: median = 0.51, 95% quantiles = 0.39 and 0.67) (WCPFC 2016b). *The CRv2.0 SA2.5.2a condition is therefore met and HCRs are considered to be 'available'.* *Second, CR v2.0 SA2.5.3b provides for HCR being recognised as available if, "…there is an agreement or framework in place that requires the management body to adopt HCRs before the stock declines below BMSY".* *CMM 2014-06 sets out the principles and elements for harvest strategies to be developed and implemented, including requirements for target and limit reference points and decision rules or ("harvest control rules"), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The CMM also included a requirement to adopt a workplan with an indicative timeframe no later than 2015 Commission meeting, with application to skipjack tuna, bigeye tuna, yellowfin tuna, Pacific bluefin tuna, and South and North Pacific albacore tuna. In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop (MOW) process (a TRP and LRP have been adopted for skipjack tuna). Following discussions at WCPFC12 a workplan was agreed (WCPFC 2015b, Attachment Y). The Commission tasked the SC with support from the Scientific Service Provider to undertake the activities specified in the agreed workplan (included in this report at Appendix 10).* *As indicated above, the current stock assessment and projections of future stock size indicate that the stock will remain above SSBMSY over the period agreed in the CMM 2014-06 workplan. The CRv2.0 SA2.5.3b requirement is therefore met.* *In summary, as the requirements of both CRv2.0 SA2.5.2a and CRv2.0 SA2.5.3b are met, a score of SG60 is awarded. Nevertheless, as UoA 1 of the PNAFTF does not meet the SG80 level of performance for this SI, a Condition of Certification (#2) is set.*		
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?		N	N
	Justification	HCRs are still under development and SG80 is therefore not met. The Condition of Certification (#2) that was set for SIa applies to this SI, also.		
	HCRs evaluation			

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
c	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?	Y	N	N
	Justification	*The rationale for this SI needs to address two CRv2.0 (MSC 2014) requirements.* *First, CR v2.0 SA2.5.6 requires that as part of the evaluation of the effectiveness of HCRs, "…teams shall include consideration of the current levels of exploitation in the UoA, such as measured by the fishing mortality rate or harvest rate, where available". MSC CRv2.0 SA2.5.6 guidance (GSA2.5.2-7) states that "Evidence that current F is equal to or less than FMSY should usually be taken as evidence that the HCR is effective".* *Evidence to support this is provided by the 2014 and 2016 assessments indicating that overfishing is not occurring (Fcurrent /FMSY < 1 across the grid of model runs) (WCPFC 2014a, WCPFC 2016b).* *Second, in relation to SIa, above, CRv2.0 SA2.5.5b, requires that where HCRs are recognised as 'available "A description of the formal agreement or legal framework that the management body has defined, and the indicators and trigger levels that will require the development of HCRs" shall be provided.* *As noted at SIa, CMM 2014-06 sets out elements of harvest strategies to be developed and implemented. The WCPFC agreed to adopt a work plan at the 2015 Commission meeting, with potential revision in 2017, with application to skipjack, bigeye, yellowfin, Pacific bluefin, and South and North Pacific albacore tunas. Work to establish reference points and harvest control rules has been in progress over recent years through the Management Objectives Workshop (MOW) process. WCPFC has adopted an explicit LRP and TRP for skipjack. Following discussions at WCPFC 12 a workplan was agreed (WCPFC 2015a, Attachment Y). No additional trigger is required for the development of HCRs is required.* The requirements detailed above are met and a score of 60 is awarded. SG80 refers to the tools 'in use' in the fishery. Given SIa finds HCRs are 'available', the tools are not considered to be in use and SG80 is not met. The Condition of Certification (#2) that was set for SIa applies to this SI, also.		
References		*Rice et al. 2014, McKechnie et al. 2016, WCPFC 2014a, WCPFC 2015b, WCPFC 2016b.* *NB References as listed in 2*		
OVERALL PERFORMANCE INDICATOR SCORE:				**60**
CONDITION NUMBER (if relevant):				**2**

Evaluation Table for PI 1.2.3 – Information and monitoring- Skipjack tuna

PI 1.2.3		Relevant information is collected to support the harvest strategy		
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?	Y	Y	Y
	Justification	*Monitoring systems in place provide a comprehensive range of information to support the current harvest strategy and inform the stock assessment. Available information includes mandatory logbooks, with records for each fishing operation, detailed VMS coverage, a requirement for 100% observer coverage for the majority of the skipjack tuna catch, and port inspections.* *Information is available on key aspects of skipjack tuna biology and extensive tagging provides information on stock structure. The tagging data and size composition sampling are key inputs to the MULTIFAN-CL model which provides for estimation of reference points against which stock status can be evaluated and management advice provided. Data on environmental conditions is collected and is known to be important for understanding shifts in the distribution of the stock and the fishery. These data have been used to produce complex models of the ecological system (e.g., Ecopath and SEAPODYM).* *The available information is considered to meet the requirements of the SG60, SG80 and SG100 levels.* UoA removals are recorded and verified and are well known, as required at SG100. All PNA comment remain relevant. The harmonised score is not modified.		
b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of 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.	**All information** required by the harvest control rule is monitored with high 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

PI 1.2.3		Relevant information is collected to support the harvest strategy		
				management to this uncertainty.
	Met?	Y	Y	N
	Justification	*As indicated at PI 1.2.3 SIa, stock abundance and removals are monitored at a level of accuracy and coverage that is sufficient to support the current harvest control measures. The information enables estimates of stock abundance and harvest control decisions based on the available data using the stock assessment and a range of assumptions. The MULTIFAN-CL based assessment estimates abundance using catch and effort, size composition, and tagging data. Abundance indices (CPUE) for purse seine and pole-and-line fisheries are derived for use in the assessment model. Overall, data used are from all fisheries and cover the entire skipjack tuna stock. Catches are monitored at a level of accuracy and coverage consistent with assessment requirements to enable management decision-making. Effort data units for purse seine fisheries are defined as days fishing/or searching, and are allocated to set type (associated or unassociated) in logbook data. The majority of catches are taken by purse-seine vessels under PNA VDS arrangements. Since 2010, these vessels are subject to 100% observer coverage at sea. Port and transhipment monitoring are also required. A review of sampling protocols has improved catch and size composition accuracy (Cordue 2013).* *However, there are aspects of the data collection which do not meet SG100 requirements. There are delays in the collation of data from the most recent year that prevent their inclusion in the assessment. For a short-lived species such as skipjack tuna, this could lead to a mismatch between estimates of stock status from the assessment, management actions, and the actual stock status (Rice et al. 2014). Also, operational level data are not provided by some WCPFC members (although some who do not provide it to WCPFC make their country's data available for assessment purposes).* *The requirements for the SG60 and SG80 levels are met.* UoA removals are monitored through logbooks and inspection processes and SG60 UoA aspects of SG60 and SG80 are met. SG80 requirements are met. Consistent with harmonisation scores, SG100 is not met.		
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	*Other removals from the stock across the WCPO include catches by other WCPFC members, again predominantly by purse seine but also by other fishing gears. Catches by members are required to be reported to the WCPFC. Article 5 of the Convention requires CCMs to "collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programmes."*		

PI 1.2.3		Relevant information is collected to support the harvest strategy
		The original PNA skipjack tuna MSC assessment (Banks et al. 2011) commented on shortcomings in the information coming from some countries, in particular, Indonesia. Since that assessment there has been additional work to improve the level of data available from other sources, including non-purse seine fisheries. There is improved data from the diverse fisheries of Indonesia, Philippines, and Vietnam, including estimates of total catch, size and some effort data as a result of projects such as the Global Environment Facility (GEF) funded West Pacific East Asia (WPEA) Project which has provided technical assistance and financial support to the participating countries (Indonesia, Philippines and Vietnam) for tuna data collection, annual tuna catch estimation, and capacity building to refine legal, institutional and policy arrangements (WCPFC 2014b). Overall, it is concluded that there is good information on other removals and SG80 requirements are met.
References		*Cordue 2013, Lehodey et al. 1997, McKechnie et al. 2016, Rice et al. 2014, WCPFC 2014b, WCPFC 2016b.* *NB References as listed in 2*
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		**N/A**

Evaluation Table for PI 1.2.4 – Assessment of stock status- Skipjack tuna- Skipjack tuna

PI 1.2.4		**There is an adequate assessment of the 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?		Y	Y
	Justification	*Stock assessments of skipjack tuna are undertaken regularly, most recently in 2016 (McKechnie et al. 2016); before that in 2014 (Rice et al. 2014) and in 2011 (Hoyle et al. 2011). The assessment takes into account major features relevant to the biology and the nature of the UoA and the wider WCPO. It is implemented using MULTIFAN-CL, fitting an age- and spatially-structured model to catch, effort, size composition, and tagging data. The model first developed for skipjack tuna in 1998 and has been continually fine-tuned and improved.* The skipjack tuna assessment is appropriate for the WCPO stock, accounting for spatial and temporal distributions, using appropriate biological assumptions, and accounting for diverse fisheries. The assessment is appropriate for the generally understood harvest control rules that are being applied and for the range of formal HCRs that are likely to be adopted; SG80 and SG100 requirements are 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?	Y	Y	
	Justification	The assessment is used to estimate stock status relative to a wide range of indicators including the agreed reference points. The SG60 and SG80 requirements are 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?	Y	Y	Y
	Justification	The skipjack assessment explicitly explores sources of uncertainty. Two approaches are used to describe the uncertainty. The first estimates statistical uncertainty within a given assessment model. In addition, structural uncertainty in the assessment is examined by considering the variation in a crosswise grid of model runs which include many of the options of uncertainty explored during model development (Rice et al. 2014, McKechnie et al. 2016). The structural uncertainty includes examination of factors including steepness, the length composition weighting data, the assumed tag mixing period and the tagging data weighting, resulting in a grid of 54 models. Model outputs are provided in a probabilistic way. SG60, SG80 and SG100 requirements are met.		

PI 1.2.4		There is an adequate assessment of the stock status		
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?			Y
	Justification	The SPC Oceanic Fisheries Programme provides an ongoing programme of review of assessment assumptions and approaches. Model structure has been updated to reflect the availability of new data or new interpretations of existing data. A suite of sensitivity analyses are undertaken to explore the impact of options such as changing assumptions for fixed parameters or different treatments of the data. Furthermore, retrospective analyses have been undertaken to explore any systematic biases in the model and the results used to adjust the reference case. Aspects of uncertainty examined include stock-recruitment steepness, alternate growth assumptions, alternate mixing assumptions and changes in weighting factors (Rice et al, 2014, McKechnie et al. 2016). The assessment for skipjack tuna has been shown to be robust. The SG100 requirements are 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?		Y	N
	Justification	*The WCPFC science and assessment processes have been externally reviewed (WCPFC 2009a). The stock assessment itself is subject to internal peer review through the annual pre-assessment workshop and WCPFC SC annual processes. An external review of bigeye tuna (Ianelli et al. 2013) has implications for the skipjack assessment and the SPC has taken advantage of that review to further develop all tuna assessments, including for skipjack (Rice et al. 2014, McKechnie et al. 2016). SG80 requirements are met.* However, the skipjack assessment itself has not been specifically subject to external peer review, preventing a score of 100 for this scoring issue.		
References		*Hoyle et al. 2011, Rice et al. 2014, McKechnie et al. 2016, Ianelli et al. 2013, WCPFC 2009a.* NB References as listed in Appendix 6.		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				**N/A**

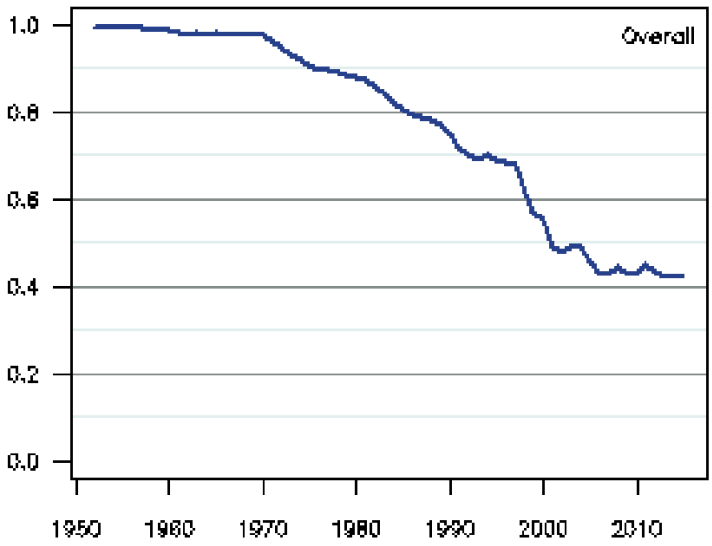
Principle 1 - Yellowfin tuna

NOTE: The most recent, final report and determination that includes skipjack and yellowfin tuna is the PNA Western and Central Pacific skipjack and yellowfin, unassociated/non FAD set, tuna purse seine fishery, available at: https://fisheries.msc.org/en/fisheries/pna-western-and-central-pacific-skipjack-and-yellowfin-unassociated-non-fad-set-tuna-purse-seine/@@assessments. The final report and determination was published on 5th September 2017.

The PNA final report and determination is used as the base for harmonisation. With the agreement of the CAB responsible for the PNA certification (Acoura) and the P1 expert (K McLoughlin), we attach the Principle 1 Background and References sections as Appendix 6. The background section for this report (section 3.3) does not repeat the PNA material, providing only additional materials relevant to this evaluation. The scoring tables here include clearly identified text (as *red, italic)* from the PNA assessment, together with additional materials only as necessary. The repeated text itself draws on extensive harmonisation with other fishery certifications of overlapping stocks, coordinated by multiple assessors/authors, including the P1/2/3 experts involved in this certification.

Evaluation Table for PI 1.1.1 – Stock status - Yellowfin tuna

PI 1.1.1		**The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing**		
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?	Y	Y	Y
	Justification	Yellowfin tuna is not a low trophic level (LTL) stock. Table SA1 is used for scoring PI1.1.1. [[NOTE: There is a new stock assessment available for yellowfin tuna since harmonisation took place. Here, therefore, we do not use show the PNA scoring but have inserted new text. Scoring remains the same as in previously harmonised certifications]] The 2017 stock assessment (Tremblay-Boyer et al., 2017) does not provide a reference (base) case and there is no single Kobe Plot provided to summarise the assessment output. Instead, reflecting uncertainty in structures and assumptions made, the assessment is based on a grid of assessment model runs. Status estimates are taken as medians from the grid runs. The estimated "recent" (2013-2015) spawning biomass (SBrecent) was 34% of the unfished level (SBF=0), and that the spawning stock associated with achieving MSY(SBMSY) was 25% of the unfished level. That is, SBrecent is estimated as 1.37SBMSY. The grid of assessment model outcomes suggests SBrecent/SBF=0 could range from 0.16 to 0.35, but this is not a confidence interval on the median value used. Based on the uncertainty grid used, the WCPFC SC (WCPFC, 2017) consider it highly likely that the spawning biomass is above 20%SBF=0., as adopted as an LRP by the WCPFC. The use of "highly likely" by the WCPFC SC is not the same as used by MSC (SA2.2.1). The SC notes that the probability of the stock not being overfished (i.e., below 20%SBF=0) is 92%. It is therefore concluded that there is a high degree of certainty that the stock is above the point where recruitment would be impaired. SG60, SG80 and SG100 requirements are met.		
	Stock status in relation to achievement of MSY			

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
b	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?		Y	N
	Justification	[[There is a new stock assessment available since harmonisation took place. In this instance, therefore, we do not use PNA scoring rationales. Scoring is lower than the previously harmonised score.]] No explicit target reference point has been adopted for yellowfin tuna. There is an implicit target of BMSY (supported by CMM 2014-01) and target reference levels under consideration by the WCPFC are in the range of 40-60%SBF=0. As noted at si(a), the 2017 stock assessment (Tremblay-Boyer et al., 2017) does not provide a reference (base) case and there is no single Kobe Plot provided to summarise the assessment output. Instead, reflecting uncertainty in structures and assumptions made, the assessment is based on a grid of assessment model runs. Status estimates are taken as medians from the grid runs. The estimated "recent" (2013-2015) spawning biomass (SBrecent) was 34% of the unfished level (SBF=0), and that the spawning stock associated with achieving MSY(SBMSY) was 25% of the unfished level. That is, SBrecent is estimated as 1.37SBMSY. Tremblay-Boyer et al (2017) present plots of SBlatest/SBF=0 (where "latest" is 2015) for a diagnostic base case model. The figure below shows the trajectory for the overall stock only. Note that the figure uses the latest assessment year (2015), not the recent (3-year average), and shows the trajectory of spawning stock in relation the unexploited level rather than SBMSY (which is at 0.25 on the graph axis). The trajectory is taken as representative of the multiple assessment runs. It shows clearly that for the overall yellowfin stock has been declining but is still well above SBMSY. 		

PI 1.1.1	The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue	SG 60	SG 80	SG 100
	Figure: Ratio of exploited to unexploited spawning potential SBlatest/SBF=0, for the overall WCPFC yellowfin tuna stock, for the diagnostic case model. (Source: Tremblay-Boyer et al, 2017; Fig 43) The best estimate is that the stock is above SBMSY. The grid analysis is relevant to the degree of certainty, as needed for MSC scoring but needs to be treated with some caution as there are no results presented that relate directly to MSC scoring requirements at SA2.2.1. The grid medians and 25% confidence intervals (see Tremblay-Boyer et al, 2017, Table 6) for SBrecent/SBMSY and SBlatest/SBMSY were estimated at 1.37 (1.26) and 1.38 (1.15) respectively, suggesting at least a highly likely (SA2.2.1.2) interpretation. SG80 is met. It is not possible to infer the 10%ile estimates of SB/SBF=0 from the results presented, making SG100 scoring difficult. On a precautionary basis, SG100 is not awarded.		
References	Tremblay-Boyer et al., 2017		
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)	20%SBF=0	20%SBF=0 for multiple grid runs – no single value as status is evaluated with respect to each run	Median of grid runs: SBrecent = 0.34SBF=0 (= 1.7x 20%SBF=0)
Reference point used in scoring stock relative to MSY (SIb)	B_{MSY}	SBMSY for multiple grid runs – no single value as status is evaluated with respect to each run	Median of grid runs: SBrecent/SBmsy = 1.37 (lower 25% CI = 1.26) SBlatest/SBmsy = 1.38 (lower 25% CI = 1.15)
OVERALL PERFORMANCE INDICATOR SCORE:			**90**
CONDITION NUMBER (if relevant):			**N/A**

Evaluation Table for PI 1.1.2 – Stock rebuilding- Yellowfin tuna – NOT APPLICABLE

PI 1.1.2		**Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Rebuilding timeframes**			
	Guide post	A rebuilding timeframe is specified for the stock that is **the shorter of 20 years or 2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock.
	Met?	Not scored		Not scored
	Justification	Not scored		
b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, **or it is likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	There is **strong** evidence that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.
	Met?	Not scored	Not scored	Not scored
	Justification	Not scored		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**N/A**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 1.2.1 – Harvest strategy- Yellowfin tuna

PI 1.2.1		**There is a robust and precautionary harvest strategy in place**		
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?	Y	N	Not scored
	Justification	*MSC guidance defines a harvest strategy as the combination of monitoring, stock assessment, harvest control rules and management actions. It is intended that these elements work together towards achieving management objectives. The current harvest strategy is not formalised but consists of the elements considered at PIs 1.2.2, 1.2.3, and 1.2.4.* *The operational harvest strategy for WCPO yellowfin has several contributing components, with WCPFC, PNA and national and archipelagic waters management actions being supported by a robust stock assessment and extensive monitoring frameworks. Management measures applied to yellowfin tuna take the same form as those applied to skipjack tuna. The development of measures from CMM 2005-01 to 2015-01 are as described at PI 1.2.1 SIa for skipjack tuna.* *An explicit LRP for yellowfin tuna has been adopted for biomass (20%SBF=0). A formal target reference point is under discussion by WCPFC and subject to development under the workplan established under CMM 2014-06. In the absence of a formal target reference point, the default WCPFC target of BMSY applies to yellowfin tuna.* *At this point, harvest control rules have not been adopted. There is an extensive information base from a wide range of biological studies and from a diverse range of fisheries. The information is sufficient to support a state-of-the-art stock assessment that provides probabilistic estimates of key parameters and their relationship to reference points. Advice from the stock assessment is provided by the SC and additional work is carried out by the scientific provider, SPC, to the Commission. Annual decision-making is articulated through CMMs and is supported by good scientific decision-support systems. CMM 2014-06 spells out the future direction for strengthening the harvest strategy, including the development of harvest control rules, and a work plan has been agreed to implement this.* *As indicated above, there are measures in place that are intended to control fishing mortality for purse seine fishing, including effort and capacity limits. The UoA harvest strategy rates well against many of the requirements for a harvest strategy as defined by MSC (e.g. limit reference point, monitoring and stock assessment). The status of yellowfin continues to be assessed as not overfished and not subject to overfishing, though the yellowfin tuna stock is not in as strong a position against the various reference levels presented in the assessment as is the case for skipjack*		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
		tuna. Latest catches in the 2014 assessment (612,797 mt, 2012) of WCPO yellowfin tuna marginally exceed MSY (586,400 mt). *The majority of the skipjack catch in the WCPO is taken by purse seine. Since 2010, annual catches of yellowfin tuna by methods other than purse seine have been approximately 40-50% of the total, hence the measures in place for these other fishing methods require greater consideration for yellowfin tuna.* *CMM 2013-01, CMM 2014-01 and CMM 2015-01 have, in addition to the measures for the purse seine component of the fishery, incorporated requirements that other commercial fisheries for bigeye tuna, yellowfin tuna and skipjack tuna take necessary measures such that fishing effort and capacity shall not exceed the average level for the period 2001-2004 or 2004. For longline fisheries, these CMMs require that "CCMs agree to take measures not to increase catches by their longline vessels of yellowfin tuna." These three CMMs each state that at the following regular Commission meeting "…the Commission will formulate and adopt appropriate limits for CCMs, based on recommendations from the Scientific Committee, and taking into account other measures in this CMM." These limits have not yet been agreed.* *To date, the measures in place have achieved stock management objectives reflected in PI 1.1.1 SG80 and assessment projections indicate they will continue to do so, meeting SG60 requirements. However, there has been a lack of progress in the development of management measures for some components of the overall fishery for yellowfin. The elements of the harvest strategy are not considered to be working together towards achieving stock management objectives reflected in PI 1.1.1 SG80, hence SG80 requirements for this scoring issue are not met.* We note that the new stock assessment and status (see PI1.2.4 and 1.1.1) and latests WCPFC CMM (WCPFC CMM 17-01) do not make any material difference to the rationale and scoring.		
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?	Y	Y	N
	Justification	*The yellowfin tuna assessment (Davies et al. 2014) indicates the stock is in more depleted state than skipjack tuna, but it is still assessed as being close to the implicit target. Status quo stock projections undertaken indicate that "it was exceptionally unlikely (<1%) that the yellowfin stock would fall below the limit reference point level or that fishing mortality would increase above the FMSY level by 2032" (Pilling et al. 2014).* *Furthermore, the current stock assessment indicates that fishing mortality for yellowfin tuna has always been below the FMSY level and that the stock has not declined below the default target of BMSY. This constitutes good evidence that the harvest strategy is meeting its objectives.*		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
		Therefore, as for skipjack tuna, yellowfin tuna is considered to meet both the SG 60 and SG 80 levels of this scoring issue. The harvest strategy performance has not been fully evaluated – 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?	Y		
	Justification	*The same monitoring is also in place for yellowfin tuna as for skipjack tuna (see PI 1.2.1, SIc). These monitoring systems support a sophisticated stock assessment process that provides robust estimates of stock status that are sufficient to determine whether the harvest strategy is working. This SG 60 requirement is met.*		
d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Not scored
	Justification	*The harvest strategy for yellowfin tuna has not been formalised and is not subject to a formal review process. SG100 is potentially not met on this basis. However, there is ongoing review of the elements of the harvest strategy and revisions are made as evidenced by the adoption of updated CMMs*. For Indonesian waters, harvest strategy development is a continuing process set up under the NPOA Tuna (2014) and started in November 2014. To date there have been multiple meetings per year, all with the aim of new harvest strategy development and improvement, with an aim on new strategy adoption in 2020. This process goes a long way towards meeting SG100 requirements but is not scored because there is no review of an already adopted harvest strategy. Not scored		
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 relevant	Not relevant	Not relevant
	Justification	The target species, skipjack tuna, is not a shark. The scoring issue is not scored.		
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 relevant	Not relevant	Not relevant

PI 1.2.1		There is a robust and precautionary harvest strategy in place
	Justification	There is no unwanted catch as defined at SA3.1.6. The scoring issue is not scored.
References		*Banks et al. 2011, Davies et al. 2014, Pilling et al. 2014* NB References as listed in Appendix 6.
OVERALL PERFORMANCE INDICATOR SCORE:		**70**
CONDITION NUMBER (if relevant):		**3**

Evaluation Table for PI 1.2.2 – Harvest control rules and tools- Yellowfin tuna

PI 1.2.2		**There are well defined and effective harvest control rules (HCRs) in place**		
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?	Y	N	Not scored
	Justification	*CMM 2014-06 established a process for the adoption of harvest control rules, however, well-defined harvest control rules are not currently in place and SG80 is not met.* *Following the MSC Notice, "Scoring of 'available' Harvest Control Rules (HCRs) in CRv1.3 fisheries" of 24th November 2014, PI 1.2.2 si(a) has been scored using CRv2.0 (MSC 2014) provisions for SG60 (as above) scoring for a number of fisheries, including several tuna fisheries. MSC have also provided further comment on HCRs with their notice of 16 December, 2015 "Interpretation on Harvest Control Rules (HCR)".* *CRv2.0 (MSC 2014) lays out two conditions for acceptance of HCR being available sufficient to justify scoring at the SG60 level.* *First, CRv2.0 SA2.5.2a provides for HCR being recognised as available, "…if stock biomass has not previously been reduced below BMSY or has been maintained at that level for a recent period of time".* *The MULTIFAN-CL software used for yellowfin tuna stock assessment provides probabilistic estimates of parameters of interest, and uncertainty has been extensively explored using a crosswise grid of sensitivity tests. Previous yellowfin tuna assessments indicate that SB has not been reduced below SBMSY. The 2014 assessment estimates of spawning biomass (2011) are also above the level that will support the MSY (SBlatest/SBMSY = 1.24 for the base case and from 1.05 to 1.51 across key models of the grid used in the assessment) (WCPFC 2014a). WCPFC (2014a) also indicated that "Future status under status quo projections (assuming 2012 conditions) depends on assumptions on future recruitment. When spawner-recruitment relationship conditions are assumed, spawning biomass is predicted to increase and the stock is exceptionally unlikely (0%) to become overfished (SB2032<0.2SBF=0) or to fall below SBMSY, or to become subject to overfishing (F>FMSY). If recent (2002–2011) actual recruitments are assumed, spawning biomass will remain relatively constant, and the stock is exceptionally unlikely (0%) to become overfished or to become subject to overfishing, and it was very unlikely (2%) that the spawning biomass would fall below SBMSY)"*		

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
		(WCPFC 2014a). The CRv2.0 SA2.5.2a condition is therefore met and HCRs are considered to be 'available'. *Second, CRv2.0 SA2.5.3b provides for HCR being recognised as available if, "…there is an agreement or framework in place that requires the management body to adopt HCRs before the stock declines below BMSY".* *CMM 2014-06 sets out the principles and elements for harvest strategies to be developed and implemented, including requirements for target and limit reference points and decision rules or ("harvest control rules"), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The CMM also included a requirement to adopt a workplan with an indicative timeframe no later than 2015 Commission meeting, with application to skipjack tuna, bigeye tuna, yellowfin tuna, Pacific bluefin tuna, and South and North Pacific albacore tunas.* *In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop (MOW) process (a LRP has been adopted for yellowfin tuna and candidate TRPs are under consideration). Following discussions at WCPFC 12 a workplan was agreed (WCPFC 2015b, Attachment Y). The Commission tasked the SC with support from the SPC to undertake the activities specified in the agreed workplan (included in this report at Appendix 10).* *As indicated above, the current stock assessment and projections of future stock size indicate that the stock will remain above SSBMSY over the period agreed in the CMM 2014-06 workplan.* *The CRv2.0 SA2.5.3b requirement is therefore met.* *In summary, as conditions at both CR v2.0 SA2.5.2a and CR v2.0 SA2.5.3b are met, a score of SG60 is awarded. Nevertheless, as UoA 2 of the PNAFTF does not meet the SG80 level of performance for this SI, a Condition of Certification (#4) is set.* NB The most recent stock assessment (Tremblay-Boyer et al, 2017; see PI1.1.1 and 1.2.4) suggest little or no difference in the assessment used in the PNA assessment, though with a slightly higher grid median for SBrecent/SBmsy, and still low probability of the stock being below SBmsy. The logic of the scoring remains unchanged.		
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?		N	Not scored
	Justification	*The 'available' harvest control rules are not sufficiently articulated to allow an evaluation of the extent to which they take uncertainties into account. When well-*		

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
		defined HCRs are developed they can be evaluated as to whether the main uncertainties have been taken into account. *The SG80 requirements are not considered to be met, and the Condition of Certification (#4) that was set for SIa applies to this SI, also.*		
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?	Y	N	Not scored
	Justification	*The rationale for this SI needs to address two CRv2.0 (MSC 2014) requirements.* *First, CRv2.0 SA2.5.6 requires that as part of the evaluation of the effectiveness of HCRs, "…teams shall include consideration of the current levels of exploitation in the UoA, such as measured by the fishing mortality rate or harvest rate, where available". CRv2.0 SA2.5.6 guidance (GSA2.5.2-7) states that "Evidence that current F is equal to or less than FMSY should usually be taken as evidence that the HCR is effective".* *Evidence to support this is provided by the 2014 assessment indicating that overfishing is not occurring (Fcurrent /FMSY < 1 across the grid of model runs) (WCPFC 2014a).* *Second, in relation to SIa, above, CRv2.0 SA2.5.5b, requires that where HCRs are recognised as 'available "A description of the formal agreement or legal framework that the management body has defined, and the indicators and trigger levels that will require the development of HCRs" shall be provided.* *As noted at SIa, CMM 2014-06 sets out elements of harvest strategies to be developed and implemented. The WCPFC agreed to adopt a work plan at the 2015 Commission meeting, with potential revision in 2017, with application to skipjack, bigeye, yellowfin, Pacific bluefin, and South and North Pacific albacore tunas. Work to establish reference points and harvest control rules has been in progress over recent years through the Management Objectives Workshop (MOW) process. WCPFC has adopted an explicit LRP for yellowfin and candidate TRPs are being considered. Following discussions at WCPFC12 a workplan was agreed (WCPFC 2015a, Attachment Y). No additional trigger is required for the development of HCRs is required.* *The requirements detailed above are met and a score of 60 is awarded. SG80 refers to the tools 'in use' in the fishery. Given SIa finds HCRs are 'available', the tools are not considered to be in use and SG80 is not met. The Condition of Certification (#4) that was set for SIa applies to this SI, also.* NB The most recent stock assessment (Tremblay-Boyer et al, 2017; see PI1.1.1 and 1.2.4) suggest little or no difference in the assessment used in the PNA assessment, though with a slightly higher grid median for SBrecent/SBmsy, and		

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place
		still low probability of the stock being below SBmsy. The logic of the scoring remains unchanged.
References		*Davies et al. 2014, Pilling et al. 2014, WCPFC 2014a, WCPFC 2016b, CMM 2014-06.* NB References as listed in Appendix 6. Tremblay-Boyer et al., 2017
OVERALL PERFORMANCE INDICATOR SCORE:		**60**
CONDITION NUMBER (if relevant):		**4**

Evaluation Table for PI 1.2.3 – Information and monitoring- Yellowfin tuna

PI 1.2.3		Relevant information is collected to support the harvest strategy		
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?	Y	Y	Y
	Justification	*The information and monitoring system that is in place for skipjack tuna catches is also applicable to yellowfin tuna. Therefore, the same rationale and scores also apply to yellowfin tuna. Available information includes mandatory logbooks, with records for each fishing operation, detailed VMS coverage, a requirement for 100% observer coverage for the majority of the yellowfin purse seine catch, and port inspections. Information is available on key aspects of yellowfin tuna biology and extensive tagging provides information on stock structure. The tagging data and size composition sampling are key inputs to the MULTIFAN-CL model which provides for estimation of reference points against which stock status can be evaluated and management advice provided. Data on environmental conditions is collected and is known to be important for understanding shifts in the distribution of the stock and the fishery.* *There is a comprehensive range of information collected related to the fishery including the elements required to meet the SG60, SG80 and SG100 levels.* All PNA assessment comments remain relevant. UoA removals (total, though not composition) have been available since 2014.		
b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of 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.	**All information** required by the harvest control rule is monitored with high 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?	Y	Y	N

PI 1.2.3		Relevant information is collected to support the harvest strategy		
	Justification	*The information and monitoring system that is in place for skipjack tuna catches is also applicable to yellowfin tuna. As noted in the original assessment for skipjack tuna (Banks et al. 2011), stock abundance and removals are monitored at a level of accuracy and coverage that is sufficient to support the harvest control measures in place. Estimates of stock abundance are obtained through the MULTIFAN-CL stock assessment. Abundance indices monitored include catch-per-unit effort (CPUE) for purse seine and longline fisheries. WCPFC has systems in place for recording catch and effort for all vessels catching WCPO yellowfin tuna. Purse seine catch data are estimated by 1o latitude, 1o longitude, month, flag, and set type. The majority of the purse seine catches are taken under the PNA VDS arrangements. The PNA purse seine vessels are subject to 100% at sea observer coverage. These requirements meet the SG60 and SG80 levels.* *There are issues of non-provision of operational catch and effort by several Commission members for the longline fishery. The SPC has enumerated the impacts of these operational level data gaps. As a result, there is not a high degree of certainty about all the information required, with operational level data not provided for some parts of the fishery. The SG100 level is not met.* UoA removals are monitored through logbooks and inspection processes and SG60 UoA aspects of SG60 and SG80 are still met. SG80 requirements are met. Consistent with harmonisation scores, SG100 is not met.		
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	*Other removals from the stock across the WCPO include catches by other WCPFC members, including by fishing gears other than purse seine. Catches by members are required to be reported to the WCPFC. Article 5 of the Convention requires CCMs to "collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programmes."* *This scoring issue was the subject of discussion in the original skipjack tuna assessment (Banks et al. 2011), in particular whether there was good information on the level of fishery removals from some countries, predominantly Indonesia, the Philippines and Vietnam.* *The conclusion was that "despite a number of deficiencies in compilation and analysis from the Indonesia and Philippines, this reaches SG 80".* Since that assessment there has been additional work to improve the level of data available (GEF-funded West Pacific East Asia project noted in the Surveillance Reports for skipjack tuna and at WCPFC 11 (WCPFC 2014c). The requirements of the SG80 level are met for yellowfin tuna.		
References		*Banks et al. 2011, Davies et al. 2014, WCPFC 2014c*. NB References as listed in Appendix 6.		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 1.2.4 – Assessment of stock status- Yellowfin tuna

PI 1.2.4		There is an adequate assessment of the 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?		Y	Y
	Justification	The MULTIFAN-CL stock assessment software is a robust and internationally recognized stock assessment package with efficient function minimization, implemented in AD Model Builder. The 2017 assessment model is an update with minor changes to that used previously (Davies et al, 2014). It is an age and spatially structured model, utilising biological information, catch, effort, size composition, CPUE and tagging data and fits the data of 32 (33 in 2014) fisheries to nine regions (with slightly modified boundaries cf 2014) in quarterly time steps from 1952-2012 (Tremblay-Boyer et al., 2017). The assessment is undertaken by an experienced and internationally recognised stock assessment program at the SPC, the WCPFC science provider. The assessment is used to generate advice to management based on stock and exploitation reference points. The SG80 and SG100 requirements are 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?	Y	Y	
	Justification	As described in the introductory sections of this document (Section 3.3), at Appendix 6, and in the scoring text for PI 1.1.1, the stock assessment reports provide a wide range of estimates of stock status relative to indicators of interest to management, including agreed/potential reference levels. The SG60 and SG80 requirements are 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?	Y	Y	Y
	Justification	(Tremblay-Boyer et al., 2017) provide commentary on the major sources of uncertainty. The assessment considers uncertainty within any assessment run and uses sensitivity tests during development to define final models used in grid to provide information on structural uncertainty, which is greater than any single model run estimates imply. The 2017 assessment grid has 72 individual model runs, an increase from the 48 used in the 2014 assessment. The additional models, however, have little influence on the results, which are similar to those obtained in 2014.		

PI 1.2.4		There is an adequate assessment of the stock status		
		Key uncertainties identified and explored in the 2 assessment include the level of steepness of the stock-recruitment relationship, natural mortality, CPUE, the weighting of the length samples, and the tag mixing period. SG60, SG80 and SG100 are 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?			Y
	Justification	There is an ongoing program of review of assessment assumptions and approaches by the staff in the SPC's Oceanic Fisheries Programme. Alternative hypotheses are continually being explored (within funding and time constraints) and assessments are updated and modified as required. Recommendations for further work to improve the assessment can be seen in Davies et al. (2014) and (Tremblay-Boyer et al., 2017). The structure of the assessment has been regularly updated to reflect the availability of new data or new interpretations of existing data and a suite of sensitivity analyses have been undertaken to explore the impact of options such as changing assumptions for fixed parameters or different treatments of the data. Furthermore, retrospective analyses have been undertaken to explore any systematic biases in the model and the results used to adjust the reference case. The assessment for yellowfin tuna has been shown to be robust. SG100 requirements are 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?		Y	N
	Justification	Internal reviews of stock assessments are undertaken by SPC. There has been an external review of the assessment of bigeye tuna (Ianelli et al. 2012) which provided recommendations that were also applicable to other similar assessments, such as for yellowfin tuna. Many of those recommendations were addressed with the 2014 yellowfin assessment. There have been external reviews commissioned of different aspects of the data analyses that feed into the assessments. For example, Cordue (2013) provided external review of the purse seine fishery species and size composition estimation. A level of internal review is provided by submission to meetings of the WCPFC SC, at which experienced scientific staff from CMM make comment and revisions may be made prior to the SC providing management advice. SG80 requirements are met. As discussed in Appendix 6, there have been two earlier reviews of the previous yellowfin tuna assessment (Haddon, 2010; Maguire, 2010) which were commissioned by the USA through the Center for Independent Experts (CIE). A response to these reviews was provided by SPC to SC7 (SPC 2011) but there was no reference to the findings of this review or the response in the next stock assessment (Davies et al., 2014). Given that these reviews were not commissioned by the WCPFC or SPC, and the lack of a clear response in the subsequent assessment, Acoura (2017) conclude that the requirements for external review are not fully met.		

PI 1.2.4		There is an adequate assessment of the stock status	
		SG100 requirements are not met.	
References		Acoura, 2017; Cordue, 2013; Davies et al., 2014; Haddon, 2010; ; Ianelli et al. 2012); Maguire, 2010); Tremblay-Boyer et al., 2017	
OVERALL PERFORMANCE INDICATOR SCORE:			95
CONDITION NUMBER (if relevant):			N/A

Principle 2 – (Common table for both Skipjack tuna UoA and Yellowfin tuna UoA)

(Common table for both UoA: at 2.1, scores for each UoA are provided while for 2.2-5, scores are common to both UoA)

Evaluation Table for PI 2.1.1 – Primary species outcome

PI 2.1.1		**The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.**		
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.
	Met?	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): N UOA (YFT): Y
	Justification	In UoA (SKJ), yellowfin tuna is a main primary species. In UoA (YFT), skipjack tuna is a main primary species. For UoA (YFT), consistent with scoring at PI1.1.1a and 1.1.1b for skipjack tuna in UoA(SKJ), there is a high degree of certainty that skipjack is above the PRI and fluctuating around a level consistent with MSY. SG100 is met. For UoA (SKJ), consistent with scoring at PI1.1.1a and 1.1.1b for yellowfin tuna in UoA(YFT), there is a high degree of certainty that skipjack is above the PRI, meeting the SG80 requirements, but not that has been fluctuating around a level consistent with MSY in recent years. SG100 is therefore not met. Apart from skipjack tuna and yellowfin tuna, bigeye tuna is the only primary species as defined at SA3.1.3. Other species caught in pole and line operations are dolphin fish and rainbow runner, which are considered as secondary species. No bait species (caught in separate bait station or “bagan” operations) are considered as primary species. Based on observer data from 2017, percentage catch by weight of bigeye tuna may reach 5% by trip but is typically zero. The average percentage catch of bigeye is 0.2%. Bigeye tuna is therefore not considered as a main species using SA3.4.1 and SA3.4.2.		
	Minor primary species stock status			

PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.		
b	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
	Met?			UOA (SKJ): Y UOA (YFT): Y
	Justification	Bigeye tuna is the only minor primary species considered. The latest stock assessment information is in the Summary Report of the 13th Regular Session of the WCPFC Scientific Committee (WCPFC, 2017; available at https://www.wcpfc.int/meetings/sc13). Interpretation is difficult as there is no single stock assessment run used as a basis for advice. Instead, a grid of assessment models has been used to explore uncertainty. Overall, it is possible the stock may be below the PRI but assessment runs using updated information suggest it is likely above. All models show a substantial decline in spawning biomass over time. However, the UoA catch of bigeye tuna in 2014, 2015 and 2016 was 200t, 648t, and 114t respectively. Catch in the main 2017 season was 987t. The total WCPFC bigeye catch is of the order of 150,000t per year. The UoA component of total catch is therefore less than 1%. Following GSA3.4.6, this is taken as evidence that the UoA does not hinder recovery and rebuilding of bigeye tuna. SG100 requirements are met.		
References		WCPFC, 2017		

OVERALL PERFORMANCE INDICATOR SCORE for Skipjack tuna:	**90**
OVERALL PERFORMANCE INDICATOR SCORE for Yellowfin tuna:	**100**
CONDITION NUMBER (if relevant):	**N/A**

Evaluation Table for PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
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.
	Met?	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): N UOA (YFT): N
	Justification	In UoA (SKJ), yellowfin tuna is a main primary species. In UoA (YFT), skipjack tuna is a main primary species. The UoA catch of each stock is low (0.13% for skipjack in 2015 and 0.07% for yellowfin in 2015), well below the 30% cut-off commonly used to determine ifa UoA is hindering recovery (GSA3.4.6). On that basis neither measures or a partial strategy are considered necessary and SG80 is met for both UoA. It is noted that for each target stock, the PI1.2.1 score is 60 for harvest strategy as the stock level. This PI refers to partial strategy at the SG80 level and importantly relates only to the UoA. There is no inconsistency in scoring 80 at this PI for both UoA while scoring 60 on hrvest strategy for each stock. There are no main primary species. SG60 and SG80 are therefore scored by default as no measures or partial strategy are necessary. No explicit strategy for managing pole and line fishery species other than skipjack and yellowfin tuna has yet been articulated. While the scale and intensity of the two UoAs, and low level of catch of bigeye, is such that no formal strategy is required in practice, SG100 scoring does not contain an “if necessary” clause. SG100 is therefore 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.
	Met?	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): N UOA (YFT): N
	Justification	Consistent with PI2.1.2a, SG80 is scored for both UoA. There is no articulated strategy to manage primary species (other than skipjack and yellowfinas target species) in the pole and line fishery. As noted at PI2.1.2a, given the scale and intensity of the UoA, no strategy is required in practice.		

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
		However, this has not been tested except through recent, 2014 onwards, catch data collection and a 2017 observer scheme. As yet, SG100 requirements are 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).
	Met?		UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): N UOA (YFT): N
	Justification	Consistent with PI2.1.2a and b, SG80 is scored for both UoA. While there is no articulated strategy to manage all primary species in the UoA, the persistent low level of catch provides some evidence that ongoing and unchanging operations are sufficient, partially meeting the SG100 requirements. SG100, however, requires that there be “clear evidence” and a score of SG100 is not supported.		
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.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	Neither yellowfin nor skipjack tuna are sharks. The only other primary species, bigeye tuna, is not a shark. The scoring issue is not scored for either 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.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	There is no primary species unwanted catch. The scoring issue is not scored for either UoA.		
References				

OVERALL PERFORMANCE INDICATOR SCORE for Skipjack tuna:	**80**
OVERALL PERFORMANCE INDICATOR SCORE for Yellowfin tuna:	**80**
CONDITION NUMBER (if relevant):	**N/A**

Evaluation Table for PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
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 adeqaute 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 susceptiblity 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.
	Met?	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): Y UOA (YFT): Y
	Justification	In UoA (SKJ), yellowfin tuna is a main primary species. In UoA (YFT), skipjack tuna is a main primary species. There are no other main primary species. Assessment of UoA impact requires information on the UoA catches and on stock size and composition. This is also scored at PI1.2.3b. Scoring here for UoA(SKJ) effectively reflects scoring at 1.2.3b for UoA(YFT), and *vice versa*. However, while there is some doubt reflected in the PI1.2.3 scores as to precision of stock status estimates and use within harvest strategies, the very low UoA catches as a percentage of total removals) provides a high degree of certainty as to assessment of the impact of the UoAs on respective primary species stocks. SG100 is met for both UoA.		
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.
	Met?			UOA (SKJ): Y UOA (YFT): Y
	Justification	There is one minor primary species, bigeye tuna, in each UoA. Information is available from catch records from 2014-2016 and from observers for the first half, and main season, of 2017. Catches are recorded in logbooks at sea and by weighing to the single point of landing. Ministry observers work at sea and for all landings and weighing. There is a high degree of confidence in the information and the level of bigeye catch. Independent observers in 2017 have also recorded catch		

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
		weights. Overall, there is good quantitative information which is adequate to estimate the impact of both UoA with respect to status (see also 2.1.2b). The SG100 requirements are 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.
	Met?	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): Y UOA (YFT): Y	UOA (SKJ): N UOA (YFT): N
	Justification	For both UoA, information is available on pole and line minor primary species catches such that a strategy could be supported. However, no explicit strategy is in place and it is therefore not possible to say with a high degree of certainty that the strategy is achieving its objective. SG100 is therefore not met.		
References				

OVERALL PERFORMANCE INDICATOR SCORE for Skipjack tuna:	**95**
OVERALL PERFORMANCE INDICATOR SCORE for Yellowfin tuna:	**95**
CONDITION NUMBER (if relevant):	**RECOMMENDATION**

Evaluation Table for PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit.		
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.
	Met?		90 from RBF	
	Justification	Secondary species caught in pole and line operations are *bonito (Sarda spp.), dolphin fish (Coryphaena hippurus)* and *rainbow runner (Elagatis bipinnulata*). Pole and line operations use bait bought from separate bagan (bait station) operations which are not part of the UoA. Although not part of the UoA, bait species are considered, following SA 3.1.7. Bait species caught are *white anchovy (Stoleporus indicus), blue anchovy, ponyfish (Eubleekeria rapsoni), squid (Loligo spp), sardine (Sardinella spp), Indian mackerel (Rastrelliger kanagurta), Mackerel scad (Decapterus sp), Yellowstripe scad (Selaroides leptolepis), and walo walo .* Based on 2017 observer data, percentage contributions of the total catch (using the total bait usage and pole and line catch per pole and line trip) are very small except for *white anchovy*. The percentages for the pole and line caught species are in the range 0.1-0.3% and are all less than 1% for bait species other than *white anchovy*. *White anchovy* comprises near 9% of the total catch per pole and line trip (including bait usage). Following SA3.4.1 and SA3.4.2., *white anchovy* is therefore considered as a main secondary species, while all other species are considered as minor.		

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit.		
		Following PF4.1.4, we only consider a PSA for the single, identified main species – white anchovy. The PSA workings are shown in Appendix 1. During the site visit, stakeholder consultation and information gathering took place to enable the PSA. The derived PSA score is 92. The final PI score is 90 (Table PF8).		
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
	Met?			N
	Justification	The UoA catches of bonito, dolphin fish and rainbow runner are very small compared to the large catches of these species across the WCPFC area and it is highly unlikely that the UoA catches would hinder recovery and rebuilding (if needed) based on GSA3.4.6. However, the status of the minor secondary bait species is not known, nor is the percentage usage of bait by the UoA against total removals of those bait species. There is thus no evidence to support a SG100 score using the default tree and no PSA has been conducted on minor species.		
References				
OVERALL PERFORMANCE INDICATOR SCORE: Capped at 80, following PF5.3.2.1				80
CONDITION NUMBER (if relevant):				N/A

Evaluation Table for PI 2.2.2 – Secondary species management strategy

PI 2.2.2		**There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.**		
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.
	Met?	Y	Y	N
	Justification	While the detailed percentage of UoA against total catch by secondary species is unknown, it is highly unlikely to be close to 30% given the low overall catch of the one, main secondary species (white anchovy) in the UoAs, the small percentage of UoA catch compared to other Indonesian pole and line operations targeting skipjack and yellowfin, and the wide areal distribution of white anchovy. Consistent with GSA3.4.6, SG60 and SG80 are therefore scored by default. There is no strategy for managing main and minor secondary species. SG100 requirements are 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.
	Met?	Y	Y	N
	Justification	Monitoring suggests secondary species catch levels are consistently low and specific measures or strategies are not necessary. Consistent with scoring at PI2.2.2a, SG60 and SG80 are met by default. There is no testing of partial strategy as none exists. SG100 requirements are 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).
	Met?		Y	N

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
	Justification	SG80 is met through compatibility with PI2.2.2a and 2.2.2b, as well as through continuous monitoring demonstrating consistently low catches of secondary species. There is no strategy with explicit objectives and SG100 cannot be 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.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	There are no secondary shark species. The scoring issue is not scored.		
e	Review of alternative measures to minimise mortality of unwanted catch			
	Justification	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.
	Met?	Not relevant	Not relevant	Not relevant
	Guide post	There is no secondary species unwanted catch. The scoring issue is not scored.		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.2.3 – Secondary species information

PI 2.2.3		**Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.**		
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.
	Met?	Y	Y	N
	Justification	Only white anchovy is scored using the RBF (see Appendix 1). Some PSA-related information is available from Fishbase.org (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy), as well as comparison to other anchovy species and local knowledge (see Appendix 1). Most, but not all, productivity attributes have some quantitative information available. The SG60 and SG80 requirements are met. There is no quantitative information available to assess with a high degree of certainty the impact of the UoA on white anchovy with respect to status. The SG100 requirements are not 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.
	Met?			N
	Justification	Information is not available to estimate the impact of the UoA on minor secondary species. The SG100 requirements are not met.		
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to	Information is adequate to support a **partial**	Information is adequate to support a **strategy** to manage **all** secondary

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.		
		manage **main** secondary species.	**strategy** to manage **main** secondary species.	species, and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	Y	Y	N
	Justification	While the detailed percentage of UoA against total catch by secondary species is unknown, catch recording and recent independent observation suggests catch volumes are very low and are highly unlikely to be close to 30%. There are no explicit measures or partial strategy in place but continuing monitoring does provide adequate information. SG60 and SG80 requirements are met. There is no strategy for managing all secondary species. SG100 requirements are not met.		
References		http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy		
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				**RECOMMENDATION**

Evaluation Table for PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
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.
	Met?	Y	Y	Y
	Justification	Catch recording, at-sea observation, and independent observer reports all indicate that no ETP species are caught in the UoA operations. There are no anecdotal records of ETP catch. Neither the WCPFC nor the Indonesian government set a limit on the amounts of ETP interactions that may occur in WPP715 and/0r WPP717; there is no need therefore to consider combined effects of MSC UOAs. SG60, SG80, and SG100 are met by default.		
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Known 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.
	Met?	Y	Y	Y
	Justification	Catch recording, at-sea observation, and independent observer reports all indicate that no ETP species are caught in the UoA operations. There are no anecdotal records of ETP catch and an overall high degree of confidence that the UoA causes no significant detrimental direct effects on ETP species. SG60, SG80, and SG100 are met by default.		
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.
	Met?		Y	Y
	Justification	The UoA removes only a small percentage of the biomass of species caught in pole and line operations, spread throughout the year across a wide area (either WPP715 and WPP717). Indirect effects have been considered and there is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species. SG80 and SG100 are met.		

PI 2.3.1	**The UoA meets national and international requirements for the protection of ETP species** **The UoA does not hinder recovery of ETP species**	
References	-	
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		**N/A**

Evaluation Table for PI 2.3.2 – ETP species management strategy

PI 2.3.2		**The UoA has in place precautionary management strategies designed to:** • **meet national and international requirements;** • **ensure the UoA does not hinder recovery of ETP species.** **Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.**		
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.
	Met?	Y	Y	Y
	Justification	There are national regulations related to protection of various elasmobranchs, marine mammals, and reptiles. PI2.3.1a is therefore scored, consistent with SA3.11.2. Regulations include Government Reg No 7/1999 DD 27 Jan 1999 (ona range of species including various whales, dolphins and turtles); County Reg of Raja Ampat No 9/2012 (on prohibition on catching a range of sharks, turtles and fish species); MMAF Reg No 35/PERMEN-KP/2013 (on criteria for detrmining fish species requiring protection); and MMAF Reg No 18/KEPMEM-KP/2013 (on protection of whale shark). There are no ETP species caught. SG60, 80 and 100 are met by default.		
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
	Met?	Not relevant	Not relevant	Not relevant
	Justification	Not scored (consistent with SA3.11.2)		
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**

PI 2.3.2		**The UoA has in place precautionary management strategies designed to:** • **meet national and international requirements;** • **ensure the UoA does not hinder recovery of ETP species.** **Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.**		
				confidence that the strategy will work.
	Met?	Y	Y	Y
	Justification	SG60, 80 and 100 are met by default.		
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).
	Met?		Y	Y
	Justification	Catch recording, at-sea observation, and independent observer reports all indicate that no ETP species are caught in the UoA operations. There are no anecdotal records of ETP catch. As there are no ETP species caught, SG80, and SG100 are met by default.		
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.
	Met?	Not scored	Not scored	Not scored
	Justification	SA3.11.3 refers to applicability of SA3.5.3 which in turn refers to the definition of unwanted catch at SA3.1.6. Following GSA3.11.3, the intention at PI2.3.2e differs to that at PI2.1.2e in that it refers to minimising <u>all</u> catch of ETP rather than just unwanted catch as defined at SA3.1.6. Scoring at 2.1.2e is discretionary. There are no ETP species caught and there is no indication that any alternative measures are required in the UoA pole and line operations.		
References		Government Reg No 7/1999 DD 27 Jan County Reg of Raja Ampat No 9/ MMAF Reg No 35/PERMEN-KP/ MMAF Reg No 18/KEPMEM-KP/2013 (on protection of whale shark).		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.3.3 – ETP species information

PI 2.3.3		**Relevant information is collected to support the management of UoA impacts on ETP species, including:** • **Information for the development of the management strategy;** • **Information to assess the effectiveness of the management strategy; and** • **Information to determine the outcome status of ETP species.**		
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.
	Met?	Y	Y	N
	Justification	The catch records and observer forms provide for ETP recording and observations. No ETP have been recorded as caught and there are no anecdotal reports of catches. All evidence suggests this is accurate. Information available is adequate to assess that the UoA impact on ETP is likely zero and unlikely to be a threat to any ETP species. SG60 and 80 requirements are met. Catch records are for 2014-2016 only and observer data are only for the first half of 2017. While observer records cover all fishing events in the main fishing period, a longer series of observation is needed to afford a high degree of certainty as to continuing lack of impact. SG 100 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.
	Met?	Y	Y	N

PI 2.3.3		**Relevant information is collected to support the management of UoA impacts on ETP species, including:** • **Information for the development of the management strategy;** • **Information to assess the effectiveness of the management strategy; and** • **Information to determine the outcome status of ETP species.**
	Justification	Catch recording and recent independent observation suggests there are no ETP catches or interactions. There are no explicit measures or strategy in place but continuing monitoring does provide adequate information. SG60 and SG80 requirements are met. Recent independent observation of every fishing event, including in the separate bait fishery, is arguably sufficient if continued to support a comprehensive strategy should one be put in place. However, it is unclear if the independent 100% monitoring will be continued long term and there is no comprehensive strategy for managing ETP. SG100 requirements are not met.
References		-
OVERALL PERFORMANCE INDICATOR SCORE:		**80**
CONDITION NUMBER (if relevant):		**RECOMMENDTION**

Evaluation Table for PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.		
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.
	Met?	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: N
	Justification	Scoring of habitat-related PIs needs to consider both pole and line gear and anchored FADs (FCR 7.10.7). The managed area under consideration is WPP715 and WPP717 but habitat consideration may also apply to areas beyond those managed (SA3.13.5.3). <u>Pole and Line:</u> The UoC pole and line fishery operates entirely at the surface in deep, oceanic water. There is therefore no risk that the fishing gear contacts the seabed, and any impacts of the UoA on the epipelagic habitat are expected to be imperceptible and highly transient given the small scale of the fishery in relation to the wide area of epipelagic habitat. Indeed, given the scale of the UoA, it is arguable that i) there are no commonly encountered habitats (SA3.13.3.1) and ii) serious or irreversible harm (as defined in Table SA8) is irrelevant (see also SA3.13.4). It is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. SG60 and 80 are met. The nature of the gear, the areas in which the fishery operates, and the species that are landed, all provide evidence that the fishery is highly unlikely to ever come in to contact with the seabed, while there is no mechanism by which the fishery could impact pelagic habitats in anything other than an imperceptible and highly transient manner. Based on limited data available for oceanic pelagic species, benthic-pelagic linkages are predictably weak (see, e.g., Grober-Dunsmore *et al*, 2008). Evidence exists therefore that the fishery is highly unlikely to reduce habitat structure and function to the point where there would be serious or irreversible harm. SG100 is met <u>Anchored FADs:</u> FADs consist of a buoy anchored in deep water (1,000-2,000m) and held in place by three concrete anchors, each about 1m across (either square or in diameter). The anchor blocks have been in place since the inception of the fishery in 1975 and are re-used, arguably now forming new habitat. Buoys are in constant use and are maintained and replaced as necessary, typically every one or two years. In total, there are twenty FADs (15 in south Misool [WPP715], 3 in Gag [WPP715]and 2 in Waigeo [WPP717]) with no FAD deployed within 10nm of any other. The total, constant FAD footprint ($20x3x1m^2=60m^2$) is negligible across the wide area of operation (WPP715 and WPP717) or, with 18 FADs, in WPP715. Precise habitat definition is not known in terms of substratum, geomorphology and biota (SGB; SA3.13.2) but given the spatial overlap of the anchors with any possible SGB combination within the large management areas covered, it is arguable that none are commonly encountered. Given the very small FAD footprint, it is considered to be highly unlikely that the anchored FADs would reduce structure and function of commonly encountered habitats, if any, to the		

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.		
		point where there would be serious or irreversible harm as defined by MSC (SA3.13.4). SG60 and 80 are met. However, scoring relies on reasoned argument and not on direct evidence. SG 100 requirements are not 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.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	There are no VMEs designated or areas associated with the characteristics of other VMEs. Not relevant.		
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.
	Met?			Pole and Line: Y FAD: NA
	Justification	Pole and Line: See 2.4.1a – SG100 is scored. Anchored FADs: See 2.4.1a – as precise habitat definition is unknown, despite the very small footprint of FADs in the UoA, there is no direct evidence that it is highly unlikely to reduce structure and function on minor habitats. SG 100 is not scored.		
References		Grober-Dunsmore et al, 2008		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
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.
	Met?	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: N
	Justification	Pole and line: The pole and line operations take place entirely at the surface in deep, oceanic waters. The fishery does not contact the seabed and any pelagic habitat impacts will be imperceptible and highly transient. No additional measures are required to achieve the habitat outcome SG80 level. This meets the SG60 requirements under this PI. An additional partial strategy is also unnecessary to achieve the habitat outcome 80 level of performance. This meets the SG80 requirements. Overall, the operational features of the pole and line operations can be considered to constitute an operational strategy for managing the impact of the fishery on habitat types, meeting SG100 requirements. Anchored FADs: The outcome 80 level of performance is met (see PI2.4.1a). Given the very small footprint (60m^2) over the large range of habitats(s), neither measures (SG60) nor a partial strategy (SG80) are considered necessary. SG 60 and SG80 are met. While for pole and line the operational features are considered an effective but implicit strategy, this is not the case for anchored FADs which do have potential to reduce structure and function in principle although it is highly unlikely in practice. The SG100 requirement are 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.
	Met?	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: N
	Justification	Pole and line: The pole and line fishery operates entirely at the surface in deep, oceanic water, and the gear does not contact the seabed or impact on any pelagic habitat. This provides both a plausible argument and an objective basis for confidence that the *de facto* strategy will work to achieve the outcome PI SG80 level. SG60 and SG80 are therefore met.		

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
		No specific testing of the *de facto* strategy has been undertaken but the nature of the fishery and the environments in which it operates makes such testing redundant. SG100 is therefore scored. Anchored FADs: Information on the UoA indicates a very small footprint (60m^2) compared to extensive habitat range. This provides an objective basis for confidence that measures/partial strategy (unnecessary) will work. SG60 and SG80 are met. There is, however, no testing and 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).
	Met?		Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y
	Justification	Pole and line: The pole and line fishery operates entirely at the surface in deep, oceanic water. The nature of the gear, the habits of the target species, the areas in which the fishery operates and the retained species profile provide clear evidence that the strategy is being implemented successfully. SG80 and SG100 are met. Anchored FADs: Quantitative evidence exists in that the FAD footprint has been constant both in position and extent since the fishery started. Licenses are renewed but not added to and there is no record of new anchors being deployed. The footprint has therefore remained constant and negligible at 60m2, with consequent lack of serious reduction in habitat. SG80 is met. The evidence is clear and the objective outlined in scoring issue a, that the Habitat Outcome 80 level of performance is attained, is met. SG100 is 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.

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
	Met?	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y
	Justification	Pole and line: Habitat impacts from the pole and line fishery are not monitored because there is no expected impact. There is no possibility of the fishery contacting the seabed, while any pelagic impacts will be imperceptible and highly transient. The SG100 requirements are met. Anchored FADs: Anchored FADs are licensed, maintained, and observed. Since the start of the fishery in 1975, the number and location has been constant. Discussions with Ministry compliance officers suggests that the UoA fully meets requirements. The SG100 requirements are met.		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
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.
	Met?	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y	Pole and Line: N FAD: N
	Justification	Pole and line: One habitat type, the epipelagic zone, occurs throughout the geographic range of this fishery. The habitat is not considered to be vulnerable as evidence exists that it is highly unlikely that the habitat is altered when encounters between pole and line gear and the habitat occur (see also PI 2.4.1). SG60, 80, and 100 are met. Anchored FADs: The nature, distribution and vulnerability of main habitat types is not known. However, the scale of the UoA is negligible (60m^2) within the large area covered by WPP715 and WPP717, and the intensity is similarly negligible given FAD anchors have been fixed since the start of the fishery. SG60 and SG80 requirements are met. However, SG100 is not met as the scale and intensity of the UoA is not part of the SG.		
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	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	The physical impacts of the gear on all habitats have been quantified fully.

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
		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.	**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.	
	Met?	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y	Pole and Line: Y FAD: Y
	Justification	Pole and line: The extent of any interaction with the gear and the epipelagic zone is known to be negligible and effectively unmeasurable – the gear is non-impacting and vanishingly small compared to the vast expanse of epipelagic zone fished. SG60, 80, and 100 are met. Anchored FADs: Main habitats are not defined but information is available to identify main impacts on any or all habitats. Because of the small, unchanging footprint, main impacts are are on all habitat types (including main). SG60 and SG80 requirements are met. By the same reasoning, the physical impact on all habitats is quantified as zero. SG100 is therefore also 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.
	Met?		Pole and Line: Y FAD: Y	Pole and Line: N FAD: N
	Justification	Pole and line: The extent of any interaction with the gear and the epipelagic zone is known to be negligible and effectively unmeasurable – the gear is non-impacting and vanishingly small compared to the vast expanse of epipelagic zone fished. SG60, 80, and 100 are met. Anchored FADs: All operational data are available through fishermen, the fisheries association or Ministry compliance officers. Any changes to FADs would allow detection of changes in risks. SG80 requirements are met. Habitat distributions are not monitored and changes cannot therefore be measured. SG100 is not met.		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**85**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.5.1 – Ecosystem outcome

PI 2.5.1		**The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.**		
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.
	Met?	Y	Y	N
	Justification	No major impacts have been identified in relation to retained species, bycatch, ETP species and habitat. Key ecosystem elements relative to the scale and intensity of the fishery are, therefore, highly likely to be restricted to removals of skipjack and yellowfin tuna. The UoA catch of skipjack is of the order of 3,000t per year, or 0.002% of the total annual skipjack catch in the WCPO. The catch of yellowfin is of the order of 500t per year, or about 0.001% of the total WCPFC catch. Both catches are small not just in percentage terms but also in overall tonnages. Within Indonesian waters which are part of the WCPFC Convention area, including WPP715 and WPP717, the catches represent about 0.01% of the skipjack catch and 0.004% of the yellowfin catch (based on domestic Indonesian vessel figures reported through WCPFC: https://www.wcpfc.int/system/files/YB_2015.pdf). Consistent with other MSC certifications with which harmonisation is required (e.g., MRAG, 2016; Acoura, 2016), key elements which need to be considered are the depletion of top predators and potential trophic cascades caused by depletion of the target species as a prey/forage species (Sibert *et al*. 2006; Allain 2007, 2010). Given the very low percentage or volume removals by the UoA, there is evidence that the UoA fishing is highly unlikely to disrupt the relevant key elements (predator–prey, prey–predator relationships) underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. SG60, SG80 and possibly SG100 requirements are met. However, while pole and line fishing is highly unlikely to cause direct disruption of the structure and function of the ecosystem, Leroy *et al*. (2013) suggest the presence of FADs has the potential to disrupt the distribution and migration of tunas. FADs have been shown to influence the behaviour and movement patterns of skipjack, yellowfin, and bigeye tuna, with the juveniles of each species occupying shallower habitats when associated with FADs. Recent evidence indicates that FADs both attract and retain tuna, and may affect distribution and migrations of tuna. Leroy *et al*. (2013) document residence time of tunas up to 55 days and hypothesised that dense fields of anchored FADs may entrain fish for extended periods. They noted that the ways in which FADs interact with the biotic components of tuna environmental preferences, through prey concentration, increased feeding on juvenile conspecifics, or incorrect habitat utilization, need further investigation, including tuna foraging and the effect of FADs on the behaviour of other important species in the pelagic ecosystem. The hypotheses of Leroy *et al* (2013) have not been tested and relate to dense fields of FADs. There is a limited number of anchored FADs (20) deployed across three distinct locations (in sets of 15, 3, and 2), but they have been in position for		

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.
		many years. In the absence of evidence related to whether the anchored FADs may havedisrupted, or do disrupt behaviour, SG100 is not met.
References		Acoura, 2016; Allain 2007, 201; Leroy et al., 2013; MRAG, 2016; Sibert et al., 2006;
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER (if relevant):		N/A

Evaluation Table for PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		**There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.**		
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.
	Met?	Y	Y	N
	Justification	The Ecosystem Outcome 80 level of performance is reached (see PI2.5.1a). SG60 and SG80 are therefore scored by default as no measures or partial strategy are necessary. While there is an Indonesian National Plan of Action for Tuna, Skipjack, and Neritic Tunas (2014) which considers tuna management by WPP, there is no explicit strategy and plan for managing the impacts of tuna fishing on the ecosystem. While the scale and intensity of the UoA, and low level of catch of bigeye is such that no formal strategy may be required in practice, SG100 scoring does not contain an "if necessary" clause. SG100 is therefore 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
	Met?	Y	Y	N
	Justification	Consistent with PI2.5.2a, SG60 and SG80 are scored by default. There is no articulated strategy to manage impacts of the UoA on the ecosystem. As noted at PI2.5.2a, given the scale and intensity of the UoA, no strategy may be required in practice. However, this has not been tested. Neither has any partial strategy been tested. SG100 requirements are 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

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.		
				objective as set out in scoring issue (a).
	Met?		Y	N
	Justification	Consistent with PI2.5.2a,b SG60 and SG80 are scored by default. There is no articulated strategy to manage impacts of the UoA on the ecosystem. However, the persistent low catches of target, primary, secondary, and ETP species, low or negligible habitat impact, and highly unlikely impact on trophic structure, all provides some evidence that ongoing and unchanging operations are sufficient, partially meeting the SG100 requirements. SG100, however, requires that there be "clear evidence" and a score of SG100 is not supported.		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				**N/A**

Evaluation Table for PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.		
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.	
	Met?	Y	Y	
	Justification	The key, perhaps only, element of potential note is trophic structure and function. As noted at PI 2.5.1, the percentage catch of skipjack and yellowfin is very low at WCPFC or WPP715/717 scales. These low levels of removals, given also the demonstrated stability of the pelagic ecosystem in the face of removals of top predators (Sibert et al. 2006, Allain 2007, 2010), This provides sufficient information to broadly understand the ecosystem. The SG60 and SG80 requirements are 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**.
	Met?	Y	Y	N
	Justification	Main interactions between the fishery and all of the key elements (trophic structure and function) identified can be inferred from existing information and have been investigated at the WCPO scale (Cox et al, 2002a,b; Hinke et al 2004; Sibert et al, 2006). Ecosystem models (Sibert et al. 2006, Allain 2007, 2010) of the pelagic ecosystem use existing information to evaluate main interactions. This investigation especially considers trophic structure, and demonstrates the relative stability of the pelagic ecosystem in spite of removals of top predators by the fishery. SG60, SG80 requirements are met. SG100 is also met except that investigation of the actual, as opposed to hypothesised, impacts of anchored FADs on distribution and migration of tuna (Leroy *et al*., 2013), is not yet well advanced. 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**.
	Met?		Y	N

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.		
	Justification	The function of target, primary, secondary and ETP species, and pelagic habitat is broadly known from studies using ecosystem models (Sibert et al. 2006, Allain 2007, 2010). SG80 is met. Continuous catch recording and the 2017 observer study have identified impacts on all components, partially meeting SG100 requirements. However, while the functions are known (SG80), it is not clear that they are all understood, as required at SG100. In particular, it is not understood how long-term anchored FAD deployment might affect the behaviour of any of the species components. 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.
	Met?		Y	Y
	Justification	Information from multiple studies (see PI2.5.3b) suggests high ecosystem stability and resilience in general to large-scale pelagic fisheries. Information on the UoA is adequate to demonstrate very low removals of and impact on all ecosystem components. The main consequences for the ecosystem are inferred to be negligible for species components (target, primary, secondary, and ETP), and negligible for the pelagic fishing and anchored FAD elements under habitats. SG80 requirements are met. Information on the ecosystem elements is also adequate to allow the consequences for main elements (predator-prey relationships and trophic cascades [see PI2.5.1a]) to be inferred. SG100 requirements are 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.
	Met?		Y	Y
	Justification	Continuing catch monitoring and compliance inspections are adequate to detect changes in risk associated with target and primary species catch and composition, ETP, and all secondary species catches except for bait species. However, the bait fishery is separate and not part of the UoA and ecosystem impact PISG are scored only in relation to the UoA activities. General reporting and inspection procedures are adequate to monitor any changes that might occur in FAD usage. SG80 requirements are met. Monitoring, combined with knowledge from ecosystem models, provides sufficient information to support development of strategies for the UoA. It is noted that		

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.
		information on the effects of anchored FADs on the distribution and migration of tunas cannot readily be obtained for the UoA given its scale and longevity. SG100 requirements are met.
References		Allain 2007, 2010; Cox et al, 2002a,b; Hinke et al 2004; Leroy et al., 2013; Sibert et al., 2006;

OVERALL PERFORMANCE INDICATOR SCORE:	**90**
CONDITION NUMBER (if relevant):	

Principle 3 - (Common table for both Skipjack tuna UoA and Yellowfin tuna UoA)

Evaluation Table for PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainability in the UoA(s); and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution 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 organized 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?	Y	N	N
	Justification	The Sorong pole and line fishery, for skipjack and yellowfin, targets shared stocks of highly migratory tuna species straddling the WCP ocean. The overarching management regime is underpinned by the RFMO WCPFC to which all members, including Indonesia have obligations under the convention including the application of WCPFC conservation and management measures (CMMs). There has to be organized and effective cooperation to deliver management outcomes consistent with Principles 1 and 2. Indonesia, despite participating and inputting into WCPFC meetings and cooperating, and despite having an effective national legal system, has failed to implement some of the CMMs thus not delivering management actions consistent with sustainable management advice. MAFF is responsible for the pole and line (P&L) fleet in Sorong. The current national core fisheries laws are enshrined in Law (UU) No. 25/2004 concerning Planning System for National Development, UU No. 31/2004 concerning Fisheries and the Presidential regulation No. 7/2005 concerning the National Development Plan for medium phase (RPJMN) during year of 2004-2009, and modified by Act No. 45/2009. The Act includes specific reference to protection of the livelihoods of community fishers. Further, indirectly-related legislation that impacts on marine capture fisheries includes: • Endangered species legislation • Export/import/trade legislation • Biodiversity legislation • Oceans policy legislation • Marine park/sanctuary/reserves legislation • Port management legislation • Coastal management legislation Indonesia ratified UNCLOS 1982 on 3 February 1986 and the Agreement relating to the implementation of Part XI of the Convention on 2 June 2000. The UN Fish Stocks Agreement (UNFSA) was ratified in 2010. At the regional level, the Western and Central Pacific Fisheries Commission (WCPFC) Convention is consistent with the principles and provisions of the United Nations Convention on the Law of the Sea (UNCLOS), the United Nations Fish Stock Agreement (FSA) and Highly Migratory Species (HMS) as well as a range of other relevant international and regional fisheries instruments. These reflect the		

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainability in the UoA(s); and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**
		current international laws and standards relevant to the management of migratory species and the ecosystem and include specific references to the precautionary approach. The Commission seeks input from recognised international law experts to ensure that decision-making is informed in relation to compliance with international law and protocols. All WCPFC members (including Indonesia) are legally bound to apply the precautionary approach as parties to the WCPFC Convention. At the national level the legal system of Indonesia laws are formulated by Parliament and transferred into a Government Regulation or Presidents Decree and subsequently into the Ministers Decree and then to Provincial and District Decrees. Fisheries policies are set out through the Directorate General for Capture Fisheries, Ministry of Marine Affairs and Fisheries (MMAF) but go through the various processes of adoption, if requiring implementation at Provincial and District levels under the Autonomy Law No. 22/1999, and modified by Law No. 32/2004. The Ministry, in the devolution of authority to the provinces and districts, assumes a facilitation and coordination role to guide these authorities in the management of their respective jurisdictions, consistent with national laws. The Ministry then focuses on implementation of these policies, through fisheries legislation for the offshore fisheries, i.e. vessels fishing outside 12 nautical miles or over 30 GTs. The National management component covers some 25% of the tuna fleets' landings, the Provincial, 35% and District, 40%. The current national core fisheries laws are enshrined in Law (UU) No. 25/2004 concerning Planning System for National Development, UU No. 31/2004 concerning Fisheries and the Presidential regulation No. 7/2005 concerning the National Development Plan for medium phase (RPJMN) during year of 2004-2009, and modified by Act No. 45/2009 . The Act includes specific reference to protection of the livelihoods of community fishers. Further, indirectly-related legislation that impacts on marine capture fisheries includes: • Endangered species legislation • Export/import/trade legislation • Biodiversity legislation • Oceans policy legislation • Marine park/sanctuary/reserves legislation • Port management legislation • Coastal management legislation Indonesia ratified UNCLOS 1982 on 3 February 1986 and the Agreement relating to the implementation of Part XI of the Convention on 2 June 2000. The UN Fish Stocks Agreement (UNFSA) was ratified in 2010. Indonesia became a full Cooperating Commission Member (CCM) of the WCPFC in December, 2013. The country now participates in the Western and Central Pacific Fisheries Commission (WCPFC) General Session, as well as Scientific and Technical Working Groups. Indonesia is also a member of: • CCSBT Commission for the Conservation of Southern Bluefin Tuna • IOTC Indian Ocean Tuna Commission • BIMP-EAGA Brunei, Indonesia, Malaysia, Philippines – East Asia Growth Area • SEAFDEC South East Asian Fisheries Development Centre • NACA Network of Aquaculture Centres in Asia-Pacific Indonesia actively participates in the following regional fisheries related bodies: Conventions to which Indonesia is a party • IOMAC Indian Ocean Marine Affairs Cooperation • SEAFDEC South East Asian Fisheries Development

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainability in the UoA(s); and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**
		National, provincial and district authorities involved in managing the UoA is controlled by Indonesia Fisheries Law number 31 year 2004 as amended by Law 45 year 2009. This is the key legislation for fisheries management in Indonesia. To carry out the mandate of Article 7 paragraph 1 point a and Article 10 of the Law, Ministry of Marine Affairs and Fisheries established Minister Regulation No. 107 year 2015 on National Tuna, Skipjack Tuna and Neritic Tuna Management Plan (NTMP) which is intended to be the direction and guideline for both central and local government in the implementation of Tuna, Skipjack, and Neritic tuna fishery management plan. Based on one of the NTMP target (availability of harvest control rule and stocks key indicator data of tuna and skipjack by 100% within five years), a Framework for Harvest Strategies for Tropical Tuna in Archipelagic Waters of Indonesia was developed since 2015 has been launched at the 3rd Bali Tuna Conference on May 2018. Several regulations were also established to adopt and implement conservation and management measures of Tuna Regional Fisheries Management Organizations, such as the Ministerial Regulation No. 12 year 2012 on Fishing Business in High Seas and Ministerial Regulation No. 48 year 2014 on Fishing Logbook. WCPFC sets conservation and management measures and policies for the WCPFC Convention Area, excluding archipelagic waters.The Indonesian Government is responsible for ensuring management measures applied within Indonesia's EEZ including archipelagic waters are compatible with those of the WCPFC. This includes a commitment from Indonesia as a signatory to the Convention (Article 8, WCPFC, 2000), that: *- conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible in order to ensure conservation and management of highly migratory fish stocks in their entirety; and* *- the coastal State shall ensure that the measures adopted and applied by it to highly migratory fish stocks within areas under its national jurisdiction do not undermine the effectiveness of measures adopted by the Commission under this Convention in respect of the same stocks.* For Indonesian Archipelagic Waters (AW) there are no well-defined HCR yet in place or available. Management apparently relies on processes for licensing at national and provincial levels with reference generally to overall WCPO stock status and some consideration of AW relative status and exploitation ("uncertain"). Once issued, licenses are reviewed annually and tend to be renewed unless there are changes to vessels. In WPP715 (AW) and WPP717 (not AW) the number of pole and line vessel licenses fluctuates widely from year to year and there is no obvious linkage to the stock condition or catching opportunity. Nevertheless, it is clear there are national arrangements, agreements, and policies governing the actions of authorities and actors involved (MSC FCR SA4.3.2.1/4.3.3.1) in regular management of Indonesian fisheries for both skipjack and yellowfin tuna. In addition, for Indonesian AW, the current harvest strategy, provided for in the NPOA Tuna (2014), is already in progress. There are clearly laid out processes and timescales to establish reference points and control rules using management strategy evaluation. SG 60 is met as, as stated in MSC CRv2 SA4.3.2.2 to meet the SG 60 for a UoA subject to international cooperation for management of the stock this means the

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainability in the UoA(s); and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**		
		existence of a) national and international laws, arrangements, agreements and policies governing the actions of the authorities and actors involved in managing the UoA, and b) a framework for cooperation with other territories, sub regional or RFMOs …., and MSC CR v2 3.2.3 Cooperation shall at least deliver the intent of UNFSA Article 10 paras relating to – collection and sharing of scientific data – the scientific assessment of stock status and development of scientific advice. Indonesia is a CMM and the cooperation 'at least delivers the intent of UNFSA Article 10'. In which Indonesia is compliant with all measures under 'Scientific Data' except 'Section 03 (vi) – Operational Level Catch and Effort Data' for which 'Capacity Assistance is Needed'. Indonesia meets SG60 – it is a cooperating member and cooperates with the RFMO to produce scientific advice. SG 80 is not met as although there is a framework for cooperation this has not been effective. **SG 60 is met** as there are national and international laws and agreements in place which provide a framework for cooperation between other regions to deliver sustainable management. Indonesia is a CMM and the cooperation 'at least delivers the intent of UNFSA Article 10'. Indonesia is a cooperating member and cooperates with the RFMO to produce scientific advice. SG 80 is not met. There needs to be organized and effective cooperation with other parties to deliver management outcomes consistent with Principles 1 and 2. Indonesia, despite participating and inputting into WCPFC meetings and cooperating, and despite having an effective national legal system, has failed to implement some of the CMMs thus not delivering management actions consistent with sustainable management advice. For Indonesia AWs there are no well-defined HCR yet in place the number of pole and line vessel licenses fluctuates widely from year to year with no obvious linkage to the stock condition or catching opportunity. **A condition is raised** **A recommendation is raised.**		
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?	Y	Y	N
	Justification	At the regional level, The WCPFC Convention (WCPFC 2000) closely follows the provisions of the UNFSA, including application of the UNFSA dispute settlement provisions for disputes between WCPFC Members (Article 31)- including Indonesia. The convention calls for parties to promote the peaceful settlement of disputes. If a dispute concerning the interpretation or application of this Convention involving a fishing entity cannot be settled by agreement between the parties to the dispute, the dispute shall, at the request of either party to the dispute, be submitted to final and binding arbitration in accordance with the relevant rules of the Permanent		

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainability in the UoA(s); and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**		
		Court of Arbitration. The WCPFC has had no legal challenges do date. The transparent decision making required under Article 21 of the Convention helps prevent disputes through annual Commission meetings, representation by stakeholders at the meetings, use of scientific advice, and negotiations at technical and policy levels on issues of importance. At the national and provincial level, there is no evidence of legal challenges or judicial decisions taken in this fishery. There is a consultation system in place that probably assists to avoid legal disputes. Although the legal framework is transparent no evidence could be found that the dispute mechanisms are "tested" or have proven to be effective. Information presented to the assessment team did not provide any information related to disputes. At the district level there is a Fishermen's Association that all Sorong P&L fishermen belong to. If there were any disputes this is where they would be presented and would be resolved through negotiation between parties either through consensus or compromise. After discussions with members of Fisherman's Association and the client company no evidence could be found of any disputes . The management system is therefore considered to be effective as far as dispute resolution is concerned. SG80 is met SG60 is met as there is an effective legal system which can deal with resolution of legal disputes should it be needed. SG 80 is met as the dispute resolution mechanism is transparent and can considered to be effective as there have been no legal challenges to date SG 100 is not met, as the mechanism has not been tested.		
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?	Y	Y	N
	Justification	The WCPFC recognizes, throughout the Convention, the needs of small island developing States, and territories and possessions, in the Convention Area whose economies, food supplies and livelihoods are overwhelmingly dependent on the exploitation of marine living resources. Part XIII of the Convention lays out specific requirements. The Convention specifically recognizes that small island developing States may be dependent on the exploitation of marine living resources, including for meeting the nutritional requirements of their populations; and recognizes the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers and fish workers, as well as indigenous people in developing States Parties. Stated objectives and management measures are consistent with Principle 1.		

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainability in the UoA(s); and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**
		WCPFC also has demonstrable objectives consistent with MSC Principle 2 under its principles for conservation and management (Article 5). This includes consideration of the impacts of fishing, other human activities and environmental factors on species belonging to the same ecosystem as the target stocks, protection of biodiversity, and measures to minimize waste, effects of lost fishing gear, pollution, and by-catch. WCPFC has an intention and has a management system that observes 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.thus meeting SG60 and SG 80 The WCPFC considers common allocation principles such as historical participation, the rights of Coastal States and the rights of developing States, but are not yet formally part of the allocation process. At the present time, this does not meet SG100. At the national and provincial/district district level informal local policies in some areas come from traditional, unwritten laws handed down from generation to generation. These are referred to as "customary law" or locally as *sasi* or *adat* law. The " sasi" is found in some Sorong areas such as Makbon (Sorong area), North and South Waigeo (Raja Ampat Area). In Sorong the Biak people continue to fish in traditional ways and are allowed to develop their fishery and sell fish to local markets. 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. Meeting SG 60 and SG80 but it does not meet SG100 as there is not a "formal" commitment as it could not be demonstrated a mandated legal basis where rights are fully codified within the fishery management system and/or its policies and procedures for managing fisheries under a legal framework. SG 60 is met, as there is some evidence that legal rights for traditional fishers are considered within the legal and customary framework. SG 80 is met, as there are formal arrangements that make explicit the requirement to consider legal rights for traditional fishers. SG 100 is not met as it cannot be demonstrate a mandated legal basis where rights are fully codified within the fisheries management system.
References		WCPFC 2000; UNCLOS 1982, Medley and Powers 2016. WCPFC CMMs. Indonesian Laws, Regulations, President's Decrees, Provincial and District Decrees Indonesian Customary Law, IPNLFC Compliance Report 2017, WCPFC14 Summary Report 2018.

OVERALL PERFORMANCE INDICATOR SCORE:	**75**
CONDITION NUMBER (if relevant):	**5**
RECOMMENDATION	**1**

Evaluation Table for PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
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?	Y	Y	Y
	Justification	At the regional level 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 at the WCPFC. Information on the functions, roles and responsibilities of member states (in particular, Articles 23 and 24) and the committees formed under Commission control (Scientific Committee and Technical and Compliance Committee). Key areas include providing catch and monitoring data to the Secretariat, taking part in various meetings sharing information and making decisions, meeting the requirements for conservation and other recommendations for WCPFC and applying appropriate levels of control and surveillance. At the national and local level fisheries management falls under the joint responsibility of the Ministry of Marine Affairs and Fisheries and the provincial and district governments. MMAF devolves management authority to the provinces and district levels under Decentralisation Law No. 22. MMAF coordinates this devolution exercise and provides a guide for consistent implementation according to fisheries legislation. The management planning functions rest with the Directorate General for Capture Fisheries, legal and regulatory development with the Secretary General, and research with the research directorate. The monitoring, control, and surveillance (MCS) functions rest with the Directorate General for Marine Affairs Resource Controlling and Fisheries Surveillance, supplemented by assistance from the armed forces (mainly the Navy and Air Force), and the Marine Police. The main task of the Ministry of Marine Affairs and Fisheries is assisting the President in implementing governmental tasks in the marine fisheries sectors. These functions include: 6. Formulation of the national policy, implementation policy, technical policy in marine affairs and fisheries; 7. Implementation of governmental affairs appropriate with the task area. 8. Management of goods and wealth owned by state; 9. Monitoring and evaluation of task implementation; 10. Issuing evaluation reports, suggestions and recommendations to the President. There are several agencies whose mandates interact and overlap with fisheries. Consequently the legislation of these agencies either directly or indirectly impacts on fisheries policies, laws, and management practices. Some of these agencies include: • Ministry of Local and Interior Government		

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
		• Ministry of Forestry • Ministry of Environment • Navy and Maritime Police • Ministry of Tourism, • State Ministry of Research and Technology and • Indonesian Institute for Science. The liaison between the MMAF and other agencies, is facilitated through the National Maritime Council chaired by the Minister of MMAF. As 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. SG100 is met SG 60 is met ,SG 80 is met and SG 100 is met as those involved in the management at international, national and local level are identified and their roles functions and responsibilities explicity defined and well understood for all areas of responsibility		
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?	Y	Y	N
	Justification	The WCPFC annual meetings and annual meetings of its committees, the Scientific Committee, Technical and Compliance Committee, and the Northern Committee, provides for extensive, regular formal and informal consultation process. The WCPFC consults with member countries, including Indonesia. Information derived from the members and the inputs from the specialist working groups provide the basis for decision making at the WCPFC. "Local knowledge" at the international level is assumed to refer to national information and experience. The management system demonstrates consideration of the information obtained. The scientific reports state what information is being used, how it is used, and justification is provided for all information which is rejected. However, information used by management other than the scientific information is not so clearly reported. Although much of this information can be inferred from various sources, it is not necessarily clear how different sources of information are weighted. This includes information on compliance, economics and social issues.. The management system demonstrates consideration of the information obtained. The WCPFC provides detailed explanations of use and non-use of scientific information in preparation of stock assessments and other scientific reports. Management decisions provide a rationale, indicating use of information obtained through consultation, but the details are not always clear. For example, WCPFC tuna management measures CMM-2008-01 (replaced by 2012-01, 2013-01,2014-01and 2016-01) and CMM-2010-05 attempt to restrict fishing effort and therefore fishing mortality on bigeye, yellowfin and albacore.		

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
		However, limits are vague, and public information may not be available that clearly justifies the limits applied when the decision was made. SG100 is not met National, provincial and district governments implement a consultation process whereby the industry is consulted on and informed of policy decisions. The industry confirms that this is an open process and is applied at national level with higher level associations such as the Indonesia Tuna Association (ASTUIN), Tuna Long line Association (ATLI) and the Asosiasi Pole and Line Dan handline Indonesia (AP2HI), as well as at NGO level (WWF and Masyarakat Dan Perikanan Indonesia (MDPI)), company and fisher levels in the port locations. The consultation process is applied by both MMAF and FKPPS in the designated to the Fisheries Management Areas. Examples of consultation processes in action include current discussions in the development of the Indonesia tuna harvest strategy, where over the course of the last 2 years, the DG Capture fisheries has engaged with industry. A series of workshops involves all relevant stakeholders, seeking not only participation but accepting relevant information. SG 100 is not met as evidence could not be found as to how information is used or not used SG 60 and SG 80 are met as the consultation processes regularly seek and accept relevant information and demonstrates consideration of the information received. SG 100 is not met as evidence could not be seen as to how the information is used or not.		
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?		Y	Y
	Justification	The WCPFC has a comprehensive governance structure that in addition to member participation, allows participation by non-members and territories, with particular opportunities for Cooperating non-members, and allows observers to participate in meetings of the Commission and its subsidiary bodies, including the SC, the TCC and the Finance and Administration Committee. All relevant Small Island Developing States are members through the participation of the Pacific Islands Forum Fisheries Agency or cooperating non-members. Attendance at Commission and related meetings are comprehensive, and logistic and financial support is provided to ensure attendance, meaningful involvement and interaction in the cooperative management. Consultation at the international level is formalised, and there are well-developed mechanisms for the seeking and using appropriate information. At national level the consultation process is through the Fishery management areas, Wilayah Pengelolaan Perikanan Negara Republik Indonesia (WPPNRI). The consultation process provides for a Scientific panel and a Consultative Panel in each WWP. Research outputs are generated by the science providers Research Centre for Fishery Management and Conservation of Fishery Resources (P4KSDI) and The Marine Research Agency) (BRPL). The consultative panel comprises industry representatives and NGOs. NGOs may also participate in the Scientific		

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**
		Panel. As an example of consultation in Indonesia, MAFF, prior to a regulation being introduced, will invite public participation. The participation of the public is included in Ministry of MAF Reg No 25/PERMEN-KP/2012: Input from the public can be conveyed direct or indirect in the form of : - public consultation / socialization - correspondence, - seminars or discussion. The regulation can also be accessed online In Sorong there is an effective P&L Fishermen's Association, liaising on a regular basis with MMAF and other organisations. This is a government requirement. Meetings with skippers may take place on a weekly or monthly basis. Consultation meetings take place every 2-3 months. This provides an opportunity for ministry views to be explained to fishermen and to receive feedback. This process is facilitates effective engagement SG 80 and SG 100 are met as the consultation process shows opportunity and encouragement for all parties to be involved and facilitates effective engagement.
References		WCPFC 2000; Medley and Powers 2016; Indonesian Laws
OVERALL PERFORMANCE INDICATOR SCORE:		**95**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach.		
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?	Y	Y	P
	Justification	At the regional level, Long-term objectives are explicit within the WCPFC Convention. For example, Article 2 specifies that the Commission has the objective to "ensure through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the WCPO in accordance with the 1982 Convention and Agreement [UNCLOS and FSA respectively]". Article 5 of the Convention then provides principles and measures for achieving this conservation and management objective. More specifically Article 5(c) requires the Commission to apply the precautionary approach in decision-making and Article 6 outlines the means by which this will be given effect, including through the application of the guidelines set out in Annex II of the FSA. Article 10 of the Convention is consistent with MSC principles and objectives in specifying long term objectives of "maintaining or restoring populations…above levels at which their preproduction may become seriously threatened". Evidence that these objectives are guiding, or are starting to guide decision-making is provided in various Commission reports and in CMMs. Commission reports also indicate that explicit action is being undertaken through CMMs to support achievement of objectives, however this is yet to result in target reference points being formulated for all managed stocks. Additionally, while there is a requirement for the WCPFC to apply the precautionary principle during decision-making it has historically struggled to do so for some stocks (e.g. bigeye tuna). At the national level the National Fisheries Master Plan (2009-2015) contains a number of core objectives -To strengthen an integrated Marine and Fisheries' Human Resources and institution; -To sustainably manage marine and fisheries resources; -To increase scientific based productivity and competitiveness - To extend the access of the Domestic and International Market Both the precautionary and ecosystem approaches to fisheries management have also been introduced as component of the government's core management objectives (Decree PMKDPRI 15/MEN/2012 (National Strategy on Fisheries Management). The ecosystem approach to fisheries management has been incorporated as an objective into the Indonesia Tuna Action Plan. A number of MMAF familiarisation workshops (IMACS/WWF) have also taken place on the Ecosystem approach to Fisheries Management. Overall, at regional and national level explicit and clear long term objectives are provided, including the precautionary approach. This meets the SG60 and SG80. For the most part, WCPFC and the Ministry of Marine Affairs and Fisheries require implementation of these objectives. However, the WCPFC does not fully implement them, for example as the management of bigeye tuna has not restricted the overfishing of bigeye tuna.		

PI 3.1.3		**The management policy has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach.**
		MMAF does not require objectives consistent with the precautionary approach and other important principles required to be applied under the WCPF Convention. Therefore SG100 is only partially met and the score of 90 is awarded.
References		WCPFC, SC and TCC meeting records, WCPFC CMMs, WCPFC Rules of Procedure, Medley and Powers 2016, National Fisheries Master Plan 2009-2015, Indonesian Decrees, Tuna Management Plan, 2014
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.2.1 Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.		
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?	Y	N	N
	Justification	The WCPFC sets out short and long term objectives to achieve outcomes consistent with MSC Principles 1 and 2 and the precautionary approach in various CMMs related to target fish stocks and compliance and also, sea turtles, seabirds, sharks, and cetaceans where the objective is to minimize bycatch in the relevant fisheries and return live bycatch if possible. WCPFC members also report against a number of indicators as part of their obligations through Part 2 Annual Reporting. These include short and long term conceptual and operational objectives. Some objectives (particularly in some earlier CMMs) are not well defined enough to be operational or measurable. To date, the WCPFC has not yet formally adopted precautionary and ecosystem-based target reference points for all major tuna and billfish species. The Indonesian tuna management plan for skipjack and neritic tunas was finalised in 2014. The Plan contains aims and objectives and outlines the geographical boundaries of the plan. The objectives are as follows: • To ensure the sustainability of tuna • The implementation of management measures • To increase compliance in national regulations including target species measures and bycatch limits • To increase the competitiveness of Indonesian tuna in the World market • To ensure the sufficiency of supply to the domestic market. This meets the SG60. This PI focuses on the fishery-specific management system. While there are short and long term objectives they are weak in applying the RFMO requirements. and these are not explicit in the management system. SG60 is met as there are objectives which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2 and are implicit within the fishery specific management system. SG80 is not met as the objectives are weak in applying the RFMO requirements and these are not explicit in the management system. A condition is raised.		
References		WCPFC 2015, WCPF 2000, WCPFC CMMs, Indonesian Tuna Management Plan 2014.		

PI 3.2.1	The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.
OVERALL PERFORMANCE INDICATOR SCORE:	60
CONDITION NUMBER (if relevant):	6

Evaluation Table for PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
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?	Y	Y	
	Justification	Decision-making processes, at the regional level are in place, which are established, responsive and largely transparent. These are very clearly defined in the Convention (Article 20) and Rules of Procedure. Information used for decision-making is published. Decisions are made by consensus and if necessary by voting (75% majority) and such decisions are binding on members. Members may require an independent review of a decision to ensure it is consistent with the Convention and management objectives. Some decisions, such as the allocation of fishing rights, must be carried out using consensus. Conservation and Management Measures are binding, but resolutions are non-binding. All management measures apply equally inside EEZ and on high seas. Flag states enforce management measures on their own vessels and coastal states within their own EEZ. Decision making by DGCF (Director General Capture Fisheries) and FCMUFR (Forum of management and utilisation of Fisheries resources) demonstrate established decision- making processes that result in measures and strategies to achieve the fishery-specific objectives and decisions take account of serious and other important research, monitoring and evaluation, as well as the wider implications of decisions. For example, the Ministry of Marine Affairs and Fishery Regulation No 35/PERMEN-KP/2013 re Procedure for Determining Fish Species Protection, has passed through the following steps - Public Consultation - Policy Analysis - Scientific Recommendation. SG 60 and SG 80 are met as there is evidence of established decision making processes in place that result in measures and strategies to achieve fishery specific objectives.		
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 adaptive manner and take some account of the wider implications of decisions.	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 account of the wider implications of decisions.

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
			account of the wider implications of decisions.	
	Met?	Y	Y	N
	Justification	WCPFC decision-making processes allow consideration of serious and important issues through its committees (SC and TCC) and at the Commission itself. Stock assessments and studies presented at the SC (predominantly by SPC) identify serious issues, such as overfishing (e.g. Bigeye tuna) at the regional level. These issues are addressed through regionally agreed CMMs. A series of measures to control catch and effort within the WCPF Convention area were taken in 2013. Resolutions provide transparent response to the scientific, technical, social, and cultural issues. For skipjack and yellowfin tunas, the responses effectively address main issues, e.g., CMM 2016-01. CMM 2016-06 recognizes the need for improved harvest control rules, and set a path for the improvements. At national level although management decision-making can be shown to respond to serious and important issues, a very large number of 'issues' are identified during research and monitoring. Management does not respond formally to all of these. The assessment team does not have full evidence that decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. Overall, decision- _making processes at regional and national levels are adequate for the stocks being considered, dealing with serious and important issues and meeting SG60 and SG80 requirements. These decision-making processes use a precautionary approach, and are based on best available scientific information, but WCPFC and national processes do not clearly respond to all issues in a timely transparent and adaptive manner. SG100 is not met. MMAF is in the process of strengthening its decision-making systems. Decisions are now required to take account of scientific advice and monitoring processes are in place to ensure that conservation principles are followed.The core of fisheries management decision making lies within DG of Capture Fisheries (DGCF), where day to day fisheries management take place. It is also within DGCF role to produce most of nationa l fisheries management measures. Apart from DGCF, fisheries management is also highly relied with scientific role of the Center for Fisheries Research (CFR) - Agency for Marine and Fisheries Research and Human Resources (AMFRHR), and with surveillance and enforcement roles of the DG of Marine and Fisheries Surveillance. In addition to the active involvement of these agencies, some consultative stakeholder workshops have been undertaken to ensure the engagement of relevant stakeholders, such as, local Governments, fishers, fishing industries, fishing associations, non-Government Organizations and universities. As an up to date illustration, DGCF is in the process of implementing Harvest Strategy (HS) for tuna fisheries in the archipelagic water, where AMFRHR take roles in providing scientific model and management references, including determining scientific data collection and selecting data sets that appropriate for developing HS modelling. Four technical workshops and seven stakeholder workshops have been done between 2015 and 2017. From those activities, management objective, to ensure the sustainability of SKJ, YFT and BET fisheries, is agreed, and 5 (five) priority management measures were selected: and milestoned into ' Framework for Harvest Strategies for Tropical Tuna in Archipelagic Waters of Indonesia' SG 60 and SG 80 are met SG 100 is not met		

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	
	Justification	The WCPFC Convention requires that the members of the Commission, directly and through the Commission, apply the precautionary approach, as described in Article 6 and Annex II. Specifically, the Convention requires that Commission be more cautious when information is uncertain, unreliable or inadequate and does not use the absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures. At the national level decision making processes are required to use the precautionary approach. Both the precautionary and ecosystem approaches to fisheries management have been introduced as component of the government's core management objectives (Decree PMKDPRI 15/MEN/2012 (National Strategy on Fisheries Management). The ecosystem approach to fisheries management has been incorporated as an objective into the Indonesia Tuna Action Plan. A number of MMAF familiarisation workshops (IMACS/WWF) have also taken place on the Ecosystem approach to Fisheries Management. SG 80 is met as there is evidence that decision making processes use the precautionary approach and are based on best available information.		
d	Accountability and transparency of management system and decision-making process			
	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	**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.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	Y	Y	N
	Justification	At the regional level information and recommendations from research, monitoring, evaluation and performance review are published formally. Reports of WCPFC plenary sessions are published formally and are publicly available. Annual (Part 1) reports are submitted by members providing detailed reporting on catch, fleet size and other issues relating to the fishery. The WPPFC SC and TCC papers and reports on the web provide a high level of public access and transparency, showing how scientific information is used to inform management actions, which are then monitored for effectiveness and discussed at the Commission. This reporting represents good practice. However, while reports are available, it is not clear that they represent all information that is used in decision making. There is no formal, detailed explanation linking the information provided to the decision that results. In an international context, it is recognized that it is very		

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.		
		difficult to give full explanations for all decisions, since this might undermine co-operation. Decisions are often negotiated outcomes with the trade-offs not always apparent. The Directorate General of Capture Fisheries in Indonesia utilises its port network to cover data collection and fisheries MCS. Log-books are applied to all vessels in excess of 10 GT, and the data recorded by the PPK in the large ports. The Sorong P@L fishery all complete logbooks. Additional information is also collected on fish sizes (MMAF, 2010). This information is disseminated electronically to the Directorate of Capture Fisheries, BRPL and the RFMOs. MMAF has commenced the development of fisheries specific management plans, which are to be extended to incorporate DKPs Provinsi and District. The Tuna management plan 2014 is the first of these. The Forum for Coordination for the Fisheries Resources Utilization and Management (FCMUFR), comprising MMAF and DKP administrations is used as the organization to provide input into decisions from relevant research, monitoring, and evaluation. There is one national FCMUFR, and 11 regional committees, 1 for each management area. The science provider, Research Centre for Fishery Management and Conservation of Fishery Resources (P4KSDI sits on these committees. Each Provincial DKP sits on the relevant FCMUFR, and membership may include more than one DKP provinsi. FKPPS meets every two years at national level, and once a year at FMA level. Reports on FCMUFR outcomes are publically available. Several marine related agencies also contribute to the development of management plans and policies and support their implementation through their legislations. These include: Forestry, LIPI, Navy, Maritime Police, and the scientific network through the universities. NGOs are working on an increasing basis with communities to encourage them to assume stewardship roles in the collaborative (government and community) management schemes for the coastal areas. New policies, legislative instruments and evolving management structures will be required to fully implement these initiatives. SG 60 and SG 809 are met as at regional, national and local level information on the fishery's performance and management action is available on request and explanations provided for actions and lack of actions. SG 100 is not met as it cannot be said that there is formal reporting to all interested stakeholders provides comprehensive information on the fishery's performance and management actions.		
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?	Y	Y	N

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.
	Justification	WCPFC is not subject to any court challenges as of 2016, there are no current outstanding judicial disputes and there are no outstanding international disputes. It does not indicate any disrespect or defiance of the law through repeated violations. By resolving disputes through WCPFC meetings the members have avoided legal disputes. The management system acts proactively to avoid legal disputes at the regional level by the prompt incorporation of CMMs into national legislation and the implementation of measures to support such legislation. However there is increasing potential for legal challenges (e.g. in relation to resource allocation) but no evidence as yet of proactive actions. Nationally there is no evidence of legal challenges or judicial decisions taken in relation to the tuna fishery. It could be argued for this fishery that the consultation system proactively seeks avoid legal disputes or rapidly implements judicial decisions arising from legal challenges. Legal challenges have been made against MMAF in relation to other issues, showing a legal system, which can and does accept and address legal challenges. Many of these challenges relate to anti-IUU measures such as a moratorium of fishery catching vessels license especially for ex foreign vessels, cancellation of fishing vessels license and vessel sinking. Those policies have faced protest and refusal. Cases of Lawsuit to the MMAF include 2014 - Lawsuit from Hai Yi Shipping Limited (owner of Hai Fa (litigant) who filed a lawsuit against MMAF (onrechtmatige overheidsdaad) 2015 : A lawsuit was filed for judicial review for Ministry Reg No 2/PERMEN-KP/2015 concerning prohibition for using of Trawls and Seine nets 2015-2016 : Several lawsuits were filed to the state court by companies whose license and vessel fishing license were withdrawal for disobeying the fishery law. There have been no legal challenges relating to the Sorong P&L fishery. SG 60 and SG 80 are met as it can be evidenced that the fishery is attempting where appropriate to comly in a timely fashion with judicial decisions SG 100 is not met as there is no evidence of proactive actions.
References		WCPFC Convention, WCPFC CMMs and Resolutions, Medley and Powers 2016, Indonesian regulations, Indonesian Tuna Management Plan 2014 lawsuits, logbooks P&L vessels Sorong.
OVERALL PERFORMANCE INDICATOR SCORE:		**80**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
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?	Y	Y	N
	Justification	At the regional level, WCPFC aims to ensure compliance through VMS, IUU vessel listing, port state controls, observers, logbooks and transhipment monitoring. Enforcement of these measures falls to the member States. Addressing IUU fishing over the whole area of the WCPO is a major challenge. With most of the fishing taking place in national waters, the broad strategy of the WCPFC compliance program is to focus on controlling high seas fishing, strengthening the exercise of control by coastal state CCMs, and monitoring compliance with CCM obligations throughout the range of application of Commission measures. Compliance failures by vessels are addressed by the application of the WCPFC IUU listing procedure. Compliance failures by CCMs, rather than vessels, are currently addressed through Commission processes of monitoring, reporting and accountability (i.e. Compliance Monitoring Scheme (CMM 2014-07). In Indonesia, compliance with fisheries laws is executed through the Directorate General of Surveillance and Control on Marine and Fisheries Resources (PSDKP), the local provincial and district fisheries administrations, and the navy and maritime police agency. The Directorate General of Surveillance, Control and Monitoring of Fisheries Resources (PSDKP) is responsible for monitoring Indonesian waters beyond 12nm with surveillance support from the navy. Provincial governments oversee monitoring from the shoreline to 12nm with surveillance support from the water police. In both cases, criminal charges and prosecution can only take place through police investigations. Fisher groups are being encouraged through several coastal resource development programmes to assume greater input into the management planning, policy development, and the implementation process. This latter task is often being undertaken with the support of non-government organizations (NGOs). PSPK resources 26 patrol craft, operating throughout Indonesia. These craft usually work collectively with the Navy and Marine police. In Sorong, surveillance is done by Navy, Marine Police , Fishery Office of Sorong and Fishery Surveillance Office All craft over 30 GT are required to carry VMS. Vessels more than 60 GT are subject to continuous monitoring, while the activities of others, below 60 GT, are assessed 'offline' on return to port. All vessels in excess of 10 GT are required to register a sailing declaration that must be carried on board. Fish landings are checked against log-book declarations. MMAF fisheries inspectors receive regular training in case processing, penalties and prosecutions, regulations, Intelligence gathering and utilisation and VMS. Training is undertaken at regular intervals. The logbook regulation is covered by Ministerial Decree 48/2014, and supported by a sanction system. Vessels not completing the logbook will be denied an operational permit. MMAF is undertaking a significant amount of effort to promote		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
		the use of logbooks. All Sorong P&L vessels have been completing logbooks as evidenced by the assessment team. MMAF is responsible for fishery development, investigating issues of compliance raised by Fishery Surveillance or Navy and marine protection. Fishery Surveillance is responsible for some at-sea surveillances, issuing permits prior to each departure and monitoring of logbooks on return. Compliance within the Sorong pole and line fleet is seen by all as being very good. Logbooks were examined by the audit team and were accurate and reliable. Furthermore, in order to evaluate the compliance level of each fishing vessel that is permitted to operate, Indonesia has developed the **"Data Base Sharing System / DSS",** that is an integrated system of all relevant databases in Indonesia including databases of licensing system, fishing logbook, landing data at port (PIPP), VMS, Catch Certificate (SHTI), Good Handling Practices on Board (CPIB) and Observer Data. The DSS can be accessed by authorized persons only at both central and local level (including officers at fishing ports). This is to ensure that each Indonesia fishing vessel can be monitored and their compliance evaluated against the existing rules and regulated. Through DSS, once a license has been issued, all authorized offices can monitor and evaluate whether they fill and submit the logbook and its validation will be cross-checked with VMS and landing data at port to evaluate their compliance and for data collection purposes. All Indonesia vessels including Pole and Line fishing vessels can be monitored through DSS. Currently all fishing vessels above 30 GT are in the DSS system DSS, while the vessels less than 30 GT with licenses issued by the provincial authority is in progress to be monitored by DSS (currently 30% coverage). SG60 and SG 80 are met as at regional, national and local level there is a MCS system in place in the fishery and a demonstrated ability to enforce relevant management measures strategies and rules. SG 100 is not met as although a monitoring, control and surveillance system has been implemented it is not yet comprehensive and although the fishery has demonstrated an ability to enforce relevant management measures, etc this has not proven to be applied consistently.		
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?	Y	Y	N
	Justification	At regional level, although conservation measures are set by WCPFC, enforcement falls to member States. Compliance failures by vessels are addressed by the application of the WCPFC IUU listing procedure. Compliance failures by member States, rather than vessels, are currently addressed through Commission processes of monitoring, reporting and accountability under the Compliance Monitoring Scheme. To date, no trade sanctions have been applied against non-compliant member States. Sanctions are applied only to fishing entities, such IUU vessels and vessels that are detected as being non-compliant with resolutions. WCPFC notifies Flag States of non-compliant vessels, which the Flag States should order to withdraw from Commission Area. These sanctions appear to be applied consistently. In Indonesia a specific fishery-court is in place, dealing with cases within 1-3 weeks. Appeals are possible. The court comprises three judges, with four cases		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
		currently ongoing (relating to foreign purse-seiners). Set sanctions appear to be in place, up to a 6 year and 25Billion IR fine. The Fishery Act 31/2004 sets out penalty schedules. It includes graduated fiscal penalties, suspension or cancellation of licenses, refusal for new licenses and full removal from the fishery as penalty options. A revision of the Act issued on 2009 No 45. lists penalties and fines to deal with specific violations. The range of fines increased 10 fold with a penalty range from USD 25,000 and up to USD 500,000 or jail for 6 years. PSPKP maintain a record of infractions, but this information is confidential. Indications for the Indonesian pole-and-line fishery in general, and Sorong P&L in particular, are that the level of infractions are low. SG 60 and SG 80 are met as there are sanctions in place are consistently applied and thought to provide effective deterrence however SG 100 is not met as there is no evidence that they demonstrably provide effective deterrence.		
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?	Y	Y	N
	Justification	The WCPFC has a permanent working group on compliance that reviews and monitors compliance with WCPFC management measures. The working group also recommends measures to promote compatibility among the national fisheries management measures, addressing matters related to compliance with fisheries management measures, analyse information on compliance and report the findings to the WCPFC, which will in turn inform the members and non-members. An annual report is produced as part of the compliance review, which reports observed infringements. Compliance of fishers appears adequate. However, there are sufficient gaps in information to prevent there being high degree of confidence that fishers in most fisheries comply. Compliance within the Sorong pole and line fleet is considered as being very good. The only issue remembered was in around 2003 when a vessel was suspected of not having a valid licence during a naval inspection (it was later established that the licence was valid). The most significant issue seems to be vessels waiting for licences from Jakarta before sailing, but the fact that vessels will not depart without a licence supports their being good compliance. The fleet completes logbooks and this information is used to assist with management decisions. This provides some evidence that fishers comply with the management system but not a high degree of confidence. The Head of the Sorong Fishey Office (Pak Ruddy, Head of Compliance MMAF)has confirmed that the Skipjack and Yellowfin Pole and line fishermen and their operations in the UoA have been monitored . All are found to be compliant with all relevant MMAF rules : Fishing Licences, FAD licences, Reporting ie logbooks, Surveillance and VMS.		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
		SG 60 and SG 80 are met as there is some evidence to show that fishers comply with the management system and provide information of importance to the effective management of the fishery SG 100 is not met, as it needs to be evidenced that there is a high degree of confidence as opposed to some evidence.		
d	Systematic non-compliance			
	Guide post		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	There is no evidence of systematic non-compliance. Non-compliance is not systematic and does not threaten the sustainability of the fishery and there has been a significant reduction in non- compliance over the last decade. Non-compliance with Indonesia not implementing CMMs has been addressed in 3.1.1a. None of these relate to this specific fishery under assessment. SG 80 is met		
References		WCPFC TCC minutes, WCPFC CMMs, Medley and Powers 2016; WCPFC 2016, 2014,WCPFC TCC minutes, Indonesian NPOA on IUU Fishing 2012-2016, IPNLF Compliance report 2017. Indonesian Fisheries Act 2004, Sorong P&L logbooks.		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				

Evaluation Table for PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system.		
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?	Y	Y	N
	Justification	WCPFC has in place mechanisms to evaluate all key parts of the management system as demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission. The WCPFC has well developed arrangements to provide a range of information to the Secretariat and Commission Members, these include the Scientific Committee, and the Technical and Compliance Committee. Both these committees are established by the Convention, which sets out the functions for each. Both have key roles to play in monitoring and evaluating key parts of the fishery-specific management system. Additionally, there was a review of the performance of the WCPFC in 2012. A performance review structure is in place for both MMAF and Provincial DKP. An annual internal review on program planning and performance evaluation is undertaken by the Inspectorate General/Echelon I of MMAF. An external review is undertaken by the Finance Audit Agency/BPK and Finance and Development Audit Agency/BPKP at least once a year. A review of PSDKP non-compliance records for pole-and-line, handline and troll gear types was conducted by AP2HI covering the period 2011-2016. In March 2017, AP2HI presented their findings to PSDKP staff highlighting the nature of their compliance issues. There are mechanisms in place to review key parts of the fishery specific management system SG60 and SG80 requirements are met as there are mechanisms in place to evaluate key parts of the fishery-specific management system. SG100 is not met as it is not clear that these arrangements cover all parts of the fishery-specific management system.		
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?	Y	Y	N
	Justification	WCPFC is subject to regular internal review as demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission. Additionally, there was a review of the performance of the WCPFC in 2012. However there is no process in place as yet to ensure that there will be a regular external review. A performance review takes place for P4KSI and its subsidiary research groups.		

PI 3.2.4		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives.** **There is effective and timely review of the fishery-specific management system.**
		This includes an internal review on research and program planning by Inspectorate General/Echelon I of MMAF (every three months) and M&E of Balitbang KP/Echelon I of MMAF (every month) An external review on program is conducted by the Finance Audit Agency/BPK twice a year during planning and evaluation, and the university conducts an external review on research plan once a year An external review of both organization are undertaken by the Finance Audit Agency/BPK and Finance and Development Audit Agency/BPKP at least once a year. The effectiveness of each department is reviewed internally and externally. - The Fishery of Sorong Office is audited by Inspectorate, Finance and Development Audit Agency /BPKP and Finance Audit Agency /BPK . - The Surveillance office is audited by general inspectorate of MAF, and Finance Audit Agency /BPK . - The Navy is audited by Finance Audit Agency /BPK . - The Coastal Fishing Port of Sorong is audited by Finance Audit Agency /BPK and Inspectorate. Audits are done annually. Audit reports are confidential The Tuna, Skipjack, and Neritic Tuna Fishery Management Plan (NPOA Tuna and Neritic Tuna) will be evaluated each year against achievement of the Action Plan. The review results are subject to the confidentiality data, however it can be reflected in the documents and implementation of activities conducted by DG of Capture Fisheries implemented in 2017. For example, in the document plan for fiscal years of 2017, Indonesia put in a counter-part budget to finance the activity for developing Harvest Strategy/HS particularly for archipelagic and coastal tuna. The HS work-activities are being implemented in a collaborative approach, in cooperation with WCPFC, CSIRO and involving all stakeholder groups concerned with Indonesia (Central-Local Governments, Academia, NGO, Association and Representatives of fishermen). In 2020 there is to be a complete review, which will form the basis for revision and improvement needed for the next 5-years period (2020-2015). SG 60 and SG 80 are met as the fishery-specific management system is subject to **regular internal** and **occasional external** review. SG 100 is not met as there needs to be evidence of regular external reviews in place.
References		WCPFC 2012, WCPFC 2015, medley and Power 2016, Tuna Management Plan, Indonesian Decrees.
OVERALL PERFORMANCE INDICATOR SCORE:		**80**
CONDITION NUMBER (if relevant):		

Appendix 1.2 Risk Based Framework (RBF) Outputs

Appendix 1.2.2 Productivity-Susceptibility Analysis (PSA)

Table 30 PSA Rationale Table

PI number	**2.2.1**	
A. Productivity		
Scoring element (species)	**White anchovy (*Stoleporus indicus*) - MAIN**	
Attribute	**Rationale**	**Score**
Average age at maturity.	The species is regarded as highly productive with a fast doubling time. Based on other anchovy species, average age, and hence age at maturity, is expected to be short – much less than 5 years (Table PF4). NB No species-specific details in Fishbase.org (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy)	**1**
Average maximum age	The species is regarded as highly productive with a fast doubling time. Based on other anchovy species, average maximum age is expected to be short – much less than 10 years (Table PF4). NB No species-specific details in Fishbase.org (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy)	**1**
Fecundity	Relative fecundity is likely to be high but no information is available in Fishbase or other sources. (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy) Given lack of information, a precautionary score is awarded using Table PF4.	**2**
Average maximum size	15.5cm (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy);	**1**
Average size at maturity	7cm (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy)	**1**
Reproductive strategy	The species is a typical broadcast spawner.	**1**
Trophic level	3.6; Fishbase.org (http://www.fishbase.org/Summary/SpeciesSummary.php?ID=569&AT=Hardenberg%26%2339%3Bs+anchovy)	**3**
Density dependence	NA	

B. Susceptibility		
Fishery only where the scoring element is scored cumulatively	NA – no other fisheries impacting the given scoring element.	
Attribute	**Rationale**	**Score**
Areal Overlap	There are 18 bagans in WPP715 and 2 in WPP717. Bagans may be boat-based or shore-based but positions are effectively fixed by licenses. With each bagan attracting fish from a circle of diameter 150m, the area overlap is very small compared to the widespread distribution of white anchovy across all of WPP715/717. The overlap is well within the 10% criterion for scoring as low susceptibility using Table PF5.	**1**
Encounterability	Method of capture: Bagan (a bait station using a lift net). Depth of the location is 0-30m. Depth of deployment: to 30m. Plankton is attracted with white light and livebait fish follow from a radial distance of 50-100m, so are attracted from the deployment depth and all fish may effectively be encountered.	**3**
Selectivity of gear type	2.5mm mesh size is used and all fish are retained. Individuals less than the size at maturity are frequently caught.	**3**
Post capture mortality	All live fish are retained as bait. Any discarded fish are dead.	**3**
Catch (weight) only where the scoring element is scored cumulatively	NA	

Table 31 Screenshot of final PSA Table for White anchovy.

Family name	Engraulidae
Scientific name	Enrasicolina punctifer
Common name	Anchovy (white)
Species type	Non-invertebrate
Fishery descriptor	Bait

Productivity Scores [1-3]									**Susceptibility Scores [1-3]**					**Cumulative only**							
Average age at maturity	Average max age	Fecundity	Average max size	Average size at Maturity	Reproductive strategy	Trophic level	Density Dependance	Total Productivity (average)	Availability	Encounterability	Selectivity	Post-capture mortality	Total (multiplicative)	PSA Score	Catch (tons)	Weighting	Weighted Total	Weighted PSA Score	**MSC PSA-derived score**	Risk Category Name	MSC scoring guidepost
1	1	2	1	1	1	3		1,43	1	3	3	3	1,65	2,18					92	Low	≥80

Appendix 1.3 Conditions

Table 32 Condition 1

Performance Indicator	**Skipjack tuna PI1.2.1 Scoring Issue a**
Score	70
Rationale	MSC guidance defines a harvest strategy as the combination of monitoring, stock assessment, harvest control rules and management actions. It is intended that these elements work together towards achieving management objectives. The current harvest strategy is not formalised but consists of the elements considered at PIs 1.2.2, 1.2.3, and 1.2.4. The operational harvest strategy for WCPO skipjack tuna has several contributing components, with WCPFC, PNA and national and archipelagic waters management actions being supported by a robust stock assessment and extensive monitoring frameworks. CMM 2015-01 and its predecessors are fundamental in the current harvest strategy for skipjack tuna. The primary objective of CMM 2015-01 is that "Compatible measures for the high seas and exclusive economic zones (EEZs) are implemented so that bigeye, yellowfin and skipjack tuna stocks are, at a minimum, maintained at levels capable of producing their maximum sustainable yield as qualified by relevant environmental and economic factors including the special requirements of developing States in the WCPFC-CA as expressed by Article 5 of the Convention." CMM 2015-01 lays out catch controls, measures for FAD set managements, and capacity limitation measures. Tools adopted by WCPFC include effort limits in major purse seine fisheries, FAD closures, high seas closures, and a discard ban in purse seine fisheries. Additional FAD measures are also in place for 2016 and 2017. Purse seine effort controls are in place in coastal states EEZs. Explicit LRPs have been adopted for biomass and the fishing mortality rate. In December 2015, the Commission adopted an explicit MSY-related biomass TRP. At this point, harvest control rules have not been adopted. There is an extensive information base from a wide range of biological studies and from a diverse range of fisheries. The information is sufficient to support a state-of-the-art stock assessment that provides probabilistic estimates of key parameters and their relationship to reference points. Advice from the stock assessment is provided by the Scientific Committee and additional work is carried out by the scientific provider, SPC, to the Commission. Annual decision-making is articulated through CMMs and is supported by good scientific decision-support systems. CMM 2014-06 spells out the future direction for strengthening the harvest strategy, including the development of harvest control rules, and a work plan has been agreed to implement this. As indicated above, there are measures in place that are intended to control fishing mortality for purse seine fishing, including effort and capacity limits. A major measure is the PNA Vessel Day Scheme (VDS) which determines Total Allowable Effort (TAE) and Party Allocations of Effort (PAE). MSC CRv2.0 (PB3.1) states that "CABs assessing overlapping fisheries shall ensure consistency of outcomes so as not to undermine the integrity of MSC fishery assessments". As discussed earlier in the report (Section 4.8), a meeting was held in Hong Kong in April 2016 to consider harmonisation of the P1 components of tuna fisheries in the Pacific. An outcome of this was a review of the requirements for meeting SG80 requirements for PI 1.2.1a. The original PNA skipjack assessment (Banks et al. 2011) scored the fishery as meeting the SG80 level for 1.2.1a on the basis that "The elements of the harvest strategy work together in that the implementation of the purse seine effort limit systems is based on the FFA and WCPFC VMSs, the WCPFC management actions in respect of the purse seine fisheries are largely based

	on the PNA actions" and that "the Commission responded to the change in the results of the skipjack assessment and the more cautionary tone of the scientific advice in 2010 by deciding to address the management of skipjack explicitly in the preparation of a CMM to replace CMM 2008-01 beyond 2011." Overall, the original score for PI 1.2.1 for the PNA fishery was 80. Other skipjack fisheries considered at the Hong Kong meeting have concluded that SG80 is not met for 1.2.1a and have awarded an overall score of 70 for PI 1.2.1 (Table 21), and suggest that the PNA score should align with this score. It was agreed that the current management measures are expected to ensure that fishing mortality and spawning biomass remain at levels that will achieve the stock management objective, meeting SG60 requirements. The basis for SG80 not being met is predominantly that the majority of Hong Kong meeting participants considered that there is no clear linkage between potential catch and allocated effort, that the processes for determining VDS TAE and PAE are not transparent and that it is unclear how the TAE is determined, based on stock status advice. Overall, it was agreed at the harmonisation meeting that for the WCPFC tuna fisheries, including those under the PNA's VDS, there is insufficient evidence that the harvest strategy is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving management objectives, hence it was concluded that a score of 70 is warranted for PI 1.2.1 and a Condition of Certification (#1) is set on UoA 1 of the PNAFTF. It is noted that the harmonisation of the scoring for this scoring issue has been an ongoing matter of discussion between CABs. The assessment team undertook discussions in October and November 2016 with other CABs involved in the Hong Kong meeting, the majority view being that the score should remain at 60. In keeping with MSC requirements for harmonisation, scoring issue 1.2.1a is scored as having met SG60 requirements but not SG80. Noting the points on harmonisation (see Box 1, P.87 [of PNAassessment report]), and the MSC Technical Oversight (see MSC comments, P.299 [of PNA assessment report), the rationale for this score can be found in relevant fishery reports on the MSC website. These rationales are largely based on the lack of a clear linkage between potential catch and allocated effort mentioned above.
Condition	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) The harvest strategy is responsive to the state of the stock, and b) the elements of the harvest strategy work together towards achieving management objectives reflected in PI1.1.1 SG80.
Milestones	It is recognized that the Client has limited ability directly to ensure the SG80 are met at each scoring issue. The Client will need to work through representative bodies and the government of Indonesia. The key issue is transparency of the linkage between catching opportunity (informed by scientific assessments) and the primary control in the fishery (the use of effort controls by the PNA). Milestone 1: By the first annual surveillance, the Client should show clear evidence of advocacy within Indonesia for support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06. Advocacy is also required that the linkage between catching opportunity and effort limitations are made explicit. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 2: By the second annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined

	as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 3: By third annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 4: By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.
Client action plan	Milestones 1-3 are essentially the same. To meet these milestones, the Client will continue to work with the Indonesian Ministry of Marine Affairs and Fisheries (MMAF), other members of WCPFC, IPNLF and other stakeholders to encourage and support the development of a harvest strategy which is responsive to the state of the stock; with the elements of the harvest strategy working together towards achieving the management objectives reflected in PI1.1.1 SG80. Specifically, the client will promote support for the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06 and any subsequent plans or measures to achieve the same objectives. The client will also work with MMAF, IPNLF and other stakeholders to support the development of corresponding measures (harvest strategy, harvest control rules and tools) to manage skipjack stocks in Indonesian Archipelagic Waters – as detailed under Condition 5. This work is expected to progress throughout the period of certification with completion by, or before, the 4th surveillance audit. Milestone 4. Following the development work referred to above, evidence is to be provided that a harvest strategy will be developed for the WCP skipjack stock which is responsive to the state of the stock; with the elements of the harvest strategy working together towards achieving the management objectives reflected in target and limit reference points.
Consultation on condition	The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided – ref. Appendix 3.3 Ministry of Marine Affairs and Fisheries.

Table 33 Condition 2

Performance Indicator	**Skipjack tuna PI1.2.2 Scoring Issues a,b and c**
Score	60
Rationale	Scoring issue (a): WCPFC CMM 2014-06 established a process for the adoption of harvest control rules, however, well-defined harvest control rules are not currently in place and SG80 is not met. Following the MSC Notice, "Scoring of 'available' Harvest Control Rules (HCRs) in CRv1.3 fisheries" of 24th November 2014, PI 1.2.2 si(a) has been scored using CRv2.0 provisions for SG60 (as above) scoring for a number of fisheries, including several tuna fisheries. MSC have also provided further comment on HCRs with their notice of 16 December, 2015 "Interpretation on Harvest Control Rules (HCR)". MSC CRv2.0 lays out two conditions for acceptance of HCR being available sufficient to justify scoring at the SG60 level (MSC 2014).

	1) CR v2.0 SA2.5.2a provides for HCR being recognised as available, "…if stock biomass has not previously been reduced below BMSY or has been maintained at that level for a recent period of time". The skipjack assessment provides probabilistic estimates of parameters of interest, and uncertainty has been extensively explored using a crosswise grid of sensitivity tests. Previous skipjack assessments indicate that SB has not been reduced below SBMSY. The 2014 assessment estimates of spawning biomass (2011) are also above the level that will support the MSY. WCPFC-SC (2014a) also indicated that "Future status under status quo projections (assuming 2012 conditions) was robust to assumptions on future recruitment. Under either assumption, spawning biomass remained relatively constant and it is exceptionally unlikely (0%) for the stock to become overfished (SB2032<0.2SBF=0) or for the spawning biomass to fall below SBMSY, and it is exceptionally unlikely (0%) for the stock to become subject to overfishing (F>FMSY)". An updated 2016 assessment provides conclusions that are largely consistent with previous assessments (McKechnie et al. 2016). The reference case model of the 2016 stock assessment estimated the 2015 level of spawning potential to be at approximately 58% of the unfished level for the reference case model, well above the LRP of 20%SBF=0 agreed by WCPFC (WCPFC 2016b). SBlatest/SBF=0 was relatively close to the adopted interim target reference point (0.5SBF=0) for all models explored in the assessment (structural uncertainty grid: median = 0.51, 95% quantiles = 0.39 and 0.67) (WCPFC 2016b). The CRv2.0 SA2.5.2a condition is therefore met and HCRs are considered to be 'available'. 2) CRv2.0 SA2.5.3b provides for HCR being recognised as available if, "…there is an agreement or framework in place that requires the management body to adopt HCRs before the stock declines below BMSY". CMM 2014-06 sets out the principles and elements for harvest strategies to be developed and implemented, including requirements for target and limit reference points and decision rules or ("harvest control rules"), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The CMM also included a requirement to adopt a workplan with an indicative timeframe no later than 2015 Commission meeting, with application to skipjack tuna, bigeye tuna, yellowfin tuna, Pacific bluefin tuna, and South and North Pacific albacore tuna. In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop process (a TRP and LRP have been adopted for skipjack tuna). Following discussions at WCPFC12 a workplan was agreed (WCPFC 2015, Attachment Y). The Commission tasked the SC with support from the Scientific Service Provider to undertake the activities specified in the agreed workplan (included in this report at Appendix 8). As indicated above, the current stock assessment and projections of future stock size indicate that the stock will remain above SSBMSY over the period agreed in the CMM 2014-06 workplan. The CRv2.0 SA2.5.3b requirement is therefore met. Scoring issue (b): HCRs are still under development and SG80 is therefore not met. Scoring issue (c): The rationale for this SI needs to address two CRv2.0 (MSC 2014) requirements. 1) CR v2.0 SA2.5.6 requires that as part of the evaluation of the effectiveness of HCRs, "…teams shall include consideration of the current levels of exploitation in the UoA, such as measured by the fishing mortality rate or harvest rate, where available". MSC CRv2.0 SA2.5.6 guidance (GSA2.5.2-7) states that "Evidence that current F is equal to or less than FMSY should usually be taken as evidence that the HCR is effective".

	Evidence to support this is provided by the 2014 and 2016 assessments indicating that overfishing is not occurring (Fcurrent /FMSY < 1 across the grid of model runs) (WCPFC 2014a, WCPFC 2016b). 2) In relation to SIa, above, CRv2.0 SA2.5.5b, requires that where HCRs are recognised as 'available "A description of the formal agreement or legal framework that the management body has defined, and the indicators and trigger levels that will require the development of HCRs" shall be provided. As noted at SIa, CMM 2014-06 sets out elements of harvest strategies to be developed and implemented. The WCPFC agreed to adopt a work plan at the 2015 Commission meeting, with potential revision in 2017, with application to skipjack tuna, bigeye tuna, yellowfin tuna, Pacific bluefin tuna, and South and North Pacific albacore tunas. Work to establish reference points and harvest control rules has been in progress over recent years through the Management Objectives Workshop (MOW) process. WCPFC has adopted an explicit LRP and TRP for skipjack. Following discussions at WCPFC12 a workplan was agreed (WCPFC 2015a, Attachment Y). No additional trigger is required for the development of HCRs is required. The requirements detailed above are met and a score of 60 is awarded. SG80 refers to the tools 'in use' in the fishery. Given SIa finds HCRs are 'available', the tools are not considered to be in use and SG80 is not met.
Condition	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) Well defined harvest control rules shall be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; b) The selection of the harvest control rules shall take into account the main uncertainties; c) Evidence shall be available that indicates that tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.
Milestones	Milestones for Condition 2 parallel those for Condition 1, with the development of harvest control rules being a subset of harvest strategy development. It is recognised the Client has limited ability directly to ensure the SG80 are met at each scoring issue. The Client will need to work through fishery representatives and the government of Indonesia. The key issues are a) ensuring harvest control rules are put in place that reduce exploitation rate as the limit reference point is approaches; b) ensuring those harvest control rules take account of main uncertainties; and c) ensuring there is evidence of effective use of management tools to achieve desired exploitation rates. Milestone 1: By the first annual surveillance, the Client should show clear evidence of advocacy within Indonesia for support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06. Advocacy is also required that effective tools to manage exploitation are used for the whole skipjack stock and fisheries, including in Indonesia. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 2: By the second annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 3: By third annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a

	means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 4: By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met for all scoring issues.
Client action plan	Milestones 1-3 are essentially the same. To meet these milestones, the Client will continue to work with the Indonesian Ministry of Marine Affairs and Fisheries (MMAF), other members of WCPFC, IPNLF and other stakeholders to encourage and support the development of a harvest strategy including well defined harvest control rules that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. Specifically, the client will promote support for the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06 and any subsequent plans or measures to achieve the same objectives. The client will also work with MMAF, IPNLF and other stakeholders to support the development of corresponding measures (harvest strategy, harvest control rules and tools) to manage skipjack stocks in Indonesian Archipelagic Waters – as detailed under Condition 5. This work is expected to progress throughout the period of certification with completion by, or before, the 4th surveillance audit. Milestone 4. Following the development work referred to above, evidence to be provided that well defined harvest control rules are in place that are consistent with the harvest strategy – the development of the HCR in combination with the HS will achieve this. HCRs will be designed to ensure that the exploitation rate is reduced as limit reference points are approached. Testing of the HS and HCR through their development (e.g. by MSE) will ensure that the selection of the harvest control rules shall take into account the main uncertainties. Testing (and any implementation at this time) will also provide evidence to indicate that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.
Consultation on condition	The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided- ref. Appendix 3.3 Ministry of Marine Affairs and Fisheries

Table 34 Condition 3

Performance Indicator	**Yellowfin tuna PI1.2.1 Scoring Issue a**
Score	70
Rationale	MSC guidance defines a harvest strategy as the combination of monitoring, stock assessment, harvest control rules and management actions. It is intended that these elements work together towards achieving management objectives. The current harvest strategy is not formalised but consists of the elements considered at PIs 1.2.2, 1.2.3, and 1.2.4. The operational harvest strategy for WCPO yellowfin has several contributing components, with WCPFC, PNA and national and archipelagic waters management actions being supported by a robust stock assessment and extensive monitoring frameworks. Management measures applied to yellowfin tuna take the same form as those applied to skipjack tuna. The development of measures from CMM 2005-01 to 2015-01 are as described at PI 1.2.1 SIa for skipjack tuna. An explicit LRP for yellowfin tuna has been adopted for biomass (20%SBF=0). A formal target reference point is under discussion by WCPFC and subject to development under the workplan established under CMM 2014-06. In the absence of a formal target reference point, the default WCPFC target of BMSY applies to yellowfin tuna.

	At this point, harvest control rules have not been adopted. There is an extensive information base from a wide range of biological studies and from a diverse range of fisheries. The information is sufficient to support a state-of-the-art stock assessment that provides probabilistic estimates of key parameters and their relationship to reference points. Advice from the stock assessment is provided by the SC and additional work is carried out by the scientific provider, SPC, to the Commission. Annual decision-making is articulated through CMMs and is supported by good scientific decision-support systems. CMM 2014-06 spells out the future direction for strengthening the harvest strategy, including the development of harvest control rules, and a work plan has been agreed to implement this. As indicated above, there are measures in place that are intended to control fishing mortality for purse seine fishing, including effort and capacity limits. The UoA harvest strategy rates well against many of the requirements for a harvest strategy as defined by MSC (e.g. limit reference point, monitoring and stock assessment). The status of yellowfin continues to be assessed as not overfished and not subject to overfishing, though the yellowfin tuna stock is not in as strong a position against the various reference levels presented in the assessment as is the case for skipjack tuna. Latest catches in the 2014 assessment (612,797 mt, 2012) of WCPO yellowfin tuna marginally exceed MSY (586,400 mt). The majority of the skipjack catch in the WCPO is taken by purse seine. Since 2010, annual catches of yellowfin tuna by methods other than purse seine have been approximately 40-50% of the total, hence the measures in place for these other fishing methods require greater consideration for yellowfin tuna. CMM 2013-01, CMM 2014-01 and CMM 2015-01 have, in addition to the measures for the purse seine component of the fishery, incorporated requirements that other commercial fisheries for bigeye tuna, yellowfin tuna and skipjack tuna take necessary measures such that fishing effort and capacity shall not exceed the average level for the period 2001-2004 or 2004. For longline fisheries, these CMMs require that "CCMs agree to take measures not to increase catches by their longline vessels of yellowfin tuna." These three CMMs each state that at the following regular Commission meeting "…the Commission will formulate and adopt appropriate limits for CCMs, based on recommendations from the Scientific Committee, and taking into account other measures in this CMM." These limits have not yet been agreed. To date, the measures in place have achieved stock management objectives reflected in PI 1.1.1 SG80 and assessment projections indicate they will continue to do so, meeting SG60 requirements. However, there has been a lack of progress in the development of management measures for some components of the overall fishery for yellowfin. The elements of the harvest strategy are not considered to be working together towards achieving stock management objectives reflected in PI 1.1.1 SG80, hence SG80 requirements for this scoring issue are not met.
Condition	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) The harvest strategy is responsive to the state of the stock, and b) the elements of the harvest strategy work together towards achieving management objectives reflected in PI1.1.1 SG80.
Milestones	It is recognized that the Client has limited ability directly to ensure the SG80 are met at each scoring issue. The Client will need to work through representative bodies and the government of Indonesia. The key issue is transparency of the linkage between catching opportunity (informed by scientific assessments) and the primary control in the fishery (the use of effort controls by the PNA). Milestone 1: By the first annual surveillance, the Client should show clear evidence of advocacy within Indonesia for support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06. Advocacy is also required that the linkage between catching

	opportunity and effort limitations are made explicit. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 2: By the second annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 3: By third annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 4: By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.
Client action plan	Milestones 1-3 are essentially the same. To meet these milestones, the Client will continue to work with the Indonesian Ministry of Marine Affairs and Fisheries (MMAF), other members of WCPFC, IPNLF and other stakeholders to encourage and support the development of a harvest strategy which is responsive to the state of the stock; with the elements of the harvest strategy working together towards achieving the management objectives reflected in PI1.1.1 SG80. Specifically, the client will promote support for the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06 and any subsequent plans or measures to achieve the same objectives. The client will also work with MMAF, IPNLF and other stakeholders to support the development of corresponding measures (harvest strategy, harvest control rules and tools) to manage yellowfin tuna in Indonesian Archipelagic Waters – as detailed under Condition 5. This work is expected to progress throughout the period of certification with completion by, or before, the 4th surveillance audit. Milestone 4. Following the development work referred to above, evidence is to be provided that a harvest strategy will be developed for the WCP yellowfin tuna stock which is responsive to the state of the stock; with the elements of the harvest strategy working together towards achieving the management objectives reflected in target and limit reference points.
Consultation on condition	The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided - ref. Appendix 3.3 Ministry of Marine Affairs and Fisheries

Table 35 Condition 4

Performance Indicator	**Yellowfin tuna PI1.2.2 Scoring Issues a, b and c**
Score	60
Rationale	Scoring issue (a): WCPFC CMM 2014-06 established a process for the adoption of harvest control rules, however, well-defined harvest control rules are not currently in place and SG80 is not met. Following the MSC Notice, "Scoring of 'available' Harvest Control Rules (HCRs) in CRv1.3 fisheries" of 24th November 2014, PI 1.2.2 si(a) has been scored using CRv2.0 provisions for SG60 (as above) scoring for a number of fisheries, including several tuna fisheries. MSC have also provided further comment on HCRs with their notice of 16 December, 2015 "Interpretation on Harvest Control Rules (HCR)". MSC CRv2.0 lays out two conditions for acceptance of HCR being available sufficient to justify scoring at the SG60 level (MSC 2014). 1) CRv2.0 SA2.5.2a provides for HCR being recognised as available, "…if stock biomass has not previously been reduced below BMSY or has been maintained at that level for a recent period of time". The yellowfin tuna stock assessment provides probabilistic estimates of parameters of interest, and uncertainty has been extensively explored using a crosswise grid of sensitivity tests. Previous yellowfin tuna assessments indicate that SB has not been reduced below SBMSY. The 2014 assessment estimates of spawning biomass (2011) are also above the level that will support the MSY (SBlatest/SBMSY = 1.24 for the base case and from 1.05 to 1.51 across key models of the grid used in the assessment) (WCPFC 2014a). WCPFC (2014a) also indicated that "Future status under status quo projections (assuming 2012 conditions) depends on assumptions on future recruitment. When spawner-recruitment relationship conditions are assumed, spawning biomass is predicted to increase and the stock is exceptionally unlikely (0%) to become overfished (SB2032<0.2SBF=0) or to fall below SBMSY, or to become subject to overfishing (F>FMSY). If recent (2002–2011) actual recruitments are assumed, spawning biomass will remain relatively constant, and the stock is exceptionally unlikely (0%) to become overfished or to become subject to overfishing, and it was very unlikely (2%) that the spawning biomass would fall below SBMSY)" (WCPFC 2014a). The CRv2.0 SA2.5.2a condition is therefore met and HCRs are considered to be 'available'. CRv2.0 SA2.5.3b provides for HCR being recognised as available if, "…there is an agreement or framework in place that requires the management body to adopt HCRs before the stock declines below BMSY". WCPFC CMM 2014-06 sets out the principles and elements for harvest strategies to be developed and implemented, including requirements for target and limit reference points and decision rules or ("harvest control rules"), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The CMM also included a requirement to adopt a workplan with an indicative timeframe no later than 2015 Commission meeting, with application to skipjack tuna, bigeye tuna, yellowfin tuna, Pacific bluefin tuna, and South and North Pacific albacore tunas. Work towards establishing reference points and harvest control rules is well underway through the Management Objectives Workshop process (a LRP has been adopted for yellowfin tuna and candidate TRPs are under consideration). Following discussions at WCPFC12 a workplan was agreed (WCPFC 2015, Attachment Y). The Commission tasked the SC with support from the SPC to undertake the activities specified in the agreed workplan (included in this report at Appendix 8). As indicated above, the current stock assessment and projections of future stock size indicate that the stock will remain above SSBMSY over the period agreed in the CMM 2014-06 workplan. The CRv2.0 SA2.5.3b requirement is therefore met.

	In summary, as conditions at both CR v2.0 SA2.5.2a and CR v2.0 SA2.5.3b are met, a score of SG60 is awarded. Scoring issue (b): HCRs are still under development and SG80 is therefore not met. Scoring issue (c): The rationale for this SI needs to address two CRv2.0 (MSC 2014) requirements. 1) CRv2.0 SA2.5.6 requires that as part of the evaluation of the effectiveness of HCRs, "…teams shall include consideration of the current levels of exploitation in the UoA, such as measured by the fishing mortality rate or harvest rate, where available". CRv2.0 SA2.5.6 guidance (GSA2.5.2-7) states that "Evidence that current F is equal to or less than FMSY should usually be taken as evidence that the HCR is effective". Evidence to support this is provided by the 2014 assessment indicating that overfishing is not occurring (Fcurrent/FMSY < 1 across the grid of model runs) (WCPFC 2014a). 2) In relation to SIa, above, CRv2.0 SA2.5.5b, requires that where HCRs are recognised as 'available "A description of the formal agreement or legal framework that the management body has defined, and the indicators and trigger levels that will require the development of HCRs" shall be provided. As noted at SIa, CMM 2014-06 sets out elements of harvest strategies to be developed and implemented. The WCPFC agreed to adopt a work plan at the 2015 Commission meeting, with potential revision in 2017, with application to skipjack, bigeye, yellowfin, Pacific bluefin, and South and North Pacific albacore tunas. Work to establish reference points and harvest control rules has been in progress over recent years through the Management Objectives Workshop (MOW) process. WCPFC has adopted an explicit LRP for yellowfin and candidate TRPs are being considered. Following discussions at WCPFC12 a workplan was agreed (WCPFC 2015a, Attachment Y). No additional trigger is required for the development of HCRs is required. The requirements detailed above are met and a score of 60 is awarded. SG80 refers to the tools 'in use' in the fishery. Given SIa finds HCRs are 'available', the tools are not considered to be in use and SG80 is not met.
Condition	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) Well defined harvest control rules shall be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; b) The selection of the harvest control rules shall take into account the main uncertainties; c) Evidence shall be available that indicates that tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.
Milestones	Milestones for Condition 2 parallel those for Condition 1, with the development of harvest control rules being a subset of harvest strategy development. It is recognised the Client has limited ability directly to ensure the SG80 are met at each scoring issue. The Client will need to work through fishery representatives and the government of Indonesia. The key issues are a) ensuring harvest control rules are put in place that reduce exploitation rate as the limit reference point is approaches; b) ensuring those harvest control rules take account of main uncertainties; and c) ensuring there is evidence of effective use of management tools to achieve desired exploitation rates. Milestone 1: By the first annual surveillance, the Client should show clear evidence of advocacy within Indonesia for support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06. Advocacy is also required that effective tools to amange exploitation are used for the whole skipjack stock and fisheries, including in Indonesia. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60.

	Milestone 2: By the second annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 3: By third annual surveillance, the Client should show clear evidence of continued advocacy for participation in and support of the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06, and any modifications to that work plan agreed by the WCPFC. The milestone associated with this surveillance audit has been defined as a means to monitor progress. Meeting this milestone would likely not result in a change in score at this surveillance audit - Interim score 60. Milestone 4: By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met for all scoring issues.
Client action plan	Milestones 1-3 are essentially the same. To meet these milestones, the Client will continue to work with the Indonesian Ministry of Marine Affairs and Fisheries (MMAF), other members of WCPFC, IPNLF and other stakeholders to encourage and support the development of a harvest strategy including well defined harvest control rules that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. Specifically, the client will promote support for the WCPFC-agreed work plan for harvest control rules, adopted at WCPFC12 in support of WCPFC CMM 2014-06 and any subsequent plans or measures to achieve the same objectives. The client will also work with MMAF, IPNLF and other stakeholders to support the development of corresponding measures (harvest strategy, harvest control rules and tools) to manage yellowfin tuna in Indonesian Archipelagic Waters – as detailed under Condition 5. This work is expected to progress throughout the period of certification with completion by, or before, the 4th surveillance audit. Milestone 4. Following the development work referred to above, evidence is to be provided that well defined harvest control rules are in place that are consistent with the harvest strategy – the development of the HCR in combination with the HS will achieve this. HCRs will be designed to ensure that the exploitation rate is reduced as limit reference points are approached. Testing of the HS and HCR through their development (e.g. by MSE) will ensure that the selection of the harvest control rules shall take into account the main uncertainties. Testing (and any implementation at this time) will also provide evidence to indicate that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.
Consultation on condition	The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided - ref. Appendix 3.3 Ministry of Marine Affairs and Fisheries

Table 36 Condition 5

Performance Indicator	All UoAs PI3.1.1 Scoring Issue a
Score	75
Rationale	The Sorong pole and line fishery, for skipjack and yellowfin, targets shared stocks of highly migratory tuna species straddling the WCP ocean. The overarching management regime is underpinned by the WCPFC to which all members, including Indonesia, have obligations under the convention including the application of WCPFC conservation and management measures (CMMs). WCPFC sets conservation and management measures and policies for the WCPFC Convention Area, excluding archipelagic waters. The Indonesian Government is responsible for ensuring management measures applied within Indonesia's EEZ including archipelagic waters are compatible with those of the WCPFC. Indonesia, despite participating and inputting into WCPFC meetings and cooperating, and despite having an effective national legal system, has failed to implement some of the CMMs thus not delivering management actions consistent with sustainable management advice. For Indonesia AWs there are no well-defined HCR yet in place the number of pole and line vessel licenses fluctuates widely from year to year with no obvious linkage to the stock condition or catching opportunity.
Condition	By the fourth annual surveillance, the client must be in a position to demonstrate that the SG80 requirements have been met: a) There is an effective national legal system and organised and effective cooperation with other parties to deliver management outcomes consistent with MSC Principles 1 and 2. Refer MSC CRv2.0 SA4.3.3 and SA4.3.3.2.
Milestones	Milestone 1. By the first annual surveillance i) a summary of current mechanisms and options for harvest controls in AW (including, but not limited to, how the number of vessel licenses issued annually relates to scientific advice on catching opportunity in Indonesian waters) and ii) a plan setting out the approach and timescale to be used in developing and implementing a HS and HCR for Indonesian AW. Milestone 2. By the 2nd annual surveillance evidence will be provided to show progress towards the plan for HS/HCR development. Milestone 3. By the 3rd annual surveillance a summary of progress to date on The plan for HS/HCR development will be provided including testing of the proposed HS and HCR . Milestone 4.By the 4th annual surveillance A HS and HCR will be implemented within Indonesian archipelagic waters. These will be compatible with relevant CMMs adopted by WCPFC (notably CMM 2014-06 and any subsequent amendments), as required by UNCLOS and UNFSA. This will provide organised and effective cooperation with other parties, notably WCPFC, to deliver management outcomes consistent with MSC Principles; in relation to this fishery this relates primarily to Principle 1 PI1.1.1.
Client action plan	It is recognised that the key issue relevant to the Sorong (and Indonesian) skipjack and yellowfin tuna pole and line fisheries is the development of harvest strategies (HS) and harvest control rules and tools (HCR) for SKJ and YFT in Indonesian archipelagic waters. Adequate monitoring and robustness to uncertainties in data are recognised as central components of the harvest strategy.

	MMAF has already begun the development of harvest strategies and harvest control rules for key tuna species, including skipjack and yellowfin. This work will be continued, supported by PtCA, IPNLF and other stakeholders and reported as part of this MSC assessment, in accordance with the following timescale. Milestone 1. A plan will be provided setting out the approach and timescale to be used in developing and implementing the HS and HCR, including data provision to Indonesian managers and WCPFC. The plan will establish the mechanism to relate controls to both lastest stock assessment results and direct monitoring within AW. The plan will include areas of collaboration with MMAF, CSIRO Australia, IPNLF and other relevant stakeholders. A summary of progress to date will be provided, together with accompanying technical papers. Milestone 2. The plan for HS/HCR development will be progressed, including relevant technical sessions and stakeholder workshops. A summary of progress to date will be provided, together with accompanying technical papers. Milestone 3. The plan for HS/HCR development will be progressed, including relevant technical sessions and stakeholder workshops. At this stage, testing of the proposed HS and HCR through, for example, MSE will be carried out. A summary of progress to date will be provided, together with accompanying technical papers. Milestone 4. A HS and HCR will be implemented within Indonesian archipelagic waters. These will be compatible with relevant CMMs adopted by WCPFC (notably CMM 2014-06 and any subsequent amendments), as required by UNCLOS and UNFSA. This will provide organised and effective cooperation with other parties, notably WCPFC, to deliver management outcomes consistent with MSC Principles; in relation to this fishery this relates primarily to Principle 1 PI1.1.1.
Consultation on condition	The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided -ref. Appendix 3.3 Ministry of Marine Affairs and Fisheries

Table 37 Condition 6

Performance Indicator	**All UoAs PI3.2.1 Scoring Issue a**
Score	60
Rationale	This PI focuses on the fishery-specific management system. The Indonesian tuna management plan for skipjack and neritic tunas was finalised in 2014. The Plan contains aims and objectives and outlines the geographical boundaries of the plan. However although there are some short and long term objectives there needs to be better defined fishery specific long term and short term objectives. The objectives as defined in the plan are weak in applying the RFMO requirements and these must be explicit within the fishery- specific management system
Condition	By the 4th surveillance it must be demonstrated that 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	Milestone 1: By the 2nd annual surveillance the review for the Tuna Management Plan will have identified fishery specific long term and short term objectives in particular to address RFMO requirements Milestone 2: By the 4th annual surveillance there will be evidence that the long and short term fishery specific objectives are being implemented
Client action plan	MMAF has already begun the development of harvest strategies and harvest control rules for key tuna species, including skipjack and yellowfin. This work will be continued, supported by PtCA, IPNLF and other stakeholders and reported as part of this MSC assessment, in accordance with the following timescale. Integral to this development will be the definition and adoption of explicit, well-defined and measurable, short and long-term objectives. Milestone 1. A plan will be provided setting out the approach and timescale to be used in developing and implementing the HS and HCR, including development of appropriate objectives. A summary of progress to date will be provided, together with accompanying technical papers. Milestone 2. The plan for HS/HCR development will be progressed – the identification of explicit, well-defined and measurable, short and long-term objectives, consistent with RFMO requirements, will be integral to this development. A summary of progress to date will be provided, including identification of fishery specific long term and short term objectives, together with accompanying technical papers. Milestone 2. Execution of the plan for HS/HCR development will be progressed. A summary of progress to date will be provided, together with accompanying technical papers. Milestone 4. A HS and HCR will be implemented within Indonesian archipelagic waters. Integral to this Harvest Strategy will be the adoption of explicit, well-defined and measurable, short and long-term objectives These will be compatible with relevant CMMs adopted by WCPFC (notably CMM 2014-06 and any subsequent amendments).
Consultation on condition	The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided - ref. Appendix 3.3 Ministry of Marine Affairs and Fisheries

Appendix 1.4 Certificate sharing

PT CITRARAJA AMPAT CANNING

OFFICE : JL. BUBUTAN 39 SURABAYA 60174, INDONESIA
PHONE : 62 031 5344006 FAX : 62 031 5312698, EMAIL : [illegible]
FACTORY : JL. A. YANI KLADEMAK I SORONG 98414, INDONESIA

Sorong, March 09 ,2017

To : DNV GL – Business Assurance

We hereby declare that ,
PT Citraraja Ampat Canning is willing to extend membership of the UoC to Indonesian licensed Pole and Line vessells, based in Sorong, which agree to comply with all rules and conditions associated with the MSC certification of the P.T Citraraja Ampat Canning Pole & Line SKJ and YFT Fishery'.

Sincerely,

Mintojo Wibisono

APPENDIX 2 PEER REVIEW REPORTS

PEER REVIEWER A

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes**	**Certification Body Response**
Justification: The assessment team concluded that the fishery be certified. The overall determination that this fishery should be certified according to the MSC principles and criteria is appropriate and correctly based on the findings of this assessment. Apart from some minor issues that would not affect the overall assessment outcome the scoring is appropriate.		NA

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	**Yes**	**Certification Body Response**
Justification: I agree with the 6 conditions that have been formulated. The milestones accurately describe the actions that are required to meet the conditions.		NA

Do you think the client action plan is sufficient to close the conditions raised?	**Yes**	**Certification Body Response**
Justification: The client action plan is compatible with the milestones and the requirements of the relevant PIs.		NA

General Comments on the Assessment Report (optional)

This is a well written report that provides a substantial amount of information on this fishery. It must be admitted that the issues that attracted conditions are complicated and that the fact that the fishery targets stocks that are targeted by other MSC certified fisheries plays a major role in the outcome of this certification. Would the fishery in AW stand alone and the harvest strategy and HCR would have been scored under Principle 1 the fishery would have failed. In the applied approach of scoring this fishery the fishery profits from WCPFC management system and harvest strategy although there is very little of a harvest strategy in AW itself. This large deficit is appropriately addressed by the conditions that have been formulated. This fishery can only maintain certification when a major effort is made by the client and the Indonesian authorities to implement a effective HS and HCR in AW.

Performance Indicator Review

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
1.1.1 (skipjack)	No	Yes	NA	The rational includes the PNA text and results in the same score. Current stock status relative to reference points however is not provided for SIb. PI scores 100 (agreed). This is consistent with the scores of the harmonized fisheries	Thank you. There was a copy/paste error for the referecne point table which has now been corrected to include MSY related status.
1.1.2 (skipjack)	NA	NA	NA		NA
1.2.1 (skipjack)	No	Yes	Yes	The harvest strategy within archipelean waters (AW) is not scored here but at PI3.1.1. For clarity the rational should refer to this.	We have added a brief comment re Indonesian AW HS at SIa and note a comment already exists in the rationale at SId. Sid is not scored, consistent with all the harmonised fisheries.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
				SId is not scored. Although this does not affect the score the reason for this decision is not clear. The rational states that the harvest strategy for skipjack tuna has not been formalised. However as stated in de stakeholder submission of PNA a formal measure for Skipjack tuna was adopted at the WCPFC December General Session in Manila, 2017. PI scores 70 (agreed). This is consistent with the scores of the harmonized fisheries	On updated information, we have reviewed the WCPFC CMM 2017-01 on measures for sipjack and yellowfin tuna. The CMM confirms existing measures while the harvest startegy work for the stocks is still in development. Taken with stock status updates we do not see any information that makes a material difference ot scoring for either stock.
1.2.2 (skipjack)	Yes	Yes	Yes	PI scores 60 (agreed). This is consistent with	NA

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
				the scores of the harmonized fisheries	
1.2.3 (skipjack)	Yes	Yes	NA	PI scores 90 (agreed). This is consistent with the scores of the harmonized fisheries	NA
1.2.4 (skipjack)	Yes	Yes	NA	PI scores 95 (agreed). This is consistent with the scores of the harmonized fisheries	NA
1.1.1 (yellowfin)	Yes	Yes	NA		NA
1.1.2 (yellowfin)	NA	NA	NA		NA
1.2.1 (yellowfin)	Yes	Yes	Yes	PI scores 70 (agreed). This is consistent with the scores of the harmonized fisheries	NA

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
1.2.2 (yellowfin)	Yes	Yes	Yes	PI scores 60 (agreed). This is consistent with the scores of the harmonized fisheries	NA
1.2.3 (yellowfin)	Yes	Yes	Yes	PI scores 60 (agreed). This is consistent with the scores of the harmonized fisheries	NA
1.2.4 (yellowfin)	Yes	Yes	Yes	PI scores 60 (agreed). This is consistent with the scores of the harmonized fisheries and it is explained that the new stock assessment did not affect this score.	NA
2.1.1	No	Yes	NA	Skipjack tuna should be considered a main primary species in the yellowfin tuna UoA and vice versa. This likely does not affect	Thank you and well noted. There are two UoA, one for each target species and two separate PI2.1 sections are indeed required. We have amended the tables to reflect

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
				the score. There is no reference to the observer data/catch composition on which conclusions are based.	this.
2.1.2	No	Yes	NA	Skipjack tuna should be considered a main primary species in the yellowfin tuna UoA and vice versa. This means that SIb and SIc can not be scored by default.	See 2.1.1. Agreed.
2.1.3	No	No	NA	Skipjack tuna should be considered a main primary species in the yellowfin tuna UoA and vice versa. This means that the impact of the UoA on	See 2.1.1. Agreed.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
				skipjack and yellowfin stocks are relevant in scoring SG100a. SIc can not be scored by default.	
2.2.1	Yes	Yes	NA	SIa: The rational does not clearly explain how and why the threshold of 30 % is used. RBF is used for anchovy	We think this comment refers to 2.2.2 and is consistent with a comment by PR B. There are no direct data. The expectation that the catch is much less than 30% (see GSA3.4.6) of the total for any species total catch is based on the low catch of the UoAs cf catches of the same species by other similar fisheries (Table 17), the low (less than 10% catch of white anchovy in the UoA (the only main secondary spoecies, Table 19), and the wide areal distribution of white anchovy (Appendix 1,

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
					RBF). We have reflected this in the rationale at PI2.2.2 Sia.
2.2.2	Yes	Yes	NA		NA
2.2.3	Yes	Yes	NA		NA
2.3.1	Yes	Yes	NA		NA
2.3.2	Yes	Yes	NA		NA
2.3.3	Yes	Yes	NA		NA
2.4.1	Yes	Yes	NA		NA
2.4.2	Yes	Yes	NA		NA
2.4.3	No	No	NA	The rational states that SG100c is not	Agreed. Rationales have not been changed but scores

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
				met but the scoring box for SG100c states Yes. Since 2 out or 3 scoring issues are met the score awarded should be 95.	have, to reflect the rationales. The PI score is now 85, given two SI scores of 80 and one of 100.
2.5.1	Yes	Yes	NA		NA
2.5.2	Yes	Yes	NA		NA
2.5.3	Yes	Yes	NA		NA
3.1.1	Yes	Yes	Yes		NA
3.1.2	Yes	No	NA	Two out of 3 SG100 issures are met. The score awarded should be 95.	The score has been changed to 95
3.1.3	Yes	Yes	NA		NA

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
3.2.1	Yes	Yes	Yes		NA
3.2.2	No	No	NA	The rational for SIc states that at the national level decision making processes are required to use the precautionary approach. However the SI states that the PA is used in decision making and the best availabe information is used. Since it is concluded at PI 3.1.1 that no HCR is in place in AW and Indonesia failed to implement (several) agreed WCPFC management measures it is difficult to maintain that the PA and the best available information is (has been) used in decision making.	The WCPFC Convention requires that the members of the Commission (including Indonesia), directly and through the Commission, apply the precautionary approach, as described in Article 6 and Annex II. Specifically, the Convention requires that Commission be more cautious when information is uncertain, unreliable or inadequate and does not use the absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures. Both the precautionary and ecosystem approaches to fisheries management have been introduced as

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
					component of the government's core management objectives (Decree PMKDPRI 15/MEN/2012 (National Strategy on Fisheries Management). Therefore the score of 80 is justified.
3.2.3	Yes	Yes	NA	The rational for SId is rather short considering the fact that overall compliance in Indonesian waters is known to be very limited (10 % logbook compliance, illegal fishing). It should be better argumented on what basis the team concluded that compliance within this specific fishery (UoA) is good.	This PI is fishery specific and relates to not only the UoA but also the management of the wider fleet including other pole and line vessels fishing for skipjack and yellowfin tuna in the area Compliance within the Sorong pole and line fleet is seen as being very good. Logbooks were examined by the audit team and were accurate and reliable. Furthermore, in order to evaluate the compliance level of each fishing vessel that is permitted to operate,

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response
					Indonesia has developed the **"Data Base Sharing System/DSS",** that is an integrated system of all relevant databases in Indonesia including databases of licensing system, fishing logbook, landing data at port (PIPP), VMS, Catch Certificate (SHTI), Good Handling Practices on Board (CPIB) and Observer Data.
3.2.4	Yes	Yes	NA		NA

Any Other Comments: None

For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process used to determine risk using the RBF led to the stated outcome? Yes / No	Are the RBF risk scores well-referenced? Yes / No	Justification: Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Certification Body Response:
1.1.1	NA	NA		NA
2.1.1	NA	NA		NA
2.2.1	Yes	Yes		NA
2.4.1	NA	NA		NA
2.5.1	NA	NA		NA

PEER REVIEWER B

Summary of Peer Reviewer Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes**	**CAB Response**
Justification: The Team has carried out a very careful analysis of all the PIs required for this initial assessment for the species and correctly identified the main shortcomings and strength of this fishery and they did a good harmonization process. However, the report needs to be extensively improved in order to provide better justification for scoring which is overall correct. One of the main shortcoming is the lack of a description of the fishing activity and gears employed. In some case the report is contradictory (use of bait for example). I provided comments directly to the report.		We have noted PR comments and make changes throughout the report. In considering a separate set of comments inserted on the report itself (not in this template) we also have made some changes. We are not clear what the PR refers to as extensive changes being required other than as noted in his comments. We have copied some text to provide a slightly expanded description of the fishery to an earlier point but think overall the fishery is sufficiently described. The only fishing gear is pole and line (described), setting near anchored FADs (described), and using chummed bait purchased from separate, began operations (described). We are not sure of the noted contradiction and have read carefully to find it. We think it refers to the fact that "bait fisheries" provide "bait" but hooks are described as "unbaited". The description also says that bait is used to attract fish (chumming); we suspect this is the source of the so-called

	contradiction but have not changed the text as it is correct.

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**	**CAB Response**
Justification: I have noted in my scoring comments that Conditions 1, 2, 3 and 4 related to harvest strategy and harvest control rule, are appropriate and well worded. However, the conditions should be achieved before the fourth year taking into account the biology of the two species. Conditions 5 and 6 are correctly addressing issues related to governance issues. The MSC certification process of annual surveillance should provide the necessary impetus to get these condition achieved within the 4 year time frame to the undoubted benefit of the fishery.		The scheduling takes account of international decision-making plans and requirements, and harmonization. We do not understand the comment about taking account of the biology of the species; this is not covered in the FCR 7.11 except, possibly, implicitly at FCR 7.11.13.2. The conditions set are feasible and realistic.

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**	**CAB Response**
Justification: The client has consulted directly with MMAF to secure support for the Client Action Plan. A letter of support is provided. The client has produced an imaginative action plan which, given their undoubted commitment, should achieve the desired end result within the specified timeframe.		NA

Performance Indicator Review

Table 38 For reports using one of the default assessment trees:

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
1.1.1 SJT YFT	 No No	 No No	 NA N/A	The main issue here is that the status of the two stocks are not presented in a clear and straightforward way. Of course is important to harmonise with other fishery but the main information are missing and is quite difficult from what is provided in the justification to agree with the scoring. I suggest to remove the part related to the PNA assessment and provide clear graphs with the relevant reference points that are presented in a disordered way in the annex.	We do not see merit in changing the PNA text which we consider to be clear. However, and as noted by PR 1, we agree that some information is missing – specifically, there was a cut/paste error in the status with respect to MSY box that has now been corrected. We thinhk this should be sufficient.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
1.1.2 SJT YFT	-	-	NA	Stocks are not depleted	NA

1.2.1 SJT YFT	 Yes Yes	 No No	 Yes Yes	The scoring of SIa and the corresponding condition are appropriate for the fishery. In Sib it is not completely clear if there is the appropriate evidences showing the HS is achiving its objectves. The reference about the forecast to 2025 is not useful here.	We consider the evidence of SB>SBMSY and F<FMSY sufficient for both stocks but note the error in the skipjack reference points box at 1.1.1 may have made this less clear. That error is now corrected. The reference to the projections to 2025 (skipjack) is carried over for consistency with the harmonised fisheries. It is moot as to whether it is evidence for the HS meeting its objectives but does indicate the type of information used by decision makers as part of implementation the HS on an annual basis. It is not possible to simply remove the reference as it used to rationalise the harmonised score and such a removal would require a new harmonisation round, which we do not consider necessary at this point. Reference to projections to 2032 at Sib for yellowfin (not mentioned by the POR) is arguably more confusing and we sympathise. However, as above, the score is harmonised and we are not in a position to remove the reference.
1.2.2 SJT YFT	 No No	 No No	 Yes Yes	It is not clear to me what is the "generally understood" HCRs in place or available that are expected to reduce the	We are surprised at this comment as the Sia rationales both clearly lay out the basis for scoring at SG60, with both finishing with summary

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
				exploitation rate as the point of recruitment impairment (PRI) is approached. The justification states that in 2015 the commission will adopt a workplan for certain species. This needs to be updated otherwise it makes the impression that a 60 is not even reached.	paragraphs of the various CR conditions met, sufficne to score at SG60. We do note, however, that scoring at this Si can rely on specific CR V2.0 SA paragraphs (as used) without explciit mention of what the HS actually is. This is a matter for MSC consideration and is beyond the scope of this assessment. We note also that this rationale and score for skipjack (used also as a model for yellowfin) has been possibly the most argued about rationale in the past few years and has been the subject of peer review, stakeholder comment, MSC TO, and IA rulings. Overall, we do not see a need to modify the text at this stage and would prefer to do so only following a full harmonisation meeting.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
1.2.3 SJT YFT	Yes	Yes	NA	Well suported score in the scoring comments. Well suported score in the scoring comments.	NA
1.2.4 SJT YFT	Yes Yes	No No	NA NA	Not convinced that the assessment achieves SG 100 at scoring issues c and d. A table with rpobabilistic outcomes of the assessment is not provided and the methodology applied seems to be only one.	The 100 scores for both SIs were agreed after extensive consideration of assessment approaches by multiple CABs/assessors at a harmonisation meeting and have been been multiply reviewed. We have reviewed the rationales at SI c and d for both stocks and think they adequately support continued scoring at the SG100 level. At Sic we note probabilistic outcomes are primarily of relevance at PI1.1.1 while methodological considerations related to uncertainty are considered at PI1.2.4.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
2.1.1	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.1.2	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.1.3	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.2.1	Yes	Yes	NA	Well suported score in the scoring comments.	NA

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
2.2.2	Yes	No	NA	In SIa is not clear the data source.	There are no direct data. The expectation that the catch is much less than 30% (see GSA3.4.6) of the total for any species total catch is based on the low catch of the UoAs cf catches of the same species by other similar fisheries (Table 17), the low (less than 10% catch of white anchovy in the UoA (the only main secondary spoecies, Table 19), and the wide areal distribution of white anchovy (Appendix 1, RBF). We have reflected this in the rationale at PI2.2.2 Sia.
2.2.3	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.3.1	Yes	Yes	NA	Well suported score in the scoring comments.	NA

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
2.3.2	Yes	No	NA	Provide relevant info in SI a.	This was an oversight. Thank you for picking it up. References have been added.
2.3.3	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.4.1 Pole and line FAD	Yes	Yes	NA	The team correctly divided the justification for the gear and the FAD. However a better explanation of fishing activity in the intorductory chapter would be recommended.	Noted. See comment at 2.4.2, below.
2.4.2	No	No	NA	Lacking a clear description of the fishery activity as well as information about the rules for the deployment of new FADs is rather unlikely that a score of 100 is plausible.	We think this comment relates to the FAD component at SI c and d. SI a and b are scored as 80 for the FAD component. We have reviewed the introductory section (3.4.2) and rationales in scoring tables for 2.4 and do not agree that changes are required.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
2.4.3	Yes	Yes	NA	Well suported score in the scoring comments. Hower there are miostakes in the scoring table. Please check.	Agreed. Rationales have not been changed but scores have, to reflect the ratiopnales. The PI score is now 85, given two SI scores of 80 and one of 100.
2.5.1	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.5.2	Yes	Yes	NA	Well suported score in the scoring comments.	NA
2.5.3	Yes	Yes	NA	Well suported score in the scoring comments.	NA

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
3.1.1	No	No	Yes	In SG a the team talks about an effective national legal system. However better evidences of the presence of an effective national legal system are needed	Agree. More evidence has been provided in the report in 3.1.1 (a) justification. This now provides more information about - -national and international laws, arrangements, agreements and policies governing the actions of the authorities and actors involved in managing the UoA and - a framework for co operation with other regional fisheries management organisations - other bilateral/multilateral arrangements that create cooperation required to deliver sustainable management under the obligations of UNCLOS and UNFSA Article 8

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
3.1.2	Yes	Yes	NA	The score is well justified	NA
3.1.3	Yes	No	NA	Taking into account the stocks and the precautionary approaches that is often applied I would score 80 instead of a partial scoring in SG a 100	The justification for a partial score of 90 has been strengthened. The score is harmonised with other overlaping fisheries in the WCPFC which has been recently certified.
3.2.1	Yes	Yes	Yes	The score is well justified. A condition is needed here taking into account the stock distirbutions.	NA
3.2.2	Yes	Yes	NA	The score is well justified and harmonized with other fisheries	NA
3.2.3	Yes	Yes	NA	The score is well justified and harmonized with other fisheries	NA

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	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'.	CAB Response
3.2.4	No	No	NA	Check the table for a mistake. Morevoer, The lack of managment for the secodnary species is an evidence that not all parts of the fishery-specific man system are in place. Therefoe SG100 should not be met for SI a.	This PI , SI(a) concerns mechanisms in place to **evaluate** the fisheries specific management system it is not about the management of secondary species. SIa remains scored at 100.

Table 38 For reports using the Risk-Based Framework:

Performance Indicator	Does the report clearly explain how the process(es) applied to determine risk using the RBF has led to the stated outcome? Yes/No	Are the RBF risk scores well-referenced? Yes/No	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'.	CAB Response:
1.1.1				
2.1.1				
2.2.1	Yes	Yes		NA
2.3.1				
2.4.1				
2.5.1				

APPENDIX 3 STAKEHOLDER SUBMISSIONS

Appendix 3.1 Submissions received during on-site meetings

The submissions received during site visits regarding issues of concern material to the outcome of the assessment were related to the PIs 1.2.1, PI 1.2.2, PI 3.1.1, PI 3.2.1 and RBF. These are documented in the Evaluation Results section (Appendix 1) and in Appendix 1.2. The RBF results are agreed by all stakeholders participated in the RBF scoring session. Reference section contains the list of literature and documents refered to and discussed during stakeholder consultations.

Appendix 3.2 Submissions received during opportunity to submit new information

During opportunity to submit new information, comments were provided by Richard Banks on behalf of the Parties to the Nauru Agreement.

All written submissions made by the stakeholders above, together with the explicit responses of the team are provided below. The assessment team thanks stakeholders for their engagmenet in the assessment of this fishery.

Appendix 3.2.1 Parties to the Nauru Agreement

Submission from Richard Banks on behalf of the Parties to the Nauru Agreement.
Date: 03.04.2018

The Rational for MSC Assessment of tuna fisheries in Indonesia

Prepared by the Parties to the Nauru Agreement, 3 April, 2018

Introduction

This paper outlines the arguments and justification in approach to including Indonesia's tuna fishery within the scope for assessment using the Marine Stewardship Council (MSC) standard. The paper contends that Indonesia has no strategy in place to manage its fisheries in either WPP Management area 715 (Raja Ampat), nor Harvest Control Rules and Tools as applied to commercial fisheries in WPP 717 (Samudera Pasifik). The first of these areas falls under the definition of Archipelagic Waters, the Second is defined as within the WCPFC Convention Area.

Indonesia's status within the Convention

Indonesia's tuna fisheries take place in the Western Pacific Ocean, targeting skipjack (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*) and bigeye (*Thunnus obesus*) tunas, as well as a number of billfish species; and using a range of fishing methods including purse seine, handline, longline and pole-and-line.

Indonesia is a Cooperating Commission Member (CCM) of the Western and Central Pacific Fisheries Committee (WCPFC), which means that it has an obligation to implement Commission Management Measures. The principal measures are encompassed in the Tropical Tuna Measure, a revised measure adopted at the December General Session in Manila, 2017. The reference to this measures is available at https://www.wcpfc.int/doc/cmm-2017-01/conservation-and-management-measure-bigeye-yellowfin-and-skipjack-tuna-western-and.

This measure includes reference to three paragraphs which are relevant to this assessment:

CCMs shall take necessary measures to ensure that the total catch of their respective other commercial tuna fisheries for bigeye, yellowfin or skipjack tuna, but excluding those fisheries taking less than 2,000 tonnes of bigeye, yellowfin and skipjack, shall not exceed either the average level for the period 2001-2004 or the level of 2004.

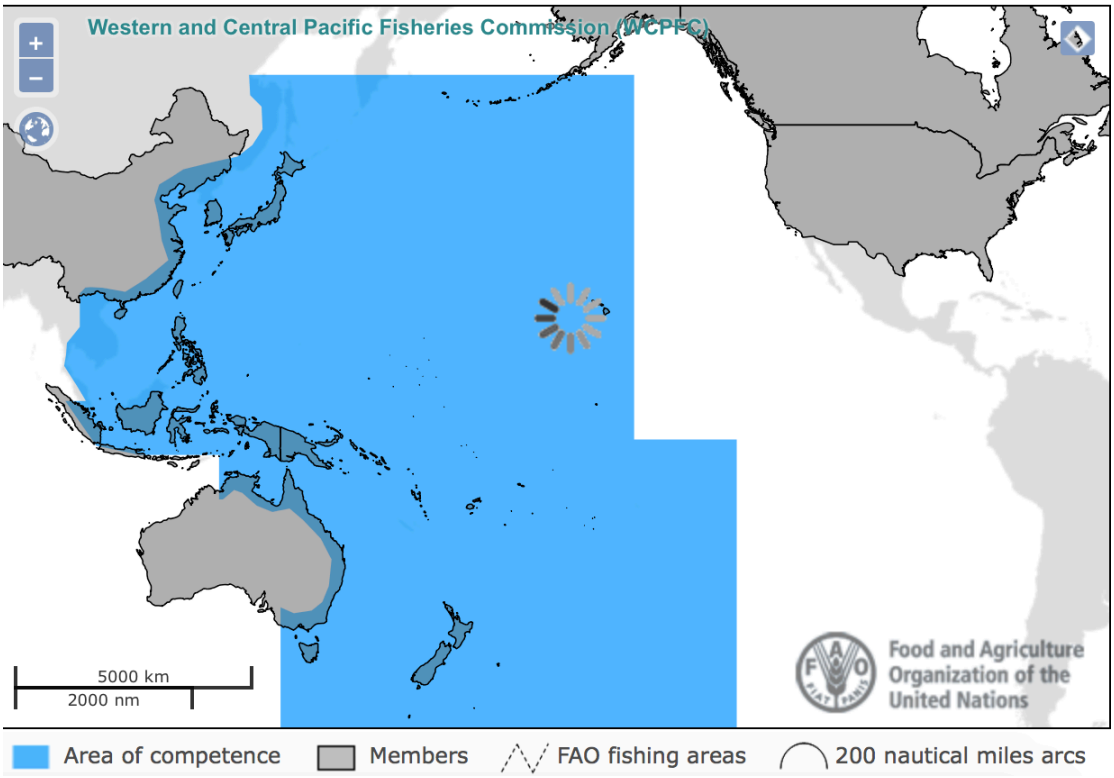
Conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible in order to ensure conservation and management of bigeye, skipjack, and yellowfin tuna stocks in their entirety. Measures shall ensure, at a minimum, that stocks are maintained at levels capable of producing maximum sustainable yield, pending agreement on target reference points as part of the harvest strategy approach, as qualified by relevant environmental and economic factors including the special requirements of developing States in the Convention Area as expressed by Article 5 of the Convention

Coastal states are encouraged to take measures in archipelagic waters and territorial seas which are consistent with the objectives of this Measure and to inform the Commission Secretariat of the relevant measures that they will apply in these waters.

Compliance with these measures are assesses at the Annual Technical Compliance Committee Meeting. A summary table is provided in the General session workshop, which refers to the earlier Measure 2015-01, available at https://www.wcpfc.int/system/files/WCPFC14%20Summary%20Report%202017_%20Issued%2016%20March%202018_complete.pdf. Indonesia has consistently been non-compliant with some of the core requirements within the Measure. These include 24 (*Reporting against EEZ Limits*), 37 (FAD Management Plan), 47 (Other Commercial Fisheries). All of these requirements are explicit to the operations of pole-and-line fisheries.

The failure to comply, not only demonstrates that Indonesia has consistently failed to implement the WCPFC harvest strategy, it also demonstrates that the fishery is NOT subject to an effective management system that respects international laws and standards (PI 3.1) and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable. Where the scoring guidance says '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.

The Convention Area is defined in Article 3 of the Convention and comprises all waters of the Pacific Ocean bounded to the south and to the east by a line drawn from the south coast of Australia due south along the 141° meridian of east longitude to its intersection with the 55° parallel of south latitude; thence due east along the 55° parallel of south latitude to its intersection with the 150° meridian of east longitude; thence due south along the 150° meridian of east longitude to its intersection with the 60° parallel of south latitude; thence due east along the 60° parallel of south latitude to its intersection with the 130° meridian of west longitude; thence due north along the 130° meridian of west longitude to its intersection with the 4° parallel of south latitude; thence due west along the 4° parallel of south latitude to its intersection with the 150° meridian of west longitude; thence due north along the 150° meridian of west longitude.



Map 1: Geographical boundary of WCPFC (source: https://www.wcpfc.int/convention-area-map)

The Convention applies to all species of highly migratory fish stocks (defined as all fish stocks of the species listed in Annex I of the 1982 UN Convention on the Law of the Sea occurring in the Convention Area and such other species of fish as the Commission may determine) within the Convention Area. Conservation and management measures under the Convention are to be applied throughout the range of the stocks, or to specific areas within the Convention Area, **as determined by the Commission.** Evidence appears to suggest that whilst Indonesia's fishing zones include the range of all tuna stocks, the fisheries of Western Pacific are excluded from the Convention area. It is understood that Indonesia argues that 6 out of 8 WPP are Archipelagic, but as yet, there is no indication that compatible measures have been set in Archipelagic Waters.

One further, but relevant issue to be highlighted is in reference to Article 8 of the WCPFC Convention text (WCPFC, 2013a)[1]. Conservation and management measures established for the high seas and those adopted for areas **under national jurisdiction** shall be **compatible in order to ensure conservation and management of highly migratory fish stocks in their entirety**. To this end, the members of the Commission (including CNMs) have a duty to cooperate for the purpose of achieving compatible measures in respect of such stocks.

In establishing compatible conservation and management measures for highly migratory fish stocks in the Convention Area, the Commission shall:

(a) take into account the biological unity and other biological characteristics of the stocks and the relationships between the distribution of the stocks, the fisheries and the geographical particularities of the region concerned, including the extent to which the stocks occur and are fished in areas under national jurisdiction;

(b) take into account:

(i) the conservation and management measures adopted and applied in accordance with article 61 of the 1982 Convention in

[1] https://www.wcpfc.int/convention-text

respect of the same stocks by coastal States within areas under national jurisdiction and ensure that measures established in respect of such stocks for the Convention Area as a whole do not undermine the effectiveness of such measures;

(ii) (previously agreed measures established and applied in respect of the same stocks for the high seas which form part of the Convention Area by relevant coastal States and States fishing on the high seas in accordance with the 1982 Convention and the Agreement;

(c) take into account previously agreed measures established and applied in accordance with the 1982 Convention and the Agreement in respect of the same stocks by a subregional or regional fisheries management organization or arrangement;

(d) take into account the respective dependence of the coastal States and the States fishing on the high seas on the stocks concerned; and

(e) ensure that such measures do not result in harmful impact on the living marine resources as a whole.

3. The coastal State shall ensure that the measures adopted and applied by it to highly migratory fish stocks within areas under its national jurisdiction do not undermine the effectiveness of measures adopted by the Commission under this Convention in respect of the same stocks.

4. Where there are areas of high seas in the Convention Area entirely surrounded by the exclusive economic zones of members of the Commission, the Commission shall, in giving effect to this article, pay special attention to ensuring compatibility between conservation and management measures established for such high seas areas and those established in respect of the same stocks in accordance with article 61 of the 1982 Convention by the surrounding coastal States in areas under national jurisdiction.

The issue of compatibility would suggest that as a CCM, Indonesia does not have to adopt the WCPFC CMMs in its Archipelagic Waters, but according to the Convention, would have to adopt *measures established in respect of such stocks for the Convention Area as a whole do not undermine the effectiveness of such measures.* An MSC assessor would therefore have to be convinced that HCRs, HCR&Ts are consistent with the WCPFC Harvest strategy. The is presently NO AW harvest strategy, but also there are no HCR&Ts.

Compatibility would at the very least require that Indonesia adopts the WCPFC Limit Reference Points (LRPs) and Target Reference points for each species. The Target Reference Point for skipjack tuna has been set at the spawning biomass of skipjack tuna is to be maintained on average at a level consistent with the interim target reference point of 50% of the spawning biomass in the absence of fishing, adopted in accordance with CMM 2015-06. Spawning biomass depletion ratio ($SB/SB_{F=0}$) are to be maintained at or above the average $SB/SB_{F=0}$ for 2012-2015, for bigeye and yellowfin stocks.

MSC precedents

The MSC guidance (V2) refers to the assessment taking place on the target species (the stock). Fish stock implies that the particular population is a biological distinct unit, which in the case of the WCPFC species covers the full range of the tuna species, from east to west[2].

Fishery assessments are required under MSC Principle 1 to assess stock status, harvest control rules, harvest control rules, information and stock assessment across the range of the stock. This includes parts of the stock inside Indonesian Archipelagic Waters, which if outside the Convention area, still requires the application of compatible measures.

There are two precedents set in MSC assessments where the management jurisdictions are separated for the same target species, but where compatible management actions take place.

Patagonian toothfish, (*Dissostichus eleginoides*), in the Kerguelen EEZ; part of the EEZ of the Terres Australes et Antarctiques Françaises (TAAF) – the French territory in the Southern Ocean, but not under the jurisdiction of The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). In this fishery a TAC is set by the administration of the TAAF, following scientific advice from the Museum National d'Histoire Naturelle (MNHN) as well as 'avis' from other parts of the French government. Although

[2] Recent work by CSIRO

the TAC is reviewed every year, in practice it has been fixed at the same level for some years. A recent stock assessment suggests that it is precautionary and conforms to CCAMLR risk-based reference points. Hence, the assessment argues that these measures are compatible in terms of stock status, harvest strategy and harvest control rules.

North East Atlantic mackerel (*Scomber scombrus*)[3], where several fisheries, assessed in the period 2009-2011 (Moody/Intertek and FCI) had to reconcile harvest rules and tools (Total Allowable Catches) across several EEZ boundaries (The EU, Norway, Iceland and Faroes) for these fisheries to stay in assessment (MINSA, 2012). This followed various unilateral attempts by Faroes and Iceland to set unilateral measures, without reference to the other resource users, causing suspension of the MSC Certificates. The Mackerel Industry Northern Sustainability Alliance (MINSA) was formed, and a collective management system reformulated.

MSC requirements and guidance

The MSC guidance (V2) refers to the assessment taking place on the target species (the stock). Fish stock implies that the particular population is a biological distinct unit, which in the case of the WCPFC species covers the full range of the tuna species, from east to west[4]. Fishery assessments are required under MSC Principle 1 to assess stock status, harvest control rules, harvest control rules. When considering management PIs under P1 in fisheries that target shared stocks, straddling stocks or highly migratory stocks, CABs should consider all national and international management systems that apply to the stock and the capacity of these systems to deliver sustainable outcomes for P1'. PNA contends that there is no national system to cover the straddling stock in Archipelagic waters, and the Indonesian Government has not set HCRs for AW before the stock declines below B_{MSY}. (SA 2.5.3).

The Guidance also stresses that the elements of the harvest strategy need to work together. CABs should therefore consider the overall performance of harvest strategies in both the Convention context and in Indonesian Archipelagic waters, and how its elements contribute to allowing the management system to be responsive to the state of the stock. Key elements of harvest strategies include: the control rules and tools in place, including the ability of the management system to control effort, taking into account issues such as overcapacity and its causes.

Assessment team comments to the submission from Richard Banks and the Parties to the Nauru Agreement.

Issues raised by the Parties to the Nauru Agreement are in relation to the management in the Indonesian Archipelagic Waters and are already accounted for and addressed under PI 3.1.1 in this assessment report. Conditions are set accordingly and implementation of the conditions are supported by the client action plan and MMAF.

[3]https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=6REONFIkxnq+Vm6hKBrV86q1cMtaGbew8GTF8qu32FhfvEXEM0D8sZr0wGGKTDpZ

[4] Recent work by CSIRO

Appendix 3.3 Ministry of Marine Affairs and Fisheries

Supporting letter from Ministry of Marine Affaiirs and Fisheries of the Republic of Indonesia to the clinet action plan.

MINISTRY OF MARINE AFFAIRS AND FISHERIES
OF THE REPUBLIC OF INDONESIA
DIRECTORATE GENERAL OF CAPTURE FISHERIES
Mina Bahari II Building, Medan Merdeka Timur Street No. 16, Jakarta 10110
Telp. +62 21 3519070, ext. 1002, Fax. +62 21 3543008, www.kkp.go.id

Ref: B.7518 /DJPT / TU.210.D1 / V / 2018 Mei 31, 2018

Mr. Ali Wibisono
PT. Citra Raja Ampat Canning
Sorong, Papua Barat

Subject: MMAF support for MSC Sertification

Dear Pak Ali

MARINE STEWARDSHIP COUNCIL CERTIFICATION OF PT CITRARAJA AMPAT SKIPJACK AND YELLOWFIN TUNA POLE AND LINE FISHERY: SUPPORT FOR CLIENT ACTION PLAN

Thank you for sharing with the Ministry of Marine Affairs and Fisheries (MMAF) the draft MSC assessment results and your proposed Client Action Plan.

MMAF is responsible for the formulation and implementation of policies on fisheries management, fishery aquaculture management, marine spatial management, conservation management and marine biodiversity, coastal and small island management, strengthening competitiveness and logistic systems of marine and fishery products, enhancing the sustainability of marine and fisheries businesses, as well as supervising the management of marine and fishery resources.

MMAF fully supports the actions set out in the Client Action Plan, both in promoting at WCPFC a harvest strategy and harvest control rules for both tuna species and in developing compatible objectives, strategies and harvest controls within Indonesian archipelagic waters. We confirm our intention to take forward all actions identified in the Client Action Plan.

Yours Sincerely

KEMENTERIAN KELAUTAN DAN PERIKANAN
DIREKTORAT JENDERAL PERIKANAN TANGKAP
REPUBLIK INDONESIA

Yuliadi
Interim Director of Fish Resources Management

Appendix 3.4 Submissions received on PCDR - ISSF

Susan Jackson
ISSF President
1440 G Street NW
Washington DC 20005
United States

Anna Kiseleva
DNV GL Business Assurance
Norway AS

Washington, D.C. August 21, 2018

SUBJECT: PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery

Dear Ms. Kiseleva,

The International Seafood Sustainability Foundation (ISSF) is a registered stakeholder in the MSC assessment of the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery. We are writing to express our concern on the score of PI 1.2.2 (WCPO yellowfin tuna) in the Public Comment Draft Report for the above mentioned fishery that was posted on 23rd July 2018.

Harvest Control Rules (WCPO-Yellowfin)

The independent report by Medley and Gascoigne (2017) indicates that the fishery would not meet SG60 for SIs 1.2.2.a and 1.2.2.c and that, as a result, the overall PI score would be less than 60 ("Fail"):

1.2.2.a: *"At SG60, MSC allows a harvest control rule to be 'available' rather than 'in place' if the requirements summarised below are met (for full list see SA2.5.2, 2.5.3):*

- *Stock biomass has not previously been reduced below the MSY level, or has been maintained at*

International Seafood Sustainability Foundation
1440 G Street NW, Washington D.C. 20005
P: 703-226-8101
www.ISS-Foundation.org

that level for a recent period of time … and is not predicted to be reduced below BMSY within the next 5 years;

- *HCRs are effectively used in other stocks by the same management body or an agreement or framework is in place requiring the management body to adopt HCRs before the stock declines below BMSY.*

MSC's second requirement for an 'available' HCR is met for yellowfin by CMM 2014-06. In terms of the first, for WCPO yellowfin, stock biomass has not previously been reduced below the MSY level, according to the stock assessment. There are no short-term projections available at present based on the new assessment to evaluate likely stock trajectory over the next five years but as noted in 1.1.1 and 1.2.1, the probability of either SB or F being below the MSY level is quite small, and on that basis, it is not likely that the biomass will decline below the MSY level in the next five years. However, the biomass trajectory is consistently downwards throughout the time series, and there is no particular reason at present to suppose that it will stabilise above B_{MSY} *under the current management regime.*

However, the case of bigeye raises the question as to what actions WCPFC could be relied on to take, should the next stock assessment for yellowfin give a different perception of the stock status (as happened for bigeye in 2017). Despite bigeye being considered overfished from 2011-2017, the management actions put in place by WCPFC have shown no evidence so far of being able to reduce fishing mortality on bigeye, as shown by the most recent stock assessment. On this basis, there is no particular evidence that any 'available' HCR is able to reduce the exploitation rate as the PRI is approached. On this basis, ***SG60 is not met.***

For improvement in this scoring, some demonstrable progress is required towards a formal harvest strategy and HCR (as per CMM 2014-06) such that a more convincing argument can be made that effective action will be taken if required.

1.2.2.b: *(…) Not met.*

1.2.2.c: *The tools by which CMM 2016-01 is implemented for yellowfin are as follows:*

- *temporal / spatial limits on purse seine setting on FADs*
- *restrictions on purse seine effort (days)*

There are no limits on longline fishing for yellowfin, although catch limits for bigeye may (may) limit effort for some CCMs.

The catch time series in the 2017 stock assessment runs to 2015; the harvest strategy has only been in place since 2014, and is incremental, so it is hard to say what impact it has had up until now. Estimated juvenile F has stabilised and perhaps decreased, but the trajectory of adult F does not seem to have been altered. The trajectory of stock biomass is downwards throughout the time series. On this basis, there is no particular evidence that the various tools in place are effective in controlling fishing mortality, and no reason to suppose that the stock trajectory will not continue downwards. On this basis, ***SG60 is not met.***

For improvement in this scoring, some demonstrable progress is required towards a formal harvest strategy (as per CMM 2014-06) such that it is clearer that management tools are likely to be effective in maintaining a stable biomass at or above reference levels.

0 out of 2 SG60 were met.
PI 1.2.2 score: Fail"

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www.ISS-Foundation.org

Thank you for considering our position on these issues.

Sincerely,

Susan S. Jackson
President
International Seafood Sustainability Foundation

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DNV·GL

Susan Jackson
ISSF President
1440 G Street NW
Washington DC 20005
United States

DNV GL Business Assurance Norway AS
Veritasveien 1
1322 Høvik
Norway
Tel: +47 404 00 404

Date:	Our reference:	Your reference:
24.10.2018	Sandhya Chaudhury	Susan Jackson

SUBJECT: PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery

Dear Ms. Jackson,

DNV GL thanks you for your interest in our fisheries and comments in your letter dated 21.08.2018 on the scoring of PI 1.2.2.

The assessment team for this fishery would like to bring to your attention that this certification is harmonised with multiple other certifications (see section 4.1.3 of the PCDR), all of which have considered the same materials and come to the same, harmonised, conclusion.

We do not think it is appropriate simply to accept an alternative opinion commissioned by one stakeholder in preference to the considered and harmonised opinion of multiple assessors as articulated in multiple assessment reports following extensive MSC Technical Oversight's, peer review and other stakeholder inputs. We note also that the Medley and Powers scoring seems to hinge on the sentence "However, the biomass trajectory is consistently downwards throughout the time series, and there is no particular reason at present to suppose that it will stabilise above BMSY under the current management regime." This is seemingly at odds with the preceding sentence based on quantitative analysis: "There are no short-term projections available at present based on the new assessment to evaluate likely stock trajectory over the next five years but as noted in 1.1.1 and 1.2.1, the probability of either SB or F being below the MSY level is quite small, and on that basis, it is not likely that the biomass will decline below the MSY level in the next five years."

In conclusion, no changes have been made to the report based on this stakeholder comment.

Sincerely
for DNV GL Business Assurance Norway AS

Sandhya Chaudhury
Principle Specialist

Mobile: +47 40400404
Sandhya.chaudhury@dnvgl.com

Appendix 3.5 Submissions received on PCDR – MSC Technical Oversight

SubID	Page Ref	Grade	Requirement Version	OversightDescription	Pi	CABComment
28924	16	Minor	FCR-7.4.7 v2.0	In the proposed unit of assessment tables, 'other eligible fishers' are listed. However, in section 3.1.4 the CAB states "there are no other eligible fishers". At present it is unclear if the UoA includes a wider range of vessels (for example from Table 16) or only the stated "35 vessels". Further, the unit of assessment for both species mentions 35 vessels as part of the initial client list. But Appendix 7 where these vessels are listed only lists 24.		Section 3.1.4 is amended to "Other eligible vessels are all Indonesian licensed P&L vessels, based in Sorong which enter into the agreement with the client fishery and comply with all relevant rules and conditions". Appendix 7 (vessel list) has been updated with a list dt. 31.07.2018. Table 16 has also been updated as of 31.07.2018. Both licenses and vessels are now at 35. List of vessels eligible to share the certificate will be kept updated on www.msc.org and also listed in annual surveillance reports. The FR is amended.
28937	35	Major	FCR-SA3.4.2 v2.0	The team presents catch data for the UoA in Table 19 as "species across all observed trips in 2017." From critical guidance GSA3.4.2 Designation of 'main' species, irrespective of the length of the time series to describe the catch composition, "The overall intent when designating 'main' species, is that there should be a good understanding of the long-term average catch composition of P2 species of the UoA before the PCDR is released; and further, that teams are confident that the species compositions, as well as their respective catch volumes, are unlikely to change over the lifetime of the certificate." Given the UoA is only described by catch the composition of 2017, it is unclear whether these data describe the long term catch composition and provide confidence they will not change during certification.		We recognise the observer data are for one year (2017) only but discussions at the site visit and the very low percentages (<<1%) for all but the two target species and one bait species provide us with high confidence that no other species are likely to be caught in sufficient volume or percentage of total catch such as to cause them to be designated as main. The text at 3.4.1 is modified to reflect this.
28938	115	Major	FCR-SA3.6.3 v2.0	PI 2.1.3, 2.2.3, 2.3.3. The UoAs are described by only one year of catch data from 2017. It is unclear whether these data are adequate to assess the impact of the UoA as the rationale doesn't explicitly address the short time frame and how it is sufficient.	2.1.3, 2.2.3, 2.3.3,	We recognise the observer data are for one year (2017) only but discussions at the site visit and the very low percentages (<<1%) for all but the two target species and one bait species provide us with high confidence that no other species are likely to be caught in sufficient volume or percentage of total catch such as to cause them to be designated as main. The assessment team has given a recommendation (documented now in relevant scoring tables) to ensure full coverage by observers, ideally for multiple years, to ensure continued information availability for PIs 2.1, 2.2 and 2.3. Data collection, will therefore be ongoing following certification and reviewed at future surveillance audits.

28950	165	Major	FCR-7.10.6.1 v2.0	PI 3.2.4 SI a.The rationale is not sufficient to support the team's scoring of SG100 for all jurisdictions, i.e. that the mechanisms in place, at both regional and national levels, evaluate all parts of the fishery-specific managment system. The ratioanle gives several examples of review at the national level and follow with a conclusion that mechanisms are in place to review key parts of the process - thus meeting SG80 but not SG100.	3.2.4,	The assessment team agrees. Rational has been included to support an SG 80 score but it does not meet SG100.This score is now harmonised with other WCP fisheries.
28952	P65	Guidance	FCR-7.12.1.4 v2.0	Page 65, part 4.9 table 25 "There is no risk of mixing of Pole and Line skipjack tuna and Yellowfin tuna with Skipjack and Yellowfin tuna caught by other gears (e.g. handline)." Please explain why the mixing with different gear type harvest would have "no risk".		The vessels have only one gear (pole and line) and therefore no risk of mixing. Text in the table is amended.
28954	P65	Minor	FCR-7.12.1.4 v2.0	Page 65 part 4.9 table 25 "Risks of mixing between certified and non certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction)" Please explain the risk for non certified catch in the stage of storage, transport, and/or handling activities before landing. For example, the storage onboard the vessel and other related activities (e.g. auction, risk of delivery after landing) before the fish goes to PT. CITRARAJA AMPAT CANNING facility. Since the sorting is controlled by a processor, how is the volume information communicated back to the fishing vessels and reported to the relevant authorities?		There is no risk of mixing certified and non-certified tuna, during storage, transport, or handling activities as all P&L tuna landed at the PT. CITRARAJA AMPAT CANNING facility will be covered by the MSC certificate. There are clear visual differences between skipjack, yellowfin and Big eye tuna and Big eye tuna are separated from skipjack and yellowfin tuna at landing. Sorting activities are controlled by inspector and processer and quantities of fish are recorded in the sales notes and reported to the authorities through log books and factory returns. Text in the table is amended.
28955	P66	Guidance	FCR-7.12.1.5 v2.0	Page 66 part 4.10, table 26 "Point of intended change of ownership of product." Please explain this direct transfer of ownership from harvest vessels to PT. CITRARAJA AMPAT CANNING. Are there other entities that are involved between the vessel and canning company? If so, please clarify if they require CoC.		Harvest vessels land their catch directly at the canning site of PT. CITRARAJA AMPAT CANNING which is CoC certified. There are no other entities involved between the vessel and the canning company.
28956	P64	Guidance	FCR-7.12.1 v2.0	Page 64 part 4.8 "At landing, vessels receive a sales receipt which include following information: Name of vessel; Vessel registration number; Licence number; Name of the captaint; landing site". Please confirm if the gear type is included in the sales receipt? If the sales receipt does not include gear type, how do the supply chain companies identify the gear type and confirm it is from the UoC based on the records/documentation?		There is only one gear in the UoC - P&L which deliver directly to PtCA and are unloaded by PtCA personnel and reported to the authorities through log books and factory returns.
28957	110	Major	FCR-7.10.6.1 v2.0	PI 2.1.1. si (a): Rationale is unclear with regards to the final score received per UoA. Each species is a primary main for the opposite UoA and rationales are provided to support the score, however the concluding sentence "There are no main primary species and SG60, SG80, and SG100 are scored by default." is confusing.	2.1.1,	We agree. Thank you. This was a drafting error (a non-deleted sentence from cut and pasted text). We have deleted the confusing sentence.
28958	123	Major	FCR-7.10.6.1 v2.0	PI 2.3.1 si (a) and (b): Rationale does not address whether there are other UoAs that need to be considered for cumulative effects nor how the data supports a probability of 'highly likely' given its short time frame.	2.3.1,	The rationale has been amended. There are no WCPFC or national limits set and the combined effects of MSC UoAs are therefore not considered - though the zero catch of ETP. Given there are no limits set and the catch of ETP is zero as observed and confirmed as zero through consultation, it is concluded there is a high degree of certainty that catches (zero) are within limits (not set).

Appendix 3.6 Submissions received on PCDR – WWF Indonesia

DNV·GL

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Date:	Our reference:	Your reference:
24.10.2018	Sandhya Chaudhury	Abdullah Habibi

SUBJECT: PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery

Dear Mr. Abdullah Habibi,

DNV GL thanks you for your interest in our fisheries and comments received and acknowledged on 22.08.2018.

For the sake of clarity and coherence this letter quotes the original text from the Template for stakeholder Input with the assessment teams response at relevant stages.

***PI 1.2.1 (Skipjack and yellowfin)**: 1.2.1 (a) WWF submits that the justification for scoring the Performance Indicator fails to take account of the Archipelagic Waters (AW) management zone. We refer to MSC 2.0 FCR p. 389: "When considering management PIs under P1 in fisheries that target shared stocks, straddling stocks, or highly migratory stocks, CABs should consider all national and international management systems that apply to the stock and the capacity of these systems to deliver sustainable outcomes for P1." We submit that these are to be treated as two scoring elements within 1.2.1 and 1.2.2, and scored as such – as in FCR 7.10.7, especially Table 4.*

DNV GL response: We fully describe the issue of archipelagic waters and Indonesian management at sections 4.1.1 (on harmonisation rationale) and 3.3.4 (harvest strategy), as well as in scoring tables at PI1.2.2 (both species) and 3.1.1. At 3.1.1 the need for archipelagic measures is recognised and scoring results in a condition.

The draft scoring is predicated on a harvest strategy developed by WCPFC and fails to include any reference to Archipelagic Waters. We find it difficult to understand how the harvest strategy can achieve stock management objectives when not applied across the range of a transboundary stock. As such it would be essential for AW to be able to demonstrate compatibility with WCPFC. It is noteworthy that the Solomon Islands pole-and-line skipjack/yellowfin fishery, also a Western Pacific UoA, was scored under this PI. In their assessment of the Solomon Islands Skipjack and Yellowfin Tuna Purse Seine Anchored FAD, Purse Seine Un-associated, and Pole and Line fishery, the assessors have specifically acknowledged WCPO harvest strategies having "several components, with WCPFC, PNA and national (e.g., Solomon Islands) and archipelagic management actions" (p29, p132). Further, the assessors have recognized that "WCPFC members with archipelagic waters are required to implement compatible measures" (p31), which is in recognition that "in practice, CMMs do not directly apply to archipelagic waters" (p79). WWF contends that in contrast to consideration of AW under 1.2.1 and 1.2.2 for Solomon Islands Skipjack and Yellowfin Tuna, the assessors here have partially elected to consider AW under PI 3.1.1, on the basis that compatible measures cannot be demonstrated as being implemented and this will adversely impact scoring elements.

DNV GL response: The Solomon Islands pole and line skipjack and yellowfin assessment includes mention of archipelagic waters at page 31, in the background section; briefly in the rationale text at PI1.2.1a (as part of the fourth bullet in the list) for both skipjack and yellowfin; and again at PI3.1.1..

However, it is not alluded to at all in the rationale for PI1.2.2 nor in the actual scoring logic at either PI1.2.1 or 1.2.2. WWF' statement appears to be unfounded, or at least unclearly supported. We are also aware that Fiji longline albacore and Yellowfin tuna assessment does not use an elemental approach for archipelagic waters.

The DNV GL assessment team take exception to the WWF statement that "...the assessors here have partially elected to consider AW under PI 3.1.1, on the basis that compatible measures cannot be demonstrated as being implemented and this will adversely impact scoring elements." It is proper and good process that WWF questions our judgment but not that it questions our integrity.

We would also suggest that assessors demonstrate, with a high degree of confidence, that the application of WCPFC Harvest Strategy (now CMM 2017-01) is sufficiently effective, even if not applied to a small part of the stock (AW and the Indonesian EEZ), noting that a failure by one CCM to address the application of a strategy requires the participants in the WCPFC to apply elements of the strategy disproportionately.

DNV GL response: We have harmonised rationales and scoring as required at P1. P1 must be scored on a stock-wide basis which is why all fisheries on these stocks have the same harmonised score. Any consideration of the impacts on WCPFC participants by the actions of other participants is a matter for the WCPFC members. While we may hold personal views on such matters they are not the subject to any MSC PISG. If we, or other assessors, were to consider specific issues as suggested by WWF there would also be further need for harmonisation of any suggested changes to scoring rationales and outcomes.

We also note that the assessors reference GSA 3.4.6 (re primary species) guidance that the percentage of catch taken by a UoA implies actions taken by the UoA would not be influential across the range of the stock. We agree with this, but do not see this as rationale to distort harmonization of harvest strategy since a strategy was prepared and publicly announced before the publication of the PCDR (November 2017), and includes specific reference to Limit Reference Points and the use of a Management Strategy Evaluation for both skipjack and yellowfin tuna. These models have been used to develop and conduct preliminary testing of harvest strategies for both tuna species.

DNV GL response: We are pleased that WWF agrees with our point re GSA3.4.6 and its consideration as part of our argument to score Indonesian archipelagic measures under 3.1.1. We do not think this in any way "distorts" harmonisation. It is unclear what process WWF refers to, but we presume it is the Indonesian harvest strategy process. Regardless, WWF' point is unclear.

In summary, we do not accept that the practicalities of harmonization justify scoring of management in AW solely under PI3.1.1 and not at all under P1 (see pp 56-57 of report).

DNV GL response: We do not rely just on "practicalities of harmonisation", though they are considerable in the case of WCPFC stocks, but also refer to the approach of Walker Seafoods (see section 4.1.1) and GSA3.4.6. We were aware of the Solomon Islands report but did not see the use of an elemental approach in the report, as suggested by WWF.

It is recommended therefore that the Condition and CAP specifically address a requirement that the Indonesian harvest strategy is developed to a stage where it can be shown that compatible measures are in place for AW.

CONDITIONS

For Table 32, Condition 1 under the Client Action Plan, Milestone #4 reads "Following the development work referred to above, evidence is to be provided that a harvest strategy will be developed for the WCP skipjack stock which is responsive to the state of the stock; with the elements of the harvest strategy working together towards achieving the management objectives reflected in target and limit reference points." This needs to be changed to read: "Following the development work referred to above, evidence is to be provided that a harvest strategy is working for the WCP skipjack stock..." as the condition as written only requires that a harvest strategy be developed and not implemented. A milestone should also be added to include 'an evaluation of the effectiveness of the measure'. This will also require a change to the Client Action Plan

DNV GL response: We note WWF's comments on condition 1 milestones for CAP and the assessment team regards this as a minor drafting issue which will be addressed at first surveillance.

PI 1.2.2 (Skipjack and yellowfin) *1.2.2 (b) Given that Indonesia does not have HCRs, there cannot be evidence available that HCRs are appropriate and effective in controlling exploitation. In terms of Indonesia's commitment to implementing the WCPFC Tropical Measure, the country has not applied the required measures to 'other commercial fisheries', which includes the pole-and-line fleet. This further demonstrates that no effective control measures are in place (MMAF (2018) Interim Harvest Strategies for Tropical Tuna In Archipelagic Waters of Indonesia, which describes the process for proposed implementation of HCRs post 2018).*

We would question the need and veracity for this fishery to be harmonosised with other assessments on the basis that the total catch as a proportion of all MSC Certified UoAs provides sufficient leverage, and the catch taken from this fishery for both species is very small, relative to the whole

DNV GL response: The comments above rely on agreement to an elemental approach at PI1.2.1 and 1.2.2. DNV GL assessment team disagrees with this, see DNV GL response above to PI1.2.1, and note the need for harvest controls within Indonesian AW is fully acknowledged and is a fundamental part of the CAP. We note also that the final paragraph of this comment seems to contradict the WWF comment at PI1.2.2 (above) that: "We also note that the assessors reference GSA 3.4.6 (re primary species) guidance that the percentage of catch taken by a UoA implies actions taken by the UoA would not be influential across the range of the stock. We agree with this....."

PI 2.4.1 *(a)/2.4.3 The UoA comprise pole-and-line vessels fishing around anchored fish aggregating devices (AFADs). The MSC defines modified habitats as habitats modified in order to increase production or favour desirable species. FADs are included in the MSC list of examples of modified habitats. The MSC also defines enhanced fisheries as any activity aimed at, inter alia, raising total or elemental production, including, potentially, by habitat modification. Enhanced fisheries are subject to an alternative assessment tree and it is necessary, therefore, to consider whether any fishery using FADs constitutes an enhanced fishery. Many tuna fisheries use anchored or drifting FADs. To date, large scale tuna fisheries using purse seines in the WCPFC and Indian Ocean have not been regarded as enhanced fisheries and have been assessed using the default tree, even though many thousands of FADs are involved. The FADs are used to attract target species for a period of time and to increase catch rates.*

DNV GL response: We have dealt with the issue of FADs and enhanced fisheries directly and, in our view, correctly. We have, however, modified section 3.1.8 (Scope of Assessment in Relation to Enhanced Fisheries) which we trust better explains the use of the default assessment tree in relation to FCR 7.7.4.1.

No evidence has been provided by the assessors that FADs representent a low footprint and no support references are provided to demonstrate such.

DNV GL response: See section 3.4.2.

However, more needs to be understood on the potential impacts of FADs on habitats/ecosystem function by the purse seine fishery (and other fisheries, e.g pole-and-line).

DNV GL response: As required, the DNV GL assessment team has taken into account the UoA only and scored using the MSC PISG, not wider issues such as the ecological trap hypothesis (see e.g. Dagorn et al, 2013) to which WWF may be referring, though this is unclear.

To use the default tree, evidence needs to be provided that the UoA will not reduce the structure and function of the epipelagic habitat. The provided justification of scoring issue 2.4.3 (a) states that evidence exists that AFADs are highly unlikely to demonstrate that the habitat is altered. No evidence is provided to demonstrate 'that pelagic impacts will be imperceptible and highly transient', and in fact there is no reference material provided to assessors to justify such assertions.

DNV GL response: The scale of FAD operations is very small (see section 3.4.2) and it is verging on inconceivable that i) the epipelagic habitat could be defined as "commonly encountered" (SA3.13.3.1) and ii) that serious or irreversible harm (SA Table 8) could be caused.

Therefore a score of highly unlikely (SG80) is not justified, and assessment of the impact on the epi-pelagic habitat requires a condition to ensue that AFAD impacts are explored. WWF recommends that this PI be scored at SG 60

DNV GL response: The DNV GL assessment team does not agree with WWF on the matter of scoring of this PI.

Reference: Dagorn, L., Holland, K. N., Restrepo, V. and Moreno, G. (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), pp.391–415.

PI 2.4.3. *No evidence has been provided to estimate the consequence and spatial attributes of the main habitats, nor that 'Quantitative evidence exists in that the FAD footprint has been constant both in position and extent since the fishery started'. Reference material must also be provided to demonstrate available operational data on AFADs. We are aware that MMAF does not enforce this measure and would expect to see quantitative evidence to demonstrate a score of SG 80*

DNV GL response: That the same anchored FADs have been used for many years has been confirmed by multiple sources (Ministry of Fisheries, Fisheries surveillance services, fishery association) and there is no reason to think the footprint of the UoA has changed over that period. Operational details were discussed at length during the site visit with all parties. During discussions, Fisheries surveillance services described their activities around FADs. All FADs related to this fishery are licensed and locations are known. We do not understand what WWF refers to with the statement "We are aware that MMAF does not enforce this measure". if WWF has specific information of relevance then it would be helpful to be presented with that information at surveillance assessments.

PI 3.1.1 (a) *WWF broadly agrees that there is a national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2. However, we do not believe that it is demonstrably 'effective'. Under SG60, the requirement for there to be an "effective national legal system" is explicit. To be effective requires the power to produce, or the actual production of, an effect or effective action and remedy. Effectual is used especially to mean that which produces the effect desired or intended or produces a decisive result.*

By way of clarification, the Solomon Islands Skipjack and Yellowfin Tuna assessment and this assessment acknowledge some ambiguities in the treatment of fisheries in archipelagic waters and there is concurrence that WCPFC CMMs do not apply to archipelagic waters but that compatible measures must be applied. In the case of the Solomon Islands Skipjack and Yellowfin Tuna assessment, the assessors are able to demonstrate not only that compatible measures are being 'effectively' applied in the form of vessel day management but that there is a demonstrable 'organized' and effective national and international legal systems consistent with delivering management outcomes consistent with MSC Principles 1 and 2. As posited above, no such compatible and/or effective measures are being applied in these Indonesia UoAs

It was the assessors decision to consider AW under 3.1.1, wherein the scoring requirement obliges them to demonstrate effective management. In contrast, evidence provided by the assessors demonstrates that the governance system cannot be considered effective. As such WWF contends that failure to implement only some WCPFC CMMs, and not to implement compatible and 'effective' measures, suggests that SG 60 is not met.

DNV GL response: The Certification Requirements (FCR v2 2014) are clear in the requirements of SG60 for SI a, and these are clearly met as set out and described in the PCDR. The legislative framework is described in the assessment report. However, we have added text to summarise the actions of national, provincial and district authorities involved in managing the UoA controlled by Indonesia Fisheries Law number 31 year 2004 as amended by Law 45 year 2009. This is the key legislation for fisheries management in Indonesia. To carry out the mandate of Article 7 paragraph 1 point a and Article 10 of the Law, Ministry of Marine Affairs and Fisheries established Minister Regulation No. 107 year 2015 on National Tuna, Skipjack Tuna and Neritic Tuna Management Plan (NTMP) which is intended to be the direction and guideline for both central and local government in the implementation of Tuna, Skipjack, and Neritic tuna fishery management plan. Based on one of the NTMP target (availability of harvest control rule and stocks key indicator data of tuna and skipjack by 100% within five years), a Framework for Harvest Strategies for Tropical Tuna in Archipelagic Waters of Indonesia was developed since 2015 has been launched at the 3rd Bali Tuna Conference on May 2018. Several regulations were also established to adopt and implement conservation and management measures of Tuna Regional Fisheries Management Organizations, such as the Ministerial Regulation No. 12 year 2012 on Fishing Business in High Seas and Ministerial Regulation No. 48 year 2014 on Fishing Logbook. PI 3.1.1a meets the SG60

PI 3.2.1 *The assessors have not addressed short and long-term objectives in the context of 'explicit' with the management system to the specific (pole-and-line) fishery.*

No supporting references are provided in the scoring justification. As written a score of 60 is not justified

DNV GL response: SG60 requires implicit objectives while SG 80 requires explicit objectives. The fishery therefore scores 60 with the requirement for implicit objectives being fulfilled. References are clearly documented in the required field.

3.2.2 (b) *If the assessors do not have evidence that decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation in a transparent, timely and adaptive manner (and no fisheries specific process is outlined or referenced) and take account of the wider implications of decisions, and no fisheries-specifc decision-making process is outlined or referenced for the Indonesian fishery, then it cannot be said that the fishery achieves a score of SG 80, therefore a condition is required.*

DNV GL response: If the decision- making processes respond to ALL issues identified then SG100 would be met. The assessors scored this PI at 80 which requires decision making processes to respond to serious and other important issues but not ALL issues. Decision - making processes at regional and national levels are adequate for the stocks being considered, dealing with serious and important issues and meeting SG60 and SG80 requirements. These decision-making processes use a precautionary approach and are based on best available scientific information.

MMAF is in the process of strengthening its decision-making systems. Decisions are now required to take account of scientific advice and monitoring processes are in place to ensure that conservation principles are followed. The core of fisheries management decision making lies within DG of Capture Fisheries (DGCF), where day to day fisheries management take place. It is also within DGCF role to produce most of national fisheries management measures. Apart from DGCF, fisheries management also relies highly on the scientific role of the Center for Fisheries Research (CFR) - Agency for Marine and Fisheries Research and Human Resources (AMFRHR), and with surveillance and enforcement roles of the DG of Marine and Fisheries Surveillance. In addition to the active involvement of these agencies, some consultative stakeholder workshops have been undertaken to ensure the engagement of relevant stakeholders, such as, local Governments, fishers, fishing industries, fishing associations, non-Government Organizations and universities.

As an up to date illustration, DGCF is in the process of implementing Harvest Strategy (HS) for tuna fisheries in the archipelagic water, where AMFRHR take roles in providing scientific model and management references, including determining scientific data collection and selecting data sets that appropriate for developing HS modelling. Four technical workshops and seven stakeholder workshops have been done between 2015 and 2017. From those activities, management objective, to ensure the sustainability of SKJ, YFT and BET fisheries, is agreed, and 5 (five) priority management measures were selected: and milestoned into ' Framework for Harvest Strategies for Tropical Tuna in Archipelagic Waters of Indonesia" Text has been added to the justification for this PI. PI 3.2.2 b) meets the SG 80.

3.2.3 (a)*. It is difficult to judge compliance with relevant management measures when very few have been implemented, for example input or output management measures. The core components of a fishery management system are input and output controls. Since none have been implemented, it is difficult be able to judge whether the industry systematically complies with regulations or not.*

The National FAD Decree (MMAF, (2014) NOMOR 26/PERMEN-KP/2014) is cited in the report as one of the core management arrangemenmts applied to the pole-and-line fishery, but no evidence is provided to demonstrate compliance, or not, with this measure. The lack of any evidence of action taken against the fishery suggests that compiance tools are not being implemented in the fishery, nor is there a reasonable expectation that they are being effective (3.2.3 a). Similarly, there is no evidence provided that shows that fishers comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management (i.e. FAD numbers and positions) of the fishery (3.2.3 c).

As such SG 60 is not met

DNV GL response: Within this fishery, management measures in place include: Fishing Licences, FAD licences, Reporting ie logbooks, Surveillance and VMS. FADs are an example of an input control measure; all FADs are licenced, and each vessel operates less than three FADs according to the requirements of the regulations. Evidence was provided to the assessment team of FAD positions. Information is provided

in logbooks on FAD numbers and positions. There have been no breaches of these regulations. Furthermore, in order to evaluate the compliance level of each fishing vessel that is permitted to operate, Indonesia has developed the "Data Base Sharing System/DSS", that is an integrated system of all relevant databases in Indonesia including databases of licensing system, fishing logbook, landing data at port (PIPP), VMS, Catch Certificate (SHTI), Good Handling Practices on Board (CPIB) and Observer Data. The Head of the Sorong Fishery Office (Pak Ruddy, Head of Compliance MMAF) has confirmed that the Skipjack and Yellowfin Pole and line fishermen and their operations in the UoA have been monitored . All are found to be compliant with all relevant MMAF rules: Fishing Licences, FAD licences, Reporting ie logbooks, Surveillance and VMS. SG 80 is met for 3.2.3 a) and c).

Support references are not provided for 2.1.2, 2.1.3, 2.2.1, 2.3.1, 2.3.3, 2.4.1, 2.4.2, 2.4.3, 2.5.2 and 3.2.1

References and/or documentation can be provided for all comments

DNV GL response: References, where available, have been added.

In conclusion, no changes have been made to the report based on this stakeholder comment.

Sincerely
for DNV GL Business Assurance Norway AS

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Principle Specialist

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Appendix 3.4 Submissions received on PCDR -after deadline.

Deadline for stakeholder comments was announced as 22.08.2018.

1 stakeholder comment was received on 28.08.2018, one week after the SH submission deadline. The assessment team evaluated the comment and concluded that it was not going to change the outcome and therefore, has decided to exclude it from this report.

APPENDIX 4 SURVEILLANCE FREQUENCY

Table 39 Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
1 - 4	Level 4 : reduced surveillance. 2 on-site surveillance audits 2 off-site surveillance audits	1-2 auditors on-site with remote support from 1 auditor	From client action plan it can be deduced that information needed to verify progress towards conditions can be provided remotely in year 2 and 3. But this would be confirmed in the first surveillance report, once the progress against conditions is verified.

Table 40 Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
1-4	22 November	November	Standard annual surveillance every 12th months. Surveillance timing will be confirmed, once the progress against conditions is clarified.

Table 41 Fishery Surveillance Program

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 4	On-site surveillance audit	Off-site surveillance audit	Off-site surveillance audit	On-site surveillance audit & re-certification site visit

APPENDIX 5 OBJECTIONS PROCESS

No objections to the Final Report were raised.

APPENDIX 6 ACOURA PNA BACKGROUND DOCUMENT

Principle 1 Background and all References for *PNA Western and Central Pacific skipjack and yellowfin, unassociated / non FAD set, tuna purse seine fishery* Final report and determination (Acoura, November 2017)

Principle One: Target species background

Skipjack tuna (Katsuwonus pelamis)

Biology and distribution (skipjack tuna)

Skipjack tuna are found in tropical and subtropical waters of the Atlantic, Indian and Pacific Oceans. They are the smallest of the major commercial tuna species, generally not exceeding 20 kg. In the Western Pacific, warm, pole ward-flowing currents near northern Japan and southern Australia seasonally extend skipjack tuna distribution to 40°N and 40°S (Rice *et al*. 2014). Their greatest abundance is seen in equatorial waters, roughly corresponding to a 20°C surface isotherm.

Skipjack in the WCPO are considered to comprise a single stock for assessment and management purposes. A substantial amount of information on skipjack movement is available from tagging programs, which have documented some large-scale movement within the Pacific (Figure 16). Skipjack movement is highly variable (Sibert *et al*. 1999) but is thought to be influenced by large-scale oceanographic variability (Lehodey *et al*. 1997). Analyses of the tagging data have, however, indicated that the median lifetime displacement of skipjack ranges from 420 to 470 nautical miles (Sibert & Hampton 2003). The tagging data indicate that the spatial extent of the WCPO stock is believed to approximate the WCPFC-CA (see **Error! Reference source not found.**) (Wild & Hampton 1994).

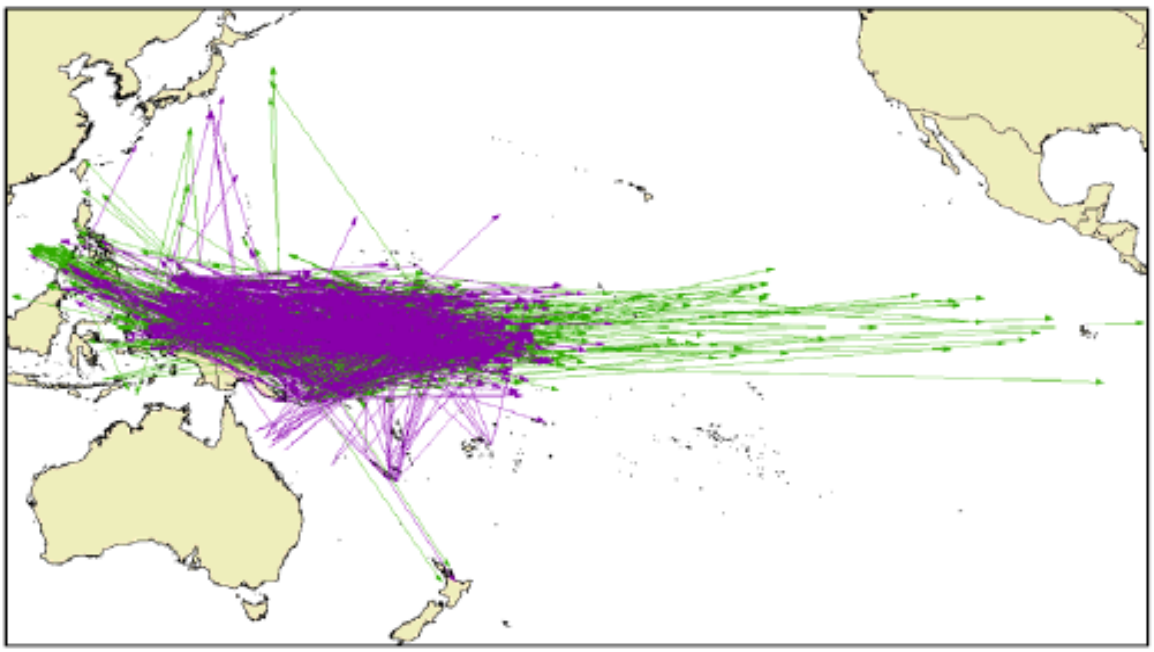


Figure 16. Released and recaptured skipjack from the Regional Tuna Tagging Program (purple arrows) and Pacific Tuna Tagging Program (green arrow) tagging programs. Only recaptures >1,000 nautical miles shown
(Source: Rice *et al*. 2014).

Skipjack are highly fecund and spawn opportunistically throughout their range and throughout the year when conditions are favourable, with the spawning season becoming shorter with increasing distance from the equator. They reach maturity

at about 40 cm fork length (FL) and within their first year. Fecundity increases with size but is highly variable. The estimated number of eggs produced per season in females of 41 to 87 cm FL ranges between 80,000 and 2 million. Skipjack tuna have a generation time of 2 years (Berger *et al*. 2013).

Skipjack growth is rapid compared to yellowfin and bigeye tuna. In the Pacific, approximate age estimates from counting daily rings on otoliths suggest that growth may vary between areas. At 150, 200, 300 and 400 days, FLs of 30, 33, 40, and 46 cm were estimated for fish sampled mostly in the north Pacific (Tanabe *et al*., 2003), but growth estimates were faster (42, 47, 55, and 60 cm) for fish sampled close to the equator (Leroy 2000). Growth has been found to vary spatially in the eastern Pacific (Maunder 2001) and in the Atlantic (Gaertner *et al*. 2008), based on analyses of tagging data.

Estimates of natural mortality rate have been obtained using a size-structured tag attrition model (Hampton 2000), which indicated that natural mortality was substantially larger for small skipjack (21-30 cm FL, M=0.8 per month) compared to larger skipjack (51–70 cm FL, M=0.12-0.15 per month). The longest period at liberty for a tagged skipjack was 4.5 years.

Skipjack tuna form both free schools and schools associated with FADs or other floating objects. Monthly observer sampling of the catch indicates that, when fished as surface schooling adults, they are typically caught at 30–70 cm and 2–5 kg in size. Depth distribution ranges from the surface to about 260 m during the day, but is limited to near surface waters at night (FAO 2016).

Skipjack tuna feed on fishes, crustaceans, cephalopods and molluscs; cannibalism is common. They are preyed upon by large pelagic fishes and sharks. Skipjack tuna are not a Low Trophic Level species. Their trophic level (as reported in www.Fishbase.org) has been estimated at 4.4 (± 0.5 se).

Stock assessment (skipjack tuna)

Skipjack tuna stock assessments have been conducted regularly since 2000. Assessment are conducted using the well-established MULTIFAN-CL software (see: http://www.multifan-cl.org/) which was developed as an analytical tool for fisheries in which large-scale age sampling of catches is unfeasible or not cost effective, but where length-frequency (size composition) sampling data are available. It provides a statistically based, robust method of length-frequency analysis.

Assessments are undertaken by the Oceanic Fisheries Program (OFP) of the Secretariat for the Pacific Community (SPC) as the scientific advisory body for the WCPFC. The latest assessment (Rice *et al*. 2014) was presented at the 10th regular session of the WCPFC SC meeting, held in 2014 (WCPFC 2014a). This assessment makes a number of structural and technical changes to the 2011 assessment (Hoyle *et al*. 2011), and takes account of issues raised in an independent review of the 2011 bigeye tuna assessment which were also applicable to the skipjack assessment (Ianelli *et al*. 2012).

The skipjack assessment reports present descriptions of structural assumptions, model parameterization and priors and the model used has been developed progressively over many years. The latest assessment predominantly gives details of changes to assumptions which may be more fully described in earlier versions. MULTIFAN-CL requires the definition of 'fisheries' that consist of relatively homogeneous fishing units and the model is age and spatially-structured. The 2014 assessment defines 16 quarterly age-classes and 5 regions (see Figure 17), a change from the 3 regions used in the 2011 assessment (Rice *et al*. 2014).

The model uses a maximum likelihood approach to fit a range of parameters and evaluate stock status probabilistically with respect to reference points. Catch, effort, size composition, and tagging data are assembled for 23 fisheries, a change from the 17 used in the 2011 assessment. Fisheries are modelled with respect to their selectivity by size, areas fished, and standardised catch-per-unit-effort (CPUE). Effort data units for purse seine fisheries were defined as days fishing/or searching, and are allocated to set type (associated or unassociated) in logbook data (McKechnie *et al*. 2016). The pole-and-line fishery for skipjack has been the basis for a CPUE time series used in the assessment. However, the decline in skipjack pole and line activity in recent years means that the continuity of this key time series is becoming uncertain. CPUE time series for the Philippines domestic purse seine fishery and the PNG archipelagic purse seine fishery have been developed for includion in the skipjack and yellowfin assessments. Further detail on abundance indices is provided in McKechnie *et al*. (2016).

The model is complex, fitting data of varying quality from a diverse range of fishing activities. It also accommodates quarterly movements of fish between the regions. Uncertainty is investigated extensively, especially in the key parameters (biomass and recruitment). Sensitivity tests were informative (varying S-R steepness, alternate growth assumptions, alternate mixing assumptions and changes in weighting factors). A crosswise grid of (36) model runs was undertaken to explore the main sources of structural and data uncertainty due to all sensitivity factors in combination. Confidence intervals on key outputs were calculated using standard statistical approaches.

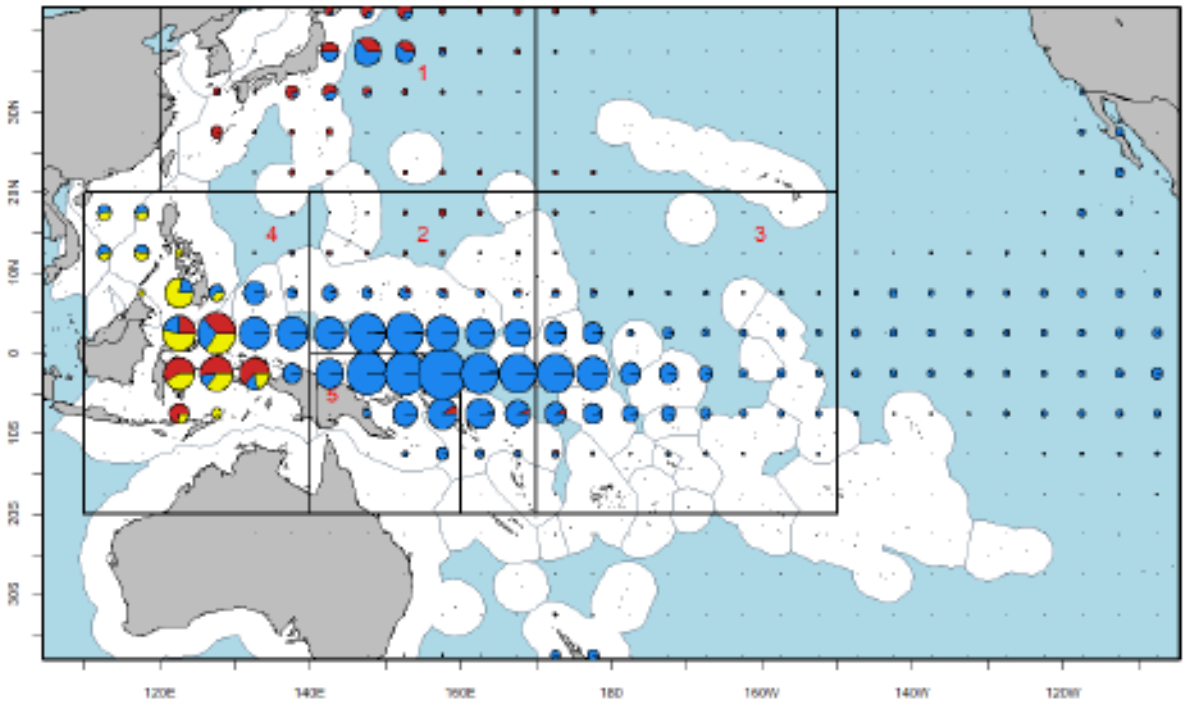


Figure 17: Catch distribution (2003-2012) of skipjack tuna by 5 degree squares of latitude and longitude and fishing method: longline (green), purse-seine (blue), pole-and-line (red), and other (yellow). (Source: Rice *et al*. 2014).
NB: Overlaid are the subregions for the assessment model. Note also there is in fact no break at 170^{0}E in Region 1.

The extensive data sets used in the assessment are described in Rice *et al*. (2014). The primary data types are tagging, length frequency, and catch and effort. Several analyses describe the methods used in producing the purse seine size data (Abascal *et al*. 2014), and tagging data (Berger *et al*. 2014); and revisions to the fisheries and spatial definitions (McKechnie *et al*. 2014).

Catch and effort data

Catch and effort data are compiled by year and quarter for each of the 23 defined fisheries. Discarded catches of skipjack are estimated to be minor and are ignored (Rice *et al*. 2014). The majority of skipjack catch is taken by purse-seine vessels in the equatorial regions fishing under the Parties to the Nauru Agreement (PNA) Vessel Days Scheme (VDS). PNA Members are the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu. Reporting is by standardised WCPFC logbook and there is an increasing use of electronic data reporting in some areas. Observers are required to be carried on all purse-seine vessels fishing under the PNA VDS.

There have been concerns about bias in purse-seine catch weight estimates due to the catch sampling approach (grab sampling as opposed to more recent spill sampling methods). The issue was subject to an independent review by Cordue (2013). The issue of bias has been recognised and whereas previous assessments have tried to accommodate both approaches, the 2014 assessment uses only a single set of purse-seine catch estimates, using estimates based on the spill method. For some fleets (e.g., Spanish and Japanese, reported catch is used rather than an estimate).

Purse-seine catch data are aggregated by 1° latitude, 1° longitude, month flag, and set type (i.e. whether a set is associated with a FAD, or not). Some VDS effort data is known to have been potentially misrepresented due to different approaches to reporting fishing versus non-fishing, with some fleets reporting searching days as non-fishing transit days. The issue has been recognised by Rice *et al* (2014) who note the practice essentially represents effort creep which has not yet been specifically corrected to ensure consistency of reporting. The impact of this is not known, however Rice *et al*. consider the effect will be minimised by estimation of frequent time-based changes in catchability. The issue is well-recognised by management. The 3rd Annual Surveillance of the PNA Western and Central Pacific Skipjack Tuna Unassociated and Log Set Purse Seine Fishery certification, to which this certification assessment, considers the issue in some detail and concludes that “Given these measures, and the evidence that effort remains within the TAE, the audit team concluded that this weakness in the VDS is not currently considered sufficient to compromise the effectiveness of

the VDS as a tool for limiting fishing effort to the desired levels." WCPFC (2016b) reports that "the trend of increased reporting of transit days has remained relatively constant, and the CPUE patterns in those years are likely consistent as a result, though there will be longer term influences of this change in reporting". SPC indicated at SC12 (WCPFC 2016b) that this reporting of transit days "does not have a large effect as the penalties on these fisheries in the model are low, i.e. the relationship between fishing mortality and effort for purse-seine fisheries is not overly influential in the model". McKechnie *et al*. (2016) indicates that the practice essentially represents effort creep. The impact of it is minimized by estimating time-variant changes in catchability for the fisheries involved and ascribing low weight to the effort deviations.

Size composition data

Size composition data (length-frequency) for each of the defined fisheries were compiled into 54 x 2 cm size classes (2–4 cm to 108–110 cm) with data from purse-seine, longline and pole-and-line, as well as a limited amount of data from domestic fisheries in the Philippines and Indonesia. Previous assessments used purse-seine length frequencies from grab samples taken by observers, with a correction for known grab sample bias. Incomplete coverage led to gaps in the data series and a time series of size data that did not show evidence of modal progression (and hence poor estimation of age). Changes made in the latest assessment include the use of port sampling from Pago Pago in American Samoa (available to 2008) and weighting of the samples by catch. Longline fisheries catch few and large skipjack which are usually discarded, however, the length-frequency data collected from Japanese training and research longline vessels are used in the model because they allow improved selectivity of the surface fisheries to be measured against these larger skipjack.

Size composition data are also available for pole-and-line fisheries, primarily from observers, with the exception of more northern fishing grounds (regions 1 and 2) where length data are available from the Japanese off shore and distant-water fleet from the beginning of the model period, 1972, until 2009. For equatorial fishing grounds (excluding region 2) data are available from both the Japanese distant-water fleet and from domestic fleets. Data from the pole and line fisheries in region 3 were dominated by observer collected samples from the Japanese fleets (1974–2004), with additional data from Fiji in the 1990's. Length data from the pole and line fishery in Region 4 consist of mostly Japanese data (1972–2009), with significant data from Indonesia in the years 2009–2012. The data from the pole-and-line fishery in region 5 are from multiple countries, dominated by the USA in the years 1988–1997 and Papua New Guinea (PNG) in the years 1998–2012.

Tagging data

Tagging data are a key input — data used in the assessment include the SPC Oceanic Fisheries Programme Skipjack Survey and Assessment Project carried out during 1977–80, the Regional Tuna Tagging Project (RTTP) undertaken during 1989–92 and in-country projects in the Solomon Islands (1989–90), Kiribati (1991), Fiji (1992) and the Philippines (1992). In addition, tagging data from regular Japanese research cruises were available for the period 1988-2012 and tagging data from the Pacific Tuna Tagging Programme (PTTP) were available from 2006 until the 2nd quarter of 2012. All tags were released using standard tuna tagging equipment and techniques by trained scientists and technicians. Tags have been returned mostly from purse seine vessels via processing and unloading facilities throughout the Asia-Pacific region. For incorporation into the assessment, tag releases were stratified by release region, time period of release (quarter) and the same size classes used to stratify the length-frequency data. A total of 314,555 effective releases were classified into 251 tag release groups. Returns from each size-class of each tag release group (50,087 effective tag returns in total) were then classified by recapture fishery and recapture time period (quarter). Because tag returns by purse seiners were often not accompanied by information concerning the set type, tag return data were aggregated across set types for the purse seine fisheries in each region. The population dynamics model was in turn configured to predict equivalent estimated tag recaptures by these grouped fisheries.

Stock status (skipjack tuna)

The main conclusions of the 2014 stock assessment (Rice *et al*. 2014; WCPFC 2014a) were as follows, and management advice is summarised in Table 42.

1. A fluctuating but consistently high level of recruitment since the early 1970s has supported a robust fishery in all regions. The analysis suggests that the regional declines in spawning potentialare being driven primarily by the fishing impacts (in all regions except region 1 of Rice *et al*. 2014, i.e. north of 20ºN).
2. Although the ratio of exploited to unexploited spawning potential is estimated to have declined, with some fluctuations, throughout the model period, the average total biomass of the last five years is estimated to be above the average total biomass of the first five years of the model.
3. Latest catches slightly exceed MSY(reference case C_{latest}/MSY = 1.02).
4. Fishing mortality for adult and juvenile skipjack tuna is estimated to have increased continuously since the beginning of industrial tuna fishing, but fishing mortality still remains below the level that would result in the MSY ($F_{current}/F_{MSY}$ – 0.61)
5. Recent levels of spawning potential are well above the level that will support the MSY MSY ($SB_{current}/SB_{MSY}$ = 1.86, SB_{latest}/SB_{MSY} = 1.74).

6. The estimated 2011 level of spawning potential represents approximately 52% of the unfished level, and is well above the limit reference point of 20%$SB_{F=0}$ agreed by WCPFC.

7. Recent levels of spawning potential are in the middle of the range of candidate biomass related target reference points currently under consideration for skipjack tuna, i.e., 40-60% $SB_{F=0}$.

8. Stock status conclusions were most sensitive to alternative assumptions regarding steepness and growth. However, the main conclusions of the assessment are robust to the range of uncertainty that was explored.

Table 42: Estimates of management quantities for selected stock assessment models. (Source: WCPFC 2014a).
N.B: For the purpose of this assessment, "current" is the average over the period 2008–2011 and "latest" is 2011. Mix_2qtr relates to the tag mixing period and h = steepness.

Parameter	Base case	h=0.65	h=0.95	Mix_2qtr
MSY	1,618,800	1,426,800	1,806,800	1,784,000
C_{latest}/MSY	1.02	1.16	0.92	0.93
$F_{current}/F_{MSY}$	0.61	0.82	0.45	0.52
B_0	6,587,000	6,913,000	6,404,000	7,419,000
$B_{current}$	3,615,213	3,613,290	3,612,585	4,374,786
SB_0	6,229,000	6,538,000	6,056,000	6,989,000
SB_{MSY}	1,753,000	2,111,000	1,453,000	1,999,000
$SB_{F=0}$	6,303,358	6,690,474	6,082,301	7,085,699
$SB_{current}$	3,260,579	3,258,721	3,258,170	3,971,998
SB_{latest}	3,052,995	3,050,692	3,049,508	3,548,468
$SB_{current}/SB_{F=0}$	0.52	0.49	0.54	0.56
$SB_{latest}/SB_{F=0}$	0.48	0.46	0.50	0.50
$SB_{current}/SB_{MSY}$	1.86	1.54	2.24	1.99
SB_{latest}/SB_{MSY}	1.74	1.45	2.10	1.78

The results of the 2014 assessment are summarised in Figure 18, Figure 19 and Figure 20. Figure 18 shows a Kobe plot of the outcomes across the grid of model runs. The ratio of exploited to unexploited spawning potential for the WCPO for the reference case is shown in Figure 19. Figure 20 shows estimated annual average spawning potential for the WCPO for the reference case with approximate 95% confidence intervals.

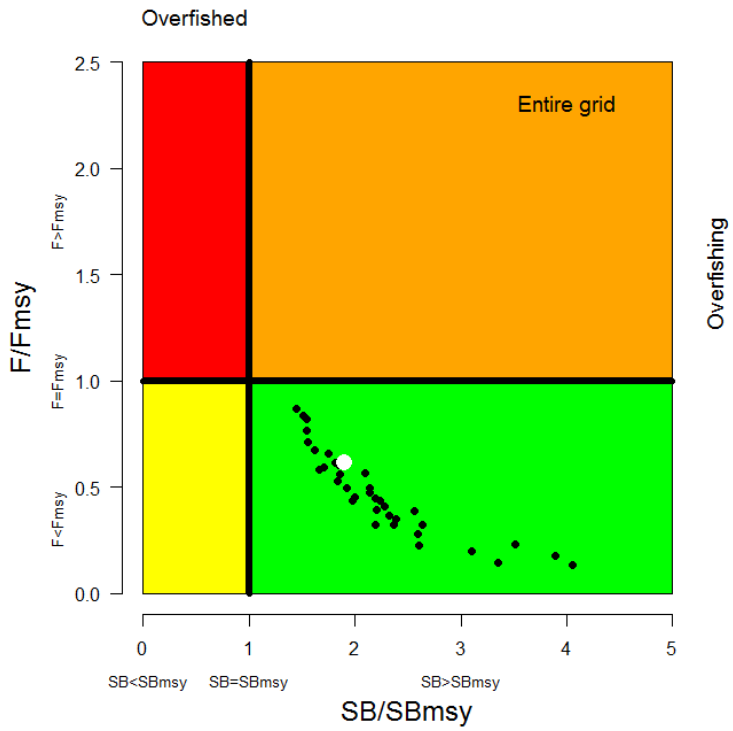


Figure 18: Summary of latest stock status (2011) for the entire grid of model runs. The white circle represents the reference case
(Source: Rice *et al*. 2014).

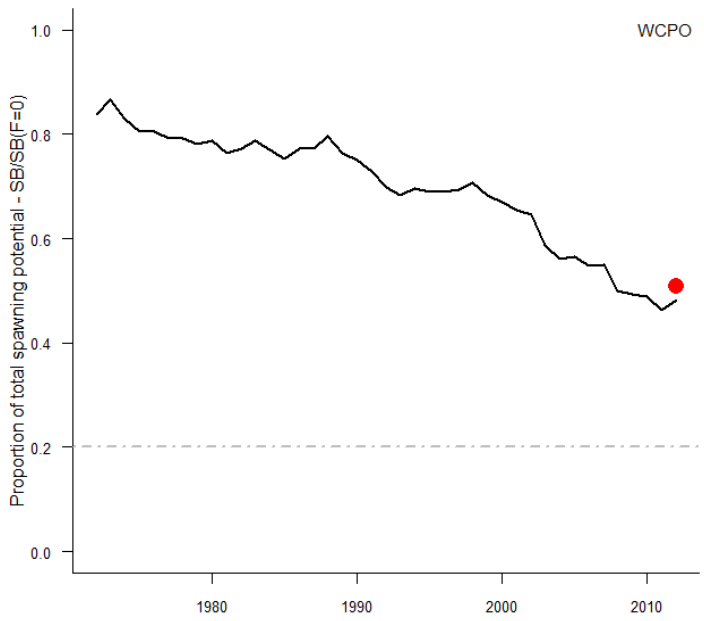


Figure 19: Ratio of exploited to unexploited spawning potential for the WCPO for the WCPO for the reference case.
(Source: Rice *et al*. 2014).
N.B: The current WCPFC limit reference point of 20%$SB_{F=0}$ is provided for reference as the grey dashed line and the red circle represents the level of spawning potential depletion based on the agreed method of calculating $SB_{F=0}$ over the last ten years of the model (excluding the last year).

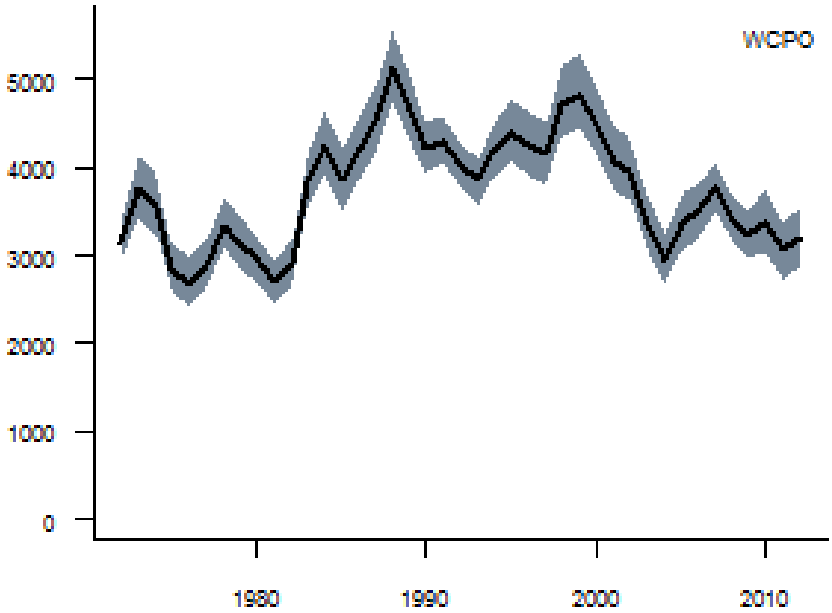


Figure 20: Estimated annual average spawning potential for the WCPO for the reference case. The shaded areas indicate the approximate 95% confidence intervals.
(Source: Rice *et al*. 2014).

The total skipjack catch in 2014 was provisionally estimated to be 1,957,693 t, which is the highest catch recorded, a 6% increase over 2013 and a 14% increase over the average for 2010–2013 (WCPFC 2015a). The 2014 provisional was 20% above the estimated MSY (1,618,800 mt, noting that those two numbers are not directly comparable because MSY is calculated based on the historical average recruitment (WCPFC 2015a).

2016 stock assessment (skipjack tuna)

An updated assessment of skipjack tuna was presented at the 2016 WCPFC-SC (McKechnie *et al*. 2016). The outcomes of this assessment were considered at the December 2016 Commission meeting. A further 3 years of data were available since the 2014 assessment, extending the model time period until the end of 2015. The 2016 assessment incorporates developments addressing the recommendations of the 2014 stock assessment report (Rice *et al*., 2014), exploration of uncertainties in the assessment model, particularly in response to the inclusion of additional years of data, and improvement in diagnostic weaknesses of previous assessments (McKechnie *et al*. 2016).

The main conclusions of the 2016 assessment are largely consistent with previous assessments based on the results of the reference case model and consideration of the results of sensitivity runs (including the structural uncertainty grid). The general conclusions from Mckechnie *et al*. (2016) are that:

1. The 2016 assessment estimates stock status to be very similar to the 2014 assessment, with a period of moderately higher spawning biomass over the subsequent years.
2. Current catches are lower than, but approaching, estimated MSY.
3. Fishing mortality of all age-classes is estimated to have increased significantly since the beginning of industrial tuna fishing, but fishing mortality still remains below the level that would result in the MSY, and is estimated to have decreased moderately in the last several years.
4. Recent levels of spawning biomass are well above the level that will support the MSY, and are well above the limit reference point, 20%$SB_{F=0}$.
5. Depletion-based reference points (including $SB_{latest} = SB_{F=0}$, $SB_{recent} = SB_{F=0}$ and $SB_{2015} = SB_{F=0[2015]}$) for the reference case model, sensitivity analyses and uncertainty grid suggest that the skipjack stock is most probably at or close to the target reference point of 50%$SB_{F=0}$.
6. Modelling assumptions explored in sensitivity and structural uncertainty analyses had a moderate impact on model output but did not change the broad conclusions about recent stock status.
7. Modelling results were most sensitive to assumptions about weighting of data components, tag mixing period and steepness, and several important avenues of research related to these assumptions have been identified and will improve future assessments.

Management advice is summarised in Table 43, below.

Table 43: Estimates of management quantities for selected stock assessment models. (Source: WCPFC 2016b).
N.B: For the purpose of this assessment, "recent" is the average over the period 2011–2014 and "latest" is 2015. Mix_2qtr relates to the tag mixing period and h = steepness.

Parameter	Base case	h=0.65	h=0.95	Mix_2qtr
C_{latest}	1,679,528	1,679,517	1,679,522	1,679,609
MSY	1,891,600	2,026,400	1,832,800	2,076,800
F_{recent}/F_{MSY}	0.45	0.51	0.40	0.41
SB_0	6,764,000	7,637,000	6,284,000	7,463,000
SB_{MSY}	1,626,000	1,972,000	1,423,000	1,858,000
$SB_{F=0}$	7,221,135	7,802,299	6,877,143	7,751,452
SB_{latest}/SB_0	0.62	0.55	0.66	0.68
$SB_{latest}/SB_{F=0}$	0.58	0.53	0.61	0.61
SB_{latest}/SB_{MSY}	2.56	2.11	2.93	2.73
$SB_{recent}/SB_{F=0}$	0.52	0.48	0.54	0.56
SB_{recent}/SB_{MSY}	2.31	1.90	2.63	2.32

The 2016 assessment was considered at WCPFC-SC 12 (WCPFC 2016b). There was some disagreement amongst member countries on how the outcomes of the 2016 assessment should be presented in describing WCPO skipjack status and trends. The *majority of member countries* selected the reference case model as the base case and characterize uncertainty using the structural uncertainty grid, as discussed above for the 2014 assessment. Annual estimates of MSY compared with catches of three major fisheries for the reference case model are show in Figure 21. The temporal trend for the reference case model and the structural uncertainty grid in stock status are shown in Figure 22.

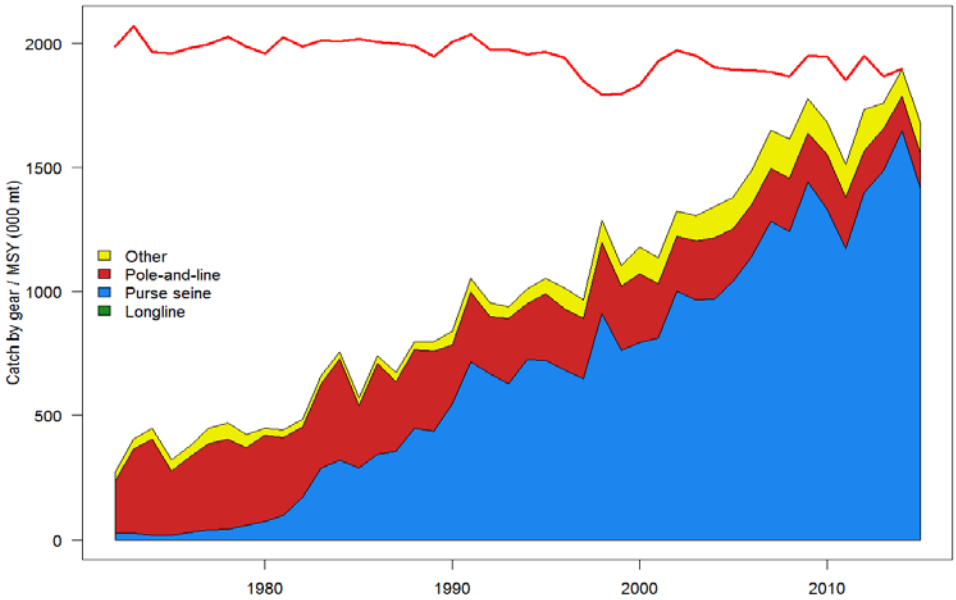
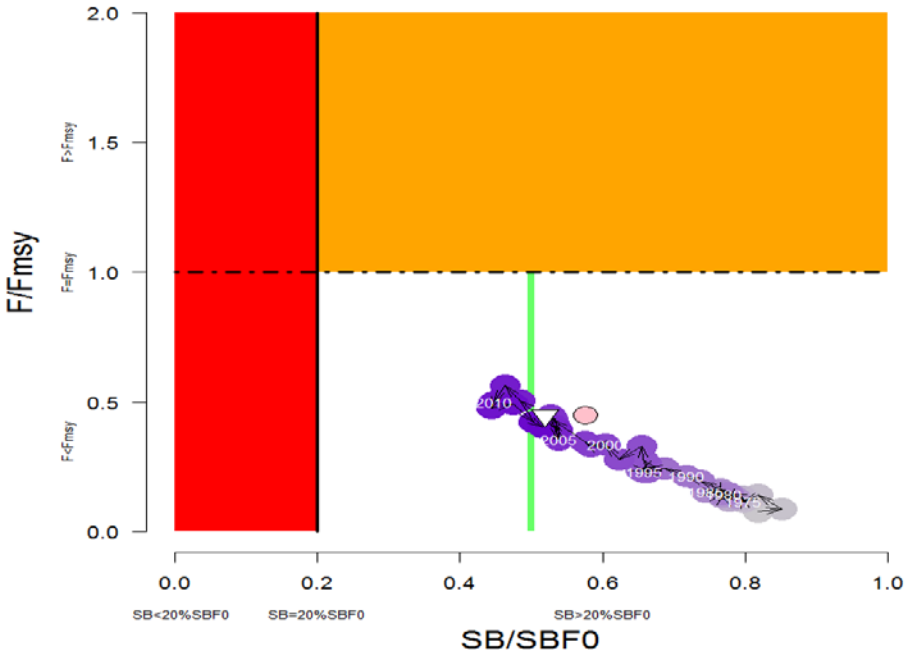


Figure 21: History of annual estimates of MSY compared with catches of three major fisheries for the reference case model.
(Source: Mckechnie *et al*. 2016)

The latest (2015) estimate of spawning biomass is well above both the level that will support MSY (SB_{latest}/SB_{MSY} = 2.56, for the reference case model) and the adopted LRP of 0.2 $SB_{F=0}$ ($SB_{latest}/SB_{F=0}$ = 0.58, for the reference case model), and $SB_{latest}/SB_{F=0}$ was relatively close to the adopted interim target reference point (0.5 $SB_{F=0}$) for all models explored in the assessment (structural uncertainty grid: median = 0.51, 95% quantiles = 0.39 and 0.67) (WCPFC 2016b).

The *alternative view* (China, Japan and Chinese Taipei) at the 2016 SC considered it is not possible to select a base-case model from various sensitivity models in the 2016 assessment, given the advice from the Scientific Service Provider that a suite of the sensitivity models were plausible. Therefore, these members considered that it would be more appropriate to provide advice to the Commission on skipjack stock status based on the range of uncertainty expressed by the alternative model runs in the sensitivity analysis rather than based on the single base case model. The estimated MSY of WCPO skipjack stock ranges from 1,641,200 to 2,076,800 mt across the alternative skipjack stock assessment models represented in the sensitivity grid. These CCMs also noted that some alternative models indicate that the 2015 biomass is below the adopted TRP of 0.5$SB_{F=0}$.



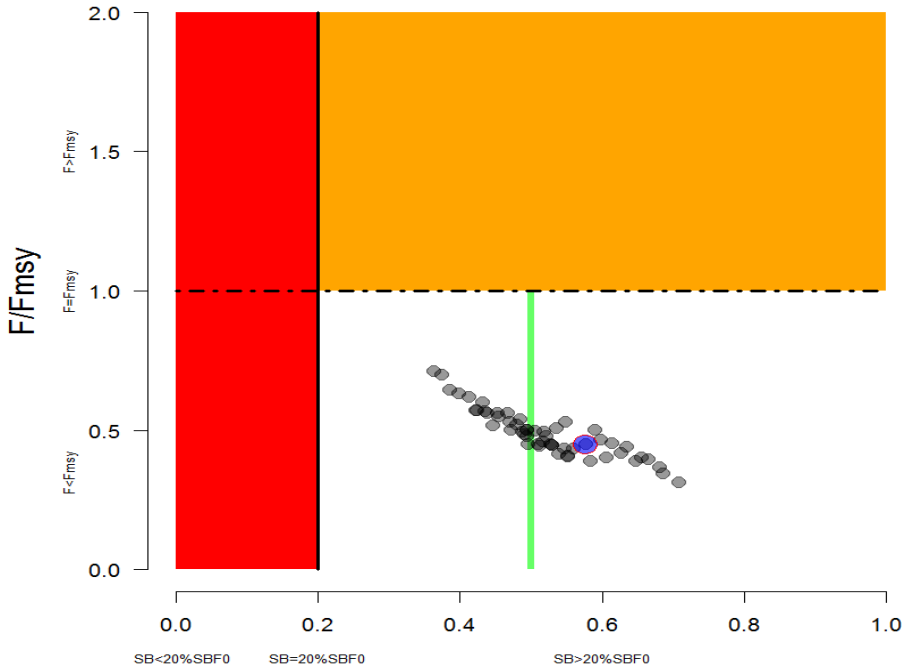


Figure 22: Temporal trend for the reference case model (top) and the structural uncertainty grid (bottom panel) in stock status relative to $SB_{F=0}$ (x-axis) and FMSY (y-axis).
(Source: WCPFC 2016b).
N.B: The red zone represents spawning potential levels lower than the agreed LRP, which is marked with the solid black line ($0.2SB_{F=0}$). The orange region is for fishing mortality greater than F_{MSY} ($F=F_{MSY}$; marked with the black dashed line). The green line indicates the interim target reference point $50\%SB_{F=0}$.

2016 Scientific Committee management advice and implications

The overall management advice from the 2016 SC is that the skipjack assessment continues to show that the stock is currently moderately exploited and fishing mortality level is sustainable. The recent catches are fluctuating around and some models also indicate that the stock is currently under the TRP. The SC noted that skipjack spawning biomass is now around the adopted TRP and recommended that the Commission take action to keep the spawning biomass near the TRP and also advocated for the adoption of harvest control rules based on the information provided. WCPFC SC12 also noted that fishing is having a significant impact on stock size and can be expected to affect catch rates. The stock distribution is also influenced by changes in oceanographic conditions associated with El Niño and La Niña events, which impact on catch rates and stock size. Additional purse-seine effort will yield only modest gains in long-term skipjack tuna catches and may result in a corresponding increase in fishing mortality for bigeye and yellowfin tunas. The management of total effort in the WCPO should recognize this (WCPFC 2016a).

Harvest strategy and control rules (skipjack tuna)

The MSC defines a harvest strategy as "The combination of monitoring, stock assessment, harvest control rules and management actions, which may include an MP or an MP (implicit) and be tested by MSE." (MSC 2015).

As described in the original MSC assessment for the fishery, the WCPO harvest strategy for skipjack tuna has several components, with WCPFC, PNA and national and archipelagic management actions, supported by a robust stock assessment and extensive monitoring frameworks (Banks *et al*. 2011). Monitoring frameworks include the collection of operational catch and effort data, the provision of a range of scientific, monitoring and compliance information by observers, VMS data, and port sampling data. The monitoring provides the key databases for the skipjack tuna stock assessments.

The current WCPFC CMM relating to the harvest strategy for skipjack tuna, CMM 2015-01, has evolved from CMM 2005-01 which was aimed at managing bigeye tuna and yellowfin tuna rather than skipjack tuna, predominantly limiting purse seine effort to the 2004 level or average 2001 to 2004 levels. Under CMM 2005-01 there was an exemption for domestic vessels and provision for existing effort levels under agreed regional or bilateral arrangements.

CMM 2008-01 (replacing CMM 2005-01) was also aimed at managing bigeye tuna and yellowfin tuna. It introduced measures such as a requirement for 100% observer coverage for purse seine vessels, and FAD restrictions. Purse seine effort levels in CMM 2008-01 were similar to those described for 2005-01, but recognized the limits in place under the VDS.

WCPFC (2010) noted that "*the WCPO skipjack tuna stock is decreasing slowly, and is now about 50% depleted from an unexploited level. This is a moderate level of depletion: the stock is not overfished, and there is no overfishing. However, at some time in the near future a decision will have to be made as to the acceptable level of depletion and future harvest strategies for this stock*." WCPFC (2010) discussed the need for extension of several aspects of 2008-01, including the conservation and management of skipjack tuna as well as bigeye tuna and yellowfin tuna. As reflected in CMM 2011-01, PNA advised WCPFC in 2011 that they would apply a hard limit to purse seine effort in their EEZs, limiting effort to the 2010 level, removing the exemptions for domestic vessels and US vessels and a range of other elements that allowed flexibility in the setting and use of PAEs.

A major update of CMM 2008-01 came in 2012 with the adoption of CMM 2012-01 as a measure for the conservation and management of skipjack tuna as well as bigeye tuna and yellowfin tuna, introducing an objective for skipjack tuna that $F/F_{msy} \leq 1$. CMM 2012-01 included binding purse seine effort limits without exemptions for all EEZs. This includes, limiting effort in PNA EEZs to the 2010 level (paras 12-14 of the CMM) and limiting effort or catch in all other EEZs, including Pacific Island countries, Indonesia and Philippines and other coastal states including Australia, Japan, New Zealand and the US. The CMM also extended the effort and capacity limits of other commercial fisheries to apply also to skipjack tuna (para 30 of the CMM). As a result, the 2010 effort level was applied as a hard limit for all purse seine effort in PNA EEZs. As discussed at WCPFC12 (WCPFC 2015b), the change from 2004 to 2010 as the base year for the effort limit was to allow for the removal of exemptions for Small Island Domestic State domestic fleets and exemptions for existing regional arrangements that were allowed under previous CMMs. Limits have also been adopted under CMM 2014-01 and 2015-01 for purse seine effort levels in high seas waters.

Prior to recent progress in adopting reference points, the UNFSA Annex II provisions, incorporated in the Convention, were taken as constituting implicit target and limit reference points. As noted above, the WCPFC practice is that the SC issues an agreed statement on the current status of the stock, management advice and implications, which is forwarded to the WCPFC annual session for consideration of any Conservation and Management Measures (CMMs) recommended. Management advice (and the implications of that advice) has been regularly provided with respect to indicators of fishing mortality and biomass relative to MSY levels – i.e. $F_{current}/F_{MSY}$, $B_{current}/B_{MSY}$ and $SB_{current}/SB_{MSY}$.

At the 9th regular session of the Commission in 2012 (WCPFC 2012a), WCPFC established a limit reference point for skipjack tuna (20%$SB_{recent, F=0}$, i.e., 20% of the estimated spawning biomass in the absence of fishing averaged over a recent time window). At its 10th regular session, the Commission further agreed that the time window for estimation of the spawning biomass in the absence of fishing should be 10 years, and be based on the years (from the last year used in the assessment to 10 years prior to that). Work on determining acceptable levels of risk of not breaching the limit reference point is still in progress.

At the 12th regular session of the Commission in 2015 (WCPFC 2015b), CMM 2015-01 was passed (replacing a CMM 2014-01 and its predecessors). Included in this resolution is the statement: "*the Fishing Mortality Rate (F) for skipjack tuna will be maintained at a level no greater than F_{MSY}, i.e. $F/F_{MSY} \leq 1$.*" This reiterates the same statement made previously in CMM 2013-01 and CMM 2014-01. The agreed fishing mortality limit of $F/F_{MSY} \leq 1$ is consistent with maintaining the skipjack stock at or above B_{MSY}. This is an indication of an intent to maintain the stock at a high productivity level, not just well above the point at which recruitment might be impaired. The time window used in estimating the recent average spawning biomass is the same as that described above for the LRP.

CMM 2014-06 describes how the WCPFC views harvest strategies and its plans for implementing them for all tropical tuna stocks, including skipjack. CMM 2014-06 is consistent with MSC definitions and requirements and outlines an intention to move towards a harvest strategy with well-defined harvest control rules ('decision rules' in WCPFC terminology). The current harvest strategy relies on annual decision-making processes founded on the core principles of the WCPFC as laid out in its Convention and in a growing body of CMMs (see https://www.wcpfc.int/conservation-and-management-measures).

Work towards establishing reference points and harvest control rules has progressed over several years through a series of Management Objectives Workshops (MOWs). CMM 2014-06 was adopted at the 11th regular session of WCPFC to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO. The CMM identifies the elements that harvest strategies are to contain (including defined operational objectives, target and limit reference points for each stock, acceptable levels of risk of not breaching limit reference points, a monitoring strategy, decision rules that aim to achieve the target reference point and avoid the limit reference point, and management strategy evaluation.

CMM 2014-06 includes a paragraph that the Commission shall agree a workplan and indicative timeframes to adopt or refine harvest strategies for skipjack, bigeye, yellowfin, South Pacific albacore, Pacific bluefin and northern albacore tuna by no later than the twelfth meeting of the Commission in 2015. A work plan to further the development and adoption of harvest strategies for these species was adopted at the 12th regular session of the Commission (WCPFC 2015b, Attachment Y). The Commission tasked the SC with support from the Scientific Service Provider to undertake the activities specified in the agreed work plan (included in this report at **Error! Reference source not found.**). Further development of the harvest strategy will require consideration of potential shortcomings, for example, the need for appropriate mechanisms to be integrated into the harvest strategy to manage potential effort creep. The main disadvantage of the VDS is that the fisheries management unit is defined as a single method / three species fishery. The VDS regime is likely to become fragile if the three species require separate management or if the TAE for the entire fishery is driven by an imperative to conserve bigeye tuna rather than representing an appropriate target reference point for skipjack (McClurg 2016).

Also at the 12th Regular Session of the Commission (WCPFC 2015b), CMM 2015-06 saw the adoption of a target reference point for skipjack tuna, "*The target reference point for the WCPO skipjack tuna stock shall initially be 50 per cent of the estimated recent average spawning biomass in the absence of fishing, ($SB_{F=0, t1-t2}$)*". This is to be an interim TRP, subject to review by 2019.

There are no formally agreed decision rules or harvest control rules (HCRs) yet in place. However, the harvest strategy is based on high quality science and compliance information. The current state of the stock provides evidence of successful management to date. Skipjack spawning biomass is estimated to be at 48%$SB_{F=0}$, approaching twice the SB_{MSY} level of 28%$SB_{F=0}$, and fishing mortality is estimated to be 0.61F_{MSY}. Skipjack is also not projected to fall to the SB_{MSY} level. WCPFC (2014c) reports that "*Future status under status quo projections (assuming 201 2 conditions) was robust to assumptions on future recruitment. Under either assumption, spawning biomass remained relatively constant and it is exceptionally unlikely (0%) for the stock to become overfished ($SB_{2032}<0.2SB_{F=0}$) or for the spawning biomass to fall below SB_{MSY}, and it is exceptionally unlikely (0%) for the stock to become subject to overfishing ($F>F_{MSY}$).*" Nevertheless, the WCPFC has put in place CMM 2014-06 aimed at ensuring harvest control rules and agreed TRPs are developed and implemented for tuna stocks, including skipjack. This was strengthened in 2015 through the agreed work plan for the adoption of harvest strategies required under CMM 2014-06.

Vessel Day Scheme (VDS)

The VDS was established in 2006 under the Palau Arrangement (PNA 2016g) and became operational on 1 December 2007, initially limiting effort levels of PNA countries to 2004 levels. The VDS limits total days fished by purse seiners fishing within the EEZs of PNA countries, where the majority of purse seine fishery takes place within the WCPFC-CA. Fishing under the VDS is subject to strict PNA-wide rules, as well as to any national or WCPFC rules in force. Additionally, the 3rd Implementing Arrangement of the Nauru Agreement prescribed closures to purse seine fishing, by vessels licensed to fish in PNA waters, of areas of the high seas from 1 January 2011 that were surrounded by the EEZs of PNA countries (from 10°N to 20°S latitude and 170°E to 150°W longitude, equating to an area of 4,555,000 sq. km) (PNA 2010, Banks *et al*. 2011).

The VDS has been progressively improved to address identified shortcomings (e.g. rollover of days between years and over-runs of some national PAEs). The major function of effort limits initiated by the PNA to date has been to improve economic returns rather than address the sustainability of skipjack tuna given the healthy status of the stock.

The VDS TAE is determined annually in advance, currently for the next two years, based on the best available scientific, economic and management information and advice. The TAE is limited by the decisions of the WCPFC on the level of purse seine effort in PNA EEZs. The current provision in CMM 2015-01 limiting purse seine effort in PNA waters to the 2010 level was confirmed by the Commission following advice from the Scientific Committee based on the 2014 skipjack stock assessment that the Commission should "take action to avoid further increases in fishing mortality and keep the skipjack stock around the current levels." The actual TAE is calculated by applying an adjustment factor to the estimated effort in PNA EEZs advised by SPC from logsheets (typically in the range of 2-3%) to calculate a VDS TAE in VDS days after allowing for the vessel length adjustment factors in the VDS. The analysis of the relevant scientific, economic and management information and advice on which the TAE is based is included in a Working Paper to the annual meeting of the Parties to the Palau Arrangement which is available on the PNA website (PNA 2016a). The discussion and decision-making among Parties on these papers takes place at sessions of the annual meetings of the Officials of the Parties to the Palau Arrangement that are open to observers and are regularly attended by observers, including NGO observers. Fishing days (PAE) are allocated to each PNA country and can be traded amongst the eight countries in a single licensing year under conditions designed to ensure that the TAE is not exceeded. At the 20th Annual PNA Meeting in the Federated States of Micronesia in March 2015, the PNA countries agreed to confirm the provisional 2015 TAE of 44,625 days. In addition, a TAE of 44,890 days was adopted for 2016 and set as the provisional PNA TAE for 2017. In addition, non-PNA member Tokelau joined the VDS in 2015 and was allocated a TAE of 985 days for 2015 and 991 days for 2016 (i.e. a total VDS TAE of 45,610 days for 2015 and 45,881 days for 2016) (PNA 2016a).

It is noted that further discussion on the harvest strategy is presented in Section 4 (Box 1).

Yellowfin tuna (Thunnus albacares)

Biology and distribution (yellowfin tuna)

Yellowfin tuna are found in tropical and subtropical waters of the Atlantic, Indian and Pacific Oceans. The thermal boundaries of occurrence are roughly between 18° and 31°C.

The distribution of yellowfin tuna in the Pacific is nearly continuous. However, the lack of evidence for long-range east-west or north-south migrations of adults suggests that exchange between the yellowfin tuna from the Eastern and the Central Pacific, and between the Western and the Central Pacific, is limited. This suggests the existence of subpopulations. There is a large amount of tagging data (1989-2012) which indicate extensive latitudinal movements among the equatorial regions but also a level of longitudinal movements to and from the sub-tropical latitudes (Figure 23).

The tagging data suggest that tuna can follow the movement of convergence zones and other areas of higher productivity, and respond to events such as the El Nino Southern Oscillation (ENSO), which change geographical patterns of productivity in the equatorial Pacific (Lehodey and Leroy, 1999). For the purpose of WCPFC yellowfin stock assessments, the stock within the domain of the model area (essentially the WCPO, west of 210°E – see **Error! Reference source not found.**) has been considered as a discrete stock unit, with movement between regions modelled empirically based on analysis of tagging data (Davies *et al*. 2014).

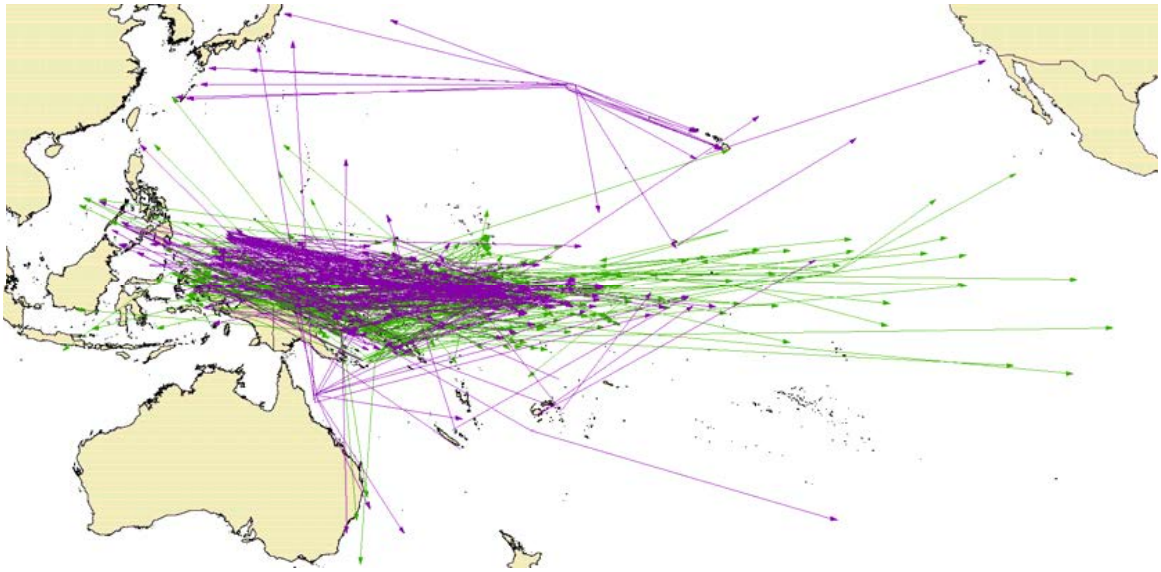


Figure 23: Long-distance (>1,000 nmi) displacements of tagged yellowfin in the Pacific Ocean from data available to SPC. (Source: Davies *et al*. 2014).
The green arrows are data from the Pacific Tuna Tagging Programme (2008-current). The purple arrows are from earlier SPC tagging in the western Pacific (Regional Tuna Tagging Project, 1989-1992), the IATTC in the eastern Pacific and the University of Hawaii in the North Pacific around Hawaii.

Yellowfin tuna are a fast-growing species. Juvenile yellowfin are first recruited to commercial fisheries (mainly surface fisheries in Philippines and eastern Indonesia) at a few months of age. They grow quickly to an estimated mean length for the final age-class of approximately 153 cm, with a maximum fork length close to 200 cm (Figure 24). However, growth rates are uncertain and may vary significantly by area in the western Pacific. Yellowfin tuna have a generation time of 3 years (Berger *et al*. 2013).

Yellowfin tuna mature at around 2-3 years of age but when information on sex ratios, maturity at age, fecundity, and spawning fraction are included, the reproductive output is found to peak between 10 and 15 years of age (Figure 25). Spawning occurs throughout the year in the core areas of distribution, but peaks are observed in the northern and southern summer months. Individuals may spawn every few days over the spawning period. Larval distribution in equatorial waters is trans-oceanic the year round but there are seasonal changes in larval density in subtropical waters.

Small yellowfin tuna are found in surface waters for the most part (often associated with skipjack), but as they grow, they may change their behaviour to live somewhat deeper (although still usually above the thermocline and shallower than albacore in a given area). This change in behaviour may be associated with the development of the gas bladder, which greatly reduces the metabolic costs of swimming starting from ~50cm, but it will depend on, for instance, relative food availability in surface vs. deeper waters (Lehodey & Leroy 1999). Yellowfin tuna feed on other fish, crustaceans and squid.

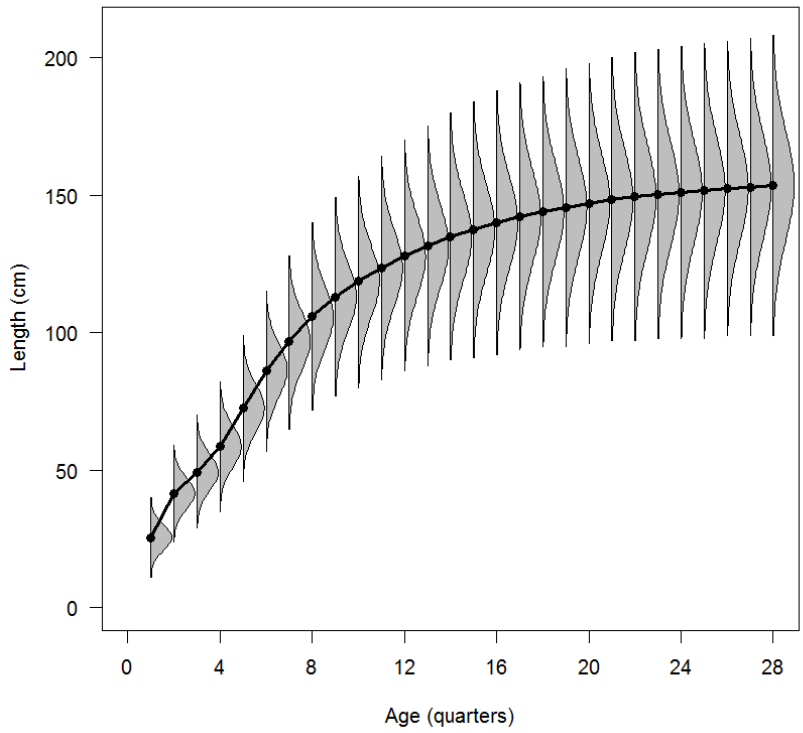


Figure 24: Yellowfin tuna: estimated growth for the reference case.
(Source: Davies *et al*. 2014).
The black line represents the estimated mean length (FL, cm) at age and the grey area represents the estimated distribution of length at age.

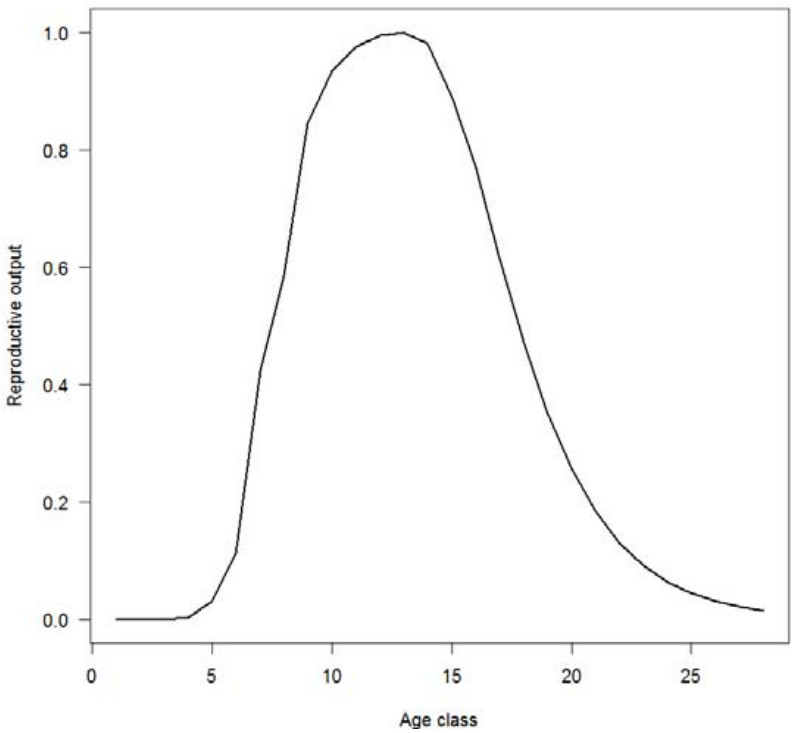


Figure 25: Yellowfin tuna: Index of spawning potential incorporating information on sex ratios, maturity at age, fecundity, and spawning fraction
(Source: Davies *et al*. 2014).

Natural mortality is considered to be variable by size, declining initially with size, then increasing at the onset of maturity (Figure 16 in Davies *et al*. 2014). The lowest rate is estimated at approximately 0.6-0.8 per year for pre-adult yellowfin of around 50-80cm fork length (Hampton 2000, cited in Davies *et al*. 2014). Natural mortality is a key uncertainty in the stock assessment, as it is for many stocks.

Stock assessment (yellowfin tuna)

Stock assessments for yellowfin tuna have been conducted frequently since 1999. An independent review of the 2011 bigeye tuna assessment (Ianelli *et al*., 2012) made several recommendations for improvement that apply equally to the yellowfin tuna assessment, and these have been incorporated into the current assessment where possible.

The assessment model relies mainly on catch and effort data for various fleets, size data and tagging data. The most recent stock assessment was conducted in 2014 (Davies *et al*., 2014) and follows much the same process as described above for skipjack, i.e., it is undertaken by SPC's OFP, uses MULTIFAN-CL, draft results are submitted to the SC for discussion and review, and a final report presented to the WCPFC plenary. A pre-assessment workshop provided overview of the main input data sets and recommendations regarding the range of assessment model options and sensitivities to be included within the stock assessment. CPUE as an indicator of abundance from several fisheries is incorporated into the stock assessment. These include the Philippines and PNG archipelagic waters purse seine fisheries. The longline CPUE indices for the main longline fisheries in each region are one of the most important inputs to the assessment as they provide information on trends in abundance over time for each subregion. Additional information on CPUE indices is provided by Davies *et al*. (2014).

The main conclusions of the 2014 stock assessment were as follows (Davies *et al*. 2014; WCPFC 2014a):

1. The new regional structure appeared to work well for yellowfin, and in combination with other modelling and data improvements, provided a more informative assessment than in the past.
2. Spatially-aggregated recruitment was estimated to decline in the early part of the assessment, but there was no persistent trend post-1965.
3. There appeared to be confounding between the estimates of regional recruitment distribution and movement such that certain regions have had very low recruitments. While adding complexity to the recruitment process of age 1 fish, this did not add to the uncertainty over the range of runs considered in the assessment.
4. Latest catches marginally exceeded the MSY (reference case C_{latest}/MSY = 1.02).
5. Recent levels of fishing mortality were most likely below the level that will support the MSY ($F_{current}/F_{MSY}$ – 0.72).
6. Recent levels of spawning potential were most likely above (based on 2008-11 average and based on 2012) the level which will support the MSY ($SB_{current}/SB_{MSY}$ = 1.37, SB_{latest}/SB_{MSY} = 1.24).
7. Recent levels of spawning potential were most likely above (based on 2008-11 average and based on 2012) the limit reference point of 20%$SB_{F=0}$ agreed by WCPFC.
8. Recent levels of spawning potential were most likely higher (by 1%, based on 2008-11 average) and lower than (by 2% based on 2012) the candidate biomass-related target reference points (TRPs) currently under consideration for skipjack tuna, i.e., 40-60%$SB_{F=0}$.
9. Stock status conclusions were most sensitive to alternative assumptions regarding the modelling of tagging data, assumed steepness and natural mortality. However, the main conclusions of the assessment were robust to the range of uncertainty that was explored.

Davies *et al*. (2014) describes structural assumptions, model parameterization and priors which have been progressively developed over the years. The latest report generally only contains details of changes to these assumptions which may be more fully described in earlier versions. Aside from updating the input data (catch, effort, size frequencies, and standardised CPUE derived from aggregate and operational data), there were five main differences in the input data and structural assumptions of the 2014 assessment compared to the Langley *et al*. (2011) assessment:

1. Spatial structure was expanded from six to nine regions (see Figure 26);
2. Fishery structure was expanded from 25 to 33 fisheries; and featured the first inclusion of some Japanese and Vietnamese coastal fishery catches necessitating redefining of the WCPO fisheries;
3. Incorporation of CPUE indices derived from either Japanese logsheet data, or all operational data from all fleets (combined flags) available to SPC;
4. A revised protocol for deriving the length and weight size compositions for the principal longline fisheries;
5. The correction of the purse seine length frequency data collected by observers to account for sampling bias and the inclusion of Pago Pago port sampling data, with all data weighted in respect of the set catch weight.

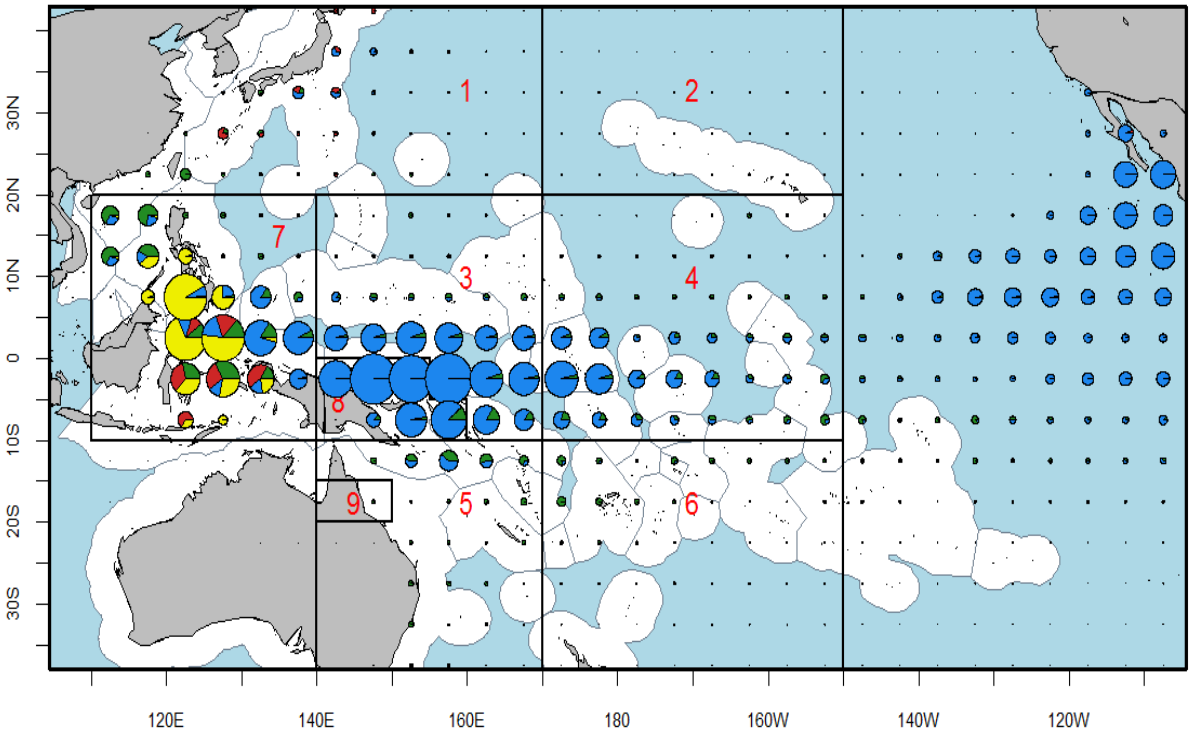


Figure 26: Catch distribution (1990-2010) for yellowfin tuna by 5 degree squares of latitude and longitude and fishing method.
(Source: Davies *et al*. 2014).Fishing methods are longline (green), purse-seine (blue), pole-and-line (red), and other (yellow). Overlaid are the regions for the 2014 assessment.

The impacts of each of these changes was examined in a stepwise development towards a new reference case model. In addition to the reference case a wide range of other model formulations were examined. The key uncertainties were identified and the effect of the uncertainty was explored through a grid of 48 combinations of model runs:

- Tag mixing period (2 different levels);
- Steepness (3 levels: 0.8 0,65 and 0.95);
- CPUE (2 levels);
- Size data weighting (2 levels); and
- Natural mortality (2 levels: fixed vs estimated).

A retrospective analysis was also undertaken for the yellowfin tuna assessment, involving re-running the model after consecutively removing successive years of data to estimate model bias. The results of the retrospective analyses were the basis of a modification to the reference case whereby recruitment deviates for the last four periods were not estimated.

As discussed under the skipjack tuna stock assessment, there a potential impact of some fleets changing their reporting practices such that some searching days are reported as non-fishing transit days. “This practice essentially represents effort creep and we have not yet specifically corrected recent data to ensure consistency of reporting. Therefore, the impact of this is not known, but it will be minimized by the practice of estimating frequent time-based changes in catchability” (Davies *et al*. 2014). The issue was not identified as a major source of uncertainty for the assessment but is well-recognised by management.

As reported in Morison & McLoughlin (2016), two reviews of the previous yellowfin tuna assessment (Haddon 2010 and Maguire 2010) were commissioned by the USA through the Center for Independent Experts (CIE). A response to these reviews was provided by SPC to SC7 (SPC 2011) but there was no reference to the findings of this review or the response in the latest stock assessment (Davies *et al*. 2014). There is, however, extensive consideration of the results of the review of the bigeye tuna assessment (Ianelli *et al*. 2012). The SPC response also notes that the review was not initiated by SPC or WCPFC and was conducted without the knowledge of SPC or any direct contact with SPC by either CIE or the reviewers.

Catch and effort data

The spatial distribution of catches of yellowfin tuna across the WCPO for the period 1990-2010 is in shown in Figure 26, above.

WCPO annual catches by major gear categories are shown in Figure 27. Catch identified as "other" is dominated by the domestic fisheries of the Philippines and Indonesia, principally catching smaller fish using a variety of small-scale gear types (e.g. pole and line, ringnet, gillnet, handline and seine net) but also including small to medium sized purse seines (Davies *et al*. 2014).

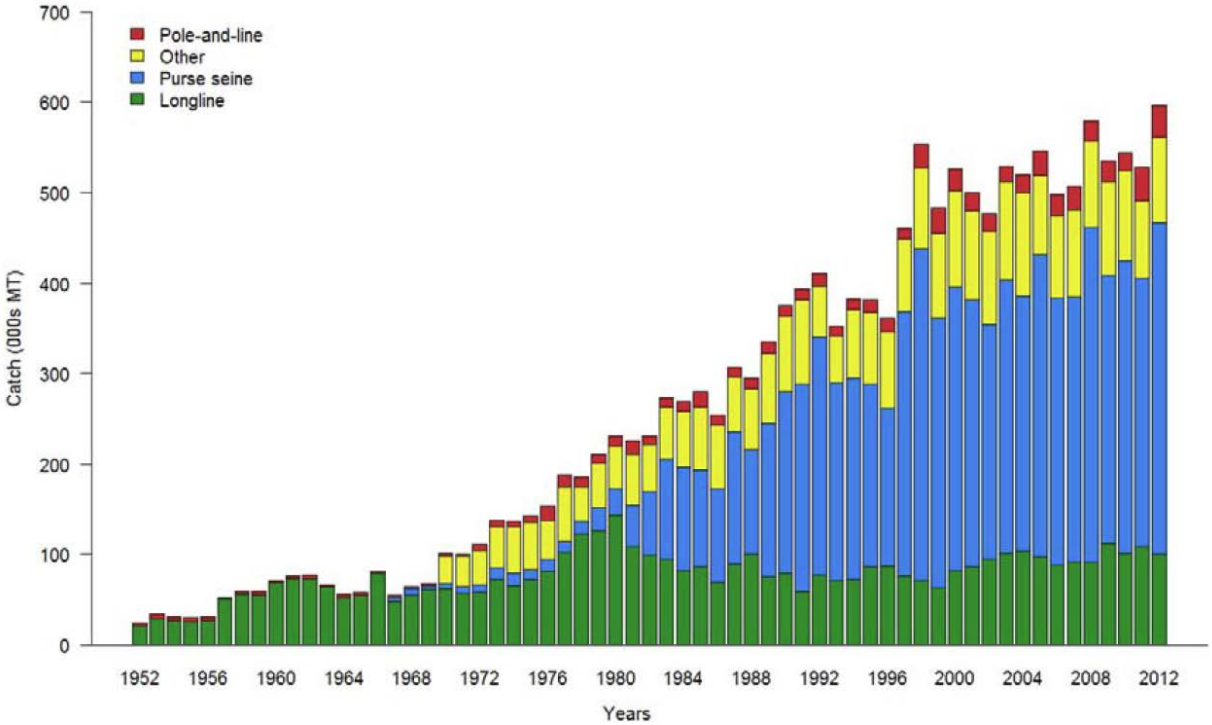


Figure 27: Total annual catch (1000s mt) of yellowfin tuna by fishing gear as used in the 2014 stock assessment's reference case model
(Source: Davies *et al*. 2014).

Tagging data

The yellowfin assessment incorporates tagging data, as they are informative about stock size, and exploitation rate. A large amount of tagging data was available for incorporation into the assessment. The data used consisted of the OFP's Regional Tuna Tagging Project conducted during 1989-1992, the Coral Sea tagging program (1991-1995), and the Pacific Tuna Tagging Programme (PTTP) data. For incorporation into the MULTIFAN-CL analysis, tag releases were stratified by release region, time period of release (quarter) and the same size classes used to stratify the length frequency data. A total of 82,581 releases were classified into 78 tag release groups. Returns from each size-class of each tag release group (17,121 tag returns in total) were then classified by recapture fishery and recapture time period (quarter). Because tag returns by purse seiners were often not accompanied by information concerning the set type, tag return data were aggregated across set types for the purse-seine fisheries in each region. The population dynamics model was in turn configured to predict equivalent estimated tag recaptures by these grouped fisheries (Davies *et al*., 2014).

Stock status

Stock status is presented in the 2014 assessment report (Davies *et al*. 2014) and the 2014 SC summary report (WCPFC 2014a). Outputs of the 2014 assessment relative to a range of reference points are given in Table 44. Outcomes are summarized in Figure 28, Figure 29, Figure 30 and Figure 31.

Error! Reference source not found. shows that the latest estimate of spawning biomass (2012) of 899,496 t is above both the level that will support MSY (SB_{latest}/SB_{MSY} = 1.24 for the base case and ranges from 1.05 to 1.51 across the four models) and also above the newly adopted LRP of $0.2SB_{F=0}$ ($SB_{latest}/SB_{F=0}$ = 0.38) for the base case model and ranges from 0.35 to 0.40 (WCPFC 2014a).

Table 44: Estimates of management quantities for selected stock assessment models. (Source: WCPFC 2014a).
N.B: For the purpose of this assessment, "current" is the average over the period 2008–2011 and "latest" is 2012. Mix_1 relates to the tag mixing period and h = steepness.

Parameter	Base case	h=0.65	h=0.95	Mix_1
MSY	586,400	527,200	642,800	526,400
C_{latest}/MSY	1.02	1.12	0.93	1.12
$F_{current}/F_{MSY}$	0.72	0.87	0.58	0.87
B_0	4,319,000	4,475,000	4,221,000	3,862,000
$B_{current}$	1,994,655	1,996,179	1,995,224	1,597,536
SB_0	2,467,000	2,557,000	2,411,000	2,202,000
SB_{MSY}	728,300	859,600	594,500	648,000
$SB_{F=0}$	2,368,557	2,556,733	2,255,523	2,206,510
$SB_{current}$	998,622	999,474	998,914	746,743
SB_{latest}	899,496	899,362	898,389	770,210
$SB_{current}/SB_{F=0}$	0.42	0.39	0.44	0.34
$SB_{latest}/SB_{F=0}$	0.38	0.35	0.4	0.35
$SB_{current}/SB_{MSY}$	1.37	1.16	1.68	1.15
SB_{latest}/SB_{MSY}	1.24	1.05	1.51	1.19

Fishing mortality has generally been increasing through time. For the reference case $F_{current}$ (2008–2011 average) is estimated to be 0.72 times the fishing mortality that will support MSY. Across the four models (base case and three sensitivity models) $F_{current}/F_{MSY}$ ranged from 0.58 to 0.90 (WCPFC 2014a).

The SC (WCPFC 2014a) reported equilibrium unfished spawning potential SB_0 was estimated at 2,467,000 mt and the spawning potential that would support the MSY was estimated to be 728,300 mt or 30 % of SB_0. The total equilibrium unfished biomass B_0 was estimated to be 4,319,000 mt (Table 44).

Management advice based on the 2014 assessment is that yellowfin spawning biomass is above the biomass-based LRP ($0.2SB_{F=0}$) and overall fishing mortality appears to be below F_{MSY}. It is highly likely that the stock is not overfished and overfishing is not occurring. Latest catches in the assessment (612,797 mt, 2012) of WCPO yellowfin tuna marginally exceed MSY (586,400 mt).

Estimated MSY has declined substantially since the 1970s (Figure 32). Prior to this time, the WCPO yellowfin fishery was almost exclusively conducted using longlines, with low exploitation rates of small yellowfin. The increased development of fisheries catching younger yellowfin has reduced estimated MSY levels (Davies *et al.* 2014).

Future status under status quo projections (assuming 2012 conditions) depends on assumptions on future recruitment. When spawner-recruitment relationship conditions are assumed, spawning biomass is predicted to increase and the stock is exceptionally unlikely (0%) to become overfished ($SB_{2032}<0.2SB_{F=0}$) or to fall below SB_{MSY}, or to become subject to overfishing ($F>F_{MSY}$). If recent (2002–2011) actual recruitments are assumed, spawning biomass will remain relatively constant, and the stock is exceptionally unlikely (0%) to become overfished or to become subject to overfishing, and it was very unlikely (2%) that the spawning biomass would fall below SB_{MSY} (WCPFC 2014a).

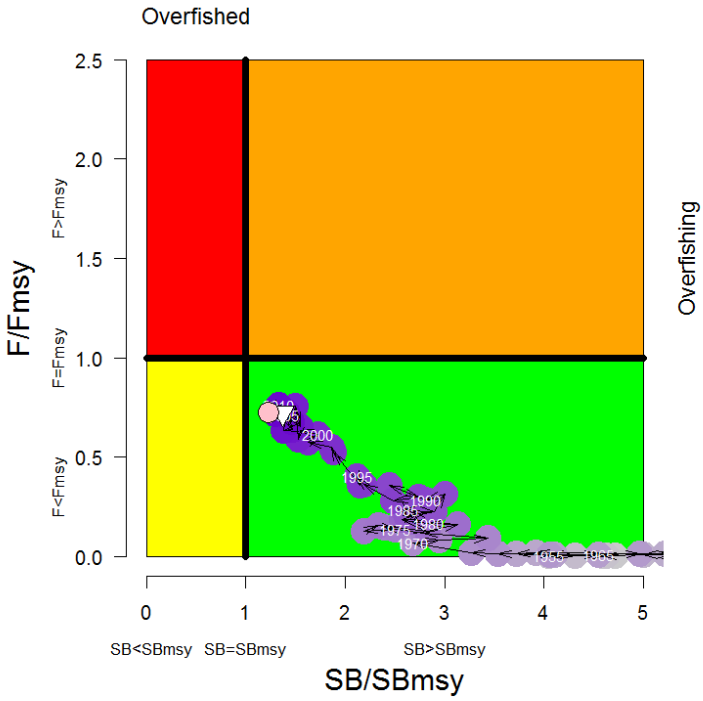


Figure 28: Yellowfin tuna: Temporal trend in annual stock status, relative to SB_{MSY} (x-axis) and FMSY (y-axis) reference points, for the period 1952–2011 from the reference case.
(Source: Davies *et al*. 2014).
The colour of the points is graduated from mauve to dark purple through time and the points are labelled at 5-year intervals. The white triangle represents the average for the current period and the pink circle the latest period

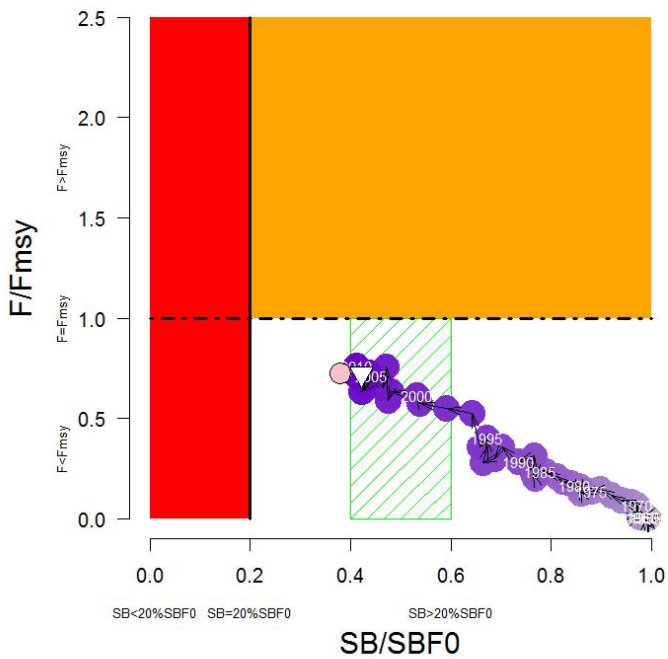


Figure 29: Yellowfin tuna: Alternative portrayal of stock status with target and limit reference points.
(Source: Davies *et al*. 2014).
The red zone represents spawning potential levels lower than the agreed limit reference point which is marked with the solid black line. The orange region is for fishing mortality greater than F_{MSY} ($F=F_{MSY}$ is marked with the black dashed line). The lightly shaded green rectangle covering $0.4\text{-}0.6SB_{F=0}$ is the 'space' that WCPFC asked for consideration of a TRP for skipjack tuna.

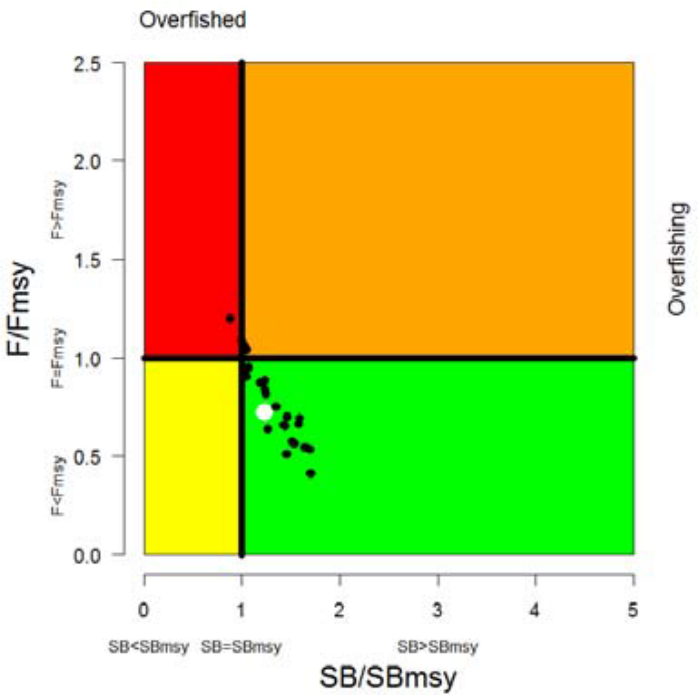


Figure 30: Yellowfin tuna: Plot of SBlatest/SBMSY versus FCurrent/FMSY for the 48 model runs undertaken for the structural uncertainty analysis.
(Source: Davies *et al*. 2014).
The reference case model is denoted by the large white circle.

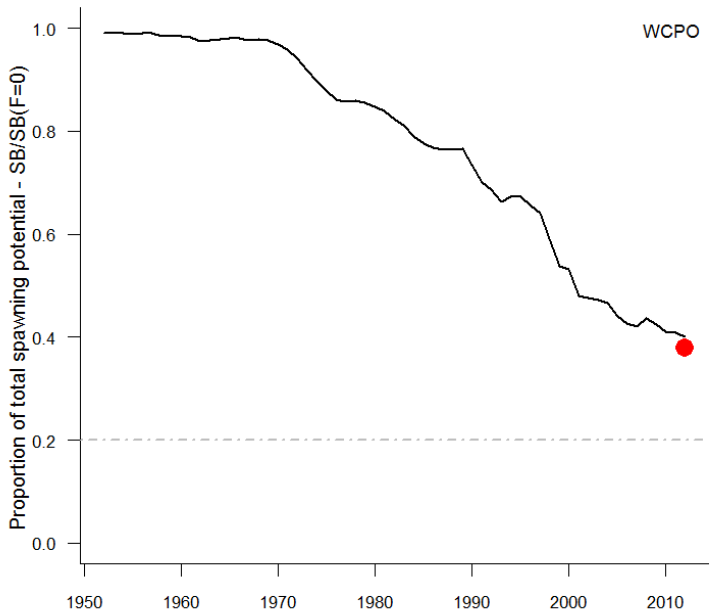


Figure 31: Yellowfin tuna: Ratio of exploited to unexploited spawning potential, $SB/SB_{F=0}$, for the WCPO for the reference case.
(Source: Davies *et al*. 2014).
The current WCPFC limit reference point of 20%SBF=0 is provided for reference as the grey dashed line and the red circle represents the level of spawning potential depletion based on the agreed method of calculating SBF=0 over the last ten years of the model (excluding the last year)

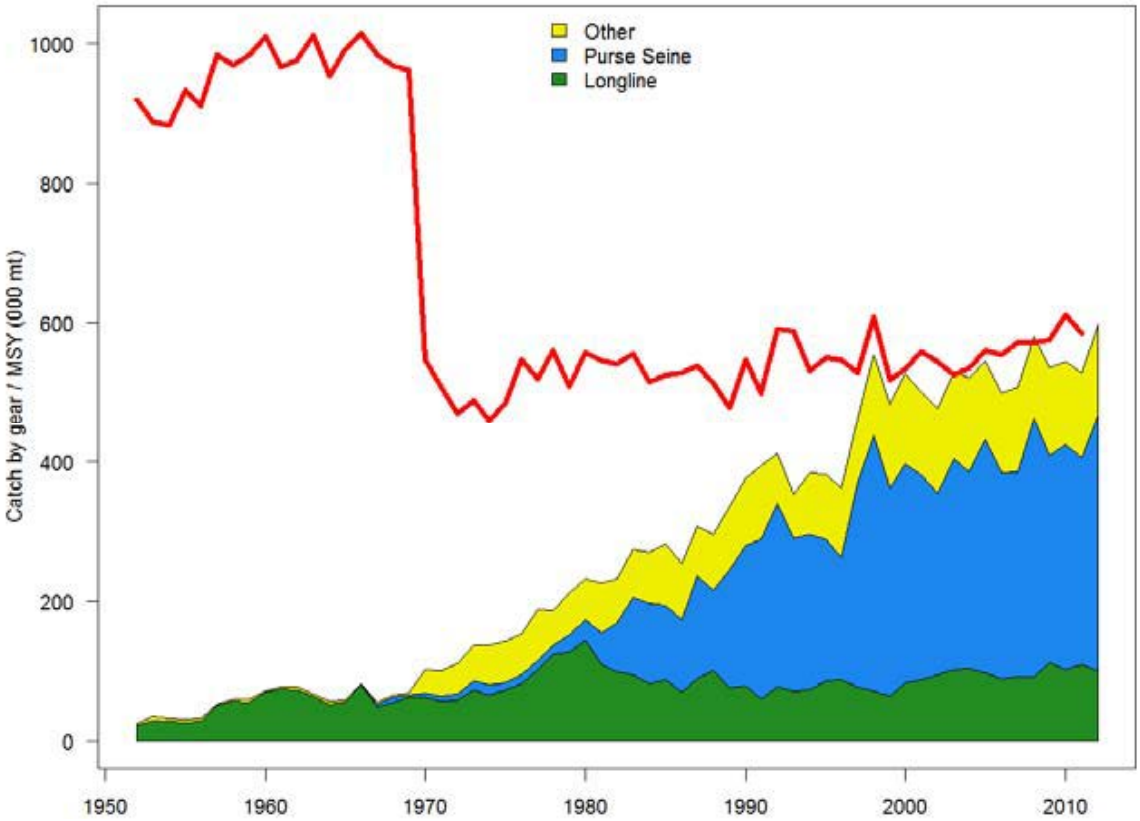


Figure 32: Yellowfin tuna: History of the annual estimates of MSY (red line) compared with annual catch split into three sectors for the 2014 assessments' reference case.
(Source: Davies *et al*.2014).

Apart from variability early in the time series, spawning biomass for the WCPO yellowfin was estimated to have declined steadily over the model period (Figure 33). Uncertainty in the biomass estimates is substantially higher earlier in the time series, consistent with uncertainty in recruitment (Davies *et al*., 2014).

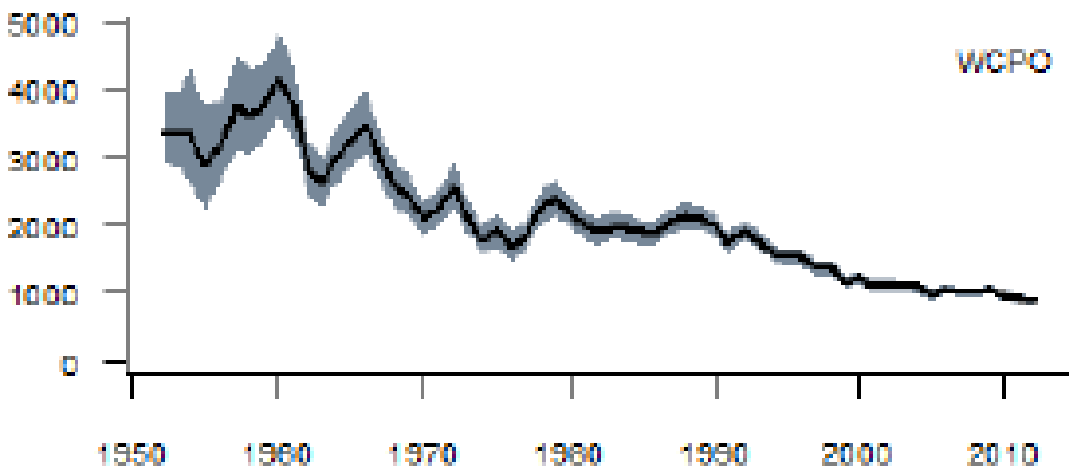


Figure 33: Estimated annual average spawning potential for the WCPO for the reference case.
(From Davies *et al*. 2014).
The shaded areas indicate the approximate 95% confidence intervals

Harvest strategy and control rules (yellowfin tuna)

Notes above on the harvest strategy for skipjack tuna are largely also applicable to yellowfin tuna. However, fishing methods other than purse seine take a higher percentage of the total catch than is the case for skipjack tuna. Since 2010 annual catches of yellowfin by methods other than purse seine have been approximately 40-50% of the total, hence the measures in place for these other fishing methods require greater consideration for yellowfin tuna.

Yellowfin have been subject to the provisions of CMMs since CMM 2005-01 was passed, requiring that "*CCMs shall take necessary measures to ensure that purse seine effort levels do not exceed either 2004 levels, or the average of 2001 to 2004 levels, in waters under their national jurisdiction, beginning in 2006*." The most recent measure is CMM 2015-01, and the purse seine effort control measures it contains are discussed above under skipjack tuna. Also, as described in the section on skipjack tuna, CMM 2014-06 describes how the WCPFC views harvest strategies and its plans for implementing them for all tropical tuna stocks, including yellowfin tuna.

CMM 2014-06 is consistent with MSC definitions and requirements and outlines an intention to move towards a harvest strategy with well-defined harvest control rules ('decision rules' in WCPFC terminology). The current harvest strategy relies on annual decision-making processes founded on the core principles of the WCPFC as laid out in its Convention and in a growing body of CMMs (see https://www.wcpfc.int/conservation-and-management-measures). CMM 2013-01, CMM 2014-01 and CMM 2015-01 have, in addition to the measures for the purse seine component of the fishery, incorporated requirements that other commercial fisheries for bigeye tuna, yellowfin tuna and skipjack tuna take necessary measures such that fishing effort and capacity shall not exceed the average level for the period 2001-2004 or 2004. For longline fisheries, these CMMs require that "*CCMs agree to take measures not to increase catches by their longline vessels of yellowfin tuna.*" These 3 CMMs state that at the following regular Commission meeting "*…the Commission will formulate and adopt appropriate limits for CCMs, based on recommendations from the Scientific Committee, and taking into account other measures in this CMM*." These limits have not yet been agreed.

At the 9th regular session of the Commission in 2012, WCPFC established a limit reference point for yellowfin tuna (20%$SB_{recent,F=0}$, i.e., 20% of the estimated spawning biomass in the absence of fishing averaged over a recent time window). At its 10th regular session, the Commission further agreed that the time window for estimation of the spawning biomass in the absence of fishing should be 10 years, and be based on the years (from the last year used in the assessment to 10 years prior to that). Work on determining acceptable levels of risk of not breaching the limit reference point is still in progress.

A formal target reference point is under discussion by WCPFC and subject to development under the workplan established under CMM 2014-06. In the absence of a formal target reference point, the default WCPFC target of B_{MSY} applies.

There are no formally agreed decision rules or HCRs yet in place. However, the harvest strategy is based on high quality science and compliance information. The current state of the stock provides evidence of successful management to date.

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WCPFC Conservation and Management Measures (CMMs)

NB – the CMMs may be downloaded in full from: https://www.wcpfc.int/conservation-and-management-measures

CMM 2005-01: Conservation and Management Measure for bigeye and yellowfin tuna in the WCPO (replaced by a later CMM)

CMM 2007-01: Conservation and Management Measure for the Regional Observer Programme.

CMM 2008-01: Conservation and Management Measure for bigeye and yellowfin tuna in the WCPO (replaced by a later CMM)

CMM 2008-03: Conservation and management of sea turtles

CMM 2009-02: Conservation and Management Measure on the application of high seas FAD closures and catch retention.

CMM 2010-07: Conservation and Management Measure for sharks

CMM 2011-03: Conservation and Management Measure to address impact of purse seine fishing activity on cetaceans

CMM 2011-04: Conservation and Management Measure for oceanic whitetip sharks

CMM 2012-01: Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the WCPO (replaced by a later CMM)

CMM 2012-04: Conservation and Management Measure on the protection of whale sharks from purse seine operations

CMM 2012-07: Conservation and Management Measure for mitigating impacts of fishing on seabirds (replaced by a later CMM)

CMM 2013-01 Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the WCPO (replaced by a later CMM)

CMM 2013-02: Conservation and Management Measure on compliance monitoring scheme (replaced by a later CMM)

CMM 2013-06: Conservation and Management Measure on the criteria for the consideration of conservation and management proposals

CMM 2013-07: Conservation and Management Measure on the special requirements of Small Island Developing States and Territories

CMM 2013-08: Conservation and Management Measure for silky sharks

CMM 2014-01: Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the WCPO (replaced by a later CMM)

CMM 2014-04: Conservation and Management Measure to establish a multi-annual rebuilding plan for Pacific bluefin tuna (replaced by a later CMM)

CMM 2014-05: Conservation and Management Measures for sharks

CMM 2014-06: Conservation and Management Measures to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO

CMM 2014-07: Conservation and Management Measure on Compliance Monitoring Scheme (replaced by a later CMM)

CMM 2015-01: Conservation and Management Measure for bigeye, yellowfin and skipjack tuna in the WCPO

CMM 2015-06: Conservation and Management Measure on target reference point for skipjack tuna

CMM 2015-07: Conservation and Management Measures

APPENDIX 7 VESSEL LIST (PER 31.07.2018)

NO	FAO Catch Area	Vessel Name	Flag-Home Port	Vessel GT	Vessel Licence Number and Expiry Date		ISSUED BY
1	071	ASPAC 01	INDONESIA - SORONG	56	26.18.0001.56.01735	12.Jul.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
2	071	ASPAC 03	INDONESIA - SORONG	58	26.17.0001.56.58354	05.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
3	071	ASPAC 05	INDONESIA - SORONG	59	26.18.0001.56.00108	05.Mar.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
4	071	ASPAC 06	INDONESIA - SORONG	52	26.17.0001.56.58275	04.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
5	071	ASPAC 09	INDONESIA - SORONG	55	26.18.0001.56.00185	05.Mar.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
6	071	ASPAC 11	INDONESIA - SORONG	57	26.18.0001.58.01176	05.May.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
7	071	ASPAC 12	INDONESIA - SORONG	56	26.17.0001.56 58352	05.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
8	071	ASPAC 15	INDONESIA - SORONG	58	26.17.0001.56.58269	03.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
9	071	ASPAC 16	INDONESIA - SORONG	58	26.17.0001 56.58277	04.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
10	071	ASPAC 17	INDONESIA - SORONG	57	26.17.0001 56. 58353	05.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
11	071	ASPAC 18	INDONESIA - SORONG	56	26.17.0001.56.58270	03.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
12	071	CINTA BAHARI 04	INDONESIA - SORONG	58	26.18.0001.56.01204	22.Mar.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
13	071	CINTA BAHARI 06	INDONESIA - SORONG	58	26.16.0001.56.51709	26.Aug.17	MINISTRY OF MARINE AFFAIRS AND FISHERY
14	071	CINTA BAHARI 07	INDONESIA - SORONG	58	26.17.0001.56.59543	20.Dec.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
15	071	CINTA BAHARI 08	INDONESIA - SORONG	59	26.17.0001.56.58707	26.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
16	071	CINTA BAHARI 09	INDONESIA - SORONG	59	26.17.0001.56.58708	26.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
17	071	CINTA BAHARI 10	INDONESIA - SORONG	74	26.16.0001 56.51412	08.May.17	MINISTRY OF MARINE AFFAIRS AND FISHERY
18	071	CINTA BAHARI 12	INDONESIA - SORONG	58	26.18.0001 56.01235	22.Mar.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
19	071	KCBS 03	INDONESIA - SORONG	59	26.17.0001.56.58700	26.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
20	071	MINA FINTURA 01	INDONESIA - SORONG	59	26.17.0001.56.58338	05.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
21	071	MINA FINTURA 03	INDONESIA - SORONG	58	26.17.0001.56.58706	26.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
22	071	SOLAFIDE	INDONESIA - SORONG	58	26.18.0001.56.01687	24.May.19	MINISTRY OF MARINE AFFAIRS AND FISHERY
23	071	TELUK MARCHESA	INDONESIA - SORONG	57	26.17.0001.56.58268	03.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
24	071	TUNAS JAYA 01	INDONESIA - SORONG	56	26.17.0001.56.58267	03.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
25	071	TUNAS JAYA 02	INDONESIA - SORONG	57	26.17.0001.56.58510	15.Oct.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
26	071	SINAR BAHARI 01	INDONESIA - SORONG	66	26.14.0001.56.44579	15.Jul.14	MINISTRY OF MARINE AFFAIRS AND FISHERY
27	071	CINTA BAHARI 02	INDONESIA - SORONG	59	26.17.0001.56.58573	20.Dec.18	MINISTRY OF MARINE AFFAIRS AND FISHERY
28	071	CAHAYA MULIA 02	INDONESIA - SORONG	70	26.14.0001.56.46301	24.Oct.15	MINISTRY OF MARINE AFFAIRS AND FISHERY
29	071	CINTA BAHARI 11	INDONESIA - SORONG	72	26.16.0001 56.40815	05.Sep.14	MINISTRY OF MARINE AFFAIRS AND FISHERY
30	071	MARCELINO 01	INDONESIA - SORONG	98	26.13.0001.56.40815	05.Sep.14	MINISTRY OF MARINE AFFAIRS AND FISHERY
31	071	MARCELINO 03	INDONESIA - SORONG	49	26.12.0028.09.36526	11.Dec.13	MINISTRY OF MARINE AFFAIRS AND FISHERY
32	071	SIBELA STAR	INDONESIA - SORONG	51	26.14.0001 56. 46268	21.Oct.15	MINISTRY OF MARINE AFFAIRS AND FISHERY
33	071	KARYA SAMUDRA	INDONESIA - SORONG	27	523.3/15/SIPI-PB/IX/2014	28.Sep.15	GOVERNOR OF WEST PAPUA
34	071	SHAVUR 02	INDONESIA - SORONG	56	26.11.0028.09.29974	28.Jun.12	MINISTRY OF MARINE AFFAIRS AND FISHERY
35	071	SHAVUR 03	INDONESIA - SORONG	62	26.12.0028.09.34598	28.Jun.13	MINISTRY OF MARINE AFFAIRS AND FISHERY
							Sorong,Jul 31, 2018

APPENDIX 8 CLIENT AGREEMENT

PT CITRARAJA AMPAT CANNING

OFFICE : JL. BUBUTAN 39 SURABAYA 60174, INDONESIA
PHONE : 62 031 5344006 FAX : 62 031 5312668, EMAIL : cirapa@rad.net.id
FACTORY : JL. A. YANI KLADEMAK I SORONG 98414, INDONESIA

Sandhya Chaudhury
Principal Specialist
DNV GL Business Assurance Norway AS
Veritasveien 1
1322 HØVIK, Norway

Dear Ms Chaudhury

Re : Client Agreement

On behalf of PT Citraraja Ampat Canning, I accept the Public Certification Report for the PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna fishery with the terms of certification detailed therein. I also confirm that information on fishing activities and scope of certification is up to date and correct.

Name: Ali Wibisono

Signature:

Place: Surabaya

Date: Nov 21,2018

About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.