Marine Stewardship Council (MSC) Public Comment Draft Report

Ishihara Marine Products Albacore and Skipjack Pole and Line Fishery

On behalf of

Ishihara Marine Products Ltd.

Prepared by

Control Union Pesca Ltd

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Glossary

Acronym	Definition
ABC	Acceptable Biological Catch
ACAP	Agreement for the Conservation of Albatross and Petrels
ALC	Automatic Location Communicators
AWG	Albacore Working Group
CAB	Conformity Assessment Body
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CMM	Conservation and Management Measures
CPUE	Catch per Unit Effort
CU Pesca	Control Union Pesca Ltd.
EEZ	Exclusive Economic Zone
ENSO	El Niño–Southern Oscillation
EPO	Eastern Pacific Ocean
F	Fishing mortality
FA	Fisheries Agency
FAD	Fish Aggregating Device
FC	Fisheries Cooperative
FCR	Fisheries Certification Requirements
FFA	Pacific Islands Forum Fisheries Agency
FRA	Fisheries Research Agency
HCR	Harvest Control Rule
IATTC	Inter-American Tropical Tuna Commission
IOTC	Indian Ocean Tuna Commission
IPOA	International Plans of Action
ISC	International Scientific Committee
IUU	Illegal, Unreported and Unregulated (fishing)
JASTFA	Japan Adjacent Sea Tuna Fishery Association
JDWTFA	Japan Distant Water Tuna Fishery Association
JFSPSFA	Japan Far Seas Purse Seine Fishing Association
JTFCA	Japan Tuna Fisheries Co-operative Association
LME	Large Marine Ecosystem
LRP	Limit Reference Point
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEC	ME-Certification Ltd
MFCL	Multifan-CL

Acronym	Definition
MOU	Memoranda of Understanding
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NOAA	National Oceanic and Atmospheric Administration
NPAFC	North Pacific Anadromous Fish Commission
NRIFSF	National Research Institute of Far Seas Fisheries
NORMA	National Oceanic Resource Management Authority
PNA	Parties to the Nauru Agreement
PRI	point of recruitment impairment
RFMO	Regional fisheries management organisations
SB	Spawner biomass
SPC	South Pacific Conference
SPR	Spawner Per Recruit
SPREP	Secretariat for the Pacific Regional Environment Programme
SRR	Stock-Recruit Relationship
SS	Stock Synthesis
TAC	Total Allowable Catch
TAE	Total Allowable Effort
TCC	Technical and Compliance Committee
TRP	Target Reference Point
RBF	Risk Based Framework
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	UN Fish Stocks Agreement
UoA	Unit of Assessment
UoC	Unit of Certification
VB	Von Bertalanffy
VDS	Vessel Day Scheme
WCPO	Western Central Pacific Ocean
WCPFC	Western Central Pacific Fisheries Commission

1 Executive Summary

1.1 Japanese (要約)

1.2 Japanese (日本語要約)

この報告書は、認証審査機関であるコントロール・ユニオン・ペスカ(Control Union Pesca - 以前の名は ME Certification)が作成した、静岡県焼津の石原水産株式会社のビンナガとカツオ一本釣り漁業に対する MSC 本審査パブリックコメント用ドラフト報告書である。

審査対象の漁業は第 8 永盛丸一隻を使用し、中西部太平洋(WCPO)域に置いて中西部太平洋漁業委員会（WCPFC）の管理管轄にあるカツオ資源と、全米熱帯まぐろ類委員会（IATTC)と WCPFC の 2 委員会で管理されている北太平洋のビンナガ資源を漁獲している。漁獲域は公海、日本 EEZ 内、漁業協定によりミクロネシア連邦共和国 EEZ 内に及ぶ。認証単位となる漁獲は全て WCPFC 条約内の水域であり、審査対象魚種は地域漁業機関による管理措置・政策とそれを受けた日本国内の漁業管理措置・政策で管理されている。

WCPO のカツオ資源について最近の資源評価(2016)は、現在の漁獲量が推定 MSY 値を少し下回ってはいるが、その水準に近づきつつあると結論付けた。親魚量推定値はほぼ目標値($50\%SB_{F=0}$)指標水準にあり、限界値($20\%SB_{F=0}$)と SB_{MSY} を十分上回っており、漁獲努力量(F)は MSY 水準の半分ほどと推定された。生物量の変化予測について資源評価は前回の資源評価(2012)以来、複数地域で起こった新規加入から強い増加傾向があるとわかった。

北部太平洋のビンナガ資源では、最近の資源評価（ISC 2017a)で 親魚量（産卵親魚量）は明確な傾向がないまま 2000 年から変動を続けているものの、WCPFC で合意されている限界値は十分上回っていると結論された。親魚量の推定量は様々なモデルシミュレーション法によりリスク度が異なってはいるが、全てのモデル感度で限界値を超えていた。モデルは 1-SPR(漁獲圧力)を F のプロキシ（近似値）と推定した。漁獲圧力は親魚量の MSY 値を達成する水準より少し下と推定された。F_{msy} の様々な代替近似値も評価の中で試算されたが、$F_{50\%}$（加入資源あたりの産卵魚数が漁獲がゼロの時の半数とした仮定）以外は全て MSY 値を達成する水準より下との結果が出た。

基本となる地域管理措置は WCPFC の保全管理措置(CMM)文書 2017-01 にまとめられている。これは公式な漁獲管理戦略が委員会で合意されるまでの”ブリッジング措置“として一連の管理措置により熱帯地域に分布するマグロにかかる漁獲努力を制限している。

北部太平洋ビンナガ資源の地域管理措置（WCPFC と IATTC で共通で合意されている）は CMM2005-03 (WCPFC)と C-05-02 (IATTC)決議（両者同じ内容）が適用されており、内容は“漁獲努力量が現状（2002-2004 年の漁獲圧）より増加しないこと”である。最近行われた北小委員会(NC13)では、漁獲圧に変化がこのところ一定であり生物量が高い確率で限界値以上にあると推定されているため、変更は必要とされなかった。

両資源が CMM2014-06 で管理され、WCPFC は主要資源に対し公式な漁獲戦略(北部太平洋ビンナガ資源は北委員会が開発・提案することになっている)を実行計画とともに作成することを宣言している。漁獲管理戦略の進みぐあいは遅いが、実行計画は既に 2 度も改定されている。北部ビンナガ資源については中間管理計画が敷かれている。これは目標値を設定しているものではないが、委員会で今後計画されいる管理システム評価の一部として行われることになっている。

他の魚種との関連性を示す主なデータはログブックと利害関係者の証言から得られている。この漁業には主要な対象種は存在しない。餌として利用される太平洋資源のカタクチイワシ(*Engraulis japonicus*)とマイワシ（*Sardinops melanostictus*)だが、これは主要な種ではない。他に混獲魚として（殆どは幼魚だが）メバチ、キハダ、シイラ、ブリなどがある。漁業の特性からサメやウミガメ、海生哺乳類や海鳥などの絶滅危惧種との接触は少なく、これは国際水産研究所の西田先生を含むステークホルダー証言により支持された。この漁業は遠洋の表層で行われるため（脆弱な海洋の）生息域との接触もない。

全体として、主なこの漁業の強みは：

1. 資源サイズと分布域と比較した漁業スケールが小規模であること。認証単位の環境インパクトは漁船一隻のみの漁獲により限定的であり、南北資源を有する太平洋資源量と他漁業による漁獲スケールと比較するとかなり小さいものである 。
2. 生態系へのインパクトが認証単位の規模・漁業の特性・非対称魚の漁獲前リリース実施により少なく保たれている。
3. サメのフィニングが行われていない。
4. 生息域と生態系への影響は無視できる程度である。
5. この漁業のガバナンスと管理が、国際的にも国内においてもよく理解され管理文書が整備され、また実施されている。

この漁業の主な弱み

1. カツオ資源の公式漁獲管理戦略とカツオ・ビンナガ資源の漁獲管理規則が未だ欠如している。
2. 使用する餌の魚種に関して、カタクチイワシの推定生物量は 2003 年以降減少傾向を見せており、2016 年の推定量(108000t) も B_{limit} を下回る。この資源に目標値の設定はない。全体として資源は加入乱獲水準を下回ると見られ資源回復が必要である。マイワシ に関しては、資源は現在加入乱獲水準より上にあり回復中であるが、資源豊度がまだピーク水準よりずっと下にあるとみられる。餌使用量が比較的少ないため、これらの種は MSC 定義による審査の“主要種”に当てはまらないが、審査チームは提言を追加した(下記参照)。

審査チームの暫定的結論はこの漁業が MSC 認証基準を満たすと結論づける。以下の表に各原則ごとの総合点を記載した。

最終原則別得点		
原則	カツオの得点	ビンナガの得点
原則 1 - 対象魚	**85.8**	**82.5**
原則 2 - 生態系	**90.3**	**90.3**
原則 3 - 管理システム	**85.7**	**85.7**

この認証には 3 つの付帯条件が提案される。条件は全て原則 1 に含まれ以下の表にまとめられる。

条件番号	条件	評価指標
1	中西部太平洋のカツオ資源は資源状態に応じて調整される漁獲戦略を持ち、漁獲戦略の各要素（モニタリング、資源評価、漁獲管理規則）が資源管理目標を達成するため連動して機能を果たすこと。	**1.2.1**
2	中西部太平洋のカツオ資源は加入乱獲水準に近づくにつれ漁獲圧が減少することを確実とした漁獲管理規則を持ち、資源が目標値近辺に維持されることが期待できること。また主要な不確実性に対し頑健な予防策があること。　漁獲管理規則を実施するための効果的な管理方法が設定され、必要とされる漁獲努力水準を達成すること。	**1.2.2**
3	北部太平洋ビンナガ資源は加入乱獲水準に近づくにつれ漁獲圧が減少することを確実とした漁獲管理規則を持ち、資源が目標値近辺に維持されることが期待できること。できること。また主要な不確実性に対し頑健な予防策があること。漁獲管理規則を実施するための効果的な管理方法が設定され、必要とされる漁獲努力水準を達成すること。	**1.2.2**

その他、次の提言を審査チームから追加する。

第 8 永盛丸による餌魚使用は 2016 年の太平洋のカタクチイワシ親魚資源量の 0.04%より少なく、影響が無視できる程度となっている。しかし日本全体では餌魚としての利用におけるこの資源の漁獲死亡率はかなり大きい。日本のカタクチイワシ資源の約 84%は養殖の餌や漁業による餌のために漁獲されており、他の代替魚種、マイワシでは約 30%の漁獲が養殖餌となっている（2018 年 2 月 4 日、学習院大学、坂口教授との私信）。

第 8 永盛丸による餌魚の仕入れにはある程度のストラテジーが存在する。餌購入量は使用量に限定され、船内での生存率を高めるため日本各地の業者より季節により最適な購入地でより大きく元気な魚を選択して仕入れている。しかし、カタクチイワシの資源状態が現在乏しいため、餌魚調達方針は資源回復を妨げないよう枯渇資源にさらに負担を与えない方策を検討することを推奨する（例として、他の資源状態の良い魚種への転換や他の餌やり手法の検討等）。

1.3 English

This report is the Public Comment Draft Report for the MSC full assessment of the Japanese albacore and skipjack pole and line fishery by the Conformity Assessment Body (CAB) Control Union Pesca Ltd. (CU Pesca; formerly ME Certification Ltd.), for the client Ishihara Marine Products, Co., Ltd of Yaizu City, Japan.

The fishery under assessment has one pole and line vessel, the Eisei Maru No.8, which fishes skipjack tuna in the Western Central Pacific Ocean (WCPO), under the jurisdiction of the WCPFC (Western Central Pacific Fisheries Commission), and North Pacific albacore tuna in the Northern Pacific Ocean which is under the jurisdiction of the Inter–American Tropical Tuna Commission (IATTC) and the WCPFC. More specifically, the fishery takes places in the Japanese Economic Exclusive Zone (EEZ), the EEZ of the Federated States of Micronesia (FSM), and the High Seas. The UoC catch is all within the WCPFC Convention area. The target species are therefore subject to both national and regional fisheries management measures and policies.

For WCPO skipjack, the most recent stock assessment (2016) concludes that current catches are slightly below the estimated Maximum Sustainable Yield (MSY), but approaching this level. Spawning biomass is estimated to be approximately at the target reference level ($50\%SB_{F=0}$) and well above the limit reference point ($20\%SB_{F=0}$) as well as SB_{MSY}, and F is estimated to be approximately half the MSY level. In terms of the biomass trajectory, the assessment suggests a strong increase in biomass since the end of the time series used in the previous assessment (i.e. since 2012), driven by pulses of recruitment in some regions. For North Pacific albacore, the 2017 stock assessment concludes that SB (measured as female spawner biomass) has fluctuated without trend since 2000 and is estimated to be higher than the limit reference point (LRP) agreed by WCPFC ($20\%SB_{F=0}$). The point estimate of SB was above the LRP for all the sensitivities examined, although the risk of SB<LRP varied. The model estimates 1-SPR ('fishing intensity') as a proxy for F. Fishing intensity is estimated to be below the level which would result in SB_{MSY}. A range of alternative proxies for F_{MSY} were evaluated ($F_{0.1}$, $F_{10\%}$-$F_{50\%}$, all expressed as fishing intensity) and F was estimated to be below them all except $F_{50\%}$ (the fishing intensity resulting in spawner-per-recruit at 50% of the unfished level; biomass ~$50\%SB_0$).

The core regional management measure for skipjack is WCPFC CMM 2017-01, which provides for a series of management measures aimed at constraining effort on tropical tunas and is intended to be a 'bridging measure' while work continues towards a formal harvest strategy. For Northern albacore, the regional management measures (harmonised between WCPFC and IATTC) are CMM 2005-03 (WCPFC) and Resolution C-05-02 (IATTC) which have the same requirements; i.e. that fishing effort should not be increased above current levels (current being defined as $F_{2002\text{-}4}$). The most recent meeting of the Northern Committee (NC13) concluded that no change is required to 2005-02/C-05-02 at this point, since the constant F projections maintain the biomass above the LRP with high probability.

Both stocks are covered by CMM 2014-06 which commits WCPFC to putting in place a formal harvest strategy for its key stocks (the strategy for Northern albacore to be developed and recommended by the Northern Committee), with an associated workplan. Progress towards a harvest strategy has been slow, however, with the workplan having been revised twice already. For Northern Albacore, an interim management plan is in place. This does not fix a TRP, but notes that this should be determined as part of a MSE included under the Committee's future work.

Key data sources on interactions with other species were logbooks and stakeholder-input. There are no main Primary species in this fishery. The bait used in this fishery are Pacific Ocean Japanese anchovy (*Engraulis japonicus*), and Japanese pilchard (*Sardinops melanostictus*). Other bycatch of this fishery are (mostly juvenile) bigeye - (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacares*),

dolphinfish (*Coryphaena hippurus*), and yellowtail amberjack (*Seriola lalandi*). Due to the nature of the fishery, there is little to no interaction with ETP species like sharks, turtles, marine mammals or seabirds. The fishery, being strictly pelagic, also has no impact on (vulnerable marine) habitats.

In general, the key strengths of the fishery are:

1. Small spatial scale of the fishery in relation to both target species stock size and their range. The impact of the Unit of Assessment (UoA) is small because the UoA (1 vessel, limited range) is small in comparison to the stocks (North and South Pacific) and other fisheries utilizing the resource.
2. The impact on the ecosystem is perceived to be small due both to the scale of the UoA and to the nature of fishing, and the release of non-target species on capture.
3. There is no shark finning practiced in this fishery.
4. Habitat and ecosystem impacts are negligible.
5. The governance and management of the fisheries, both at national and international level, are well documented and well implemented.

The key weaknesses in the fishery are:

1. Lack of a formal harvest strategy (skipjack) and harvest control rules (skipjack and albacore) for the target stocks.
2. With regards to the use of bait, estimated biomass for Japanese anchovies (*Engraulis japonicus*) has shown a declining trend since 2003, and the 2016 SSB estimate (108,000 mt) still fell below the B_{limit}. There is no target reference point for the anchovy stock. Overall, the stock appears to be below PRI and in need of recovery. For Japanese pilchard (*Sardinops melanostictus*), available information suggests that the stock is currently above PRI and recovering, although abundance is still far below peak levels. Due to the low amount of bait used, the bait species have not been scored as 'main', but the team has seen the need to issue a recommendation on the use of bait (see below).

The team's provisional determination is that the fishery meets the criteria for MSC certification.

Aggregate scores for each Principle are as shown in the following table:

Final Principle Scores		
Principle	**Score Skipjack**	**Score Albacore**
Principle 1 – Target Species	**85.8**	**82.5**
Principle 2 – Ecosystem	**90.3**	**90.3**
Principle 3 – Management System	**85.7**	**85.7**

Three conditions have been proposed; all on Principle 1:

Condition number	**Condition**	**Performance Indicator**
1	WCPO Skipjack needs a harvest strategy that is responsive to the state of the stock, with and the elements of the harvest strategy (monitoring, stock assessment, harvest control rules and management actions) working together to achieve stock management objectives.	1.2.1

Condition number	Condition	Performance Indicator
2	WCPO Skipjack needs a harvest control rule that ensures that the exploitation rate is reduced as the PRI is approached and is expected to keep the stock fluctuating around the target level and robust to the main uncertainties. The tools used to implement the HCR should be effective in achieving the required exploitation levels.	1.2.2
3	North Pacific Albacore needs a harvest control rule that ensures that the exploitation rate is reduced as the PRI is approached and is expected to keep the stock fluctuating around the target level and robust to the main uncertainties. The tools used to implement the HCR should be effective in achieving the required exploitation levels.	1.2.2

The following recommendation was also issued by the team:

The use of bait by the Eisei Maru No.8 is less than 0.04% of the estimated 2016 SSB for the Pacific Ocean stock of anchovy, suggesting a negligible impact by the UoA. However, the current status of the stock is poor, and this is considered to be due to a combination of heavy exploitation rates and environmental factors (decadal-scale ecosystem fluctuations which tend to result in an inverse correlation between sardine biomass and anchovy biomass). On a national scale, fishing mortality for bait use may be significant. About 84% of Japan's anchovy harvest is used for aquaculture feed and bait, and for other, comparable species such as Japanese pilchard, about 30% of the harvest is used as aquaculture feed (I. Sakaguchi, Gakusyuin University, pers. comm., 4 February 2018).

The company (Eisei Maru) has some strategies with regards to bait use: They buy limited quantities and have incentives to maximize bait fish survival on board, and to do so fishers purchase from different bait suppliers during different parts of the year, to try to get larger (>10 cm), healthy fish that can better survive during fishing trip. Due to the poor status of the stock, however, it is recommended to look into optimizing the bait sourcing strategy, e.g. to look at other bait species with a healthy stock status, or find other means of baiting the tuna, so as to limit the need for Japanese anchovies.

2 Authorship and Peer Reviewers

The assessment team for this assessment consisted of Dr Jo Gascoigne (P1), Dr Jocelyn Drugan (P2), Yoko Tamura (P3) and Cora Seip-Markensteijn (Team Leader).

Dr Gascoigne is a former research lecturer in marine biology at Bangor University, Wales. She is an expert on fisheries science and management, with over 15 years' experience as a consultant, working mainly on MSC pre-assessments and full assessments, as well as FIP scoping, planning and implementation. Jo has been involved as expert and lead auditor in a significant number of MEP and MEC's full MSC assessments and pre-assessments covering a range of demersal and pelagic fisheries in the Northeast Atlantic, Mediterranean, Indian Ocean, Southern Ocean and Pacific.

Dr Drugan is a fisheries scientist with Ocean Outcomes, a global fishery improvement organization that provides technical support to fisheries aiming to improve their sustainability. She has a B.S. in Ecology and Evolutionary Biology from Yale University and a M.S. and Ph.D. in Fisheries Science from the University of Washington. She was a postdoctoral research associate at the NOAA Alaska Fisheries Science Center in Seattle prior to joining Ocean Outcomes. Jocelyn has co-authored MSC pre-assessments of one Japanese sea perch fishery, one Chinese squid fishery, and two Russian salmon fisheries. She also assessed the sustainability of eleven fishery species in Japan, including yellowfin tuna and skipjack tuna, using a method based on the MSC standard. In addition to native proficiency in English, Jocelyn has language skills in Japanese and Mandarin Chinese.

Ms Tamura is a fisheries and marine environment consultant working on broad topics on coastal management issues in Japan and globally. Her expertise spans coastal resources management, sustainable fisheries and international collaboration on marine conservation, and she has significant current knowledge of the country, language, policy and local fishery context. Previously, she worked as a technical expert for Japan International Cooperation Agency on oversea cooperation projects, and NGOs such as Conservation International and Sustainable Fisheries Partnership. She currently works partly with Seafood Legacy as a science specialist. Ms Tamura holds a MA in Marine Affairs from the University of Washington and a BSc. in Marine Resource Management from the Tokyo University of Marine Science and Technology. Yoko's previous MSC experience includes a full assessment of the Kyoto Danish Seine Fishery Federation flathead flounder fishery. She has also participated in various pre-assessments and surveillance audits mostly for Japanese fisheries.

Ms. Seip acted as Team Leader with overall responsibility for the assessment. Cora meets the Fishery Team Leader criteria in Table PC1. She has a Master's degree in Biology from Leiden University, and has passed the online fishery team leader training. Cora has also completed MSC traceability training and RBF training in the past 3 years. Previously, she worked for the Dutch Fish Product Board from 2007-2013 as Policy Officer, 'Nature and Spatial Planning'. Her work focused mainly on Natura 2000 procedures and shrimp and flatfish fisheries, and included the Marine Framework Directive. She was also shellfish Policy Officer, and worked closely with the Dutch shellfish industry (mainly mussels, but also oysters, Ensis, and cockles). From 2013-2017 Cora has worked as an expert independent consultant to a broad cross-section of fishing organisations. Notable achievements include working on assessment of Dutch fisheries (both generic and specific) and their impacts, as well as working as an advisor with regards to spatial planning, and nature conservation laws.

None of the team members have a Conflict of Interest in relation to the fishery under assessment.

The peer reviewers for this full assessment were selected from a shortlist as compiled MSC Peer Review College. Two peer reviewers were selected from the following list:

- Jo Akroyd
- Juan Vilata
- Sophie des Clers
- Steve Kennelly

Jo Akroyd is a fisheries management and marine ecosystem consultant with extensive international and Pacific experience. She has worked at senior levels in both the public and private sector as a fisheries manager and marine policy expert. Jo was with the Ministry of Agriculture and Fisheries in New Zealand for 20 years. Starting as a fisheries scientist, she was promoted to senior chief fisheries scientist, then Fisheries Management Officer, and the Assistant Director, Marine Research. She was awarded a Commemoration Medal in 1990 in recognition of her pioneering work in establishing New Zealand's fisheries quota management system. Among her current contracted activities, she is involved internationally in fishery certification of offshore, inshore and shellfish fisheries as Fisheries Management Specialist and Lead Assessor for the Intertek Fisheries Certification audit team. She has carried out the Marine Stewardship Councils' (MSC) certification assessment for sustainable fisheries. Examples include NZ (hoki, southern blue whiting, albacore, hake, scallops), Fiji (longline albacore) Japan (pole and line tuna, flatfish, snowcrab, scallops), China (scallops), Antarctica (Ross Sea toothfish fishery).

Juan Vilata is a fisheries biologist with an MSc in Marine and Fisheries Science from the University of Aberdeen (UK) and more than 12 years of experience working in fisheries. Currently he works as a fisheries consultant, focusing on analyses of fisheries sustainability, providing scientific guidance for governments, fishery stakeholders, NGOs and market actors. Mr Vilata's specialization is the analysis of fisheries, both data-rich and data deficient. He has reviewed MSC assessment reports for the Argentine hoki (Macruronus magellanicus) fishery, and also other preassessment reports for NGOs. He worked in 2015-16 as the coordinator of World Wildlife Fund's (WWF) Southern Cone Alliance, streamlining the efforts of four WWF national fisheries teams (Argentina, Chile, Peru and Brazil) involved in the initiative. From 2010 to 2012 he worked in a Fishery Improvement Project (FIP) for an artisanal handline fishery for yellowfin tuna (Thunnus albacares) in the Philippines. He also has worked as a tuna fisheries observer in the Atlantic and Indian oceans, as well as a research assistant in various marine conservation projects. He has worked in Senegal, the Philippines, Portugal, Spain, Italy, Chile, Brazil, Peru, Singapore, and Puerto Rico, among other countries.

Dr Sophie des Clers is an independent scientific expert in fisheries management systems. She has over 30 years' experience in the formulation, monitoring, and evaluation of fisheries and aquaculture projects to build management capacity in the public and the private sector. She is trained in databases, applied statistics, population dynamics, microeconomics, law and public policy. Her past research and consultancy projects have taken her to fishing ports around the UK, EU, Norway, Africa and the North Sea, Mediterranean, Atlantic, Pacific and Indian oceans. As a Principle 3 auditor, she has taken part in the MSC assessment and pre-assessment audits of more than 20 different fisheries including for cod, haddock, saithe, sole, herring, blue whiting, sardine, tuna, billfish, lobster and whelks. Having completed the MSC FCR v2.0 training, Sophie is a fully qualified Team Leader.

Professor Steve Kennelly is a fisheries consultant with more than 30 years' experience in obtaining and providing science-based management advice to fishers, managers and ministers. He is the former Chief Scientist of the Australian NSW Department of Primary Industries, Director of Research for NSW Fisheries and has held many other academic and advisory roles. In particular, he has worked extensively on bycatch and discarding issues throughout the world, including running and reviewing

large industry-based observer programs and bycatch reduction projects - he literally "wrote the book" on the subject (Bycatch Reduction in the World's Fisheries, published by Springer in 2007). He has

also supervised hundreds of wild fishery, aquatic ecosystem, agriculture and aquaculture research programs and has worked in many developing countries including Nigeria, Cameroon, Madagascar, Papua New Guinea, Fiji and the Gaza Strip. Currently he has projects running with the United Nations Food and Agriculture Organization, the US National Marine Fisheries Service, Papua New Guinea, the Australian Commonwealth government and several state governments. He is a regular speaker and organizer at international fora and conferences, has published hundreds of scientific papers and reports, sits on the Editorial Boards of the world's two leading fisheries journals, on evaluation panels for Australia's Endeavour Awards and Kazakhstan's National Research Proposals and is a member of the International Scientific Advisory Board for the European Union's large "DiscardLess" program (which informs the new Landings Obligation policy). He holds a BSc (Honours), PhD, and a Doctor of Science Degree from the University of Sydney, and is an Adjunct Professor of Macquarie University.

3 Description of the Fishery

3.1 Unit(s) of Assessment (UoA) and Scope of Certification Sought

3.1.1 UoA and Proposed Unit of Certification (UoC)

CU Pesca confirms that the fishery under assessment is within the scope of the MSC Fisheries Standard (7.4 of the MSC Certification Requirements v2.0):

- The target species is not an amphibian, reptile, bird or mammal;
- The fishery does not use poisons or explosives;
- The fishery is not conducted under a controversial unilateral exemption to an international agreement;
- The client or client group does not include an entity that has been successfully prosecuted for a forced labour violation in the last 2 years;
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery;
- The fishery is not an enhanced fishery as per the MSC FCR 7.4.3; and
- The fishery is not an introduced species-based fishery as per the MSC FCR 7.4.4.

There are no other eligible fishers; the Unit of Assessment (UoA) is therefore the same as the Unit of Certification (UoC).

Table 1. Units of assessment for the Ishihara Marine Products Japanese skipjack pole and line fishery.

Species	UoA 1: Skipjack (*Katsuwonus pelamis*) UoA 2 : Albacore (*Thunnus alalunga*)
Geographical range	Western and Central Pacific Ocean (WCPO), including Japanese EEZ, and Federated States of Micronesia EEZ
Method of capture	Pole and Line
Stock	UoA 1: WCPO skipjack UoA 2: North Pacific albacore
Management Systems	Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC), Inter-American Tropical Tuna Commission (IATTC), Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF), FSM National Oceanic Resource Management Authority (NORMA)
Client group	Ishihara Marine Products, Co., Ltd. and Eisei Maru Co. ltd.
Other eligible fishers	None

3.1.2 Final UoC(s)

(PCR ONLY)

3.1.3 Total Allowable Catch (TAC) and Catch Data

The fishery is not managed by a TAC. Catch data for skipjack and North Pacific albacore caught by the Eisei Maru 8 are shown in Table 2

Table 3 below.

Table 2. TAC and Catch Data Skipjack

UoA/UoC share of total landings	2015	0.13%
Total landings from the stock	2015	1,831,440 t live weight
Japanese pole and line landing from the stock	2016	61,947 t live weight
Total green weight catch by UoC	2016	1,336 t live weight
	2015	2,357 t live weight
	2014	1,061.0 t live weight
	2013	1,456.8 t live weight

	2012	946.6 t live weight

Table 3. TAC and Catch Data NP Albacore

UoA/UoC share of total landings	2016	0.45%
Total landings from the stock	2016	99,410 t live weight
Japanese pole and line landings from the stock	2016	15,013 t live weight
Total green weight catch by UoC	2016	445.1 t live weight
	2015	207.3 t live weight
	2014	562.6 t live weight
	2013	629.5 t live weight
	2012	647.5 t live weight

3.2 Overview of the fishery

3.2.1 The Client fishery

Ishihara Marine Products, Co., Ltd. was established in Yaizu City, Shizuoka Prefecture in 1964, and has supplied fresh and processed tuna to the market for over half a century. The vessel under assessment is owned by Eisei Maru Co. ltd , which has been in operation since 1994 and currently operates a single pole and line vessel (Table 4**Error! Reference source not found.**). Eisei Maru provides Ishihara Marine Products with pole and line caught albacore and skipjack tuna.

Table 4. The client vessel, Eisei Maru No. 8

Vessel Name	Vessel Registration (FFA VID)	Vessel Type	Overall length (metre)	Gross Tonnage	Home Port
Eisei Maru No. 8	32500	Pole and Line	65.36	499.0	Heda, Numazu City, Shizuoka prefecture Japan

The vessel has a crew of 25-30 people. The main bait species is sardines, which can be kept alive on board for 1-2 months. Fishing trips closer to Japan take around 30 days, for fisheries farther away a trip can take up to 60 days, which is the maximum time per trip, due to the amount of bait and fuel they can take on board. The vessel makes on average 8 trips per year.

Eisei Maru 8 is a member of several cooperatives: the Japan Skipjack and Tuna Fisheries cooperative, and the local cooperative of Heda (Shizuoka). The cooperative of Heda provides the local licenses that are needed to fish in the coastal areas, and also has separate regulations with regards to the

coastal area. Communication with the government (Fisheries Agency) mainly goes through the Japan Skipjack and Tuna Fisheries cooperative, since they organise a lot of meetings with the policy officers, but often individual meetings between the officials and the fishermen are made on the back of association-meetings, to discuss subsidies, or smaller issues.

Eisei Maru is not a member of the Yaizu cooperative, but does land its tuna there quite regularly. The cooperative takes care of the sales and/or bidding process, and will take a commission fee to account for administrative costs.

3.2.2 Gear and operation of the fishery

Fishing is by pole and line using barbless hooks (see Figure 1). Artificial lures are used but hooks are not baited. Once a school of tuna has been found, water will be sprayed to obscure the vessel, and live bait is used to chum the area. Japanese anchovy (*Engraulis japonicus*) and Japanese pilchard (*Sardinops melanostictus*), bought in Japan and carried live in tanks, are used as bait. Of the 25-30 person crew, around 20-25 people carry out the fishing. The others are either chumming the water with bait, working maintenance, or processing the catch. Fishing time depends on the amount of fish available in the school, and can take anywhere from 3 minutes to 2 hours. Fishing takes place typically until the target skipjack or albacore tunas have moved on. They target a marketable size of skipjack (>1.5kg), with the most desirable size 3-4 kg (although skipjack can get to 6kg). If too many smaller fish (<1 kg) are caught, then fishing is stopped as small fish are not economically desirable.

The fish are immediately placed in a tank with chilled brine water, without being sorted. After a day in the brine, the fish are moved to the freezer (-50°C). There is no processing on board.



Figure 1. Artificial lures with barbless hooks (photo taken by CU Pesca on site visit)

3.2.3 Fishing areas and seasons

The fishing seasons depend on many factors, however over the past 5 years the fishery has generally targeted skipjack (*Katsuwonus pelamis*) between November to March in sub-tropical waters, while from May to October each year the vessel targets skipjack and albacore (*Thunnus alalunga*) closer to Japan (Figure 2).

In 2016, the fishery operated in the following areas (during March – April the vessels is in dock for maintenance):

- November – March: targeting skipjack and operates between area of 10°-26° North latitude, East 138°-150° longitude.
- May – October: targeting skipjack and albacore, and operates in area of 31°-41° North latitude, East 138°-151° longitude.

- EEZ of Japan
- EEZ of Federates States of Micronesia

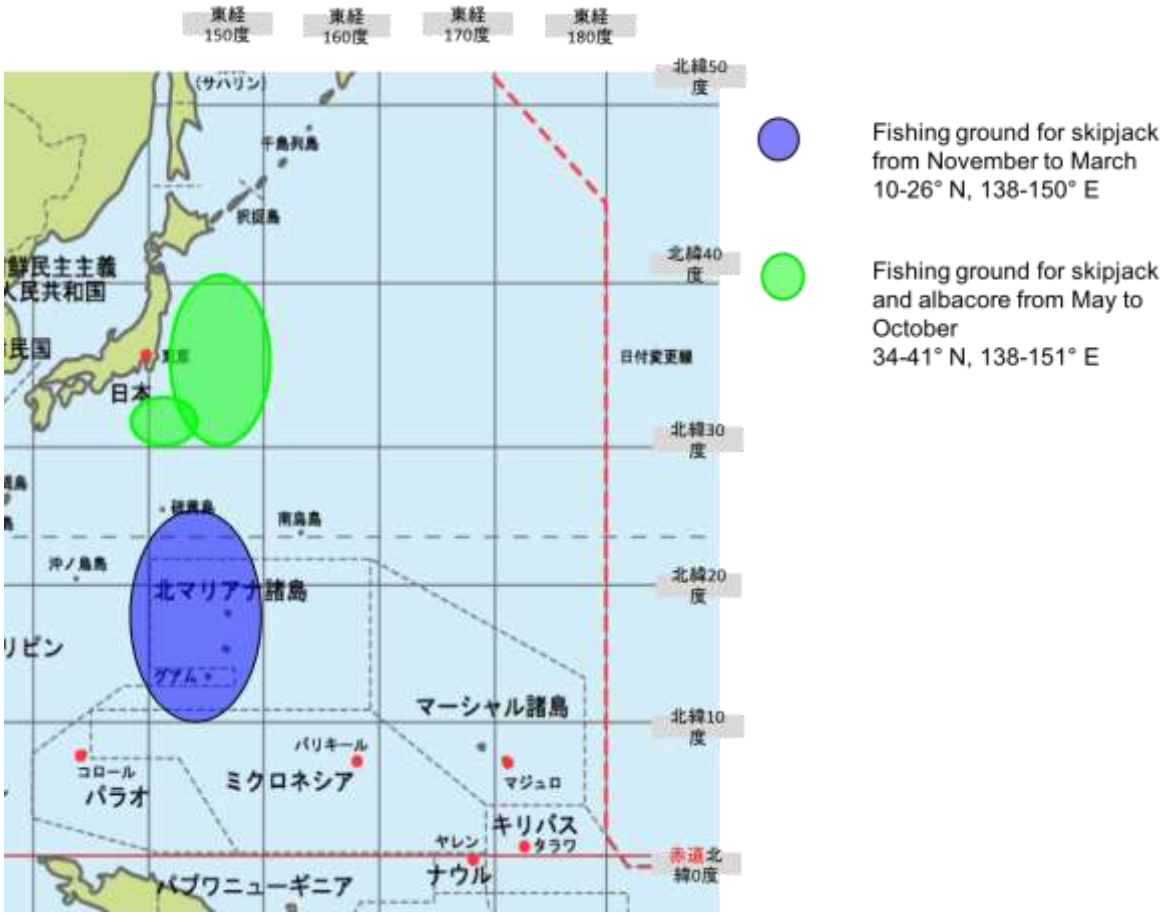


Figure 2. Areas fished by the Eisei Maru (graphic provided by Ishihara).

To choose a fishing area, the fishing master will check conditions including water temperature, plankton distribution, currents and weather patterns. They are also in contact with other fishermen, use radar, and look at the congregation of seabirds to determine where schools of fish occur. The water temperature is one of the most important factors. Once the vessels arrives in an area with the right temperature, the fish sonar is used to pin-point the location of the fish.

In locations with many seabirds, there is usually some driftwood to be found around under which the fish congregates. Seabirds are attracted to the driftwood, since they use it as perches to rest upon, and may hunt for the fish that gathers near the driftwood. The fishery makes use of these naturally occurring Fish Aggregating Devices (FADs), but do not place FADs themselves.

3.3 Principle One: Western and Central Pacific Skipjack

3.3.1 Biology and stock definition

Skipjack is not a key Low Trophic Level (LTL) species according to the definition in FCR Annex SA 2.2.9. The WCPO skipjack stock is not involved in large portions of the trophic connections in the ecosystem; large volumes of the energy does not pass through the stocks between lower and higher trophic levels; and there are many other species at their trophic level through which energy can be transmitted from lower to higher trophic levels. Further to this, it is not one of the species types listed in Box SA1, nor do they feed predominantly on plankton.

Except where otherwise noted, this section is taken from McKechnie et al., 2016 and references therein.

Reproduction and growth: Skipjack are the smallest and fastest-growing of the main commercial tuna species, generally not exceeding 20 kg. The longest period at liberty for a tagged skipjack is approximately 4.5 years. Maturity is reached at *ca*. 40cm (which may be attained after one 1 year, depending on the area). Spawning seems to be related to food supplies rather than a particular season. In the Pacific, it appears that growth varies spatially, being apparently quicker close to the equator than in peripheral areas, although the stock assessment assumes a single Von Bertalanffy (VB) growth curve across all regions. Recent work on skipjack growth in the western Pacific, however, suggests that a growth model which does not a assume an asymptotic size may be a better fit (lack of otoliths from large fish is a problem in evaluating this part of the growth curve), and also that early growth may be slower than thought and hence maturity reached somewhat older (Ochi et al., 2016). The implications of this work for the stock assessment, if any, is for the moment unclear.

Distribution and movement: Skipjack are found in tropical and subtropical waters in all oceans. In the north Pacific, warm currents extend skipjack distribution seasonally to about 40°N off the coast of Japan, but greatest abundance remains in equatorial waters, roughly corresponding to a 20°C surface isotherm. Skipjack movement can be inferred from tagging, and seems to be highly variable; most likely driven by oceanographic conditions and processes. In recent years (since 2012) there appears to have been a change in skipjack distribution and dynamics, most likely due to strong El Niño–Southern Oscillation (ENSO) conditions, which seems to have driven a significant eastwards shift in the centre of biomass towards the eastern equatorial region, resulting in increased catches in Region 3 of the stock assessment, particularly in 2014-15 (see Section 3.3.2).

According to (Aoki et al., 2017), skipjack are likely to spawn in tropical areas, with a proportion of juveniles migrating through subtropical regions to the temperate extremes of the distribution in search of good feeding areas; these young fish (aged 1-2) are critical for Japanese coastal and artisanal fisheries which have noted a decline in catch rates in recent years. Japanese scientists are arguing for a stock assessment model structure which would reflect this pattern of growth and migration in a more spatially-explicit way, in the hope that it could explain observed catch rate time series better. SPC (South Pacific Conference) has been requested to explore this question, and a paper was presented at SC13 (Senina et al., 2017) which uses the ecosystem model SEAPODYN to look at connectivity between different regions. This analysis predicts that reducing fishing pressure in tropical regions would have a limited impact on biomass around Japan, because there is already a high biomass in the core stock area, and the authors propose that environmental conditions are a more likely explanation of localised changes around Japan. Japanese scientists, however, are reportedly still concerned that this issue has not been fully addressed (Dr. Nishida, National Research Institute of Far Seas Fisheries, pers. comm.).

Stock: Skipjack in the WCPO are considered to comprise a single stock for assessment and management purposes. It is likely that skipjack in the far east and far west Pacific have little exchange, but there is likely to be mixing in the central Pacific and there is certainly extensive movement over the nominal WCPO/EPO boundary at 150°W (Figure 3); nevertheless, according to the stock assessment (McKechnie et al, 2016), the tagging data suggest that approximating the stock to the WCPFC Convention Area is a reasonable assumption.

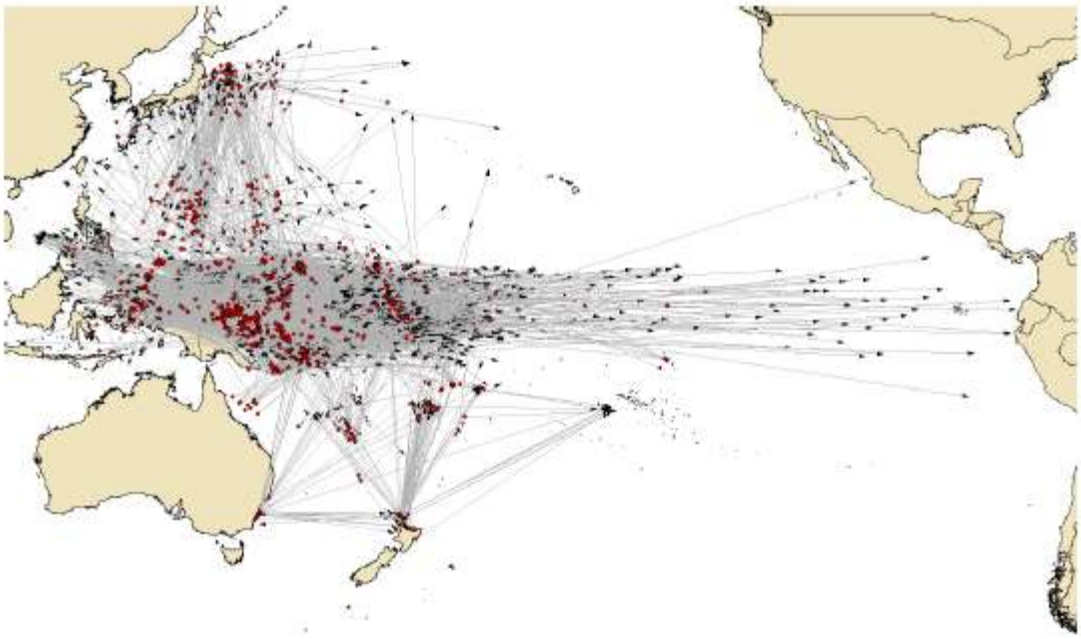


Figure 3. Map of release and recapture points for skipjack tagged in the western Pacific (Figure 2 in McKechnie et al., 2016)

3.3.2 Stock status

SPC conducted a stock assessment of WCPO skipjack in 2016 (McKechnie et al., 2016). The conclusions of the stock assessment (reference case model) are similar to those of the previous assessment (in 2014), and can be summarised as follows:

- Current catches are slightly below the estimated MSY, but approaching this level.
- Biomass is estimated to be approximately at the target reference level (50%$SB_{F=0}$) and well above the limit reference point (20%$SB_{F=0}$) as well as SB_{MSY}.
- F is estimated to be ~half the MSY level.

In terms of the biomass trajectory, the assessment suggests a strong increase in biomass since the end of the time series used in the previous assessment (i.e. since 2012), driven by pulses of recruitment in some regions. This pattern is driven by tagging data, which show lower recapture rates than for previous tagging activities, and hence estimate lower fishing mortality and consequently higher biomass. The biomass is estimated to have peaked in 2014 and declined again in 2015. (The model sensitivity to weighting of tagging data is explored in the sensitivity analyses – see below.) The estimated biomass trajectory for the reference case model is shown in Figure 4; the regional structure of the stock assessment model is also given in Figure 5 (as required to interpret Figure 4).

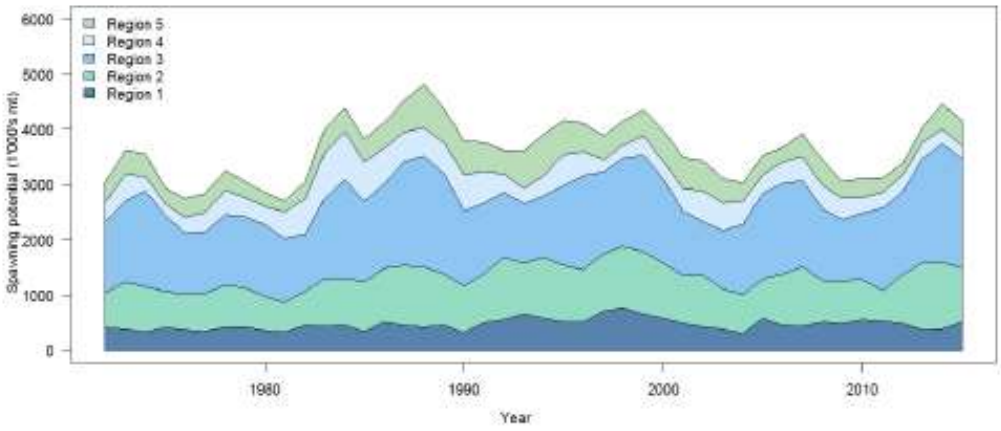


Figure 4. Estimated skipjack spawning biomass from the stock assessment model, by region (regions 1-5, bottom to top). Source: Figure 33 in McKechnie et al., 2016.

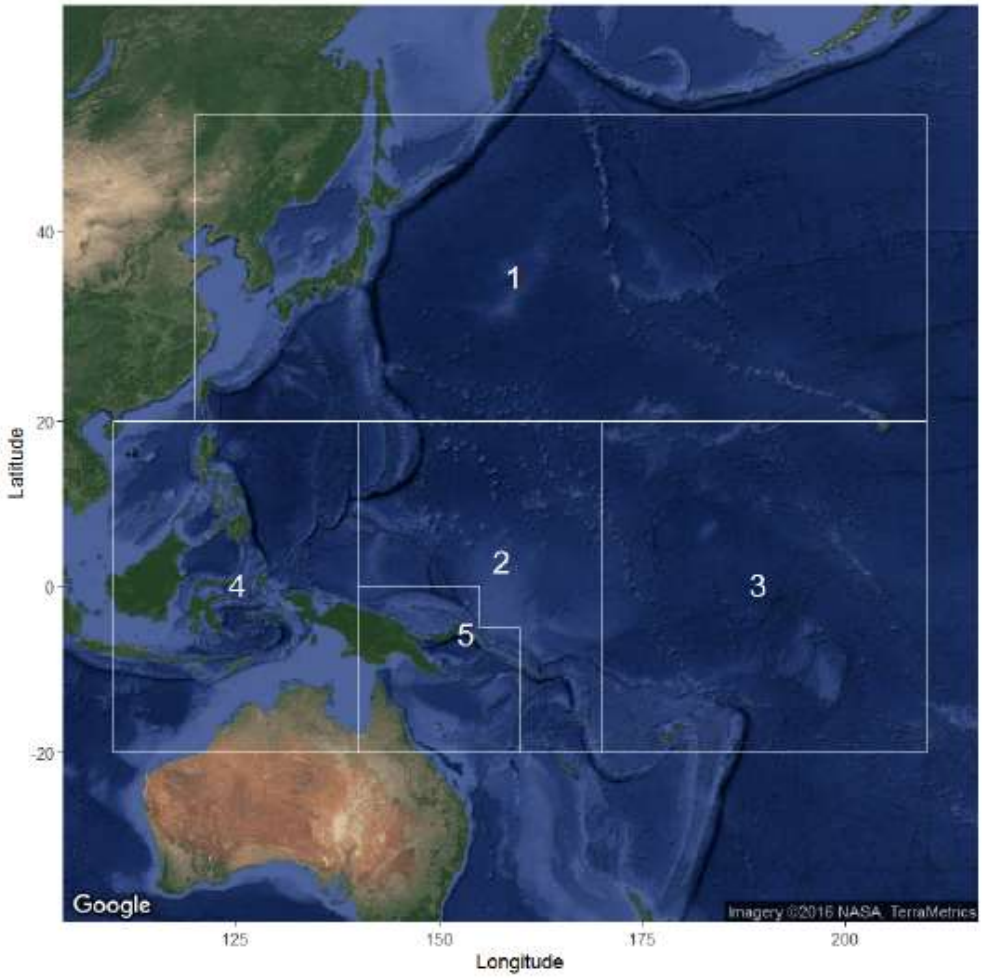


Figure 5. Geographic area covered by the skipjack stock assessment, and regional structure. Source: Figure 1 in McKechnie et al., 2016.

The stock assessment was presented for review to the WCPFC Scientific Committee (SC12) (WCPFC 2016b). The Scientific Committee, however, could not reach consensus about which set of model runs should be used as the basis for management advice. The majority view was that the reference case as proposed by the stock assessment team should be used, but not all the CCMs concurred –

Japan had significant concerns about the details of the model as well as the regional structure and felt that the conclusions of the reference case model may be optimistic (although at the site visit, Dr Nishida, the Convenor of the stock assessment session for the Scientific Committee, noted that he does not disagree with the broad-scale conclusions of the assessment; Dr Nishida, National Research Institute of Far Seas Fisheries, pers. comm.). The origin of Japanese concerns about the stock status of skipjack is a pronounced downward trend in catch rates of skipjack in Japanese coastal fisheries over recent years which is not reflected in the conclusions of the stock assessment. They propose that a reduction in biomass in the core tropical areas could have resulted in range contraction, impacting peripheral areas for the stock such as Japan.

In any case, however, the stock assessment considers a variety of scenarios via the sensitivity analyses. The details of the sensitivity analyses are set out in Section 3.3.8 (stock assessment) below, but **Error! Reference source not found.** gives the estimated stock status in relation to reference points, for the reference case model as well as the range of values estimated over all the sensitivity analyses, giving some idea of the confidence in the estimates. In general, the broad conclusions of the assessment are robust to a range of sensitivities, and none of the other models approached the limit reference point or the definitions of 'overfished' and 'overfishing'. The 'Majuro plot' (Figure 6) show the stock trajectory in relation to F_{MSY} and spawner depletion reference point, for the reference case model.

Table 5. Estimated stock status in relation to reference points from the most recent skipjack stock assessment, from the reference case model (median), and the range over the one-off sensitivities and the entire structural uncertainty grid. Recent=2011-2014 and latest=2015; however the authors warn against the use of latest, except for catch, because it is highly dependent on recent recruitment which is known to be variable and poorly estimated. Source: Tables 8 and 9 in (McKechnie et al., 2016).

Ratio	Ref. case model	Range over all one-off sensitivites	Median from structural uncertainty grid	5% CI from structural uncertainty grid	95% CI from structural uncertainty grid
C_{latest}/MSY	0.89	0.81-1.06	0.89	1.04	0.76
F_{recent}/F_{MSY}	0.45	0.40-0.62	0.48	0.38	0.64
$SB_{recent}/SB_{F=0}$	0.52	0.41-0.56	0.49	0.40	0.57
SB_{recent}/SB_{MSY}	2.31	1.80-2.63	2.04	1.58	2.65

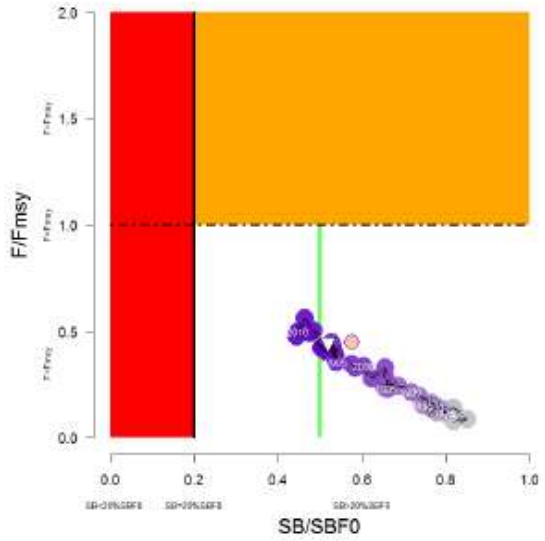


Figure 6. Majuro plot for WCPO skipjack, showing stock trajectory in relation to unfished biomass (x-axis) and fishing mortality (y-axis) with reference point indicated (SB<limit reference point is red area, target is green line, orange area delineates F>F_{MSY}); white triangle = $SB_{recent}/SB_{F=0}$; pink circle = $SB_{latest}/SB_{F=0}$ (McKechnie et al., 2016).

In 2017, SPC did not conduct a stock assessment, but as usual compiled a range of indicators for stocks which were not formally assessed that year, including skipjack (Pilling et al., 2017). This includes projections based on fishing in 2016 and assumptions of either constant catch or constant effort at 2016 level through 2018. These projections give estimates of median F_{2018}/F_{MSY} of 0.37 and median $SB_{2018}/SB_{F=0}$ of 0.47; in other words, the stock is predicted to drop slightly below the target level, but remain well above the MSY level (Figure 7).

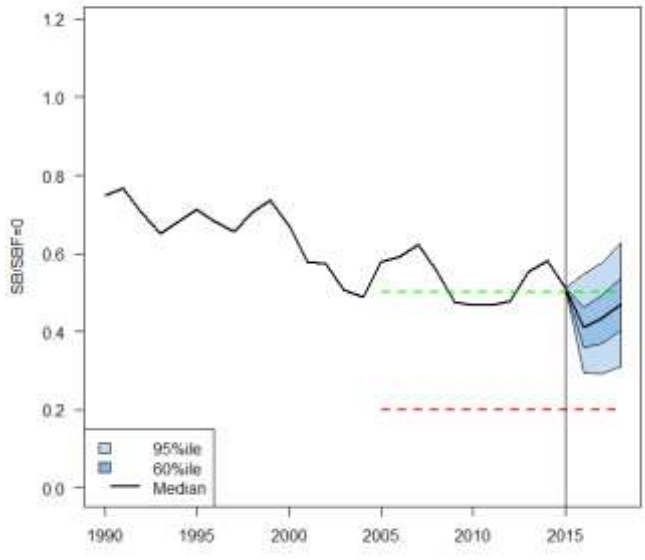


Figure 7. Stochastic projections of skipjack spawning biomass ($SB/SB_{F=0}$) from 2015-2018 using actual catch and effort levels in 2016, with confidence intervals from levels of recruitment variability over the time series (not reflecting the full uncertainty in the projections); red and green lines are target and limit biomass reference points. Source: Figure 8 in Pilling et al., 2017.

3.3.3 Harvest strategy – current situation

The WCPFC harvest strategy sets agreed limit and target reference points for the stock (20% and 50% of the unfished biomass $SB_{F=0}$) (target set in CMM 2015-06, limit agreed by WCPFC11). Management actions to implement the strategy are set out in CMM 2017-01 (the most recent tropical tuna bridging CMM), which is currently in force and runs to February 2021, unless replaced before. This new CMM confirms the Target Reference Point (TRP) as agreed in 2015, although it remains 'interim' until all elements of the harvest strategy are in place.

The objective of the harvest strategy is clearly set out in paragraph 13 of CMM 2017-01:

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.

CMM 2017-01 provides for a series of management measures aimed at constraining effort on tropical tunas (including skipjack), focusing particularly on the purse seine fishery which accounts for *ca.* three quarters of the catch of skipjack (2016; WCPFC Tuna Fishery Yearbook) and has an impact on yellowfin and bigeye disproportionate to its percentage of the catch because it takes mainly juveniles.

Measures for the purse seine fishery are as follows:

- For 2018, a three-month ban on deploying, maintaining or setting on FADs, July-September, including the high seas and EEZs, in the area 20°N-20°S; with some exemptions for Parties to the Nauru Agreement (PNA) vessels operating under the Vessel Day Scheme (VDS; see Section 3.3.5). Also a further two-month ban on FAD setting in the high seas in April-May or November-December; to be decided by the CCM; except for Kiribati and Cook Islands vessels in high seas areas adjacent to their EEZs and Philippines vessels in HSP1 (special measures)
- A maximum of 350 instrumented FADs to be in use, per vessel, at any one time.
- Purse seine catch or effort limits to be set for each relevant EEZ (see Table 6; remaining countries have till the end of 2018 to set limits).
- Non-SIDS (except Philippines) to set high-seas effort limits for their flag vessels for the area 20oN-20oS (see Table 7). The CMM also notes (para. 27): CCMs shall ensure that the effectiveness of these effort limits for the purse seine fishery are not undermined by a transfer of effort in days fished into areas within the Convention Area south of 200S. In order not to undermine the effectiveness of these effort limits, CCMs shall not transfer fishing effort in days fished in the purse seine fishery to areas within the Convention Area north of 200N. (Some exemptions for the US to transfer days between EEZs and the high seas in support of the American Samoa cannery, for 2018 only.)
- Any overshoot of catch or effort limits to be deducted from the following year.

Table 6. Purse seine EEZ effort or catch limits under CMM 2017-01 (Table 1 in CMM 2017-01). Note: PNA and Tokelau manage their effort together through the VDS; the Cook Islands, Fiji, Niue, Samoa, Tonga and Vanuatu are also reportedly developing a joint management arrangement.

Coastal CCM or group of CCMs	Maximum effort in vessel days, or catch limit in tonnes
PNA	44,033
Tokelau	1000
Cook Islands	1,250

Coastal CCM or group of CCMs	Maximum effort in vessel days, or catch limit in tonnes
Fiji	300
Niue	200
Samoa	150
Tonga	250
Vanuatu	200
Australia	30,000 t skipjack, 600 t each of yellowfin and bigeye
French Polynesia	0 (purse seine ban in FP EEZ)
Indonesia	not yet decided
Japan	1500
Korea	not yet decided
New Zealand	40,000 t skipjack
New Caledonia	20,000 t skipjack
Philippines	not yet decided
Taiwan	not yet decided
USA	558
Wallis and Futuna	not yet decided

Table 7. High seas purse seine effort limits for distant water fishing nations under CMM 2017-01 (Table 2 in CMM 2017-01)

CCM	purse seine effort limit (days)
China	26
EU	403
Japan	121
New Zealand	160
Korea	207
Taiwan	95
USA	1270

Other measures in CMM 2017-01 are as follows:

- Interim bigeye catch limits for 2018 for distant water fishing nations, with other longline fleets limited to 2000 t of bigeye.
- Capacity of freezer purse seiners >24m operating between 20°N and 20°S is limited to levels set out in 2013-01 (and subsequent iterations), except SIDS and Indonesia; likewise freezer longliners and freshfish longliners targeting bigeye (with additional exemption for countries with a domestic quota system).
- Any replacement of purse seine vessels should not increase overall capacity.
- Other fisheries (i.e. not purse seine or longline) are limited to the catch level of 2004 or the average catch 2001-4, except for those taking <2000 t who may take up to this level.

3.3.4 Harvest strategy – progress towards a formal harvest strategy

CMM 2014-06 commits WCPFC to putting in place a formal harvest strategy for its key stocks (WCPO skipjack, yellowfin and bigeye, and South Pacific albacore), with an associated workplan, although the workplan has been revised twice (at WCPFC13 and WCPFC14).

The current workplan (agreed at WCPFC14; (WCPFC, 2017b); Attachment L) has no specific targets for the skipjack harvest strategy for 2018 or 2019: SC to provide advice on candidate Harvest Control Rules (HCRs), Technical and Compliance Committee (TCC) to consider implications of candidate HCRs, Commission to consider advice on candidate HCRs. However, it commits WCPFC to adopting a formal HCR for skipjack in 2020, with a harvest strategy in place from 2021. The interim target reference point is also due for review not later than 2019; presumably this will form part of the consideration of candidate HCRs.

According to CMM 2017-01 (paragraph 28), the Commission intends to implement the harvest strategy in part via hard catch or effort limits in the high seas Convention Area, with a framework for their allocation among CCMs.

3.3.5 Harvest strategy – PNA VDS

The PNA purse seine vessel day scheme, although it does not cover all of the stock, is important because more than half the total catch is taken in PNA waters. The VDS restricts effort in the purse seine fishery by allocating a total pool of effort in terms of 'vessel days' in the PNA zones.

The objective of the purse seine VDS (from a stock management perspective) is to constrain purse seine effort to 2010 levels in the EEZs of PNA member countries (plus Tokelau); following the requirements of CMM 2016-01 and its previous iterations. The total number of days for 2017-18 under the VDS is 45,590, and for 2019-20 provisionally 45,005 across all the EEZs[1]. The number of days is calculated as follows: 44,033 days are taken as baseline (2010) effort for PNA countries (from SPC); a percentage multiplier is added based on how the days are sold across different vessel length classes (the details of this is a little unclear; for 2017-18 this increases the number of days by 1.3% relative to the baseline, for 2019-20 it is set to zero); the same calculation is carried out separately for Tokelau based on a baseline of 1000 days – these are summed together to give a Total Allowable Effort (TAE) as set out above (PNA, 2016). Note that the length adjustment factor is not aimed at addressing purse seine effort creep, as is made clear by PNA.

This TAE is allocated between PNA members based on a pre-agreed key, but can be traded if necessary. Fishing companies apply at the beginning of the year for the number of days they think they will require from each country, and pay accordingly. They may also buy more days during the year as required, as long as they remain available (so far, days have reportedly not been limiting).

[1] FSM, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands, Tuvalu, Tokelau

Determining the TAE (days)					
	TAE 2016	TAE 2017	Provisional TAE 2018	Proposed Revised TAE 2018	Provisional TAE for 2019 & 2020
Estimated 2010 Logsheet effort	44,033	44,033	44,033	44,033	44,033
Length Adjustment factor	1.95%	1.30%	1.30%	0.0%	0.0%
PNA TAE	***44,890***	***44,605***	***44,605***	***44,033***	***44,033***
Tokelau TAE	*991*	*985*	*985*	*972*	*972*
Total VDS TAE (PNA + Tokelau)	***45,881***	***45,590***	***45,590***	***45,005***	***45,005***

Figure 8. Determining the TAE (in days). Source: PNA, 2016

3.3.6 Harvest strategy – Japan

The provisions of CMM 2017-01 paragraph 51 ('other commercial fisheries') apply to the Japanese pole and line fishery; i.e. that total catch must be limited to a maximum of the level in 2004 or the average of 2001-4. The relevant figures are given in Table 8; this is easily being achieved by the Japanese pole and line fleet.

Other than that, any Japanese management provisions are not particularly relevant to the management of the skipjack stock as a whole, because Japanese-flagged vessels only take about 11% of the total skipjack catch in the WCPFC Convention Area (2014-16 figures taken from WCPFC Tuna Fishery Yearbook[2]). More information on Japanese management is given in section 3.4.5.

Table 8. Landings of skipjack by Japanese flagged pole and line vessels (from WCPFC Tuna Fishery Yearbook)

Year	Japanese pole and line skipjack landings (t)
2016	70,198
2015	71,403
2014	67,227
2004	108,100
average 2001-4	108,500

3.3.7 Information

3.3.7.1 Data from this fishery

The fishery completes logbooks and a catch report (end of trip catch and effort summary) which is provided to the Fisheries Agency (FA). The FA control, enter and archive the data, and it is provided

[2] https://wcpfc.int/statistical-bulletins

by them to the National Research Institute of Far Seas Fisheries (NRIFSF) as well as to WCPFC and SPC.

The stock assessment for skipjack (McKechnie, Hampton, et al. 2016) is dependent on the Japanese pole and line fishery Catch per Unit Effort (CPUE) to provide an abundance index, since it is difficult to generate a robust abundance index from purse seine catch and effort (although this has recently been tried; see section 3.3.7.2). This poses a difficulty for the stock assessment in as much as the share of the catch taken by pole and line has diminished markedly over the years (although it is more of a problem in the EPO where there is very little pole and line fishing).

Japanese pole and line CPUE is standardised as explained in Kiyofuji (2016), and quite detailed information about the fishery is used based on operational (logbook) data, including date and position of catch, as well as the number of poles, vessel size (GT) and the use of technology (bait tank, NOAA satellite image receiver, bird radar, sonar).

Size-frequency data as well as otoliths are systematically collected from the Japanese pole and line fishery at Yaizu and two other ports by the prefecture scientists; this is provided to NRIFSF and is used in the stock assessment.

3.3.7.2 Information available for the stock assessment

The data available for the skipjack stock assessment (McKechnie et al., 2016) are summarised in Figure 9**Figure 9**. CMM 2017-01 includes a requirement (paragraph 54) for CCMs to cooperate in providing operational-level data for stock assessments if requested by SPC, on top of the requirement to provide aggregate data to WCPFC which already exist.

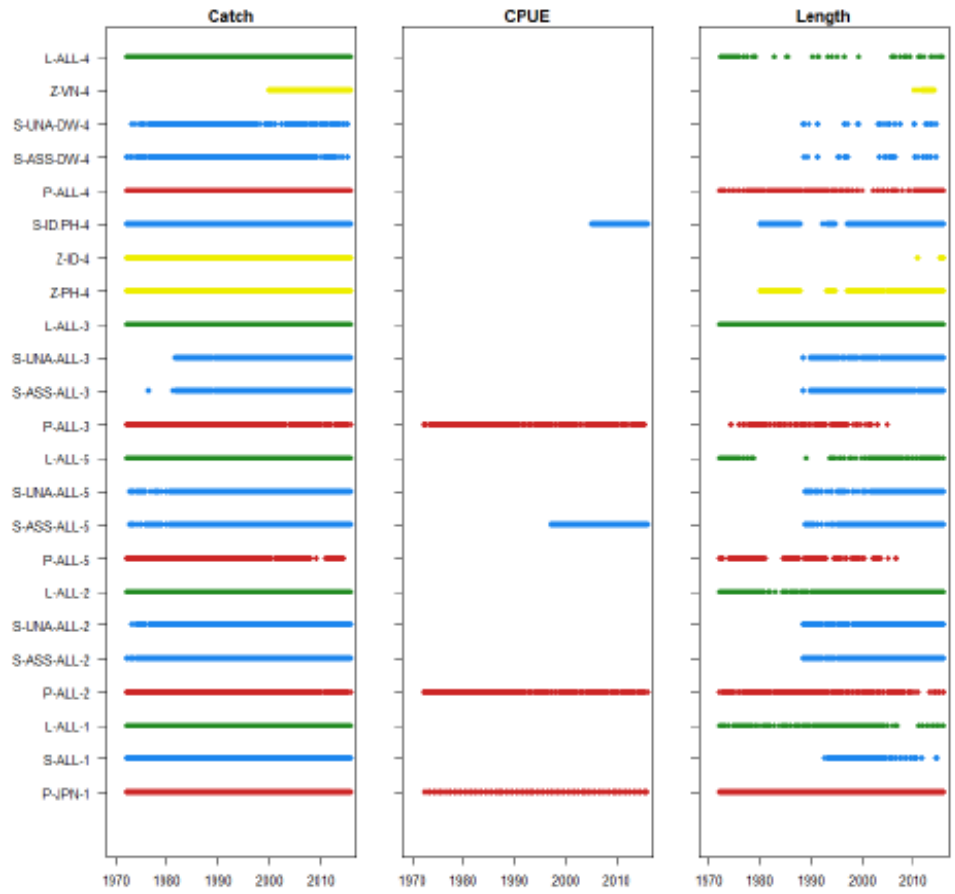


Figure 9. Catch, standardised CPUE and length-frequency data available for the skipjack stock assessment, by year (x-axis) and fishery (y-axis; see explanation below); red = pole and line, blue = purse seine, green = longline and yellow = misc. (Figure 3 in McKechnie et al., 2016). This fishery is P-JPN-1 at the bottom.

In terms of the information available for other inputs to the stock assessment, this is summarised as follows (taken from (McKechnie et al., 2016) except where otherwise indicated):

Catch: Reported by weight for all fisheries; discards are assumed negligible. Purse seine catch (*ca.* 90%) is analysed by location, date and set type (free, FAD, natural log, whale, dolphin, whale shark). The species composition is corrected for grab sample bias, which tends to over-estimate the proportion of skipjack at the expense of yellowfin and bigeye (method given in Hampton & Williams (2011); this is, however, not done for the Japanese fleet where there is sufficient confidence in the sampling that the reported species proportions are used directly rather than re-estimated.

Effort: Pole and line effort is measured in fishing days, and the input information for standardising pole and line effort and CPUE is described above. Purse seine effort is measured in days fishing and days searching, broken broken down by set type according to the proportion of fishing on each set type (i.e. free school, FAD etc.). SPC express some concern that recent reporting has moved in some fleets towards reporting days as 'transit' rather than search days; effectively resulting in 'effort creep'. This is not dealt with directly in the stock assessment model, but catchability is allowed to vary over time, which should deal with changes in reporting as well as technology and so on.

Abundance index: As noted above, the standardised Japanese pole and line CPUE is the key abundance index. It is used for regions 1-3 (see map in Figure 5 above), but since effort is not sufficient in regions 4-5, purse seine standardised CPUE was used for the first time in 2016, based on operational data from the PNG fishery (Tremblay-Boyer et al. 2016). Again, the Japanese scientists

met at the site visit expressed some scepticism about the appropriateness of this approach; it was tried in the past by IATTC for the EPO skipjack stock but abandoned in favour of an indicator-based approach (Maunder 2017).

Size data: Size data (length- or weight-frequency in the catch) are available from a wide range of fisheries (Figure 9). Samples are weighted by catch size to ensure that samples from very small catches are not given disproportionate weight. Purse seine length-frequency is only used where grab-sample bias can be corrected. The 2016 assessment has been able to use a long time series of data from the cannery in Pago Pago for the first time. Although longline fisheries do not play a big role in relation to skipjack, there is a small longline catch of skipjack, and Japanese scientists have been systematically collecting size-frequency data from this component of the catch; this is useful to include in the assessment because it represents larger fish than are usually found in either the purse seine or the pole and line catch (in the range 50-90 cm). The length-frequency data from the pole and line fishery (see above) is also used.

Tagging data: Tagging data for skipjack are available from a series of regional tagging projects (Skipjack Survey and Assessment Project: 1977-80; Regional Tuna Tagging Project: 1989-92; Pacific Tuna Tagging Programme: 2006-2014) as well as a long time series of Japanese tagging cruises (1998-2015). As described above (Section 3.3.1) Japanese research on skipjack age, growth and mortality, including tagging is ongoing. Japanese tagging has previously focussed on the smaller individuals that migrate into Japanese waters (ages 1-2); however they have started recently tagging larger individuals in the tropics, as part of their ongoing work to evaluate the causes of the apparent decline in abundance of skipjack around Japan. SPC (McKechnie et al., 2016) note that a priority from their point of view in relation to these data would be to improve the storage and analysis of these data, to make them easier to use.

Other fisheries: There has been gradual improvement in the data from Indonesia and the Philippines over the last decade or so; since the last assessment, catch data from Vietnam has also been available.

3.3.8 Stock assessment

The most recent stock assessment for WCPO skipjack, from 2016, is described in McKechnie et al. (2016), from which the summary here is taken.

Model general description: The assessment uses data from 1972 to 2015, in quarterly timesteps (16 quarterly age classes including a plus group). The model uses data to the end of 2015 (i.e. the year previous to the year during which the assessment was conducted). This is unusual for SPC assessments, which usually omit data from the most recent calendar year because it is preliminary and subject to revision. However, given the short generation time of skipjack it was considered important to include as much information as possible about recent dynamics. In any case, the biggest time lag in data reporting tends to come from longline fisheries, which are not very significant for skipjack.

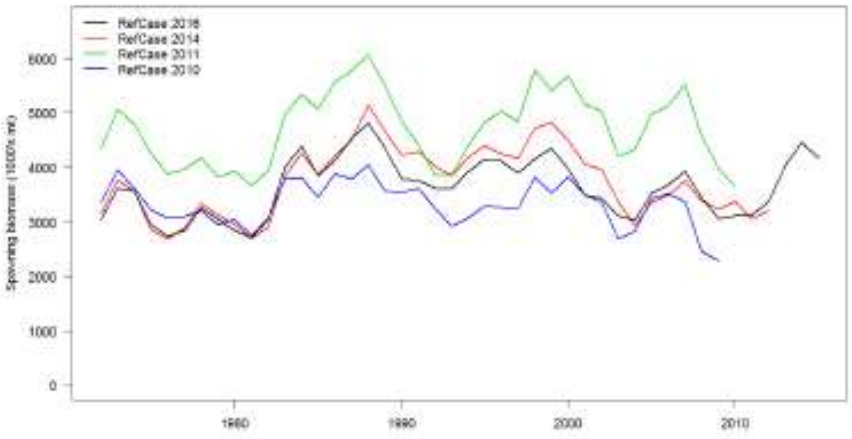
As with the assessments for all the main WCPFC stocks, the assessment model is run in Multifan-CL (MFCL), which provides a Bayesian framework. MFCL requires that 'fisheries' are defined with as near as possible constant selectivity and catchability. Purse seine data was amalagamated across flags but stratified by region and set type (unassociated, log, FAD, whale, dolphin, unknown); pole and line fisheries were likewise grouped by region; there were some 'miscellaneous' fisheries (gillnets, ringnets, handlines) in the western equatorial area, from which only catch data were used; and a 'longline' fishery was created to include research and observer length-frequency data. In total, there were 23 'fisheries'. Several changes were made to the definition of fisheries from the 2014

assessment (although the overall number remains the same); the 'longline' fisheries include additional data from outside Japan, the area of the Indonesia/Philippines purse seine fishery was extended and the Region 2 pole and line fishery incorporated non-Japanese data.

The overall fit of the reference case model is reported by the authors to be satisfactory. The main divergence is Regions 2-4 since 2012, where the model predicts a larger than observed increase in CPUE. The fit of size composition data is reasonable and the fit of tagging data is good.

Model uncertainty: Uncertainty in the model is estimated by a range of methods. There are two types of uncertainty considered: uncertainty within a given model and structural uncertainty in the assessment (i.e. across a range of model options). The former is considered by estimating CIs for parameters of interest (biomass, recruitment) within the reference case model. For the latter, SPC in recent years have generated a grid of models to explore the interactions among selected axes of uncertainty. The grid contains all combinations of two or more parameter settings or assumptions for each selected uncertainty axis. The axes are generally selected from the one-off sensitivities with the aim of providing an approximate understanding of variability in model estimates due to assumptions in model structure, not accounted for by statistical uncertainty estimated in a single model run, or over a set of one-off sensitivities. The structural uncertainty grid for the 2016 assessment was constructed from 5 axes: steepness (3 settings), size data weighting (3), tag mixing (2) and tag overdispersion (3), resulting in a grid of 54 models.

Another method of evaluating uncertainty is via retrospective analyses, which are used specifically to evaluate the the influence of terminal recruitment estimates on a model outcome. This issue is also considered in the sensitivity analyses – see below in this section. The retrospective analysis shows that the addition of more recent data has tended to give a slightly more optimistic impression of stock status throughout the time series, but the difference is relatively minor. An alternative means of retrospective analysis is to compare the outputs from one stock assessment to the next; here bigger differences would be expected because structural changes are made to the model at each assessment as well as adding additional data. Figure 10 shows the estimated trajectory of spawner biomass (SB) and fisheries depletion across the last four stock assessments; the trajectory of SB is quite variable in terms of absolute estimates of biomass if less so in terms of the pattern. The trajectory of fisheries depletion is, however, much less variable, presumably because the absolute estimates of reference fluctuates alongside the absolute estimates of biomass and recruitment.



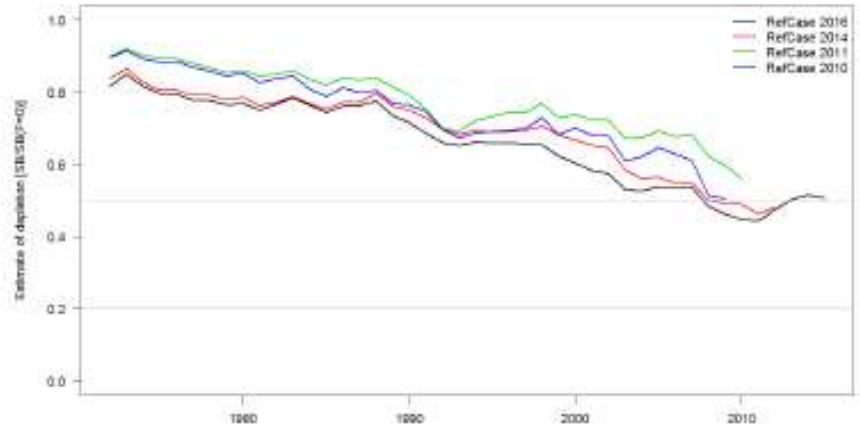


Figure 10. Trajectories of spawner biomass (top) and fisheries depletion ($SB/SB_{F=0}$; bottom) across the last four skipjack stock assessments: blue=2010, green=2011, red=2014, black=2016 (current). Taken from Figure 59 in McKechnie et al. (2016)

Age and spatial structure: The spatial area covered by the model is the WCPFC Convention Area, excluding the IATTC overlap area (east of 150°W) and from 50°N to 20°S (catches below 20°S are excluded by they are reported to be minor). The model is stratified into 5 regions as shown in Figure 5 above. The regional structure used in the stock assessment model has been adjusted over time; the 2005 assessment used 6 regions, the 2011 assessment three regions and the current structure has been used since 2014, based on an analysis of tagging data. Japanese scientists are concerned, however, that it still does not allow for a realistic representation of skipjack movement in the north Pacific, and notably does not fully take account of north-south movements (i.e. between Region 1 and the other equatorial regions). Based on tagging and larval data, Kiyofuji & Ochi (2016) propose an alternative structure of seven regions, with the region boundaries significantly redrawn. There is no way of knowing what impact this this would have on the stock assessment.

Growth and maturity: The model assumes a VB growth model, fit based on otolith data. Ochi et al. (2016) considered a suite of alternative models fit to Japanese otolith and tagging data, and note potential uncertainties around L_{inf} as well as the juvenile (pre-maturity) growth rate. The stock assessment considered some alternative growth functions as part of the sensitivity runs (see below). Sexual maturity was assumed to start at age 3 and not to vary over time, by region or by sex. (Unlike for yellowfin and bigeye, there is no evidence in skipjack for variable sex ratios with size.)

Stock-recruit relationship: The reference case model assumes a Beverton-Holt stock-recruit relationship (SRR) with h=0.8; h=0.65 and 0.95 tested as sensitivities (standard practice across all SPC tuna assessments). The SRR is assumed to be weak (i.e. weak penalty for model deviation from the SR curve).

Recruitment: Recruits are defined as age 1 fish (~10cm, although they can grow to 40cm in the first year, depending on the are) and is assumed to occur instantaneously at the start of each quarter. Initial recruitment is defined according to the oceanographic analysis in Lehodey (2001), and then estimated within the model by region. The variance of the prior on deviations from the stock-recruit relationship was set such that in aggregate, recruitments of about three times average and one third average would occur about once every 25 years on average; the basis for this is not explained but it is presumably a pragmatic decision. Terminal recruitment was set at the mean of the model period (to avoid model instability); this was considered as part of the sensitivities.

Natural mortality: M was assumed to vary by age but not by region or over time. The M vector for the reference case model estimates that M increases to a maximum at ~age 2-3 before declining to a minimum at age 5 and subsequently increasing again; some alternative assumptions are considered as part of the sensitivities.

Selectivity: Modelled using a variety of functions and methods (cubic spline smoothing, logistic function), depending on the fishery. Fisheries can 'share' selectivity if their characteristics are similar, to reduce the number of model parameters.

Catchability: Constant catchability is assumed for fisheries where there is standardised CPUE (i.e. the model assumes that standardised CPUE is an index of abundance); otherwise catchability is allowed to vary over time (every 2 years); this deals for example with the issue of purse seine effort creep noted in Section 3.3.7 above.

Tag dynamics: Tag reporting rates were estimated outside the model by fishery and by tagging programme. Tag mixing is assumed to be complete one quarter after release in the reference case model.

Model runs: SPC start with the previous stock assessment reference case model (2014) and introduce updates and changes one by one, so that their impact on the stock assessment outcome can be evaluated. For the 2016 assessment, the progress of these changes was as follows: 2014 reference case model → add new MFCL executable → new tagging file (McKechnie et al., 2016) truncated to tagging period used in 2014 → all data inputs updated to end 2015 → reduced effort deviation penalties on fisheries without standardised CPUE (to reduce their influence on population trends) → addition of new fisheries as described above in this section → terminal recruitment (last two quarters) set at arithmetic rather than geographic mean, and with new tag reporting rate penalties[3] → some changes to which fisheries are grouped together for selectivity → SRR estimated assuming that annual rather than quarterly recruitment is related to SB (2016 reference case model).

Sensitivities: The assessment process involved several hundred sensitivity runs, but the authors present a subset of one-off changes to the reference case model which are considered to represent the 'bounds of plausible model sensitivity'. A subset of these sensitivites were used to construct the model uncertainty grid. The key sensitivites are set out in Table 9. Of these, steepness, length composition weighting, tag mixing and tag data weighting were used to construct the structural uncertainty grid (54 models in total).

Table 9. Key sensitivity runs selected to represent the range of uncertainties in the skipjack stock assessment (McKechnie et al., 2016)

Sensitivity	Description	Tested values (reference case model in bold)	Consequence for model outcome
steepness (h)	parameter defining shape of SR curve (proportion of full recruitment at 20%SB_0)	0.65, 0.8, 0.95	0.65 more pessimistic, 0.95 more optimistic, particularly for yield-based reference points (i.e. MSY); depletion reference points are less sensitive to h

[3] These two changes were made at once because the consequence of the second in terms of model output had already been established to be negligible.

Sensitivity	Description	Tested values (reference case model in bold)	Consequence for model outcome
length composition data weighting	Testing the impact of different assumptions about effective sample size for the size-frequency data	effective sample size 100, 50, 20	upweighted more pessimistic and downweighted more optimistic for MSY reference points; similar for depletion reference points
growth function	size/age curve	VB with fixed parameters as 2014, VB with estimated parameters but fixed parameter variance, VB with all parameters estimated, growth function from Tanabe et al. (2003)[4]	similar for all models
tag overdispersion	Variance of tag-recapture probability distribution; to test the effect of downweighing the tagging data to account for various kinds of process error in tagging	fixed variance as 2014, estimated in model, fixed half-way between the 2014 and estimated	both sensitivities more pessimistic than reference case model for all reference points
age / movement	seasonal movement between regions	estimated by age using tagging data, fixed across age classes	similar for all models
SRR timeframe	timeframe over which recruitment is related to spawner biomass	quarterly, annual	model dynamics and depletion reference points very similar, but more pessimistic relative to MSY reference points
terminal recruitment	recruiment in last few quarters	last two quarters set at arithmetic mean of time series, last four quarters set at arithmetic mean of time series, all freely estimated	similar for all models
tag mixing period	time taken for tag fish to mix randomly into the population	one quarter, two quarters	similar for all models

Interpretation: The model is interpreted by using it to estimate stock status relative to reference points. MSY reference points are estimated using yield analysis. The time series of fishery depletion ($SB_t/SB_{F=0,t}$) is produced by running the model with fishing mortality 'turned off' for each fishery and region. Recruitment is also adjusted to allow for the reduction in recruitment according to the reduction in spawner biomass in the fished scenario, based on the SRR. This method is also used to estimate the formal reference points (20% and 50%$SB_{F=0}$), noting that these are averages over the time period 2005-2014.

[4] model unstable; not used

3.4 Principle One: North Pacific Albacore

3.4.1 Biology and stock definition

Albacore is not a key Low Trophic Level (LTL) species according to the definition in FCR Annex SA 2.2.9. The WCPO Albacore stock is not involved in large portions of the trophic connections in the ecosystem; large volumes of the energy does not pass through the stocks between lower and higher trophic levels; and there are many other species at their trophic level through which energy can be transmitted from lower to higher trophic levels. Further to this, it is not one of the species types listed in Box SA1, nor do they feed predominantly on plankton.

The information in this section is summarised from the Albacore Working Group (ISC, 2017b) and references therein, except where otherwise indicated.

Reproduction and growth: Growth in the first year of life is uncertain because year 1 fish are rarely taken in fisheries in the North Pacific Ocean; they recruit to surface fisheries at age 2, from when growth information is available. Size at maturity for albacore varies from 83 cm FL in the western Pacific to 93 cm north of Hawaii. After maturity, males appear to grow faster and have lower mortality than females (estimated maximum size / age for males: 114 cm / 14 years vs. for females: 104 cm / 10 years); the stock assessment uses sex-specific age and growth functions. Spawning occurs in tropical and sub-tropical waters and is thought to peak in March-April in the western Pacific, although it extends over a longer period (March-September).

Distribution and movement: North Pacific (NP) albacore are highly migratory, with movements thought to be influenced by oceanographic conditions. There is some evidence of migration of juveniles across the Pacific from west to east, particularly tracking meanders in the Kuroshio current; there also may be seasonal movements back and forth. Older juveniles and adults then move gradually southwards to spawn in lower latitudes.

Stock: Pacific Ocean albacore is divided into a northern and a southern stock, supported by low catch rates of albacore close to the equator, as well as tagging and genetic data. Since there is evidence of widespread east-west migration, the eastern and western Pacific are not separated into distinct stocks, unlike for the tropical species. This means that the NP albacore stock occurs in both the WCPFC and the IATTC Convention areas.

3.4.2 Stock status

Stock assessments for NP albacore are carried out by ISC; the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. ISC is the science service provider for the Northern Committee, but NP albacore is not officially designated as a northern stock. Nevertheless, ISC and the Northern Committee have *de facto* taken it on. In 2012-13 there was a request to formalise this situation, but it was not supported by the Scientific Committee of WCPFC. Unlike SPC, ISC does not have its own office or infrastructure, and works by convening working groups of scientists from member countries to address different issues.

The ISC Albacore Working Group conducted a stock assessment of NP albacore in 2017 (ISC, 2017b). The conclusions of the stock assessment in terms of current stock status can be summarised as follows:

- SB (measured as female spawner biomass) has fluctuated without trend since ~2000 and is estimated to be higher than the LRP agreed by WCPFC (20%$SB_{F=0}$) (although note that this is evaluated from the terminal year of the model, not the average of the last 10 years as

specified by WCPFC). The point estimate of SB was above the LRP for all the sensitivities examined, although the risk of SB<LRP varied.

- The model estimates 1-SPR ('fishing intensity') as a proxy for F. Fishing intensity is estimated to be below the level which would result in SB_{MSY}. A range of alternative proxies for F_{MSY} were evaluated ($F_{0.1}$, $F_{10\%}$-$F_{50\%}$, all expressed as fishing intensity) and F was estimated to be below them all except $F_{50\%}$ (the fishing intensity resulting in spawner-per-recruit at 50% of the unfished level; biomass ~50%SB_0).

Table 10 gives various ratio values for the base case model and the two key sensitivities; the stock assessment report does not provide figures (median and CIs) for a structural uncertainty grid including all sensitivities. The sensitivities and their impact on the assessment conclusions are described in Section 3.4.7 (stock assessment) below, but it is important to note that the change in assumptions regarding natural mortality (M) from the previous assessment has had a significant impact on the assessment conclusions, making this assessment significantly more optimistic than the previous one (sensitivity M=0.3/yr as given in Table 10 is the setting for M used previously). Another important point is that SSB_{MSY} is estimated to be ~14%SSB_0 or ~15%$SSB_{2015,F=0}$, i.e. lower than the LRP.

Table 10. Point estimates of various ratios as estimated by the most recent NP albacore stock assessment; base case model and the two key sensitivities. Note that F is 1-SPR – fishing intensity rather than instantaneous fishing mortality. Taken from Tables 5.3 and 5.4 in ISC (2017b).

Ratio	Base case	M=0.3 /yr	Growth (CV on Linf)
SSB_{2015}/SSB_0	0.47	0.25	0.41
SSB_{2015}/LRP	2.47	1.31	2.15
SSB_{2015}/SSB_{MSY}	3.25	1.62	2.85
SSB_{MSY}/LRP	0.76	0.81	0.75
$F_{2012\text{-}14}/F_{MSY}$	0.61	0.89	0.68
$F_{2012\text{-}14}/F_{0.1}$	0.58	0.90	0.65
$F_{2012\text{-}14}/F_{30\%}$	0.72	1.04	0.81
$F_{2012\text{-}14}/F_{40\%}$	0.85	1.21	0.96
$F_{2012\text{-}14}/F_{50\%}$	1.01	1.47	1.16

Figure 11 gives Kobe plots showing i) the trajectory of SSB and F (i.e. 1-SPR) over the duration of the time series (1993-2015) for the base case model and ii) the final (2015) point estimate for the base case and the two key sensitivities as per Table 10. For 2015, the lower 5% CI for SSB is below the LRP in all cases, mainly because uncertainty around the estimate is high. The trajectory shows that there has likely not been a great deal of change in the stock biomass over the course of the fishery.

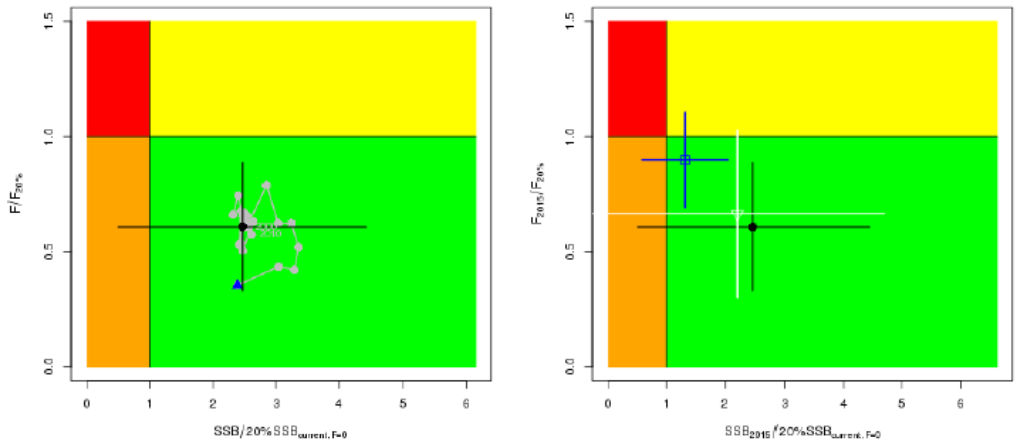


Figure 11. Kobe plots showing the status of NP albacore relative to the LRP (x-axis), and equivalent fishing intensity ($F_{20\%}$; i.e. 1-$SPR_{20\%}$) (y-axis). Left: Trajectory over time series (1993-2015) for the base case model; blue triangle=start year, black circle with 5% and 95% CIs= 2015. Right: 2015 point estimate and CIs for the base case model (black), M = 0.3 /yr (blue), CV = 0.06 for Linf (white). Source: Figure 5.15 in ISC (2017b).

The stock assessment analysis also provides some 10-year projections (2015-2025) based on the base case model. These assume the *status quo* based either on constant fishing intensity or on constant catch. Because of low recruitment estimated for 2011, which recruits to the SB in 2015 (Year 1 of the projections) the biomass is estimated to decline over the projection period. Hence constant F projections result in reduced catch over the projection period, but a low (<0.1%) probability of the biomass declining below the LRP. Constant catch projections, however, result in increased F and reduced biomass, with a non-negligible risk (~30%) of the biomass dropping below the LRP by 2025 in this case (Figure 12).

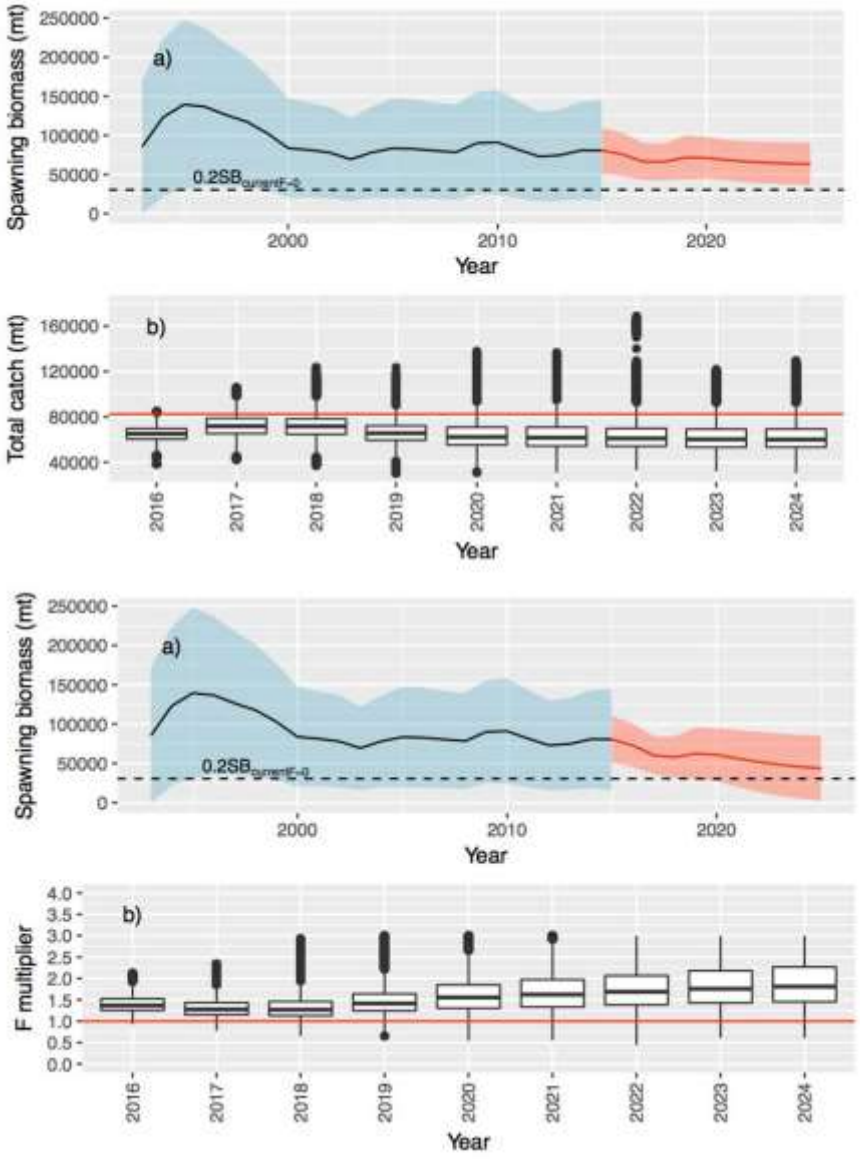


Figure 12. Results of 10-year projections from the base case model: Top: constant F projections; Bottom: Constant catch projections. First and third down: Time series of SB: historical (5% CIs in blue) and projections to 2025 (5% CIs from base case in orange); Second down: box plot of total catch relative to 2012-14 average (red line) at constant F, 2016-2025; Fourth down: box plot of F (1-SPR) relative to 2012-14 average (red line) at constant catch, 2016-2025. Source: Figures ES8 and ES9 in ISC (2017b).

3.4.3 Harvest strategy – current situation

Reference points: NP albacore has an agreed LRP of 20%$SB_{F=0}$, in line with the other stocks managed by WCPFC. The management strategy formerly incorporated a reference point $F_{SSB-ATHL}$ (fishing mortality projected to result in SB falling below the Average of the Ten Historical Lowest), but this appears to have been dropped; the most recent stock assessment makes no mention of it.

In 2017, the WCPFC Northern Committee passed an 'interim harvest strategy' for North Pacific albacore (see WCPFC, 2017a; Attachment H); this was endorsed by the WCPFC plenary (WCPFC, 2017b; paragraph 206). This incorporates the LRP of 20%$SB_{F=0}$. It does not fix a TRP but notes that this should be determined as part of a MSE included under the Committee's future work. (ISC have

held three MSE workshops covering NP albacore; the third in October 2017 as well as one in 2015 and 2016, but the reports from these workshops do not appear to be publically available.)

Management objective and decision rule: The agreed interim harvest strategy incorporates a management objective and a decision rule relating to the LRP, as follows:

- Management objective (para. 1): *The management objective for the North Pacific albacore fishery is to maintain the biomass, with reasonable variability, around its current level in order to allow recent exploitation levels to continue and with a low risk of breaching the limit reference point.*
- Decision rule (para. 3): *In the event that, based on information from ISC, the spawning stock size decreases below the LRP at any time, NC will, at its next regular session or intersessionally if warranted, adopt a reasonable timeline, but no longer than 10 years, for rebuilding the spawning stock to at least the LRP and recommend a CMM that can be expected to achieve such rebuilding within that timeline.*

It is worth noting that the decision rule contradicts the management objective, in that the objective is to maintain the stock at a level which has a low risk of breaching the LRP, while the decision rule does not require any action until the stock has actually breached the LRP. It likewise contradicts a statement in the same section of the Northern Committee report, i.e. '*NC recommends a management strategy for the stock that ensures that the risk of the biomass decreasing below the LRP is low*' (WCPFC, 2017a, p. 50), as well as WCPFC's decision (WCPFC, 2016a) that harvest strategies should ensure that the risk of falling below the LRP is not higher than 20%.

Management measures: Aside from this newly agreed harvest strategy, WCPFC and IATTC still have harmonised management measures in place, which have applied since 2005: i.e. CMM 2005-03 (WCPFC) and Resolution C-05-02 (IATTC) which have the same requirements, which are in summary that fishing effort should not be increased above current levels (current being defined as $F_{2002\text{-}4}$). The most recent meeting of the Northern Committee (NC13) (WCPFC, 2017a) concluded based on the projections (given in Figure 12 above) that no change is required to 2005-02/C-05-02 at this point, since the constant F projections maintain the biomass above the LRP with high probability. The most recent estimate of fishing intensity (F proxy) is roughly at the same level as in 2002-4 (Figure 13) so implementation of 2005-03/C-05-2 means that effort cannot increase and catch needs to decrease from current levels (Figure 12). Nevertheless, the figures suggest that recent catch is significantly lower than the reference period for 2005-03 (2002-4), for pole and line vessels, for Japanese-flagged vessels and in total (Table 11).

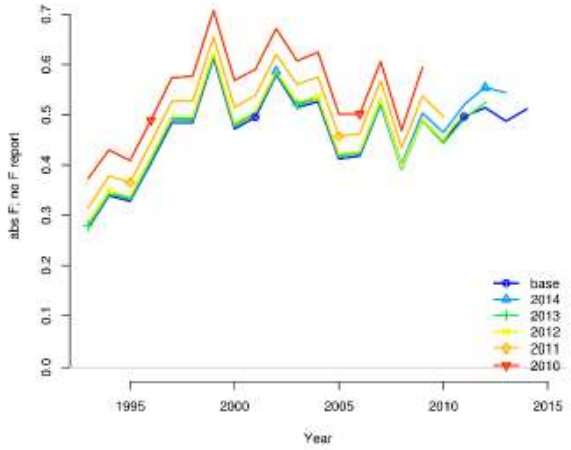


Figure 13. Fishing intensity (1-SPR; proxy for F) for NP albacore as estimated by stock assessment model (base case in dark blue and retrospective analyses in other colours) (Figure 5.8 in ISC (2017b))

Table 11. Landings of albacore from the North Pacific, from the WCPFC Tuna Fishery Yearbook 2016 (tonnes live weight)

Year	Japan		Total	
	total landings	p&l landings	total landings	p&l landings
2002	76655	48454	105285	48832
2003	58850	36114	94536	36173
2004	57713	32255	93787	32380
average 2002-04	**64406**	**38941**	**97869**	**39128**
2014	51841	29433	80538	29433
2015	43819	21294	71809	21294
2016	35452	15086	58204	15086
average 2014-16	**43704**	**21938**	**70184**	**21938**

3.4.4 Harvest strategy – Progress towards a formal regional harvest strategy

CMM 2014-06, committing WCPFC to the development of formal harvest strategies and harvest control rules, applies to NP albacore as well as skipjack and the other tropical stocks. The work to develop the harvest strategy has, however, been delegated to the Northern Committee. The Northern Committee have, like WCPFC, agreed a harvest strategy workplan for NP albacore; see WCPFC (2017a); Attachment I). The workplan foresees that the MSE work (to establish a TRP and 'other elements of harvest strategies') should end in 2020, and in the meantime, the Northern Committee should continue to review both the requirements and the implementation of CMM 2005-03 and recommend changes where necessary. The US is providing funding to support the MSE process for NP albacore, with an expert based at IATTC (Tony Beeching, WCPFC, pers. comm.).

3.4.5 Harvest strategy – Japan

Japan is the largest contributor to catches of NP albacore, account for over half (Figure 14). Japan has set limits on the number of licences available for vessels to fish NP albacore. Licences must be renewed every five years, and a total number of licences is agreed by the Fisheries Agency prior to the renewal process. Vessel have to reapply for licences, and the total fishing capacity of licenced vessels is taken into account in setting the licence limit (i.e. higher capacity for some licencees has to be compensated by fewer licences overall). Licences were last renewed in August 2017, resulting in a total of 41 licences for pole and line vessels and 240 licences for tuna pole and line plus longline, as compared to 313 (43 pole and line) at the last licencing round in 2012. Through this system, Japan seeks to ensure that increase fishing effort should not increase above current levels.

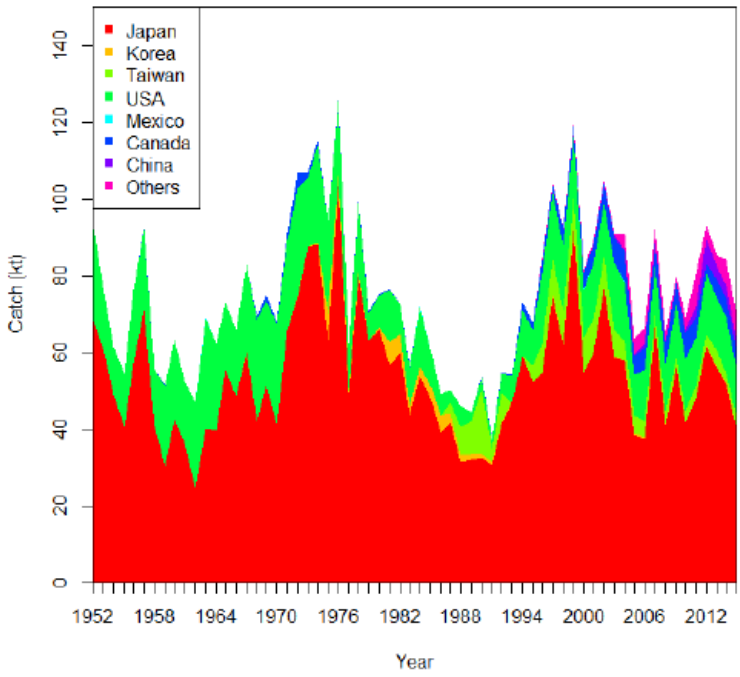


Figure 14. Total annual reported catch of north Pacific albacore (*Thunnus alalunga*) by ISC member and non-member countries, 1952-2015. Non-ISC member countries are grouped in the Other category and may include catches from Tonga, Belize, Cook Islands, Ecuador, Vanuatu, and Vietnam. Source: Figure 2.1 from WCPFC, 2017

3.4.6 Information

The GLMM-standardised Japanese longline CPUE (Ochi et al., 2017) is the key dataset for the stock assessment, although the Albacore Working Group reviewed a whole series of abundance indices, including Japanese pole and line, and Taiwanese and US longline. The Japanese longline index was considered to be the most useful because it is located in the core area for the stock and has good contrast. The Japanese pole and line CPUE (Kinoshita et al., 2016) was not included in the base case model because it appeared that catchability and selectivity were highly variable; perhaps partly because of variability in targeting behaviour between albacore and skipjack. The size data were also very variable by season and by year, with sampling perhaps not representative of the catch. The data were, however, used as part of a sensitivity run (described below). The other potential indices were not used, having proved in past assessments (2011, 2014) not to be useful (ISC, 2017b).

3.4.6.1 Data from this fishery

Data are provided from this fishery as for skipjack. Unlike for skipjack, and unlike in previous NP albacore stock assessments, the most recent assessment does not use Japanese standardised pole and line CPUE as a juvenile abundance index, for reasons explained below; rather it depends on an abundance index from the Japanese longline fishery.

3.4.6.2 Information available for the stock assessment

The data available for the NP albacore stock assessment is summarised in Figure 9. Resolution C-13-03 of IATTC strengthens the data requirements from C-05-02 / CMM 2005-03, with templates for both catch and effort data.

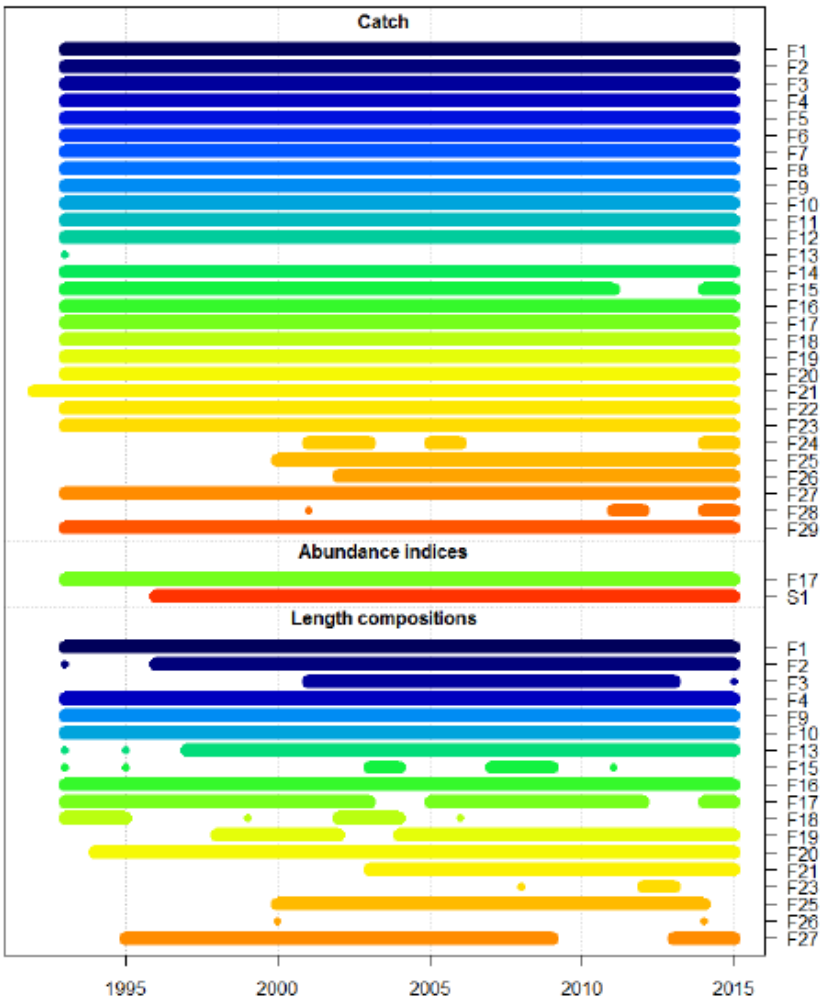


Figure 15. Catch, standardised CPUE and length-frequency data available for the NP albacore stock assessment, by year (x-axis) and fishery (y-axis). (Figure 3.1 in ISC (2017b)). The fishery under assessment is F16, F17 and F18 (according to quarter and area).

The information available for other inputs to the stock assessment are summarised below (taken from ISC (2017b) except where otherwise indicated):

Catch: The stock assessment uses catch by quarter, 1966-2015 (although ultimately the base case model was started from 1993). China and Vanuatu are not participants in the Northern Committee, and are not providing data to ISC according to the NC13 report (WCPFC, 2017a), but catch data are nevertheless available for these fisheries via SPC (Figure 15; fisheries F24, F25 and F26).

Abundance index: 13 abundance indices were available to the stock assessment working group, from Japanese, Taiwanese and US fisheries; longline and pole and line. Ultimately only one of these indices was used as an index of adult abundance, for reasons explained further on.

Size data: The assessment uses length composition data from 1993-2015, from 19 of the 29 fisheries in the base case model; although the length-sampling data could only be raised to catch-at-size for 15 of the fisheries; for the other fisheries, selectivity was assumed to be the same as other fisheries with similar operations and gear. Size composition data is collected either through port sampling or through on-board sampling by crews or observers. Data from Japan, the US, Canada and Taiwan were used.

Sex composition: Information on sex ratios is derived from Japanese training and research vessels, because these data are not normally collected from commercial fisheries. These data show that males reach a larger size on average than females, and hence the sex ratio is male-biased in the largest size classes (>100 cm). The data were, however, submitted late and therefore not used in the assessment; but the assessment incorporates sex-specific growth and natural mortality rates, so the data were used to compare with model outputs.

Tagging data: The stock assessment model is not spatially-explicit (see below) so does not use tagging data to estimate movement between areas; this is because the tagging studies for NP albacore have not been consistent or appropriately designed. Tagging data are used indirectly as part of the work to estimate growth and natural mortality.

Other fisheries: Unlike the tropical stocks, there are no major issues with NP albacore in terms of fisheries where data are lacking. Japan, the USA, Canada and Taiwan between them take nearly all the landings of NP albacore (see Figure 2.1 in ISC, 2017b).

3.4.7 Stock assessment

Stock assessments are carried out by the Albacore Working Group (AWG) of ISC. The most recent stock assessment of NP albacore was in 2017, described in ISC (2017a and 2017b), from which the summary here is taken.

Model general description: The assessment uses data through 2015 (starting year variable – see below), in quarterly timesteps to a plus group at 15 years. The stock assessment uses Stock Synthesis (SS), which provides a Bayesian framework similar in general structure to Multifan-CL. The assessment covers the Pacific Ocean from the equator to 55°N and from 120°E to 100°W (i.e. including both the WCPFC and the IATTC Convention Areas). The model is not spatially explicit, but defines fisheries by region (five regions in total).

The model inputs were divided into 29 fisheries which were defined based on gear, area, season and unit of catch (weight vs. number), the aim being to define fisheries with relatively small changes in selectivity and catchability over the time series. These fisheries included 23 longline fisheries, three pole and line fisheries (all from Japan), one combined surface gear fishery (Canada-US-Mexico), one drift net (historical) and one 'miscellaneous' (catch only).

13 longline CPUE indices were reviewed during the stock assessment, but it was decided for the base case model to use only the Japanese longline index in Area 2, Q1 (1996-2015). Operational data were available for this fishery (i.e. haul-by-haul logbook data rather than aggregated catch/effort data) (Ochi et al. 2017). The other indices were not used based on previous experience (2011 and 2014 assessments) or in the case of the Japanese pole and line index because preliminary runs found that the index was not well fit and conflicted with the other data; in addition, the pole and line size composition data suggested either variable selectivity / catchability or unrepresentative sampling of the catch.

There were three major changes to the 2017 base case model compared to the 2014 assessment:

- The model start date was moved from 1966 to 1993, to eliminate the influence of poorly fit size composition data in the 1975-1992 period, and a conflict between these size composition data and the primary adult albacore index.
- A new procedure was used to standardize the Japanese longline abundance index (Ochi et al., 2017). The AWG considered that this new standardised time series had good contrast and was informative on both population trend and scale.

- Sex-specific M-at-age vectors were developed from a meta-analysis (Teo, 2017) (see below). The AWG considers this an improvement because support for the previous assumption (M fixed at 0.3 y-1 for both sexes at all ages) from the scientific literature is poor.

In terms of overall fit for the base case model, model diagnostics suggested that the estimated catch-at-age and productivity parameters were able to explain the trends in the abundance index; unlike in previous years when the abundance indices and catch-at-age data tended to conflict. Since exploitation rates are estimated by the model to be relatively low, the production function is not particularly informative about stock size, particularly in relation to the upper bounds. However, the primary purpose of the assessment is to evaluate the lower bounds (i.e. in relation to the LRP), which were better defined. Overall, the AWG considered the assessment a significant step forward compared to previous assessments.

Model uncertainty: Uncertainty within the base case model (from data and model parameter estimates) is quantified via 5% and 95% CIs. Unlike SPC stock assessments, the assessment does not provide a structural uncertainty grid, but provides the results of a series of one-off sensitivity analyses. A retrospective analysis was conducted on the base case model (removing 1-5 years of data). The AWG highlight uncertainties in growth and natural mortality, a lack of sex-specific size data and the simplified spatial structure as likely key sources of uncertainty (see also under 'sensitivities' below).

Growth and maturity: The model used sex-specific growth curves based on analysis in Xu et al. (2014). Length at 50% maturity for females is estimated to be 86 cm (Ashida et al., 2016), which corresponds in the growth curve to age 5, so the model assumes that 50% of age 5 fish are mature, and 100% of fish age 6+ (the same maturity ogive as in previous assessments).

Natural mortality: M was set at 0.38 /yr (males) and 0.49 /yr (females) for age 3+, and for ages 0-2 a non-sex specific vector that scaled with size, based on a meta-analysis (Teo, 2017) and estimates from tagging (0.45 /yr for males and 0.5 /yr for females). Previous assessments assumed constant M=0.3 /yr. (Note that all else being equal, a higher M will result in a more optimistic assessment of stock status.)

Sex ratios: Male-biased sex ratios observed in the largest size classes were modelled via differential growth and M, but the outcome in terms of sex ratio by age class was cross-checked visually with sex-ratio data from Japanese surveys.

Recruitment / stock-recruit relationship: Based on studies of maturity and reproduction, the stock is assumed to have one spawning and recruitment period in Q2. The model assumes a Beverton-Holt stock-recruit relationship. There have been two independent attempts to estimate steepness (h) for NP albacore (Brodziak et al., 2011; Iwata et al., 2011), which resulted in estimated values of 0.84 and 0.95. This assessment therefore assumes a value of h of 0.9 (base case); alternative lower values were included in the one-off sensitivity runs (see below). This is the same approach as in the 2014 assessment.

Because the time series for the base case model was started in 1993, it is not possible to assume virgin recruitment at the start of the time series, as can be done when the time series starts close to the start of industrial fishing. The model therefore estimated 10 years of recruitment deviations prior to the start of the time series (i.e. 1983-92), for input into the model initial conditions.

Initial conditions: Since an unfished stock could not be assumed at the start of the time series, initial conditions were estimated based on an assumption of equilibrium conditions. Initial fishing mortality rates were estimated using the Taiwanese longline fishery in Areas 3 and 5, because it takes a wide

range of sizes. Then, instead of fitting this F to catches pre-1993, they were used to compute the depletion which gives equilibrium conditions for this F. The initial age structure was also adjusted based on the 10 years of recruitment deviations 1983-92, as explained above. This approach was addressed in the sensitivities via an alternative run (Table 12).

Selectivity: Fishery selectivity is not sex-specific (insufficient data), but is fit to catch-at-size or -age data. For fisheries with limited size data, selectivity was inferred from similar fisheries.

Catchability: Catchability was assumed to be constant over time for each abundance index.

Sensitivities: The sensitivities runs performed during the stock assessment are set out in Table 12. From these we can infer that the key uncertainties for the assessment include the estimates of natural mortality and growth curves.

Table 12. Key sensitivity runs selected to try and quantify the range of structural uncertainty in the NP albacore stock assessment (ISC, 2017b)

Sensitivity	Description	Tested values (base case model in bold)	Consequence for model outcome
M	natural mortality	sex-specific M vector, constant 0.38/y for males and 0.49/y for females, constant 0.3 for all	significant impact on outcome; lower M values → more pessimistic estimate of stock status
h	steepness of SR function	0.75, 0.8, 0.85, 0.9	no major impact on outcome
CV Linf	variance in asymptotic size	0.4, 0.6, 0.8	some impact; high variance → more pessimistic
start year	initial year of abundance index	1966, 1993	no major impact
abundance index	choice of abundance indices	longline abundance index only; longline and pole and line abundance indices	results with pole and line index not considered plausible
size composition data	weighting of the size composition of 5 fisheries	downweighed; not downweighed	no major impact
selectivity	selectivity function for US longline fisheries	dome-shaped; asymptotic	negligible impact
initial conditions	starting point for model in 1993	estimated as described above; estimated for each fishery individually	no major impact
model structure	overarching model structure (definitions of fisheries etc.)	new structure; 2014 structure	results with 2014 structure not considered plausible

Interpretation: The model is run and interpreted in terms of female spawner biomass. The stock status is estimated in relation to the LRP (a depletion reference point: $20\%SB_{F=0}$) and the equivalent fishing intensity (proxy for fishing mortality), i.e. $1\text{-}SPR_{20\%}$. The LRP is evaluated from the model terminal year, rather than the average of last 10 years as is the practice for the tropical tunas.

The AWG notes that even with alternative, more pessimistic scenarios on M and growth, the central estimate of female SB does not fall below the LRP, although the risk level (proportion of CIs below the LRP) increases.

MSY biomass reference points (i.e. MSY and SB_{MSY}) were also estimated from the base case model only (i.e. not incorporating alternative hypotheses); note however that these are in different units – i.e. MSY is estimated for total biomass, while SB_{MSY} is estimated for female spawner biomass. F_{MSY} and various F proxies ($F_{0.1}$, $F_{10\%}$-$F_{50\%}$) are estimated in the same way as $F_{(20\%SBF=0)}$ (i.e. fishing intensity not instantaneous fishing mortality).

3.5 Principle Two: Ecosystem Background

3.5.1 Designation of species under Principle 2

The fishery's impact of non-target species is analysed differently if the species is from a "managed" stock or not, or considered Endangered, Threatened or Protected (ETP). These are defined as follows:

Primary species (MSC Component 2.1):

- Species in the catch that are not covered under P1
- Species that are within scope of the MSC program, i.e. no amphibians, reptiles, birds or mammals
- Species where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit (LRP) or target reference points (TRP). Primary species can therefore also be referred to as 'managed species'.

Secondary species (MSC Component 2.2):

- Species in the catch that are not covered under P1
- Species that are not managed in accordance with limit or target reference points, i.e. do not meet the primary species criteria
- Species that are out of scope of the programme, but where the definition of ETP species is not applicable (see below).

ETP (Endangered, Threatened or Protected) species (MSC Component 2.3) are assigned as follows:

- Species that are recognised by national ETP legislation
- Species listed in binding international agreements (e.g. CITES, Convention on Migratory Species (CMS), ACAP, etc.)
- Species classified as 'out-of scope' (amphibians, reptiles, birds and mammals) that are listed in the IUCN Redlist as vulnerable (VU), endangered (EN) or critically endangered (CE).

Both **primary** and **secondary** species are defined as 'main' if they meet the following criteria:

- The catch comprises 5 % or more by weight of the total catch of all species by the UoC;
- The species is classified as 'less resilient' and comprises 2 % or more by weight of the total catch of all species by the UoC. Less resilient is defined here as having low to medium productivity, or species for which resilience has been lowered due to anthropogenic or natural changes to its life-history;
- The species is out of scope but is not considered an ETP species (secondary species only);
- Exceptions to the rule may apply in the case of exceptionally large catches of bycatch species.

3.5.2 Supportive evidence

The fishing vessel crew records all catches in logbooks (Table 13), which are submitted to the Fisheries Agency (FA), together with the landing records, as check by the Cooperative (see Section 5.2). Neither the WCPFC nor the Japanese government require pole and line vessels to use

independent observers, and thus the Eisei Maru has never had an observer on board. Information on ETP interactions and discards is based on stakeholder inteviews conducted at the site visit (see Scetion 4.3.1 and 4.3.2). Overall, pole and line fishing is known to produce very little bycatch, and assessments of comparable fisheries have similarly determined that ETP species are not caught (Acoura, 2016).

In addition to the two species under assessment, bigeye tuna (*Thunnus obesus*), yellowfin tuna (*Thunnus albacares*), yellowtail amberjack (*Seriola lalandi*), and dolphinfish (*Coryphaena hippurus*) are caught, although catch proportions of these other species are modest (each less than 5%; Table 13). No other species were reported to be caught. In general, tuna pole and line gear is known to produce very little bycatch (Gilman and Lundin, 2010).

Table 13. UoA catches/use and proportion of total catch for primary and secondary species from 2012 to 2016.

Year	Bigeye		Yellowfin		J. anchovy and pilchard		Yellowtail amberjack		Dolphinfish	
	Catch (mt)	% of total	Catch (mt)	% of total	Catch (mt)	% of total	Catch (mt)	% of total	Catch (mt)	% of total
2012	21.4	1.3	4.2	0.3	40.4	2.5	0	0	0.4	0.02
2013	98.4	4.5	13.1	0.6	56.7	2.6	1.1	0.05	0	0
2014	36.7	2.2	3.6	0.2	57.9	3.5	0	0	0	0
2015	7.2	0.3	6.9	0.3	56.0	2.2	0.03	< 0.01	0	0
2016	4.1	0.2	8.3	0.5	50.9	2.8	0	0	0	0

Barbless hooks are used for fishing (confirmed by visual inspection during the site visit, see also Figure 1), so that when a non-target species is hooked, fishers can simply loosen or cut the line to release the fish alive without bringing it on deck (K. Yoshinaga, Ishihara Marine Products, personal communication, 08 Feb 2017). Non-target animals are almost never brought in because doing so takes effort and can be dangerous, especially when the animals are large. The crew specifically tries not to catch sharks because there are strict regulations regarding shark harvests (e.g. CMM 2010-07, CMM2013-08 and CMM2011-04). Incidental captures are rare; crew members report that the Eisei Maru 8 may incidentally hook 2 or 3 sharks per fishing trip, and the hooks are too small to stay attached to the shark (T. Arakawa, owner of Eisei Maru,pers. comm., 23 January 2018). Sharks are not brought on board, and the species are not identified. The most common shark species found around Japan are shortfin mako and blue sharks, so those are the species most likely to be encountered (H. Nishida, NRIFSF, pers. comm., 24 January 2018).

Fishermen report that seabirds and sea turtles are not incidentally caught, and other stakeholders confirm that pole and line fisheries are not a significant source of mortality on these species (T. Arakawa, Eisei Maru, pers. comm., 23 January 2018; H. Nishida, NRIFSF, pers. comm., 24 January 2018). There are also no modifications to the gear or the vessel, as observed by the team during the site visit, to scare off seabirds. Dolphins, whales, and whale sharks may approach the fishing vessel, particularly when tuna are present, but they are far too large to be accidentally caught by the gear.

In addition to the species targeted in the fishery, two species are used as live bait: Japanese anchovy (*Engraulis japonicus*) and Japanese pilchard (*Sardinops melanostictus*). Bait fish is purchased alive prior to each fishing trip. The bait fish are harvested by purse seine or set nets (traps), typically from the Pacific Ocean off the Japan coast, and kept in net pens in Nagasaki, Hyogo, Kanagawa, Miyagi,

Iwate, and Aomori prefectures (K. Yoshinaga, Ishihara Marine Products, personal communication, 25 January 2018). The species are not differentiated during handling and sales, so bait statistics described here are for both species combined. Fishers purchase from different bait suppliers during different parts of the year, to try to get larger (>10 cm), healthy fish that can better survive during fishing trips.

The WCPFC Scientific Committee most recently conducted stock assessments for bigeye and yellowfin tuna in 2017. The Japan Fisheries Research Agency (FRA) conducts annual assessments of Japanese anchovy and Japanese pilchard stocks, and also assesses the stock status of Japanese amberjack (*Seriola quinqueradiata*) using catch data for three amberjack species *(S. quinqueradiata*, *S. dumerili*, and *S. lalandi*). However, there is no assessment specific to yellowtail amberjack. There is no formal assessment of dolphinfish. Based on this information, bigeye, yellowfin, anchovy, and pilchard were considered primary species, while yellowtail amberjack and dolphinfish were considered secondary species (**Error! Reference source not found.**).

Each Principle 2 species was less than 5% of the total catch by weight. The bait species (combined since they cannot be separated in the data) make up >2%, so may be considered as 'main' if vulnerable or less resilient. The stock status of Japanese anchovy is current poor, and this is considered to be due to a combination of heavy exploitation rates and environmental factors (decadal-scale ecosystem fluctuations which tend to result in an inverse correlation between sardine biomass and anchovy biomass). However, Japanese anchovy are not themselves a 'less resilient' species, having a typical 'small pelagic' life history (short life span, early maturity and high productivity). (Further details and references for this information are provided in Section 3.5.3.3 below.) On this basis, the team concluded that they are not vulnerable to this fishery and so were designated as minor species (**Error! Reference source not found.**).

Table 14. Overview of Principle 2 species and mean catch (or bait use) volume from 2012 to 2016. Data from Ishihara Marine Products Co based on logbook data from the Eisei Maru No.8 vessel, as provided by the client.

Species	Volume (mt)	% of total catch	Classification
Bigeye tuna (*Thunnus obesus*)	33.6	1.7	Minor primary
Yellowfin tuna (*Thunnus albacares*)	7.2	0.4	Minor primary
Yellowtail amberjack (*Seriola lalandi*)	0.2	< 0.1	Minor secondary
Dolphinfish (*Coryphaena hippurus*)	0.1	< 0.1	Minor secondary
Japanese anchovy (*Engraulis japonicus*) and Japanese pilchard (*Sardinops melanostictus*)	52.4	2.7	Minor primary

3.5.3 Primary species

3.5.3.1 Bigeye tuna

This fishery catches bigeye tuna from the Western Central and Pacific Ocean (WCPO) stock. The preliminary 2016 global catch quantity was 145,900 mt, an increase of 5% from the 2015 catch (ISSF, 2017). The WCPO bigeye tuna stock was most recently assessed in 2017. This stock assessment differed substantially from the one previously conducted in 2014, being based on different model

parameters and coming to a different conclusion about stock status. Specifically, the newest assessment concludes that WCPO bigeye are not overfished, and that overfishing is not occurring (McKechnie et al., 2017a). Adjustments made to the stock assessment model included use of a different growth curve based on newly acquired information about age, growth and maturity. Stock assessment results are shown graphically in a Kobe plot (Figure 16), which has the ratio of current spawning stock biomass to spawning stock biomass at MSY ($SSB_{current}/SSB_{MSY}$) on the X-axis and the ratio of current fishing mortality to fishing mortality at MSY on the Y-axis ($F_{current}/F_{MSY}$). The limit reference point (LRP) for the stock is $20\%SSB_{F=0}$, or 20% of the equilibrium spawning biomass that would be expected in the absence of fishing under current environmental conditions (most recent 10 years of the current assessment, excluding the last year).

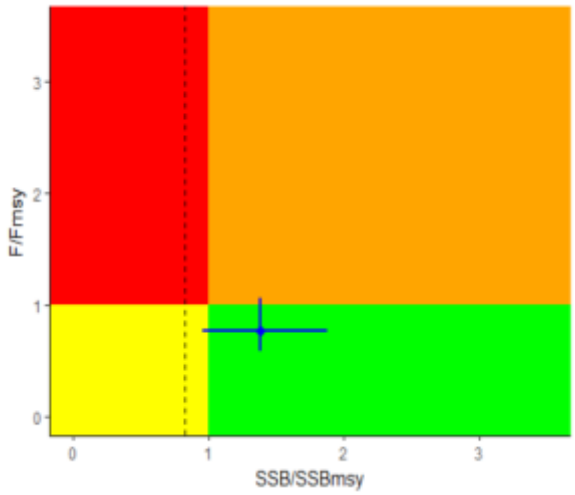


Figure 16. Kobe plot showing the 2017 estimate of WCPO bigeye tuna stock status ($F_{current}/F_{MSY}$ = 0.83, $SSB_{current}/SSB_{MSY}$ = 1.23) as a dot with the range of estimates depicted as vertical and horizontal lines. The dashed black line shows the limit reference point. Figure from ISSF (2018).

There is a short-term target reference point of $F \leq F_{MSY}$ by the end of 2017, but no harvest control rules have been defined for the stock (CMM 2017-01). Specific harvest limits for Japan have been placed on high seas purse seine effort and longline catches. Bigeye catch limits have not been implemented in Japanese pole and line fisheries, but pole and line catches are relatively modest (mean of 1894 mt from 2007-2016), comprising about 8% of Japan's total bigeye catch (WCPFC, 2016a). The UoA targets smaller sized skipjack and albacore tuna, so catches of bigeye tuna are small and in fact have decreased in recent years (**Error! Reference source not found.**).

3.5.3.2 Yellowfin tuna

This fishery catches yellowfin tuna from the Western Central and Pacific Ocean (WCPO) stock. The preliminary 2016 global catch quantity was 633,800 mt, a 10% increase from the 2015 catch (ISSF, 2017). The WCPO yellowfin tuna stock was most recently assessed in 2017, and the assessment concluded that the stock is not overfished, and overfishing is not occurring (Tremblay-Boyer et al., 2017). These conclusions were similar to those drawn from the previous assessment conducted in 2014. Stock assessment results are shown graphically in a Kobe plot (Figure 17), which has the ratio of current spawning stock biomass to spawning stock biomass at MSY ($SSB_{current}/SSB_{MSY}$) on the X-axis and the ratio of current fishing mortality to fishing mortality at MSY on the Y-axis ($F_{current}/F_{MSY}$). The limit reference point (LRP) for the stock is $20\%SSB_{F=0}$, or 20% of the equilibrium spawning biomass that would be expected in the absence of fishing under current environmental conditions (most recent 10 years of the current assessment, excluding the last year).

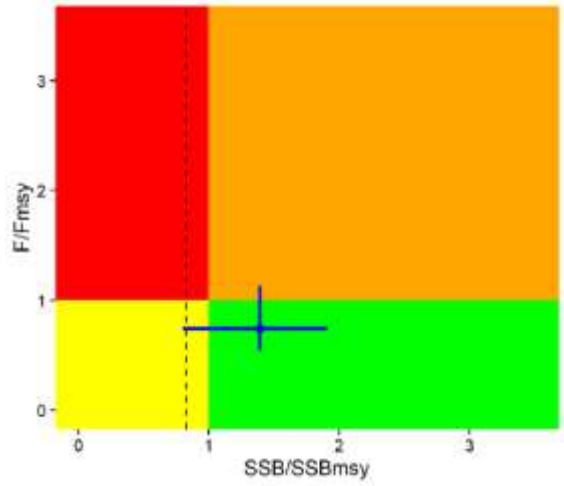


Figure 17. Kobe plot showing the 2017 estimate of WCPO yellowfin tuna stock status ($F_{current}/F_{MSY}$ = 0.74, $SSB_{current}/SSB_{MSY}$ = 1.39) as a dot with the range of estimates depicted as vertical and horizontal lines. The dashed black line shows the limit reference point. Figure from ISSF (2018).

There is no target reference point, and no harvest control rules have been defined for the stock. The WCPFC has stated an objective to maintain fishing mortality at a level that does not exceed F_{MSY}, i.e. so that $F/F_{MSY} \leq 1$ (CMM 2017-01). UoA catches of yellowfin tuna are very small small and have not exceeded 0.6% of the total catch during the past five years (**Error! Reference source not found.**).

3.5.3.3 Japanese anchovy

The bait suppliers harvest Japanese anchovy from the Pacific Ocean stock (distribution shown in Figure 18). The Japan Fisheries Research Agency (FRA) conducts an annual stock assessment, with the 2017 assessment being the most recent. The assessment scientists used cohort analysis to estimate biomass at age and evaluate spawning stock biomass (SSB) against a B_{limit} of 130,000 mt to determine stock status. B_{limit} is the SSB below which recruitment is thought to be poor, based on high variability in estimated catchability coefficients for age 1 fish at that level, which was observed in 1988 (Uemura et al., 2018). Estimated biomass has shown a declining trend since 2003, and although it was higher than the 2015 estimate (71,000 mt), the 2016 SSB estimate (108,000 mt) still fell below the B_{limit} (Figure 19). There is no target reference point for the anchovy stock. Overall, the stock appears to be below PRI and in need of recovery.



Figure 18. Distribution of the Pacific Ocean stock of Japanese anchovy, outlined in pink. Image from: http://abchan.fra.go.jp/digests2017/html/2017_24.html

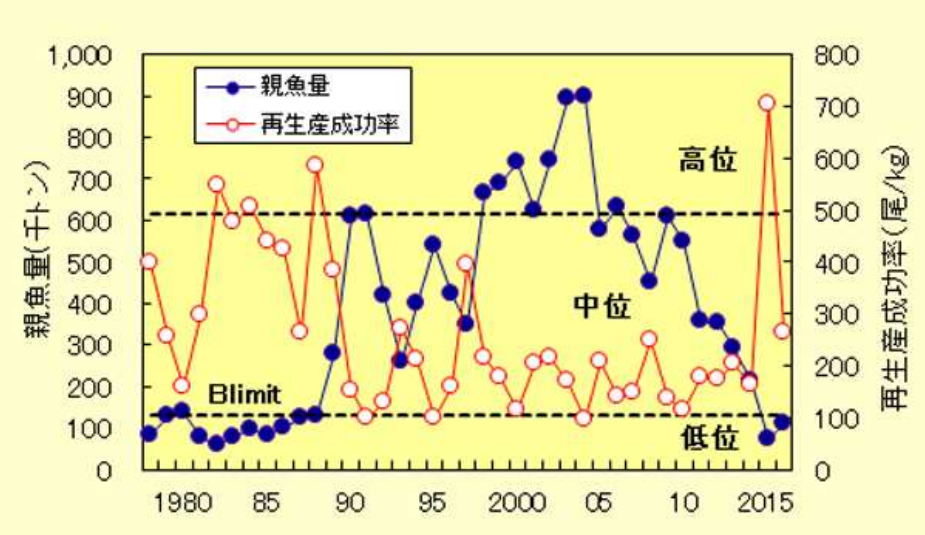


Figure 19. Estimates of SSB (blue dots, left y-axis with units in thousands of mt) and recruitment (white dots, right y-axis with units in numbers of fish per kg) over time for the Pacific Ocean stock of Japanese anchovy. The top dashed line shows the threshold between high and medium stock status, while the lower dashed line shows the B_{limit} and threshold between medium and low status. Image from: http://abchan.fra.go.jp/digests2017/html/2017_24.html

Estimated catches of Pacific stock anchovy reached over 400,000 mt in the early 2000s, then fell to 210,000 - 250,000 mt in 2007 – 2010. The 2016 catch was only 80,000 mt. In the stock assessment, scientists recommend an acceptable biological catch (ABC) that is calculated to maintain a certain fishing mortality level on one-year-old fish. Because SSB fell below B_{limit} in 2016, the 2018 ABC was calculated with a goal to support stock recovery and maintain current biomass (see http://abchan.fra.go.jp/digests2017/html/2017_24.html). However, the ABC is not used to set harvest limits or harvest control rules, and there is no recovery plan in place for the Pacific anchovy stock, although one existed for the Seto Inland Sea stock in 2011 (http://www.jfa.maff.go.jp/j/suisin/s_kouiki/setouti/pdf/s21-2-2.pdf).

Japanese anchovy are not managed by total allowable catch (TAC), and direct management of harvest is lacking, outside of input and technical controls (e.g. limited numbers of fishing licenses).

Catches of Japanese anchovy have shown cyclical patterns over time that are correlated with climate oscillations and environmental conditions, a phenomenon observed for many small marine forage fishes (Lluch-Belda et al., 1989; Zhou et al., 2015).

Additionally, Japanese pilchard and anchovy show inverse patterns in relation to each other, with pilchard catches tending to be larger when anchovy catches are smaller, and vice versa (Takasuka et al., 2008; Figure 20). Although environmental conditions may be an important contributor to the currently low abundance of anchovy, exploitation rates are significant, and fishery impacts on the stock should be considered and managed appropriately.

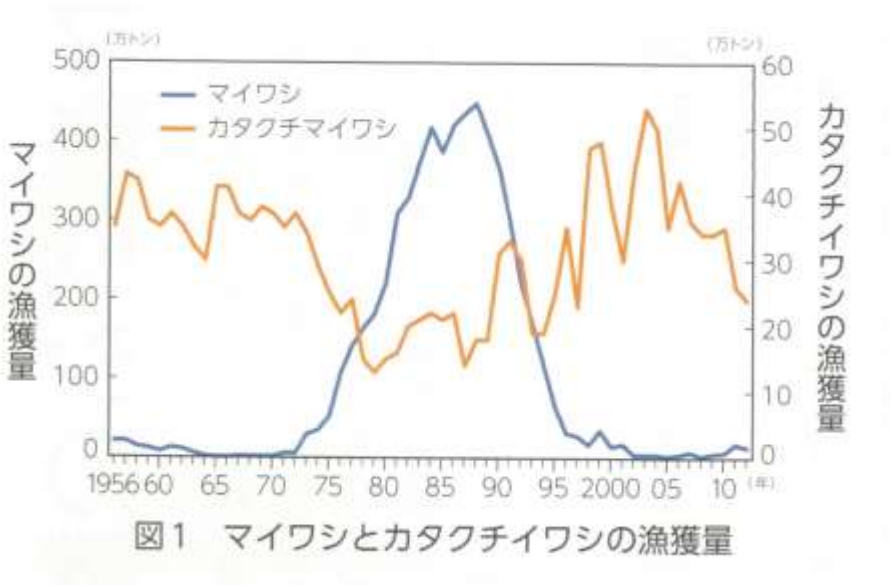


図1　マイワシとカタクチイワシの漁獲量

Figure 20. Catches (thousands of mt) of Japanese pilchard (blue line; left y-axis) and Japanese anchovy (orange line; right y-axis) over time. From FRA News vol. 51, published July 2017.

Each year the Eisei Maru No.8 uses about 52 mt of Japanese anchovy and pilchard combined as bait, and hence the 52 mt is a maximum quantity of anchovy (**Error! Reference source not found.**). This volume was less than 0.06% of Japan's 2016 catch and less than 0.04% of the estimated 2016 SSB for the Pacific Ocean stock of anchovy, suggesting a negligible impact by the UoA.

3.5.3.4 Japanese pilchard

The bait suppliers harvest Japanese pilchard from the Pacific Ocean stock (distribution shown in Figure 21). The FRA conducts an annual stock assessment, with the 2017 assessment being the most recent. The assessment scientists use cohort analysis to estimate biomasses at age and evaluate SSB against a B_{limit} of 221,000 mt to determine stock status. B_{limit} was the estimated SSB in 1996, a level below which recruitment is thought to be poor (Furuichi et al., 2018). Estimated biomass has shown an increasing trend since 2009, although abundances are much lower than they were in the 1980s and early 1990s. The 2016 SSB estimate (891,000 mt) was above the B_{limit} (Figure 22). Available information suggests that the stock is currently above PRI and recovering, although abundance is still far below peak levels.

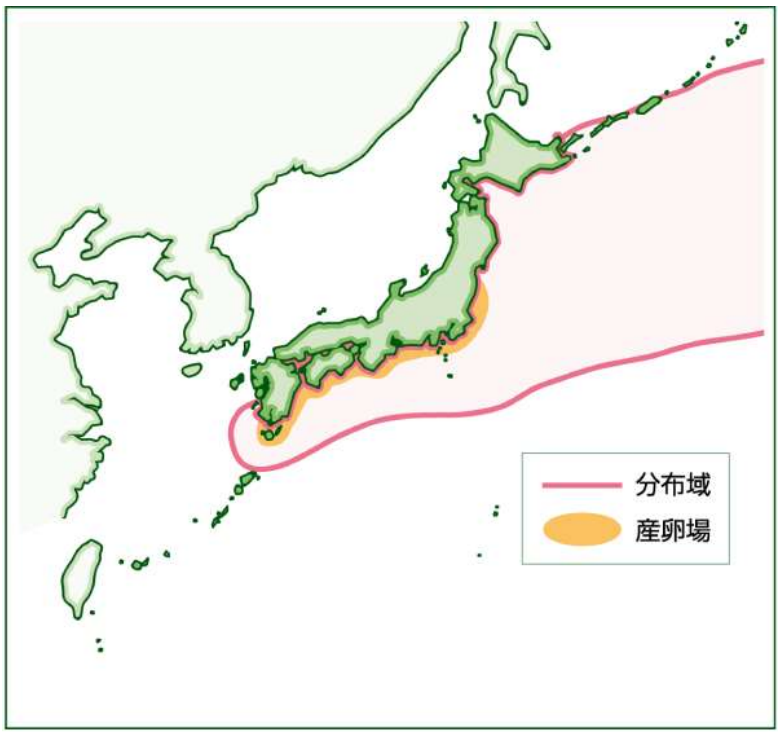


Figure 21. Distribution of the Pacific Ocean stock of Japanese pilchard, outlined in pink. Spawning areas are shown in orange. Image from: http://abchan.fra.go.jp/digests2017/html/2017_01.html

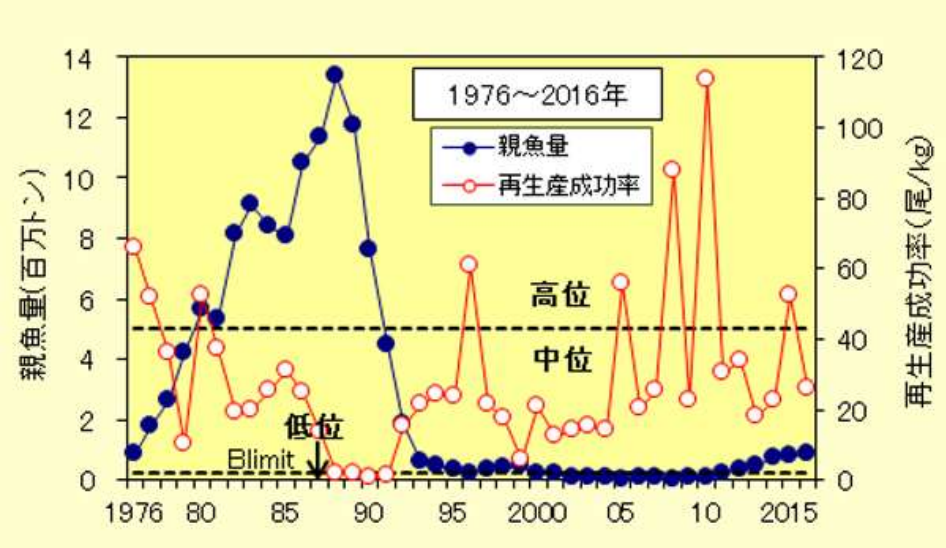


Figure 22. Estimates of SSB (blue dots, left y-axis with units in thousands of mt) and recruitment (white dots, right y-axis with units in numbers of fish per kg) over time for the Pacific Ocean stock of Japanese pilchard. The top dashed line shows the threshold between high and medium stock status, while the lower dashed line shows the B_{limit} and threshold between medium and low status. Image from: http://abchan.fra.go.jp/digests2017/html/2017_01.html

Estimated catches of Pacific stock Japanese pilchard catches were high in the 1980s at over 2.5 million mt per year, then declined sharply to fluctuate around 100,000-300,000 mt from 1995 to 2001. Catches were lowest (less than 100,000 mt) from 2002 to 2010, but gradually increased and reached 314,000 mt in 2016. Each year the Eisei Maru uses about 52 mt of Japanese anchovy and pilchard combined as bait (**Error! Reference source not found.**), which was less than 0.02% of Japan's 2016 Pacific Ocean pilchard catch and less than 0.01% of the estimated 2016 SSB. In the stock

assessment, scientists recommend an ABC. ABCs are used to set a combined total allowable catch (TAC) for the Pacific Ocean and Tsushima Warm Current stocks, which is allocated among prefectures that catch pilchard.

3.5.4 Secondary species

3.5.4.1 Yellowtail amberjack

The FRA amberjack stock assessment is based on combined catches of three amberjack species, including yellowtail amberjack. The most recent assessment conducted in 2016 determined that the amberjack stock currently has high status (summary available at: http://abchan.fra.go.jp/digests2017/html/2017_42.html). However, the majority of Japan's harvest is of Japanese amberjack (Tian and Watari 2015), making the assessment less reflective of yellowtail amberjack status. Other information about population abundance is limited, but this species is generally reported to be abundant (Smith-Vaniz and Williams, 2015). Japan has no defined harvest strategy or harvest control rules for this species.

The UoA does not target yellowtail amberjack and may not catch them every year (**Error! Reference source not found.**). Stakeholder interviews confirmed that yellowtail amberjack are rarely caught in tuna pole and line fisheries (H. Nishida, NRIFSF, pers. comm., 24 January 2018).

3.5.4.2 Dolphinfish

Dolphinfish is a highly migratory species found in tropical and subtropical oceans around the globe. They are fast growing and mature at an early age, suggesting fairly high resilience. Although the species is harvested throughout its range, there has been no indication of population declines (Collette et al., 2011). Japan has no defined harvest strategy or harvest control rules for this species.

The UoA does not target dolphinfish and may not catch them every year (Table 13). Stakeholder interviews confirmed that dolphinfish are rarely caught in tuna pole and line fisheries (H. Nishida, NRIFSF, pers. comm., 24 January 2018).

3.5.5 ETP Species

Japan has a Red Data Book identifying ETP species found within the country (Ministry of the Environment, 2015). In terms of national legislation, there is a Law for the Conservation of Endangered Species of Wild Fauna and Flora (Law No. 75) that aims to conserve endangered species and contribute to conservation of the natural environment (Ministry of the Environment, 2016a). There is also a Wildlife Protection and Hunting Law (Law No. 32) that protects birds and mammals by establishing wildlife protection areas (Ministry of the Environment, 2016b).

No ETP species were identified for this fishery. According to interviews with the fishing vessel crew and scientists, sea turtles, seabirds, marine mammals, and sharks (including sharks of conservation concern such as silky shark, *Carcharhinus falciformis*, and oceanic whitetip shark, *Carcharhinus longimanus*) are not caught (T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018). The WCPFC requires longline vessels to release any incidentally caught seabirds and sea turtles with the least possible harm (CMMs 2017-06 and 2008-03), and the vessel operators are aware of these requirements, even though the CMMs do not apply directly to pole and line fishery. In addition, the fishery does not use artificial FADs, which reduces risks of encountering potential ETP species. Neither the WCPFC nor the Japanese government require pole and line vessels to use independent observers, and thus the Eisei Maru has never had an observer on board. However, pole

and line fishing is known to produce very little bycatch, and assessments of comparable fisheries have similarly determined that ETP species are not caught (Acoura, 2016).

3.5.6 Habitats

The main habitats in the UoA can be considered the pelagic layers of the Pacific Ocean in two main areas: (1) adjacent to the coast of Japan off the eastern coast of Honshu and (2) in the tropical Pacific, largely in international waters east of the Mariana Islands, east of the Federated States of Micronesia (FSM), and around the Marshall Islands (Figure 2).

Because fishing takes place in the upper layer of the water column using pole and line, the gear does not interact with bottom habitats. Fishers spray water and throw in the bait to bring tunas to the ocean surface, and then hook and fling the fish onto the vessel. The fishing poles are lightweight (confirmed by visual inspection during the site visit) and occasionally snap when large fish are caught, so that the snapped end falls into the ocean. Alternatively, an entire pole may be lost. Poles snap about two to three times per fishing trip, while entire poles are lost only once or twice per year (K. Yoshinaga, Ishihara Marine Products, personal communication, 08 Feb 2017). Hooks are barbless, and lost pole and line gear is not expected to have substantial ghost fishing impacts.

Although the main encountered habitats themselves are not vulnerable, coral reefs exist within some of the jurisdictions where fishing takes place. The Japan Coast Guard hosts a map website (CeisNet: http://www2.kaiho.mlit.go.jp/) that includes maps of benthic habitats and sensitive areas such as coral reefs. According to CeisNet, some reefs occur off Miyake and Hachijo islands south of Tokyo Bay. Reefs off the islands in the tropical Pacific have been mapped by the U.S. National Oceanic and Atmospheric Administration (NOAA) and other institutes (Edwards et al. 2012; CoRIS; PIBHMC).

However, the Eisei Maru has no incentive to fish near reefs and actively avoids doing so.

The Eisei Maru keeps logbook records of fishing operations, including fishing days and GPS coordinates of fished areas. The vessel does not fish near seamounts or reefs and avoids marine protected areas (K. Yoshinaga, Ishihara Marine Products, personal communication, 08 Feb 2017). When fishing within EEZs of other nations (e.g. FSM), the vessel follows their regulations, including those relating to exclusion zones. For example, FSM prohibits fishing vessels from approaching within 1 mile of submerged reefs, and gear cannot be deployed outside vessels in reef areas. Overall, habitat impacts from this fishery are minimal.

3.5.7 Ecosystem

Near Japan, the most relevant large marine ecosystems (LMEs) to this fishery are the Oyashio and Kuroshio LMEs. No specific LME has been identified in the tropical Pacific fishing area, but the Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC) maintains a website (http://oceanfish.spc.int/) that describes local ecosystems. Key elements of these ecosystems include oceanic conditions, primary production, dynamics of fish populations (Yatsu et al., 2013).

Based on this information, UoA ecosystem impacts relate mostly to removal of albacore and skipjack tuna. In 2016 the total global harvest of North Pacific albacore was about 51,200 mt, and for Western Central Pacific skipjack the total harvest was 1,740,300 mt (ISSF, 2017). The 2016 UoA catches of albacore and skipjack comprised approximately 0.87% and 0.08% of the global harvests, respectively, so the impact of the UoA itself is limited.

The ecosystem role and food web connections of tuna species have been well studied, with albacore being considered a top level predator. Declines in tuna abundance may therefore affect abundance

of their prey species and the structure of their marine community (Baum and Worm, 2009). Some research has been conducted on how trophic structure may be impacted by tuna harvests, but detectable effects are minor and unlikely to disrupt ecosystem structure (Cox et al., 2002; Sibert et al., 2006).

At the RFMO level, the WCPFC Convention states that participants will be “conscious of the need to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystems and minimize the risk of long-term or irreversible effects of fishing operations” (WCPFC, 2013). Thus fishery impacts on ecosystems are considered, and the RFMO goal of managing stocks to MSY levels implicitly relates to ecosystem maintenance to some extent. However, an ecosystem-based management strategy has not yet been implemented. Similarly, Japan’s Fisheries Policy of 2001 states that ecosystems should be conserved (Makino, 2011), but an explicit ecosystem management strategy has not yet been adopted. However, the WCPFC has started testing ecosystem indicators (Smith et al., 2016) and monitors data related to ecosystem components such as target and non-target species.

3.6 Principle Three: Management System Background

3.6.1 Jurisdictions within the area of operation

The UoC catch is all within the WCPFC Convention area. The Eisei Maru No.8 fishes skipjack tuna in the Western Central Pacific Ocean (WCPO), under the jurisdiction of the WCPFC (Western Central Pacific Fisheries Commission). North Pacific albacore tuna in the Northern Pacific Ocean is under the jurisdiction of the Inter–American Tropical Tuna Commission (IATTC) and the WCPFC, since the NP albacore stock occurs in both the WCPFC and the IATTC Convention areas. Stock assessments for NP albacore are carried out by ISC; the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. ISC is the science service provider for the Northern Committee, but NP albacore is not officially designated as a northern stock. Nevertheless, ISC and the Northern Committee have *de facto* taken it on. In 2012-13 there was a request to formalise this situation, but it was not supported by the Scientific Committee of WCPFC. Unlike SPC, ISC does not have its own office or infrastructure, and works by convening working groups of scientists from member countries to address different issues.

Japan's 'Our Countries Marine Biological Resources Management Policy' states that highly migratory fish species that migrate through several EEZs and/or several high seas are managed by cooperation among coastal and fishing countries and countries who are fishing in the area, directly or based on the decisions of relevant Regional Fisheries Management Organisations (RFMOs), which is established by Article 63 or 64 of the United Nations Convention on the Law of the Sea (UNCLOS) (MAFF, 2017).

In international waters, RFMO measures applicable for each species and fisheries must be observed, while within national jurisdictions, such as inside Japan's or Federated States of Micronesia's EEZ (with valid fishing permit), each state's national regulations must be observed.

The catch data are reported under MAFF regulations, through the FA to the Scientific Committee of WCPFC and the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean.

3.6.2 Legal framework

Regarding the management of skipjack and tuna resources, two RFMOs have established international cooperation mechanisms to manage the shared highly migratory resources. The WCPFC and IATTC share the management responsibilities of skipjack and albacore resources in the western and central Pacific Ocean (WCPO). The RFMOs have concluded a number of Memoranda of Understanding (MOU) with related organisations. There are shared responsibilities between RFMOs, mainly WCPFC, IOTC, IATTC and CCSBT. WCPFC also cooperates with numerous other organisations in the region including the Secretariat of the Pacific Community (Oceanic Fisheries Programme), Pacific Islands Forum Fisheries Agency (FFA), the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), the Secretariat for the Pacific Regional Environment Programme (SPREP), and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

The decisions taken by RFMOs are binding, and Japan is a member of both WCPFC and IATTC.

The Western and Central Pacific Fisheries Commission (WCPFC) was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention) which entered into force on 19 June 2004. The WCPF Convention

draws on many of the provisions of the UN Fish Stocks Agreement (UNFSA), reflecting the special political, socio-economic, geographical and environmental characteristics of the WCPO region. The WCPFC Convention states the need to avoid adverse impacts on the marine environment, preserve biodiversity, maintain the integrity of marine ecosystems and minimize the risk of long-term or irreversible effects of fishing operations. It seeks to implement catch limits and effort limits, and adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target 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 (WCPFC, 2000)

The Inter-American Tropical Tuna Commission was created by the "Antigua Convention", a Convention for the Establishment of an Inter-American Tropical Tuna Commission, signed between the United States and Costa Rica on May 31, 1949. The IATTC is responsible for the conservation and management of tuna and other marine resources in the eastern Pacific Ocean, and tasked to co-ordinate scientific research to make recommendations designed to maintain populations of tuna at levels which will permit maximum sustainable yield. The Convention's management covers both the high seas and EEZs of national jurisdiction.

The Antigua Convention explicitly recognizes the United Nations Convention on the Law of the Sea (UNCLOS) of 1982, the Rio Declaration on Environment and Development and Agenda 21, the Johannesburg Declaration and Plan of Implementation adopted by the World Summit on Sustainable Development (2002), the FAO Code of Conduct for Responsible Fisheries (1995), and the 1995 UN Fish Stocks Agreement (UNFSA).

Both the WCPFC and IATTC have an intention and a management system that observes the legal rights created explicitly or established by custom for people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2: The WCPFC considers common allocation principles such as historical participation, the rights of Coastal States and the rights of developing States, but historical data are not yet formally part of the allocation process.

While IATTC has demonstrated the intention to develop and implement methods to allow a fair distribution and mechanisms to achieve this objective, such mechanisms are not formal commitments.

Japan has signed and ratified the United Nations Convention on the Law of the Sea (UNCLOS) in 1996, the United Nations Fish Stock Agreement (FSA) and FAO Code of conduct for responsible Fisheries, and supports four International Plans of Action (IPOA) on management of seabirds, sharks, fishing capacity and Illegal, Unreported and Unregulated (IUU) fishing.

Chapter 1, Article 2 of the Fisheries Basic Act (2001), the overarching framework for the management of fisheries in Japan, requires conservation and management of fisheries resources, to ensure its sustainable use as a component of the marine ecosystem, in line with UNCLOS. The Law of Conservation and Management of Marine Living Resources guides to protect Japan's surrounding ecosystem and habitat. The Ministry of Agriculture, Forestry and Fisheries (MAFF) is responsible for management of marine biological resources and fishery production activities, administered by the Fisheries Agency (FA). All distant-water fisheries are managed directly by the Ministry and the fisheries are operated with Minister-issued licenses (see Section 3.6.6), although skipjack tuna and albacore are not managed through a TAC.

3.6.3 Stakeholders and Consultations

The key industry stakeholder groups for distant-water tuna fisheries includes the Japan Tuna and Skipjack Fisheries Co-operative Association (JTSFCA), the Japan Distant Water Tuna Fishery Association (JDWTFA), the Japan Adjacent Sea Tuna Fishery Association (JASTFA) and the Japan Far Seas Purse Seine Fishing Association (JFSPSFA). These organizations represent the interests of the tuna fisheries at regular consultation meetings organized by the government, and participate in RFMO meetings with stakeholders to ensure collective opinions of stakeholders are reflected in Japan's proposal and negotiations.

JTSFCA, a Fisheries Cooperative (FC) that the Eisei Maru No.8 belongs to, regularly holds discussion meetings. There are 2 main committees within JTSFCA to gather fisher's opinions. The Distant-water Skipjack Fisheries Issue Committee coordinates both the pole and line fishery and purse seine fishery targeting skipjack to form a corrective opinion to be reflected to governments. The other committee, the distant-water skipjack pole and line vessel owner meeting, discusses more practical operation issues such as bait sourcing, and surveys the needs of the fishery operators to convey their opinions to research agencies and the FA. JTSFCA actively participates in international meetings such as WCPFC with the FA, and conducts its own lobbying activities. It also negotiates directly with Pacific island nations to gain entry to their EEZs as necessary for their members, and pays the entry fee if necessary. JTSFCA establishes a Resources Management Plan for its members (who are consulted in the drafting process) , and reports their voluntary management measures to FA, while guiding fishers to implement them.

The National Research and Development Agency, Japan Fisheries Research and Education Agency (FRA) was established on April 1, 2016 through a merger of the Fisheries Research Agency and the National Fisheries University. The FRA aims to maximize research and development (R&D) outcomes as the only comprehensive fisheries R&D organization in Japan. The National Research Institute of Far Seas Fisheries (NRIFSF) was established at Shizuoka city in 1967. As one of the national research institutes of the FA, NRIFSF covers the research for tunas, whales, and other international stocks commercially fished by Japan, and works in collaboration with RFMO's scientific committees globally in providing data and scientific analysis.

World Wide Fund for Nature (WWF) is an active tuna-lobbying environmental NGO, and participates in international meetings including RFMOs. They regularly update reports of the meetings on their website, and inform the public on the proceedings. Because of its large presence, it is usually the only NGO that is invited to the Japanese government tuna discussions, if they are open to NGOs. E.g., the WWF is involved in the management objectives and commission processes as part of the Japanese delegation to the WCPFC. These discussions were not open to all NGOs or interested stakeholders, but in 2017, FA and the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) held a call for all interested stakeholders to participate in the discussion, before a decision was brought to the WCPFC meeting. It is currently not clear if this practice becomes routine.

The WCPFC has three subsidiary bodies to support the decision-making of the Commission and which meet prior to the Commission meeting held every December: these are the Scientific Committee (SC), Technical and Compliance Committee (TCC), and The Northern Committee (NC). Each committee is comprised of representatives of member states. Decisions taken by the Commission are generally done by consensus, however if consensus cannot be reached, voting, grounds for appealing decisions, conciliation and review are all part of the decision making process, as described in Article 20 of the Convention. Decisions made in the scientific committee, at the commission and

other committees are usually explained in its documents published and available through the RFMO's website.

The IATTC accepts stakeholders such as fishing industry representative, NGOs, and other affected or interested individuals. Same as WCPFC, there are established guidelines for observer participation at IATTC. The opportunity to become a member or a cooperating non-member is open to all countries.

3.6.4 Decision Making

According to Article 20 of the WCPFC Convention, decision-making by the WCPFC is generally made by consensus (i.e., without formal objections when the decision was made). If all efforts to reach consensus have failed, decisions on questions of substance can be passed by a vote of three-fourths of the members of the Commission voting and present (http://www.internationalwatersgovernance.com/western-and-central-pacific-fisheries-commission-wcpfc.html). ARTICLE IX of the Antigua Convention states that decision making is by consensus. All members of the Commission have the opportunity to express their views on the proposed decisions, which the Parties shall take into account in reaching the final decision. (IATTC, 2003) Adopted conservation and management measures (CMMs) are binding. For implementation of adopted measures, independent reviews are conducted by external consultants to review Member State's performance(these are the so-called Part 2 reports, which are confidential). The 'Part 1 reports' give an annual overview of fishing activities, gear type, annual catch, fishing patterns and estimated total catches of non-target, associated and dependent species. The Part 1 reports are drsafted by the Member State and published formally. Reports from plenary sessions are also published and available publicly.

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. The WCPFC completed an external performance review in 2012.

Article 6 and Annex II of the WCPFC Convention, and the Article IV of IATTC's Antigua Convention require that members apply the precautionary approach and the Commission to be more cautious when information is uncertain, unreliable or inadequate. However, the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.

IATTC convene technical meetings annually with specialist working groups. Based on the scientific recommendation and analysis derived from the meetings, decisions are made to provide management advice.

IATTC is subject to regular internal review. This is demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission and which are published. The IATTChas_carried out an external performance review in 2016.

The Fisheries Agency of Japan participates in WCPFC and IATTC meetings and in their decision-making process. The FA is responsible for distribution and publication of Convention decisions and outcomes to the relevant agencies and fishing industries in Japan. It is also responsible for any changes in Japanese legislation and regulations to enforce decisions. As a member of FC, Eisei Maru Co. Ltd. (the vessels' company) has opportunities to provide information to the Japanese government to be reflected into the Convention's decision making process, either individually or through the JTSFCA. The determined RFMO decisions are communicated to JTSFCA from MAFF, then JTSFCA disseminates the information to each member. When Eisei Maru receives the information, it is

communicated to the Fishing Master by radio to ensure that the fishing operations are compliant with RFMO decisions.

3.6.5 Long and short term objectives

Chapter 1, Article 2 of the Fisheries Basic Act (2001), is the overarching framework for the management of fisheries in Japan and requires conservation and management of fisheries resources to ensure its sustainable use as a component of marine ecosystem, following UNCLOS, which Japan ratified in 1996.

The Law of Conservation and Management of Marine Living Resources (1996) legally enshrines Japan's commitment to "maximum sustainable production" and sets TAC and TAE systems and ABC calculation rules. The law also guides to protect surrounding ecosystem and habitat. Japan formally accepted the 1992 UN Convention on Biological Diversity. This formally commits Japan to the Precautionary Principle.

The National Fisheries Master Plan of 2017 shows the commitment to full utilization of fishery resources with sustainable management, to provide stable supply of products and contribute to the development of fishing communities. The Fishery White Paper 2017 part 2 shows the governmental aims to set measurable objectives and apply the precautionary approach, beginning with major commercial fisheries. The implementation of the Fishery White Paper is expected in the near future. Until then, local-level initiative through co-management framework is the main form of sustainable management, but this local management is already in accordance with MSC Principles 1 and 2.

The overall renewal process of "fishery permits for designated fisheries" set in the Japan's Marine Biological Resources Management Policy (MAFF, 2017) states that Japan manages skipjack resources through introduction and implementation of management measures by working with/ complying with WCPFC decisions. In addition, there is the establishment of voluntary management measures by each fishery cooperative (through their Resources Management Plan), such as voluntary off-fishing days.

The same policy (MAFF, 2017) does not state specific management objectives for albacore resources, thus only RFMO decisions are considered for management. RFMO's decision on management measures of both species are summarized in **Error! Reference source not found.** below.

Table 15. Summary of management measures of Albacore and Skipjack

	Skipjack (WCPO)	**Albacore (North Pacific)**
RFMO	WCPFC	WCPFC, IATTC
Scientific body	SPC	ISC
RFMO management objective	50%$SB_{F=0}$	Maintain current biomass, with low risk of biomass falling below 20%$SB_{F=0}$
RFMO Management measures	Bigeye, yellowfin, skipjack CMM 2017-01: purse seine closed season in EEZ and high seas (shortened from last year), number of FAD limit (none for pole and line)	Not increasing effort relative to period 2002-4 (WCPFC, 2005) (IATTC, 2005)
MAFF biological resources management policy, fisheries objective	Compliance is a Japanese responsibility, but reported to the RFMO	RFMO measure compliance, voluntary management (off-fishing days) License limit for pole and line skipjack and tuna fishery: 5 year renewal of

	Skipjack (WCPO)	Albacore (North Pacific)
FA license management **FA Resources Management Committee**	License limit for pole and line skipjack and tuna fishery, applied though prefecture. Reviewed Resources Management Plan once in 3 months, with VMS and port entry/departure dates.	license, License numbers are not increased but decreased constantly.
Japan Fisheries Cooperative (Voluntary management) Resources management plan	5 year Resources management plan made by JSTFCA and compliance by its members. More than 12 days of volunteer off-fishing days (vessel moored at port)	
Ishihara Suisan's company target	Juvenile Skipjack (less than 1.5kg): not exceeding 5% of total catch Bigeye tuna bycatch : less than 1%	Juvenile albacore (less than 4kg): not exceeding 10% of total catch Bigeye tuna bycatch : less than 1%

The client group has established its own target as below (see also **Error! Reference source not found.**). As the pole and line fishery is generally considered as an eco-friendly fishing method in comparison with other fishery methods, WCPFC and FA had not established numerical catch rules for reduction of bycatch and small-sized fish so far. To express its commitment to sustainable resources management, Ishihara Suisan in cooperation with Eisei Maru, has elaborated its previously implicit catch rules in a written document as presented to the team on January 25th, 2018.

- Juvenile Skipjack (less than 1.5kg): not exceeding 5% of total catch
- Juvenile albacore (less than 4kg): not exceeding 10% of total catch
- Bigeye tuna bycatch : less than 1%

3.6.6 Licensing

The Ministry Order for Designated Fisheries Permit and Controls (Article 5, MAFF 1963) governs the restrictions on the catch or handling of general aquatic animals and plants, their (or derived products) sale and possession, conditions and restrictions on fishing gear and vessel capacity, and is further stipulated in the Fisheries Law and the Law for Conservation of Fisheries Resources.

Fishing licenses are devided by tonnage: 'coastal' licenses are for vessels < 20 t, 'near shore' licenses for vessels 20 – 80 t, 'offshore' licenses for vessels 80-120 t and for >120 t the license/permit is called a 'distant-water skipjack and tuna fishery permit'. The latter is the kind of license owned by the vessel under assessment. For all licenses, the number provided is limited and controlled by the FA. Distant-water skipjack and tuna fishery permits are separate for pole and line and longline. MAFF announced in 2017 its policy to continuously reduce permit numbers on designated fisheries including the distant-water pole and line fishery by restricting permit issuance on only active vessels with recent catch records, thus limiting the number of licenses. Five years ago there were 43 Japanese pole and line vessels permitted in total, whereas in August 2017 only 42 licenses were renewed.

The vessel capacity ranks (based on gross tonnage) are set, and for each rank the number of permits are determined every 5 years, by reviewing the already permitted active vessels. The total number of permits to be issued are determined at the Fisheries Policy Council, by deducting the number of vessels that went out of business or have become inactive from the previously permitted vessel

numbers for each rank of vessel capacity, in consideration of the target species stock status. The total numbers of permits are announced in the official gazette (the total of longline and pole and line permits only). Before decision making at the Fishery Policy Council, several resources management working group meetings are held, where prefectural and local fishermen's opinions are invited (FA, 2016).

The license is requested by fishers through their local FC (in the case of this fishery, the Heda Fisheries Cooperative) to their local prefecture (in this case Shizuoka prefecture), which in turn submits the request to MAFF. Based on the track record of catches, and compliance with regulations, the license can be renewed when requested by the local cooperative. However, with a dwindling number of fishermen, currently Eiseimaru No.8 is the only permit holder for distant-water skipjack and tuna pole and line fishery within the Heda fishing cooperative, where there were 20-25 such permit holders in the past.

All vessels, including the UoC vessels, must carry VMS and provide catch and effort returns. While fishing in other national EEZs, the vessels must obey all fishing rules and regulations of that country. This is set out in the fishing permit conditions. Other requirements include measures to reduce bycatch mortality of seabirds, sea turtles and sharks.

3.6.7 Monitoring Control Surveillance and Enforcement

MAFF controls the fishing effort of the distant-water pole and line tuna fishery by setting a ceiling in the number of licenses, as discussed in the previous section.

Article 28 of Ministerial Order on Designated Fisheries Permits and Control stipulates the fishermen's obligation to report the catch amount from each distant-water tuna fishery trip within 30 days from returning to the port with a format provided by the MAFF. The catch data are consolidated and provided to the NC and ISC for scientific analysis. Other measures applicable as RFMO members, following the agreed upon CMMs, come as the condition to the license, and vessels must comply to maintain the license. Vessels must submit documentation (self reporting on bycatch, and landing reports) to prove compliance at the license renewal.

Sanctions may be applied through the Ministerial Order on Designated Fisheries Permits and Control, based on the Fisheries Law and the Law on Marine Resources Protection, in case of violation of the regulations on fishery permits and relevant conditions, vessel capacity, catch reporting, surveillance compliance, VMS, transshipment and landing of fish. The sanctions are either imprisonment, fines, permit removals or suspensions, confiscation of catch, boat or gear or a combination of these, depending on the infraction.

Both the WCPFC and IATTC have established vessel registration, and catch and effort monitoring. There is an established "positive list" of registered vessels shared among all RFMOs for IUU prevention. The Eisei Maru No.8 carries a current valid license and VMS. The pole and line fishery is not subject to the WCPFC's Regional Observer Program. At-sea inspections and surveillance are carried out by national authorities and reported to WCPFC.

The WCPFC has a Compliance Monitoring Scheme (CMS) in place that assesses members' compliance with obligations and regulations, identifies areas of conservation and management that may need refinement, responds to non-compliance, and monitors and resolves non-compliance issues. Independent reviews of the CMS are also conducted to ensure its effectiveness. The Technical and Compliance Committee (TCC) meets in October and is the "enforcement" committee of the Commission. The TCC reviews members' adherence to Commission decisions and monitors individual

countries' implementation of those measures through their reports (the aforementioned Part 2 reports). The TCC also makes recommendations to the Commission with respect to encouraging, improving and enforcing compliance by members with the decisions of the Commission.

3.6.8 Management in Federated States of Micronesia (FSM)

Development and management of the marine resources of FSM, including the licensing of foreign fishing vessels, falls under the jurisdiction of the National Oceanic Resources Management Authority (NORMA). Title 18 of the FSM Code establishes NORMA's jurisdiction over the territorial sea from 12nm to 200nm EEZ. (Inside 12nm the individual states have juridiction, but this does not apply to this fishery.) The functions, roles and responsibilities of NORMA and its staff are defined under Title 24 of the FSM Code. The duties and functions of NORMA include providing technical assistance for fisheries management, in the negotiation of foreign fishing agreements and for participation in international bodies (i.e. WCPFC), licensing domestic and foreign vessels in the offshore (tuna) fishery, monitoring and data collection (catch, effort and other data) and compliance and enforcement. FSM has a Tuna Management Plan (FSM, 2015) to guide national policy and actions. FSM is a member of the PNA, and implements the purse seine and longline vessel days schemes (but neither of these apply to this fishery).

Japanese fisheries cooperatives jointly negotiate and establishe EEZ fishing entry agreements with NORMA to aqcuire fishing rights within FSM. JTSFCA also establishes fishery operational conditions on pole and line fisheries within the FSM EEZ, to promote compliance with the EEZ fisheries agreement with FSM. The coastal area within 24 nm, and within 2 nm from a fixed FAD set by FSM residents, are prohibited for entry, as well as within 1 nm from all submerged reefs. All fishing gears must be stored during navigation in these areas.

Vessels must accept observers all through the year, pay the observer fees agreed for fishing entry and other associated fees. Vessels must enable Automatic Location Communicators (ALCs) at all times, and comply with the surveillance inspections requested by FSM authority.

Total catch, including numbers and species of discards and bycatch are to be recorded daily and reported to JTSFCA using SPC / FFA Regional Pole and Line Logsheet (a common format for all Pacific islands fishery managed through SPC) within 3 days after the catch, which will be reported to NORMA.

4 Evaluation Procedure

4.1 Harmonised Fishery Assessment

This fishery overlaps with a number of other North Pacific albacore and WCPO skipjack fisheries in the MSC programme:

Table 16. Overlapping fisheries with which harmonisation is required.

Fishery	Stock
PNA Western and Central Pacific skipjack and yellowfin, unassociated / non FAD set, tuna purse seine	WCPO skipjack
Solomon Islands skipjack and yellowfin tuna purse seine and pole & line	WCPO skipjack
Tri Marine Western and Central Pacific skipjack and yellowfin tuna	WCPO skipjack
Japanese Pole and Line skipjack and albacore tuna fishery	WCPO skipjack Northern Pacific Albacore
PT Citraraja Ampat, Sorong pole and line Skipjack and Yellowfin Tuna	WCPO skipjack
CHMSF British Columbia Albacore Tuna North	Northern Pacific Albacore
AAFA and WFOA North Pacific albacore tuna	Northern Pacific Albacore
Talley's New Zealand Skipjack Tuna Purse Seine	WCPO skipjack

In April 2016, MSC held a harmonization workshop which aimed to align P1 scores across WCPFC stocks (MSC, 2016), including WCPO skipjack and NP albacore. MSC requires the assessments are harmonized between fisheries in relation to outcomes (pass/fail and conditions). Therefore the assessment of Principle 1 for this fishery has taken the conclusions of the harmonization workshop into consideration. However, since the harmonisation process, there has been a new stock assessment for both stocks, as well as a new CMM for tropical tuna species managed by WCPFC and a new harvest strategy for NP albacore; hence the conclusions of the harmonisation process are increasingly irrelevant.

There are also several overlapping fisheries, already certified with these stocks as target species (Table 16). The scoring of these fisheries is similar across the board for Principle 1. All have been audited since the new stock assessments, but none have taken into account the new harvest strategies for each species (CMM 2017-01 for skipjack and new harvest strategy for NP albacore). This means that for PI1.2.1d for NP Albacore, the scoring (SG80) is a change from the agreed harmonised scores (MSC, 2016; see Appendix 2), but this is appropriate given that progress has been made since April 2016 when the workshop took place.

A comparison of scores indicates that despite small differences in scoring, these all occur within the SG80 – 100 range, indicating no material difference in outcome.

This fishery under assessment is currently the only ongoing full-assessment for NP Albacore. We have reached out to the other CABs to inform them of our scores.

Table 17. Principle 1 scoring of overlapping fisheries

Stock	Fishery	1.1.1	1.2.1	1.2.2	1.2.3	1.2.4
WCPO skipjack	MSC harmonized scoring (April 2016 workshop)	100	70	60	90	95
	Japan pole and line skipjack and albacore	100	70	60	90	95
	Solomon Islands skipjack and yellowfin purse seine and pole and line	100	70	60	90	95
	TriMarine West Pacific skipjack and yellowfin	100	70	60	90	95
	PNA skipjack	100	70	60	90	95
	Talley's New Zealand skipjack purse seine	100	70	60	90	95
	Ishihara Marine Products Albacore and Skipjack pole and line	100	70	60	90	95
North Pacific albacore	MSC harmonized scoring (April 2016 workshop)	100	80	60	90	100
	Japan pole and line skipjack and albacore	100	80	60	90	100
	CHMSF British Columbia albacore	100	90	60	90	100
	AAFA/WFAO North Pacific albacore	100	85	60	100	100
	Ishihara Marine Products Albacore and Skipjack pole and line	80	85	60	90	100

4.2 Assessment Methodologies

This assessment was conducted in accordance with the MSC Fisheries Standard v2.0 and MSC Full Assessment Reporting Template version 2.0, and used the Default Assessment Tree without adjustments.

4.3 Evaluation Processes and Techniques

4.3.1 Site Visit and consultations

The site visit was held at Yaizu City, Shizuoka Prefecture Japan on 23rd-26th January 2018. The individuals met during the site visit and their roles in the fishery are listed in Table 18.

The team initially met at the office of the client in Yaizu City, but also visited the National Research Institute of Far Seas Fisheries at Shizuoka, and the Yaizu Fisheries Cooperative, where they had the opportunity to visit the vessel itself (see Figure 23).




Figure 23. The Eisei Maru No.8. Right: view from the captain's cabin. Photos taken during site visit.

The captain was briefly interviewed. The team was also able to witness the unloading process from another tuna vessel, offloading at the cooperative.

Originally, the fishery was announced for the Japanese EEZ and high seas. During the site visit, the team learned that the vessel not only operates in the Japanese EEZ and High Seas, but may also obtain licenses to fish in other EEZs in the Pacific. As this fishery has operated in the EEZ of the Federated States of Micronesia for the last few years, and was able to supply the team with the relevant catch data, the CAB submitted a Variation Request to MSC to get permission to include the FSM EEZ in this assessment. This Variation Request was granted on 12th June 2018 and subsequently additional stakeholders with a potential interest in the FSM EEZ were notified of the addition.

Table 18. List of attendees at the on-site meetings.

Affiliation	Name	Date
Control Union Japan	Kazumi Watanabe	23rd January
MSC Japan	Hiroki Takamiyagi	23rd-25th January
Ishihara Marine Products Co. Ltd.	Toshitaka Kumashiro	23rd and 25th January
Ishihara Marine Products Co. Ltd.	Katsuhiko Yoshinaga	23rd-25th January
Ishihara Marine Products Co. Ltd.	Takayuki Kondo	23rd and 25th January
Eisei Maru	Taichi Arawaka	23rd January
Hiroshi Nishida	Fisheries Research and Education Agency (NRIFSF)	24th January
Isao Sakaguchi (remote through Skype)	Gakusyuin University (Environmental policy)	24th January
Yaizu Fisheries Cooperative Association	Yasuharu Aoki	24th January
Yaizu Fisheries Cooperative Association	Shingo Suzuki	24th January
Yaizu Fisheries Cooperative Association	Toshiyuki Kinpara	24th January
Fisheries Agency (remote, by phone call)	Teruo Kitade	25th January
Control Union Pesca	Cora Seip	23rd-25th January
Control Union Pesca	Yoko Tamura	23rd-25th January

Affiliation	Name	Date
Control Union Pesca	Jo Gascoigne	23rd-25th January
Control Union Pesca	Jocelyn Drugan	23rd-25th January

The information obtained during the site visit has been incorporated throughout the main report; however key points are summarised below:

- Ishihara Marine Products/ Eisei Maru: Information about traceability from capture to 1st point of sale, details on fishing operations, gear use, bait use, bycatch avoidance tactics, ETP interactions, gear loss
- NRIFSF: Information on stock assessment, and other data collection regarding (tropical) tuna, information on interactions with other species and potential by-catch
- Yaizu Cooperative: Information about traceability from capture to 1st point of sale, information about the data collection and reporting to the Fisheries Agency.
- Fishery Agency: Information about the management and implementation of the fishery (operations, data gathering and analysis, management structures, decision making process and responsibilities, management plans, regulations, enforcement etc

4.3.2 Evaluation Techniques

a) Media announcements: CU Pesca selected the MSC as media outlet. The MSC press release targeted a wide range of stakeholders within the sustainable seafood industry, ensuring that key stakeholders were notified of this fishery's announcement. MSC Japan, in cooperation with Control Union Japan (a sister-company of CU Pesca), also published a separate press release about the assessment.

Aside from the general communication to stakeholders about the assessment, the team also reached out to a few stakeholders directly, to ensure their participation during the site visit. This was done by team member Yoko Tamura in Japanese.

b) Methodology for information gathering: Review of data and documentation, interview of stakeholders.

c) Scoring process: Scoring was agreed by the team via email correspondence. Consensus was reached for all scores.

The scores were decided as follows:

How many scoring issues met?	SG60	SG80	SG100
All	60	80	100
Half	FAIL	70	90
Less than half	FAIL	65	85
More than half	FAIL	75	95

Note that where there is only one scoring issue in the SG, the issue can be partially scored – in this case the team used their judgement to determine what proportion of it was met, e.g. at the 100 level, a small part met = 85, about half met = 90, nearly all met = 95.

d) Decision rule for reaching the final recommendation: The decision rule for MSC certification is as follows:

- No PIs scores below 60;
- The aggregate score for each Principle, rounded to the nearest whole number, is 80 or above.
- The aggregate score for each Principle is the sum of the weighted score of each Performance Indicator within that Principle.

e) Scoring elements: The set of scoring elements considered in the assessment is listed in Table 19.

Table 19. Scoring elements

Component	Scoring elements	Main/Not main	Data-deficient or not
Target species - NP albacore	NP albacore	N/a	No
Target species – WCPO skipjack	WCPO skipjack	N/a	No
Primary Species	Japanese pilchard (*Sardinops melanostictus*)	Not main	No
	WCPO bigeye, WCPO yellowfin, Japanese anchovy (*Engraulis japonicus*)	Not main	No
	See **Error! Reference source not found.** and **Error! Reference source not found.**		
Secondary species	Yellowtail amberjack (*Seriola lalandi*), dolphinfish (*Coryphaena hippurus*)	Not main	No
	See **Error! Reference source not found.** and **Error! Reference source not found.**		
ETP species	Elasmobranchs, sea turtles, seabirds and cetaceans	N/a	no
Habitats	None	N/a	N/a

f) Use of the RBF

Originally, the fishery's assessment was announced with the use of the RBF, as there are no observer data available for this fishery (the pole and line fishery is not required to take observers, as per WCPFC CMM-2007-001). It was therefore anticipated that the RBF would be needed to determine the likely Primary (PI 2.1.1), Secondary (PI 2.2.1) and ETP species (PI 2.3.1) that this fishery interacts with. In addition, under Secondary species (2.2.1), stock status reference points for some out of scope species were unlikely to be available. The RBF would thus be required to determine the impact of the fishery on these species.

During the site visit, consultation with Dr Nishida of the National Research Institute of Far Seas Fisheries at Shizuoka and Dr Sakaguchi from Gakusyuin University confirmed that the fishery interacts with a limited amount of species, aside from the target species, and that the catch data were a good reflection of the catch composition. No other species that the fishery would interact with were identified by the stakeholders. As discussed in Section **Error! Reference source not found.**, the fishermen report that seabirds and sea turtles are not incidentally caught, and other stakeholders

confirmed that pole and line fisheries are not a significant source of mortality on these species, nor is there significant interaction with marine mammals.

After the site visit, the CAB therefore informed stakeholders of a change in the use of the RBF and announced that the Default Assessment Tree would be used to score the Primary, Secondary and ETP species outcomes.

5 Traceability

5.1 Eligibility Date

The eligibility date shall be the date of publication of the PCDR. Any product caught after the **18th December 2018**, by the Eisei Maru No.8 and conforming to the UoA detailed in Section **Error! Reference source not found.** shall thus be eligible to bear the MSC ecolabel, pending the successful outcome of this evaluation , subject to the traceability conditions given in Section 5.2 as well as Clause 5.6 of the MSC CoC Default Standard v4.0 for under-assessment product.

5.2 Traceability within the Fishery

After hauling, the fish are put on the deck, and are immediately placed in a tank with chilled brine water. The fish are not sorted. After a day in the brine, the fish are moved to the freezer at -50°C. There is no processing on board apart from adult bigeye and yellowfin tunas: from these incidentally caught specimens, the tail, fins, and gills are removed to drain the blood and keep the quality better during storage. The remainder of the fish remain whole and are identifiable to species level. The catch is sorted by species and size during landing at the quayside, by employees from the Fishery Cooperative.

Each catch is noted in the vessel's logbook, and verified by the Cooperative at landing.

At the end of each fishing trip, the vessel has to notify the port of landing (the Fishery Cooperative on site) approximately 1.5 working days in advance of landing the fish. The vessel also provides the cooperative with a list of the catch that is on board, which the cooperative in turn shares with potential buyers. The fishing company (Eisei Maru) decides whether they want to have an auction to sell off the catch, or whether they sell their catch directly to a buyer, which often is Ishihara Marine Products (though not exclusively). Activities (storage, processing) by Ishihara Marine Products, though the client for this assessment on behalf of the vessel, are not covered by this certificate, but as a buyer and processor have their own Chain of Custody certificate.

After docking, the cooperative's task is to land the catch; the fishing crew only removes the fish from the hold, and may help to put the fish on the sorting machine, but the cooperative is responsible for the landing and sorting, and will take down the final total weight of the catch.

Sales are made either directly by the vessel before landing, or through auction and the cooperative provides only the administrative assistance to the vessel (sales document, keeping of records) on behalf of the fishing company, even if they choose to sell directly. If the fish is sold through auction, the cooperative is authorized by the fishing company to sell the fish on their behalf.

The cooperative keeps records of the originally reported weight, of the weight that is landed, and what has been sold and for what price and to whom. This is reported each month by the Cooperative to the Japanese information center (part of the Fisheries agency).

Ownership changes at processing of the sale, which usually happens directly after landing. Sale is either directly, based on a pre-sale agreement while the vessel is still at sea, or after auction.

The cooperative does not store the fish, and only functions as administrative and facilitating organisation. The fish gets sorted after landing and goes into a freezer hold, which is owned by either the fishing company (when the catch remains unsold) or the processor (the buyer). This last part is not covered by the fisheries' certificate.

Sorting and selling is done on a vessel-by-vessel basis, so there is no risk of mixing.

The paperwork of the Cooperative also notes whether the catch is MSC (see Figure 24), thereby ensuring a paper trail from vessel to cooperative to the buyer to ensure the traceability of MSC product.

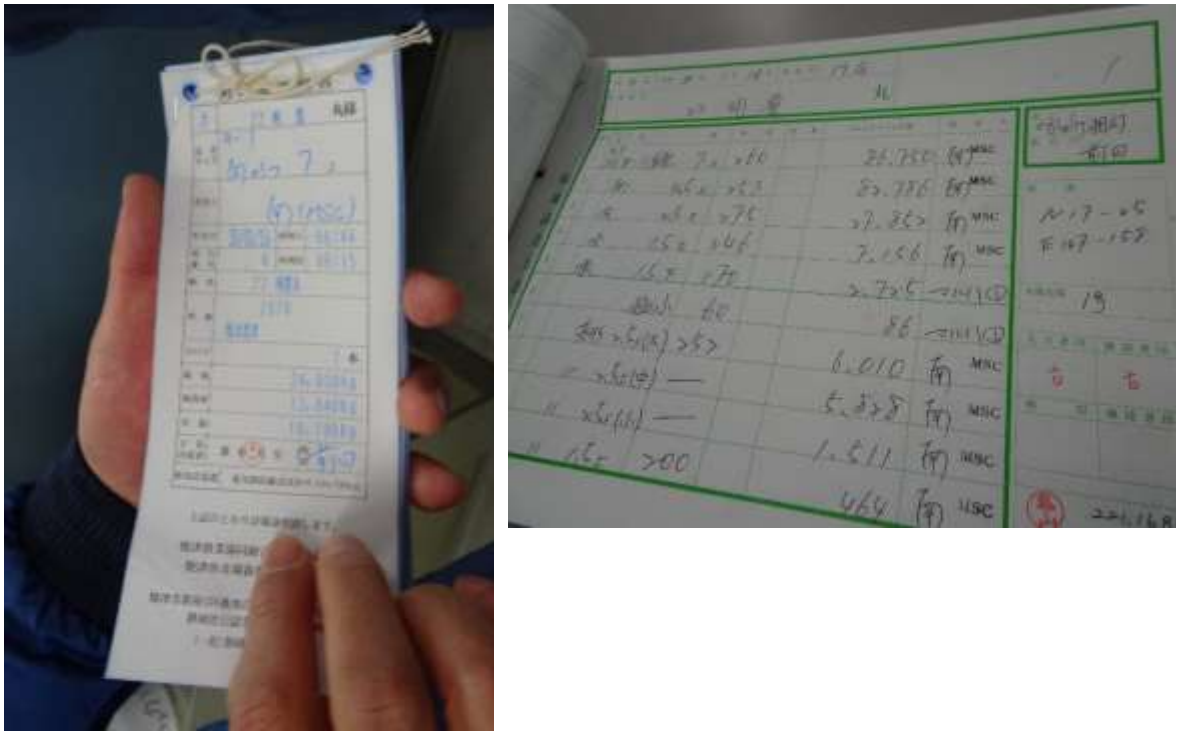


Figure 24. Catch- and landing registration at the Yaizu cooperative, noting the catch is MSC. Photos taken by CU Pesca during the site visit.

Table 20. Traceability 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 – the Eisei Maru No. 8 is registered only as a pole and line vessel with the FFA (32500) and fitted with VMS monitoring systems for compliance and monitoring. Fish caught from this vessel are boxed and labelled B-1 for pole and line.
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	The fishery can also apply for licenses from e.g. the Marshall Islands and Kiribati. Currently, the fishery does not have the license to fish in these areas. In case fishing were to happen in these EEZs, the catch would not be covered by this assessment, and needs to be kept separately from MSC-catch in the freezer, and classified as non-MSC. Currently, all fishing trips are covered by this assessment. The client needs to inform the CAB if fishing licenses for other areas are obtained and detail how the catch will be kept separate on board and at landing.
Potential for vessels outside of the UoC or client group fishing the same stock	A large number of vessels outside of the UoC do fish the stock but the chance of these fish being landed as part of the UoC is minimal. Should full assessment result in certification, a vessel

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)
	list will be published along with the certificate to mitigate for this risk.
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)	Once the fish are caught and brought onto the deck a blue sheet is spread out to receive the fish and each fish is carried out in front of a fish storage tank (the brine tank). In front of the entrance to the tank, staff takes notice of the amount of fish in the hold and the freezer and estimates the amount of fish that is in storage according to its size rank (super big, big, mid, small) with each class having certain weight range that differs by species. There is no weighing on board, the crew works of off their experience and is able to make accurate estimations. The fish are put in the tank with brine water. Each tank holds about 15t of fish although each tank has a different capacity. After 24 hours in the brine system the fish are moved to the freezer until the vessel returns to port. At landing, about 10-15 staff at the port market (fishermen's cooperative market – thus cooperative staff) sort the fish via a conveyor system by size and species. The sorted fish are put into the cooperative's box with signed paperwork attached to show the origin vessel, species, size etc. If there is no direct sale from the vessel to a buyer, an auction is held in this location by the cooperative's staff. Ownership changes at sale, either directly, or after auction. In both cases, the cooperative market produces a purchase slip and keeps the trade record at the market, which is later reported to FA (this will e.g. be used for market statistics). It is anticipated that the fishery certificate will cease at the point of change of ownership, which is happens at of processing of the sale by the cooperative (most often at point of landing), and from that point on MSC chain of custody certification will be required.
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 at sea processing, other than chilling and freezing of the catch.
Risks of mixing between certified and non-certified catch during transhipment	No transshipment occurs within this fishery and so the risk is seen as minimal.
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	No other risks have been identified. Product is landed directly and chain of custody will be required from the first change of ownership. Risk of mixing of certified and non-certified product here is therefore minimal.

5.3 Eligibility to Enter Further Chains of Custody

Western Central Pacific Ocean Skipjack and North Pacific Albacore caught by the vessel Eisei Maru No.8 within the Japanese EEZ, High seas, and FSM EEZ and after the date of publication of the PCDR will be eligible to enter further chains of custody. However, any trips which include EEZs other than the Japanese and FSM EEZ shall be classed as non-MSC certified and will not be eligible to enter further chains of custody. Currently, all fishing trips are covered by this assessment. The client needs

to inform the CAB if fishing licenses for other areas are obtained and detail how the catch will be kept separate on board and at landing.

Point of landing are either the port of Heda, Shizuoka, at the facilities of the cooperative of Heda or at the port of Yaizu, Shizuoka, at the Yaizu cooperative.

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

No IPI stocks were identified in this assessment.

6 Evaluation Results

6.1 Principle Level Scores

The final principal scores are provided in Table 21.

Table 21. Final Principle Scores

Final Principle Scores		
Principle	**Score Skipjack**	**Score Albacore**
Principle 1 – Target Species	**85.8**	**82.5**
Principle 2 – Ecosystem	**90.3**	**90.3**
Principle 3 – Management System	**85.7**	**85.7**

6.2 Summary of PI Level Scores

Princi-ple	Component	Wt	Performance Indicator (PI)		Wt	Score Skipjack	Score Albacore
One	Outcome	0.33	1.1.1	Stock status	0.5	**100**	**80**
			1.1.2	Stock rebuilding	0.5	-	-
	Management	0.67	1.2.1	Harvest strategy	0.25	**70**	**85**
			1.2.2	Harvest control rules & tools	0.25	**60**	**60**
			1.2.3	Information & monitoring	0.25	**90**	**90**
			1.2.4	Assessment of stock status	0.25	**95**	**100**
Two	Primary species	0.2	2.1.1	Outcome	0.33	**100**	**100**
			2.1.2	Management strategy	0.33	**80**	**80**
			2.1.3	Information/Monitoring	0.33	**90**	**90**
	Secondary species	0.2	2.2.1	Outcome	0.33	**100**	**100**
			2.2.2	Management strategy	0.33	**85**	**85**
			2.2.3	Information/Monitoring	0.33	**90**	**90**
	ETP species	0.2	2.3.1	Outcome	0.33	**90**	**90**
			2.3.2	Management strategy	0.33	**80**	**80**
			2.3.3	Information strategy	0.33	**80**	**80**
	Habitats	0.2	2.4.1	Outcome	0.33	**100**	**100**
			2.4.2	Management strategy	0.33	**80**	**80**
			2.4.3	Information	0.33	**100**	**100**
	Ecosystem	0.2	2.5.1	Outcome	0.33	**100**	**100**
			2.5.2	Management	0.33	**80**	**80**

Princi-ple	Component	Wt	Performance Indicator (PI)		Wt	Score Skipjack	Score Albacore
			2.5.3	Information	0.33	**100**	**100**
Three	Governance and policy	0.5	3.1.1	Legal &/or customary framework	0.33	**85**	**85**
			3.1.2	Consultation, roles & responsibilities	0.33	**85**	**85**
			3.1.3	Long term objectives	0.33	**90**	**90**
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.25	**90**	**90**
			3.2.2	Decision making processes	0.25	**85**	**85**
			3.2.3	Compliance & enforcement	0.25	**85**	**85**
			3.2.4	Monitoring & management performance evaluation	0.25	**80**	**80**

6.3 Summary of Conditions

See Appendix 3. The fishery is provisionally proposed to be certified with 3 conditions.

The proposed conditions are as follows:

Condition number	Condition	Performance Indicator
1	WCPO skipjack needs a harvest strategy that is responsive to the state of the stock, with and the elements of the harvest strategy (monitoring, stock assessment, harvest control rules and management actions) working together to achieve stock management objectives.	**Skipjack PI1.2.1a**
2	WCPO skipjack needs a harvest control rule that ensures that the exploitation rate is reduced as the PRI is approached and is expected to keep the stock fluctuating around the target level and robust to the main uncertainties. The tools used to implement the HCR should be effective in achieving the required exploitation levels.	**Skipjack PI1.2.2**
3	North Pacific albacore needs a harvest control rule that ensures that the exploitation rate is reduced as the PRI is approached and is expected to keep the stock fluctuating around the target level and robust to the main uncertainties. The tools used to implement the HCR should be effective in achieving the required exploitation levels.	**NP Albacore PI1.2.2**

6.4 Recommendations

The following recommendation was also issued by the team:

The use of bait by the Eisei Maru No.8 is less than 0.04% of the estimated 2016 SSB for the Pacific Ocean stock of anchovy, suggesting a negligible impact by the UoA. However, the current status of

the stock is poor, and this is considered to be due to a combination of heavy exploitation rates and environmental factors (decadal-scale ecosystem fluctuations which tend to result in an inverse correlation between sardine biomass and anchovy biomass). On a national scale, fishing mortality for bait use may be significant. About 84% of Japan's anchovy harvest is used for aquaculture feed and bait, and for other, comparable species such as Japanese pilchard, about 30% of the harvest is used as aquaculture feed (I. Sakaguchi, Gakusyuin University, pers. comm., 4 February 2018).

The company (Eisei Maru) has some strategies with regards to bait use: They buy limited quantities and have incentives to maximize bait fish survival on board, and to do so fishers purchase from different bait suppliers during different parts of the year, to try to get larger (>10 cm), healthy fish that can better survive during fishing trip. Due to the poor status of the stock, however, it is recommended to look into optimizing the bait sourcing strategy, e.g. to look at other bait species with a healthy stock status, or find other means of baiting the tuna, so as to limit the need for Japanese anchovies.

6.5 Determination, Formal Conclusion and Agreement

(REQUIRED FOR FR AND PCR)

1. The report shall include a formal statement as to the certification determination recommendation reached by the Assessment Team about whether or not the fishery should be certified.

(Reference: FCR 7.16)

(REQUIRED FOR PCR)

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

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Appendices

Appendix 1 Scoring and Rationales

Appendix 1.1 Principle 1 scoring rationales – WCPO Skipjack

Evaluation Table for PI 1.1.1 – Stock status (Skipjack)

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			
	Guidepost	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 2016 SC meeting was not able to reach consensus on the model runs that should be used to characterise stock status. The majority supported using the 'reference case' model (see Section 3.3.2), the conclusions of which are that SB is close to the agreed TRP (50%$SB_{F=0}$) and more than double SB_{MSY} (Table 5). Some participants, however, considered that this model was too optimistic, based on observed declines in CPUE at the stock periphery (close to Japan). Considering the full range of the structural uncertainty grid (5% and 95% CIs; see Table 5) SB ranges from ~40-57% of $SB_{F=0}$. For the purposes of scoring this SI, we take the PRI to be the agreed limit reference point (20% $SB_{F=0}$). Across the whole structural uncertainty grid from the stock assessment, we can infer that the SB has a <<5% probability of being below this point. Projections to 2018 show the stock dropping below the TRP, but the 5% CI remains above the LRP (median estimate of F_{2018}/F_{MSY}=0.37; median $SB_{2018}/SB_{F=0}$ =0.47; see Figure 7). On this basis, **SG100 is met**.		
b	Stock status in relation to achievement of MSY			
	Guidepost		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	SB_{MSY} is estimated (median estimate) at 23%$SB_{F=0}$. MSC provide a default value for B_{MSY} in terms of B_0 of 40%, but the guidance notes that this is only used if B_{MSY} is not analytically determined (GSA 2.2.3.1). Therefore, for the purposes of scoring here the team have used the analytically determined value of SB_{MSY} (i.e. 23%SB0). It is worth noting, however, that this is only just above the LRP used as a proxy for the PRI above. Estimates of SB_{recent}/SB_{MSY}: reference case model: 2.31; median of structural uncertainty grid: 2.04; lower 5% confidence interval of uncertainty grid: 1.58 In other words, there is a probability <5% that the stock is below SB_{MSY}. According to the status quo projections (see Figure 7), the lower 5% CI of SB is not projected to drop below SB_{MSY} through 2018. **SG100 is met**.
References		(WCPFC 2017c; McKechnie, Hampton, et al. 2016; Pilling et al. 2017; WCPFC 2016b)

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)	Depletion	20% $SB_{F=0}$	SB_{recent} = 52% $SB_{F=0}$ (ref. case model)
Reference point used in scoring stock relative to MSY (SIb)	Depletion MSY	50%$SB_{F=0}$ SB_{MSY} = ~23%$SB_{F=0}$ (ref. case model)	SB_{recent} = 2.31 SB_{MSY} (ref. case model)

OVERALL PERFORMANCE INDICATOR SCORE:	**100**
CONDITION NUMBER (if relevant):	**N/a**

Evaluation Table for PI 1.1.2 – Stock rebuilding (Skipjack). Not applicable, not scored.

Evaluation Table for PI 1.2.1 – Harvest strategy (Skipjack)

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			
	Guidepost	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	N
	Justification	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 – MSCI Vocabulary v1.1). The stated objective of the WCPFC harvest strategy for skipjack as defined in CMM 2017-01 is to maintain the biomass on average at a level consistent with the agreed interim target reference point (50% $SB_{F=0}$; CMM 2015-06). CMM 2014-06 commits WCPFC to developing a formal harvest strategy for skipjack and the other key stocks; unlike the other stocks, some tangible progress has been made for skipjack (i.e. agreement of a TRP). The workplan was updated at WCPFC14, and commits WCPFC to implementing a formal harvest strategy for skipjack in 2021 (see harvest strategy workplan; Attachment L in the summary report from WCPFC14). For the moment, however, the elements of the WCPFC harvest strategy are the following: • Data collection on the stock and fishery (considered in detail in PI 1.2.3 below) • Stock assessment process (considered in detail in PI 1.2.4 below) • Limit reference point (20%$SB_{F=0}$) and target reference point (50%$SB_{F=0}$) (see PI 1.1.1) • 'Available' HCR (see 1.2.2), with some management tools set out in 2017-01 (described in Section 3.3.3); • Monitoring of implementation of CMM 2017-01 via data gathering and Part 1 and 2 reports to the Commission. This management strategy is reviewed annually during the Commission meeting. PNA harvest strategy: PNA operate a purse seine vessel day scheme (VDS) which limits effort by setting an overall 'TAE' (total allowable effort) which is divided up for each of the parties to the agreement. The TAE is set annually based on objectives of 'optimal exploitation' as well as WCPFC provisions (which presumably		

		means MSY). The days are set based on the objective of limiting purse seine effort to 2010 levels (which was a requirement of the previous tropical tuna CMMs, although not 2017-01). Overall scoring: The team considered that the current management framework (WCPFC plus PNA) can be expected to ensure that F and SB remain at appropriate levels; this is supported by the current stock status and status quo projections (see Figure 7). The status quo projections suggest that the stock is fluctuating around the agreed management target (dropping below but then rebuilding). Although the 'status quo' from 2016 was while CMM 2015-01 rather than 2017-01 was in force, a comparison of the two CMMs does not suggest any significant difference in effort levels arising from this change in management.) The target is well above estimated SB_{MSY} (see 1.1.1b) and the formal management objective is to maintain stock at the target level 'on average', so the harvest strategy appears to be working. On this basis, **SG60 is met**. SG80 requires that the harvest strategy is 'responsive to the state of the stock'. Although work is ongoing in WCPFC towards a formal HCR, there is nothing in place at present, and management has been on an *ad hoc* basis. In practice, a HCR should be responsive to the state of the most vulnerable stock in a mixed fishery, which is likely bigeye or yellowfin, rather than skipjack. However, the harvest strategy was not particularly responsive to the stock status for bigeye throughout the period when it was considered depleted (until structural changes to the 2017 stock assessment suggested a more optimistic outcome). Likewise for PNA, there is not a clear linkage between potential catch and TAE, and the process for determining TAE is not transparent. The team concluded that there is not sufficient evidence that the harvest strategy is responsive to the state of the stock; **SG80 is not met.**		
b	Harvest strategy evaluation			
	Guidepost	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	Evidence from the stock assessment (2016) and status quo projections (2016 and 2017) suggest that the stock will remain above the LRP and SB_{MSY} with a high degree of certainty, and will fluctuate around the TRP. Changes in WCPFC management (CMM 2015-01 → 2016-01 → 2017-01) over this period are minor, while the VDS TAE has reduced slightly over the period 2016-2018 (Table 5), so status quo projections are considered to be consistent with actual effort. **SG80 is met**. However, the harvest strategy at present is *ad hoc*, and has not been fully evaluated, so SG100 is not met.		
c	Harvest strategy monitoring			
	Guidepost	Monitoring is in place that is expected to determine whether the harvest strategy is working.		

	Met?	Y		
	Justification	Monitoring of the fishery for the purposes of stock assessment is considered in PI 1.2.3 below, and the analysis of data is considered under PI 1.2.4. Monitoring of the implementation of the harvest strategy (notably CMM 2017-01) is carried out via self-assessment by CCMs, included in their Part 1 and 2 reports submitted to WCPFC annually. **Met**.		
d	Harvest strategy review			
	Guidepost			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Not evaluated
	Justification	Since SG80a is not met, this has no impact on the scoring.		
e	Shark finning			
	Guidepost	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?	n/a	n/a	n/a
	Justification	The target species is not a shark.		
f	**Review of alternative measures**			
	Guidepost	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 **biannual** 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?	n/a	n/a	n/a

	Justification	There is no unwanted catch of the target stock from this fishery. This fishery targets skipjack (and NP albacore) specifically, and there are no requirements such as minimum or maximum landing sizes or quotas which could lead to any of this catch being unwanted. Discarding rates for skipjack are minimal, according to the stock assessment report. Hence there is no 'unwanted catch' of skipjack in this fishery.
References		(McKechnie, Hampton, et al. 2016; WCPFC 2017b; Pilling et al. 2017); CMMs 2017-01, 2016-01, 2015-01, 2015-06, 2014-06
OVERALL PERFORMANCE INDICATOR SCORE:		**70**
CONDITION NUMBER (if relevant):		**1**

Evaluation Table for PI 1.2.2 – Harvest control rules and tools (Skipjack)

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			
	Guidepost	**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	SA2.5.2 In scoring issue (a) at the SG60 level, teams shall accept 'available' HCRs (instead of HCRs that are 'in place') in cases where: a. Stock biomass has not previously been reduced below the MSY level or has been maintained at that level for a recent period of time that is at least longer than 2 generation times of the species, and is not predicted to be reduced below BMSY within the next 5 years; or b. In UoAs where BMSY estimates are not available, the stock has been maintained to date by the measures in use at levels that have not declined significantly over time, nor shown any evidence of recruitment impairment. SA2.5.3 Teams shall recognise 'available' HCRs as 'expected to reduce the exploitation rate as the point of recruitment impairment is approached' only in cases where: a. HCRs are effectively used in some other UoAs, that are under the control of the same management body and of a similar size and scale as the UoA; or b. An agreement or framework is in place that requires the management body to adopt HCRs before the stock declines below BMSY. WCPO skipjack stock biomass has not previously been reduced below the MSY level, according to the stock assessment (see Figure 7). Short-term projections suggest that biomass will decline below the agreed TRP in 2018 but in the longer term will increase again, and will be maintained consistently above the MSY level (see 1.1.1b). Unlike bigeye and yellowfin, there is no consistent downwards trend in skipjack biomass across the region over the time series.		

		WCPFC have an agreed, legally-binding framework in place to establish formal harvest strategies and control rules for their main stocks, including WCPO skipjack (see CMM 2014-06 and associated workplans; Section 3.3.4). SA2.5.3b is therefore met. On this basis, for a HCR can be considered to be 'available' for this stock. **SG60 is met**. Since the harvest strategy is not 'in place', SG80 is not met.		
b	HCRs robustness to uncertainty			
	Guidepost		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	Since there is no HCR 'in place', it cannot be robust to the main uncertainties. SG80 is not met.		
c	**HCRs evaluation**			
	Guidepost	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	Under SA2.5.5, in order to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the use of effective HCRs in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points and the agreed trigger level (guidance for SA2.5.6: 'evidence that current F is equal to or less than F_{MSY} should usually be taken as evidence that the HCR is effective'). A formal framework is in place for the development of a harvest strategy for the stock (CMM 2014-06 and workplans; see above). F is estimated to be $0.45F_{MSY}$ (reference case model); 95% CI $0.64F_{MSY}$. The criteria for 'available' tools at **SG60 are therefore met**. SG80 is not met because there is not a well-defined HCR.		
References	(McKechnie, Hampton, et al. 2016; Pilling et al. 2017); CMMs 2017-01, 2016-01, 2015-01, 2015-06, 2014-06			
OVERALL PERFORMANCE INDICATOR SCORE:				**60**
CONDITION NUMBER (if relevant):				**2**

Evaluation Table for PI 1.2.3 – Information and monitoring (Skipjack)

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			
	Guidepost	**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 available for the stock assessment is summarised in Section 3.3.2 and Figure 4. For stock structure, tagging data suggest that using the WCPFC Convention Area is a reasonable assumption, according to the stock assessment (McKenchnie et al, 2016a). For stock productivity, there is also aging from otoliths, as well as information on size and age at maturity, fecundity. Recruitment is estimated from an oceanographic model, based on information on likely spawning areas. Fleet composition is well understood for most fishing nations, and for those where it is problematic (e.g. Indonesia, Philippines, Vietnam) there have been significant improvements in recent years, with at least catch data available. All the data required to support the harvest strategy are available; **SG80 is met**. There is also additional information, such as data on environmental conditions which is known to be important for understanding population and distribution shifts (e.g. Ochi et al, 2016). **SG100 is met.**		
b	Monitoring			
	Guidepost	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
	Justification	Fishery removals are monitored by individual CCMs via logsheets and port sampling, and are required to be submitted to the Commission annually, in the form of estimates of total catch plus catch and effort data broken down by gear and either aggregated (5^{o} squares by month) or (preferably) at operational level (individual logsheets). Despite some gaps in this dataset, coverage is good overall. This catch, effort and CPUE dataset is the key		

		indicator for stock assessment. Other key fisheries data which support management are size-frequency data (collected via port sampling and observer programmes) and tag returns. Biological data are also collected via research programmes (e.g. 'Project 62' on oceanography/distribution/migration (Lehodey et al. 2013), also Ochi et al. (2016), Tanabe et al. (2003) etc.). Formal stock assessments have taken place quite regularly (2010, 2011, 2014, 2016). In between formal stock assessments, SPC provide some information on trends in fishery indicators (total catch, nominal CPUE, catch at length and at weight), to guide management (e.g. Pilling et al. (2016) and Pilling et al. (2017)). On this basis, the team felt that SG80 was met. SG100 is not met, for the following reasons: • The assessment depends to a large extent on pole and line CPUE, which is a small proportion of the overall catch and does not occur in all areas. • Purse seine catch and length-frequency data can be biased by grab-sampling techniques used to estimate species composition (although there is an agreed methodology used to avoid bias as far as possible; see Hampton & Williams (2017)). • Some data gaps remain in fishery-dependent data (see Figure 9) • The requirement to 'raise' logsheet data by estimates of total catch (to account for missing logsheets) results in some loss of precision • Historical data are often lacking in precision • The uncertainty in the most recent stock assessment is difficult to quantify, although this is attempted by various means (discussed in Section 3.3.7); and it is not completely clear how robust the management is to uncertainty – the management system is still a work in progress.		
c	Comprehensiveness of information			
	Guidepost		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	In 2017 all CCMs submitted aggregate catch data by the WCPFC deadline. Some of these datasets are higher quality than others. Catches of tuna are measured and monitored well enough for stock assessment and the harvest strategy. Although monitoring of catches in some areas is far from perfect, these do not pose an unacceptable risk to the harvest strategy. There are a number of on-going initiatives to strengthen data collection of member states. Overall, **this meets SG80**.		
References		(McKechnie, Hampton, et al. 2016; Williams 2017; Hampton & Williams 2017; Pilling et al. 2016; Ochi et al. 2016; Lehodey et al. 2013; Pilling et al. 2017; Tanabe et al. 2003)		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**

CONDITION NUMBER (if relevant):	**N/a**

Evaluation Table for PI 1.2.4 – Assessment of stock status (Skipjack)

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			
	Guidepost		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 most recent assessment of skipjack tuna in the WCPO was conducted in 2016 using the Multifan-CL software. The model is age-structured (16 quarterly age classes) and spatially-structured (5 regions). The catch, effort, size composition and tagging data used in the model are classified by 23 fisheries and rus to the end of 2015. The assessment included a range of model options and sensitivities that were applied to investigate key structural assumptions and sources of uncertainty in the assessment (see Section 3.3.7.2). The model has and continues to be developed over the years with frequent supporting analysis and research and workshops. It is able to account for major features of the biology of the species (e.g. estimates of age/growth, natural mortality at age, maturity at age, movement, recruitment) and makes use of the available data, **meeting SG100**.		
b	Assessment approach			
	Guidepost	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 estimates spawner biomass and fishing mortality relative to a range of reference points which can be estimated (although some with more certainty than others), including MSY reference points (F_{MSY}, SB_{MSY}) and depletion-based reference points ($SB_{F=0}$); see Table 5. **SG80 is met.**		
c	Uncertainty in the assessment			
	Guidepost	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	New developments to the stock assessment include addressing the recommendations of the 2014 stock assessment report, exploration of uncertainties in the assessment model, particularly in response to the inclusion of additional years of data, and to improve diagnostic weaknesses of previous assessments. In addition to a single reference case model, one-off sensitivity models were used to explore the impact of key data and model assumptions for the reference case model on the stock assessment results and conclusions. They also undertook a structural uncertainty analysis (model grid) for consideration in developing management advice where all possible combinations of those areas of uncertainty from the one-off models were included (see Section 3.3.8). These outputs are useful for evaluating uncertainty relative to general determinations of stock status, and it is clear that uncertainty is taken into account, meeting SG80. Probability-based estimates are reported, and "Kobe-type" plots are presented to assist risk-based decisions. **SG100 is met**.		
d	Evaluation of assessment			
	Guidepost			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			Y
	Justification	Alternative model structures and sensitivity analyses have been applied to the available data and results are reported as a range of outcomes resulting from the model structures. The assessment and its alternatives provide results that are robust as to their general determinations of stock status. Evidence shows that the set of hypotheses that have been considered in sensitivity analyses, for example, cover likely possibilities. **This meets SG100.**		
e	Peer review of assessment			
	Guidepost		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		Y	N
	Justification	The assessment is subject to internal peer review through the WCPFC SC, **meeting SG80**. The WCPFC is also beginning to apply an external peer review process but this has not been applied directly to this assessment. Nevertheless, recommendations were taken from the bigeye assessment to apply to this assessment. Given the similarities between the data and methods, this could be accepted as a partial external review. However, differences of this assessment to the yellowfin and bigeye assessments are probably significant enough not to accept this as a full external peer review, so SG100 is not met.		
References		(McKechnie, Hampton, et al. 2016; Ianelli et al. 2012; McKechnie et al. 2017; Pilling & Brouwer 2016)		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**

CONDITION NUMBER (if relevant):	**N/a**

Appendix 1.2 Principle 1 scoring rationales – NP Albacore

Evaluation Table for PI 1.1.1 – Stock status (Albacore)

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			
	Guidepost	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	N
	Justification	In this context, 'highly likely' is defined by MSC as a 80% probability, and a 'high degree of certainty' as a 95% probability. The PRI for the stock is not known. Attempts have been made to estimate h (steepness) directly, resulting in estimates in the range 0.84-0.95; the stock assessment assumes h=0.9 on this basis. This means that at 20%SB_0 (or 20%$SB_{F=0}$ – the LRP), mean recruitment would be reduced to 90% of the level at unfished biomass; a reduction that would most likely not be detectable. The default PRI is taken here to be the LRP agreed by WCPFC, i.e. 20%$SB_{F=0}$. The most recent stock assessment by the Albacore Working Group of ISC was in 2017. The assessment estimated SB (base case model) to be ~2.5 times above the LRP. Projections at constant fishing intensity from the base case model suggest a high degree of certainty that the SSB will not fall below the LRP in 2020 and 2025 (Figure 12). Estimates of relative SB taking into account a wider range of uncertainties including the most significant one-off sensitivities (see Figure 11) show all point estimates of SB above the LRP, but with 5% CIs overlapping the LRP in all cases. Wide CIs because of significant uncertainties in the assessment mean that that lower 5% CI for SB has marginally overlapped the LRP throughout the time series, as estimated by the stock assessment (see Figure 25 below). On this basis, **SG80 is met** but SG100 is not quite met.		

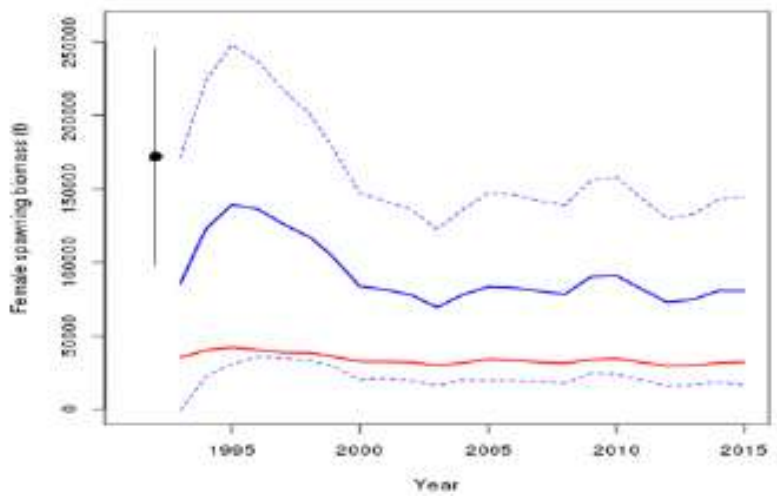


Figure 25. Time series of female spawning biomass, with approximate 5% and 95% CIs (blue dotted lines) and the LRP (red line); the black dot and bars is the estimate of initial conditions (Figure 5.13B in ISC (2017b))

b	Stock status in relation to achievement of MSY			
	Guidepost		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	The 2017 stock assessment estimates SSB_{MSY} to be lower than the WCPFC LRP (~$15\%SSB_{2015,F=0}$). In this circumstance, MSC proposes that 2xPRI / $40\%SB_{F=0}$ could be used as a suitable proxy for SSB_{MSY} in the sense intended by MSC. The Albacore Working Group set out three different model scenarios in the report: the base case and the two key one-off sensitivities; i.e. an alternative with M=0.3/yr instead of a sex- and age-specific M ogive, and an alternative with a slightly different growth model. For the base case and the alternative growth model, point estimates of SB_{2015} are estimated to be >2 times higher than the LRP (2.47 times higher for the base case model, 2.15 times higher for the alternative growth model) i.e. above 40%SBF=0 (taken as a proxy for SSB_{MSY}. For the M=0.3 model, however, SSB_{2015} is estimated to be 1.31 x LRP or 0.26 x $SB_{F=0}$; i.e. below the proxy. The assessment cites research (a meta-analysis) suggesting that M=0.3/y (used elsewhere for albacore assessments) is not well supported, while their M values are based on work done by ICCAT and a previous analysis of tagging data from this stock. (The stock assessment for South Pacific albacore		

		previously used M=0.4/y because it gave the best model fit, but the most recent assessment changed to assuming M=0.3/y for improved consistency with other albacore stock assessments.) Considering F, and taking $F_{40\%}$ (the fishing intensity resulting in spawner-per-recruit at 40% of the unfished level), the situation is the same in that the base case model and growth sensitivity estimate current (2015) fishing intensity to be below this level, and the M=0.3/y model estimate it to be above (Table 10). On this basis, we can reasonably say that it is highly likely that SB is at or above a level consistent with MSY, as defined in a precautionary way by MSC, but there may not be a 'high degree of certainty' that the stock is above that level. SG80 is met but SG100 is not met.
References		Estimates of h and estimates of M, derived from ICS, 2017; Albacore-Working-Group, 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)	Depletion	$20\%SB_{F=0}$	2.47LRP (base model); 2.15LRP (alternative growth model); 1.31LRP (M=0.3/y model)
Reference point used in scoring stock relative to MSY (SIb)	Depletion	$40\%\ SB_{F=0}$	1.24 (base); 1.08 (growth); 0.65 (M=0.3)

OVERALL PERFORMANCE INDICATOR SCORE:	**80**
CONDITION NUMBER (if relevant):	**N/a**

Evaluation Table for PI 1.1.2 – Stock rebuilding (Albacore). Not applicable – not scored

Evaluation Table for PI 1.2.1 – Harvest strategy (Albacore)

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			
	Guidepost	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	Y	N
	Justification	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 – MSCI Vocabulary v1.1). The NP albacore harvest strategy is in two parts: i) the interim harvest strategy as proposed by the NC and accepted by WCPFC in 2017 and ii) CMM 2005-03 / Resolution C-05-02, which are both still in force. The interim harvest strategy includes a decision rule which only applies to stock rebuilding, and does not specify any tools. It can therefore be considered more of a statement of intent than a genuinely useful method for stock management (it is called 'interim' and MSE work towards a full harvest strategy is ongoing; see http://isc.fra.go.jp/working_groups/index.html). On this basis, it is more pertinent here to score this PI against the harvest strategy set out in CMM 2005-03 / C-05-02. Both have essentially the same management objective, which is to maintain the stock at 'current' levels ('current' being a different time period between the two; i.e. 2015 for the interim harvest strategy and 2002-4 for 2005-03/C-05-02, but similar levels of SB and F (ISC 2017b) (see also 1.1.1). This level is perceived to have a low risk of the biomass declining below the LRP (see Figure 11 and Figure 12). The elements of the NP albacore harvest strategy are the following: • Limit reference point (20%$SB_{F=0}$) • Management target: status quo; avoiding LRP with high probability (see PI 1.1.1) • Data collection on the stock and fishery (considered in detail in PI 1.2.3 below) • Stock assessment process (considered in detail in PI 1.2.4 below) • 'Available' HCR (see 1.2.2); so far management tools have not been required (described in Section 3.4.3); • Monitoring of implementation of CMM 2005-03/C-05-02 via data gathering and reporting to WCPFC / IATTC.		

		This management strategy is reviewed annually during the Northern Committee meeting (e.g. see WCPFC (2017a)). NC13 (2017) considered that there was no need to revise the stock management requirements, because based on the status quo projections (constant effort, as required by 2005-03/C-05-02), the SB is predicted to be maintained above the LRP with a high probability (see Figure 11). Japan takes more than half the catch of NP albacore, so the Japanese harvest strategy is also relevant. The Japanese harvest strategy (by which means it implements 2005-03/C-05-02) is to ensure that fishing capacity for NP albacore does not increase. Licences are re-attributed every 5 years, to a limit in total licences and fishing capacity (see Section 3.4.5). In practice, demand for licences has declined over the last 15 years (see Section 3.6.6), meaning that this limit has not been a problem to enforce. On this basis, the harvest strategy is clearly expected to achieve stock management objectives; SG60 is met. SG80 requires that the harvest strategy be responsive to the status of the stock. The stock status has varied very little over the stock assessment time series (see PI 1.1.1) making this difficult to judge (no response has been required). The conclusions of the MSC harmonisation workshop (MSC 2016, see also Appendix 2) in relation to this PI were that since there is a regular review of 2005-03 / C-05-02 by the Northern Committee in relation to the most recent stock assessment and status quo projections, the framework is available to respond to the stock status, and the various elements of the harvest strategy (i.e. monitoring, stock assessment, management targets) work together to ensure that this happens. On this basis, it was agreed that **SG80 is met** in relation to the regional harvest strategy. Since the harvest strategy has not changed, this analysis still applies. The harvest strategy is not designed to achieve stock management objectives, in as much as the stock management objectives themselves are rather *ad hoc*. SG100 is not met.		
b	Harvest strategy evaluation			
	Guidepost	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	Status quo projections based on the harvest strategy (i.e. no increase in effort) suggest that the harvest strategy is able to maintain stock biomass above the LRP with a high probability (see Figure 12). **SG80 is met**. The performance has not, however, been fully evaluated (e.g. via an MSE). The stock assessment is somewhat uncertain. SG100 is not met.		
c	Harvest strategy monitoring			
	Guidepost	Monitoring is in place that is expected to determine whether the harvest strategy is working.		

	Met?	Y		
	Justification	The most recent stock assessment was in 2017, and included projections under two different scenarios (constant effort, constant catch). See PI 1.2.3 below. The Guidepost is Met.		
d	Harvest strategy review			
	Guidepost			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	A large-scale review of the harvest strategy started in 2015, triggered by the requirement for the implementation of formal harvest strategies and HCRs for WCPFC stock agreed in CMM 2014-06. The interim harvest strategy (see above and Section 3.4.4) can be considered a 'place-holder' for this work, and meanwhile MSE work is ongoing (two workshops held and more planned). This work is due to end in 2020. Meanwhile, the most recent NC meeting (NC13) reviewed the current harvest strategy based on the status quo projections, and concluded that in the short-term no change was required. Met. Note: This scoring is a change from the agreed harmonised scores (MSC, 2016), but this is appropriate given that progress has been made since April 2016 when the workshop took place. We have reached out to the other CABs with NP Albacore stocks to inform them of our scores.		
e	Shark finning			
	Guidepost	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?	n/a	n/a	n/a
	Justification	The target species is not a shark.		
f	**Review of alternative measures**			
	Guidepost	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 **biannual** 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?	n/a	n/a	n/a
	Justification	There is no unwanted catch of the target species in this pole-and-line fishery. This fishery targets NP albacore (and skipjack) specifically, and there are no requirements such as minimum or maximum landing sizes or quotas which could lead to any of this catch being unwanted. Discarding rates for NP Albacore are minimal, according to the stock assessment report. Hence there is no 'unwanted catch'* of skipjack in this fishery.		
References		ISC, 2017; MSC, 2016		
OVERALL PERFORMANCE INDICATOR SCORE:				**85**
CONDITION NUMBER (if relevant):				**N/a**

Evaluation Table for PI 1.2.2 – Harvest control rules and tools (Albacore)

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			
	Guidepost	**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	SA2.5.2 In scoring issue (a) at the SG60 level, teams shall accept 'available' HCRs (instead of HCRs that are 'in place') in cases where: a. Stock biomass has not previously been reduced below the MSY level or has been maintained at that level for a recent period of time that is at least longer than 2 generation times of the species, and is not predicted to be reduced below B_{MSY} within the next 5 years; or b. In UoAs where BMSY estimates are not available, the stock has been maintained to date by the measures in use at levels that have not declined significantly over time, nor shown any evidence of recruitment impairment. SA2.5.3 Teams shall recognise 'available' HCRs as 'expected to reduce the exploitation rate as the point of recruitment impairment is approached' only in cases where: a. HCRs are effectively used in some other UoAs, that are under the control of the same management body and of a similar size and scale as the UoA; or b. An agreement or framework is in place that requires the management body to adopt HCRs before the stock declines below BMSY. According to the most recent stock assessment (2017), NP albacore stock biomass has not previously been reduced below the LRP, nor below SB_{MSY} as estimated by the stock assessment (which is below the LRP), nor below 2xLRP, which is used in PI1.1.1 as a more precautionary proxy for SB_{MSY} except for one of the two key sensitivity runs (which, however, the Albacore Working Group do not consider plausible). Status quo projections based on constant effort and the base case model suggest that the SB will be maintained above the LRP with high probability, declining to ~2xLRP (precautionary SB_{MSY} proxy) by 2025. Status quo projections with constant catch suggest that it will decline to below this level, but this scenario is not consistent with the harvest strategy (see PI1.2.1).		

		WCPFC have an agreed, legally-binding framework in place to establish place formal harvest strategies and control rules for their main stocks, including NP albacore (see CMM 2014-06 and associated workplans; Section 3.4.4). SA2.5.3b is therefore met. On this basis, for a HCR can be considered to be 'available' for this stock. **SG60 is met**. Since the harvest strategy is not 'in place', SG80 is not met. Based on the above information, the conditions are met such that a HCR for NP albacore can be considered to be 'available', meeting the requirements at SG60. Since there is no HCR 'in place', SG80 is not met.		
b	HCRs robustness to uncertainty			
	Guidepost		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	Since there is no HCR 'in place', it cannot be robust to the main uncertainties. SG80 is not met.		
c	**HCRs evaluation**			
	Guidepost	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	Under SA2.5.5, in order to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the use of effective HCRs in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points and the agreed trigger level (guidance for SA2.5.6: 'evidence that current F is equal to or less than F_{MSY} should usually be taken as evidence that the HCR is effective'). A formal framework is in place for the development of a harvest strategy for the stock (CMM 2014-06 and workplans; ISC MSE process; see above). F is estimated for the base case model to be below F_{MSY}, $F_{0.1}$ and $F_{10\%}$-$F_{40\%}$ (although not $F_{50\%}$). The criteria for 'available' tools at SG60 are therefore met. SG80 is not met because there is not a well-defined HCR.		
References		ISC, 2017a; (2017a) Attachment I		

OVERALL PERFORMANCE INDICATOR SCORE:	**60**
CONDITION NUMBER (if relevant):	**3**

Evaluation Table for PI 1.2.3 – Information and monitoring (Albacore)

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			
	Guidepost	**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 stock assessment uses fishery-specific catch data, size data and various abundance indices; the assessment had a choice of 13 possible indices of relative abundance, although ultimately it only used one for the base case model. Biological data including age and growth and sex composition data are also available, although some uncertainties remain, e.g. in relation to growth. Tagging data are available, although not directly used in the model due to problems with experimental design and consistency. Historical data may also be uncertain; the most recent assessment moved the start of the time series from 1966 to 1993, due to poor fits and data conflict in the earlier part of the time series. Overall, however, data are comprehensive, and data not used directly in the stock assessment, such as environmental studies, are also available. **SG100 is met**.		
b	Monitoring			
	Guidepost	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
	Justification	The harvest strategy is based on fishing effort, which can be measured in the stock assessment (as fishing intensity, 1-SPR) using the data described above. Female SB is also estimated relative to various reference points including the WCPFC LRP which is used in the proposed NC interim harvest		

		strategy. The time series also allows catch and effort to be compared to historical levels, as required for CMM 2005-03 / C-05-02. On this basis, data are sufficient for the requirements of the harvest strategy; SG80 is met. In relation to SG100, the stock assessment report and ISC note a variety of uncertainties in the data which impact on the uncertainty in the stock assessment; e.g. in age/growth, sex-specific growth, historical data and natural mortality. The key sensitivities highlighting uncertainty in the stock assessment conclusions derive from these uncertainties; notably in relation to estimates of natural mortality and growth. SG100 is not met.		
c	Comprehensiveness of information			
	Guidepost		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	Figure 15 shows the provision of catch data from the full set of 29 fisheries defined in the model. Only F13, F24 and F28 show significant recent gaps. F13 was created for some historical Japanese longline data (by weight instead of number) and F28 is also a historical driftnet fishery which no longer operates. F24 is one of two Chinese fisheries. China, along with Vanuatu (relatively recent entrants to the fishery), does not participate in the NC, but nevertheless there appears to be a time series of catch data from their fisheries (F24=Chinese longline in Areas 3 and 5, F25=ditto in Areas 2 and 4, F26=Vanuatu fishery); it could be that the Chinese fishery in Areas 3 and 5 is only intermittent. The stock assessment treats catch as known with low error. The WCPFC Secretariat notes considerable improvements in data submission in 2017. Overall, Figure 14 shows that removals from the stock can be quantified well. Met.		
References		(Williams 2017; ISC 2017b; Ochi et al. 2017; Kinoshita et al. 2016; ISC 2017a; Teo 2017; Xu et al. 2014; Ashida et al. 2016; Brodziak et al. 2011; Iwata et al. 2011; Kimura et al. 1997)		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**N/a**

Evaluation Table for PI 1.2.4 – Assessment of stock status (Albacore)

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			
	Guidepost		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	North Pacific albacore stock was assessed in 2017 using the Stock Synthesis 3 modelling framework. This is a modern well-tested statistical catch-at-age modelling approach that has wide application across a large number of fisheries. 29 fisheries were defined on the basis of gear, area, quarter, and the unit of catch (numbers or weight). Quarterly indices of relative abundance were developed for 13 fisheries, although only one was finally used. These data have been sufficient to conduct assessments and to evaluate the harvest strategy. Stock structure data are limited, but are consistent with a North Pacific Ocean-wide stock (see Section 3.4.6.2). Species biology is incorporated into the stock assessment model (e.g. catch-at-size, sex-specific growth, estimates of natural mortality, estimates of steepness). Overall, the assessment makes best use of the data available. **SG100 is met**.		
b	Assessment approach			
	Guidepost	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 stock assessment estimates female SB and fishing intensity (F; 1-SPR) in relation to a wide range of reference points (e.g. SB and F at MSY, F over a range of %SPR, $F_{0.1}$, $SSB_{F=0}$). See Table 10. **SG80 is met**.		
c	Uncertainty in the assessment			
	Guidepost	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 stock assessment takes into account uncertainty within the base case model (from data and parameter estimates) by estimating 5% and 95% CIs (e.g. see Figure 11, PI 1.1.1), as well as via retrospective analysis (Figure 13). It also takes into account structural uncertainty, via a range of one-off sensitivity runs (Table 9, Figure 11). From this, the probability of the stock being above/below any of the reference points can be estimated. The stock assessment report also provides some projections (only from the base case model) with estimates of the probability of SB falling below the LRP at any point up to 2025. **SG100 is met**.		
d	Evaluation of assessment			
	Guidepost			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			Y
	Justification	There is sufficient evidence that the model structure has been explored extensively. Various sensitivity analyses are used to evaluate alternative assumptions and model structures, selected during the stock assessment meeting as well as in preliminary preparation workshops. Diagnostics are presented (model fit to data, diagnostics via an age-structured population model (Maunder & Piner 2015), and retrospective analysis) and suggest the assessment is robust, so **SG100 is met**.		
e	Peer review of assessment			
	Guidepost		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		Y	Y
	Justification	The stock assessment report is reviewed by ISC in their plenary. The original SS3 stock assessment of North Pacific albacore was externally reviewed (3 separate reviewers) (D. G. Chen 2012; Y. Chen 2012; Cordue 2012) in 2011 and recommendations were incorporated into subsequent assessments. In 2017, ISC was working to commission further independent review of its stock assessments (see plenary report). **SG100 is met**.		
References		(ISC 2017b; ISC 2017a; D. G. Chen 2012; Y. Chen 2012; Cordue 2012; Maunder & Piner 2015)		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				**N/a**

Appendix 1.3 Principle 2 scoring rationales

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			
	Guidepost	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?	Not applicable	Not applicable	Not applicable
	Justification	The primary species identified for this fishery are bigeye tuna, yellowfin tuna, Japanese anchovy, and Japanese pilchard. For all of these species, the proportion of the total UoA catch is less than 5% and all were evaluated as minor species (see Section 3.5.3). In the absence of main species, this scoring issue is not applicable.		
b	Minor primary species stock status			
	Guidepost			For minor species that are below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species
	Met?			Y
	Justification	The minor primary species identified for this fishery are bigeye tuna, yellowfin tuna, Japanese anchovy and Japanese pilchard.		

		The Pacific Ocean stock of Japanese anchovy may be below the PRI based on the estimated spawning stock biomass (SSB) of 108,000 t in 2016, which was below the B_{limit} of 130,000 t (http://abchan.fra.go.jp/digests2017/html/2017_24.html). The B_{limit} is the SSB below which recruitment is thought to be poor, based on high variability in estimated catchability coefficients for age 1 fish observed at that level (Uemura et al. 2018). There is no evidence yet of stock recovery, but anchovy abundances are cyclical and associated with climate regimes, so abundance may shift in the future (Zhou et al. 2015). On a broad scale, the amount of bait used by the UoA (~52 mt per year) is negligible, representing less than 0.06% of Japan's 2016 catch and less than 0.04% of the estimated 2016 SSB for the Pacific Ocean stock of anchovy. The limited amount of bait used can be considered as evidence that the fishery does not hinder recovery, and thus **SG 100** is met for Japanese anchovy. The WCPO bigeye tuna stock is not below the PRI based on the latest 2017 stock assessment (McKechnie et al. 2017), although some uncertainty exists regarding that determination, and the prior assessment concluded that the stock was overfished (Harley et al. 2014). The UoA targets smaller-sized tuna, and bigeye catches have been limited and especially small during the past two years (Table 14, **Error! Reference source not found.**). SG100 is met for bigeye. WCPO yellowfin tuna are not below the PRI based on the 2017 stock assessment (Tremblay-Boyer et al. 2017), a result consistent with the previous assessment (Davies et al. 2014). SG100 is met for yellowfin. The Pacific Ocean stock of Japanese pilchard is not below the PRI according to the FRA assessment conducted in 2017 (http://abchan.fra.go.jp/digests2017/html/2017_01.html). SG100 is met for Japanese pilchard. As for unobserved fishering mortality: The fishing poles are lightweight (confirmed by visual inspection during the site visit) and occasionally snap when large fish are caught, so that the snapped end falls into the ocean. Alternatively, an entire pole may be lost. Poles snap about two to three times per fishing trip, while entire poles are lost only once or twice per year (K. Yoshinaga, personal communication, 08 Feb 2017). Hooks are barbless, and lost pole and line gear is not expected to have substantial ghost fishing impacts. **SG100** is met overall.
References		Davies et al. 2014, Furuichi et al. 2018, Harley et al. 2014, McKechnie et al. 2017, Tremblay-Boyer et al. 2017, Uemura et al. 2018, Zhou et al. 2015 http://abchan.fra.go.jp/digests2017/html/2017_24.html, http://abchan.fra.go.jp/digests2017/html/2017_01.html
OVERALL PERFORMANCE INDICATOR SCORE:		**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			
	Guidepost	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?	Y	Y	N
	Justification	There are no main primary species so **SG80 is met** by default. Two minor primary species, Japanese anchovy (Pacific Ocean stock) and bigeye tuna (WCPO stock), may be below the PRI (McKechnie et al. 2017, Uemura et al. 2018), of which Japanese anchovy was considered the 'worst case' of the minor species (see Sections 3.5.3 and subsections). The fishery uses at most about 52 mt of Japanese anchovy per year, which comprises a very small proportion (~0.06%) of the total catch of this stock by Japanese fisheries (80,000 t in 2016; http://abchan.fra.go.jp/digests2017/html/2017_24.html). The fishing crew purchases live bait fish and tries to keep them alive in holding tanks on the vessel, and thus they buy limited quantities and have incentives to maximize bait fish survival on board. The practical limits on bait use may be considered an indirect management action that is expected to not hinder rebuilding of the stock. However, there is no evidence of direct harvest management other than input controls. This species is not managed by TAC, and there is no rebuilding plan for the stock. On this basis, there is not a 'strategy' for Japanese anchovy, so SG100 is not met for this stock. Taking an all or nothing approach for minor species, the team considered that SG100 overall is not met.		
b	Management strategy evaluation			
	Guidepost	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?	Y	Y	N

	Justification	There are no main primary species, so **SG80 is met** by default. For SG100, the UoA has measures in place that limit the amount of bait used. There is an objective basis for confidence that the measures will work, because the amount of bait used has been consistent over time and is negligible compared to Japan's total catches of Japanese anchovy. This means SG80 is met for Japanese anchovy. However, because the measures have not been tested and drivers of stock biomass fluctuations and hence future stock trends are very unclear, SG100 is not met for Japanese anchovy. Overall, therefore, SG100 is not met.		
c	Management strategy implementation			
	Guidepost		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?		Y	N
	Justification	**SG80 is met** by default, as there are no main primary species. For the minor primary species Japanese anchovy, evidence exists that the measures are being implemented successfully, because the amount of bait used each year has not exceeded 58 mt since 2012 (**Error! Reference source not found.**). Visual examination of holding tanks on the vessel were consistent with reported amounts of bait used. There are twelve tanks on the vessel and each can hold 500 kg of fish, so that the vessel can carry 6 mt of fish per trip. The vessel takes 6-8 fishing trips per year, which suggests that about 40-50 mt of bait is taken out to sea annually. **SG80 is therefore met**. However, there is no clear evidence that a partial or full strategy is being implemented to achieve objectives related to bait fish management so SG100 is not met .		
d	Shark finning			
	Guidepost	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?	n/a	n/a	n/a
	Justification	No primary species are sharks, so this issue is not scored.		
e	Review of alternative measures			
	Guidepost	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	There is a **biennial** 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.	of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	n/a	n/a	n/a
	Justification	This scoring issue is not applicable because there is no unwanted catch of main primary species. (For MSC's definition of 'unwanted catch' see FCRG SA3.1.6.). As stated above, lost pole and line gear is not expected to have substantial ghost fishing impacts.		
References		ISSF 2017, McKechnie et al. 2017, Uemura et al. 2018, logbook data in Table 14, Table 16 http://abchan.fra.go.jp/digests2017/html/2017_24.html		
OVERALL PERFORMANCE INDICATOR SCORE:				**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 species			
	Guidepost	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?	Not applicable	Not applicable	Not applicable
	Justification	There are no main primary species, so this scoring issue is not applicable.		
b	Information adequacy for assessment of impact on minor species			
	Guidepost			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			Y
	Justification	Minor primary species for this fishery are bigeye tuna, yellowfin tuna, Japanese anchovy and Japanese pilchard. Catch quantities of each species were provided and adequate to estimate the impact of the UoA on these species with respect to stock status, which has been recently assessed for all of these species. **SG100 is met**.		
c	Information adequacy for management strategy			

	Guidepost	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?	Y	Y	N
	Justification	There are no main primary species, so **SG80 is met** by default. The quantitative information available for the minor primary species (amounts used per year) is adequate to detect changes in risk levels to that species from operation of the UoA. Thus the information can support measures, a partial strategy, or a strategy to manage that species. A strategy for bait species is available at the vessel (Eisei Maru No.8) level: They buy a certain size (>10 cm), and look for quality of the fish (high in fat, lively fish) to ensure the bait can be kept on board. Buying the older, larger bait fish qualifies as a partial strategy. They also make bait choices based on regional and seasonable availability. However, there is no element of the strategy that considers the state of the bait stock, and we were not able to get information which broke down bait use by species. A high degree of certainty whether the strategy is achieving its objective for all bait species can therefore not be reached. SG100 is not met.		
References		Davies et al. 2014, Furuichi et al. 2018, Harley et al. 2014, McKechnie et al. 2017, Tremblay-Boyer et al. 2017, Uemura et al. 2018; http://abchan.fra.go.jp/digests2017/html/2017_24.html, http://abchan.fra.go.jp/digests2017/html/2017_01.html		
OVERALL PERFORMANCE INDICATOR SCORE:				**90**
CONDITION NUMBER (if relevant):				**N/a**

Evaluation Table for PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biological 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			
	Guidepost	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?	Not applicable	Not applicable	Not applicable
	Justification	This scoring issue not applicable because there are no main secondary species.		
b	**Minor secondary species stock status**			
	Guidepost			For minor species that are below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species

	Met?			Y
	Justification	The minor secondary species for this fishery are yellowtail amberjack and dolphinfish. These species are not caught every year, and catch proportions are very small, averaging 0.01% or less from 2012 to 2016 (**Error! Reference source not found.**). The FRA assesses stock status of amberjacks, but the assessment is based on combined catches of three amberjack species, including yellowtail amberjack. The most recent assessment conducted in 2017 determined that the amberjack is currently abundant (summary available at: http://abchan.fra.go.jp/digests2017/html/2017_42.html). However, the majority of Japan's harvest is of Japanese amberjack (Tian and Watari 2015), making the assessment less reflective of yellowtail amberjack status. Other information about population abundance is limited, but this species is generally reported to be abundant (Smith-Vaniz and Williams 2015). Dolphinfish is a highly migratory species found in tropical and subtropical oceans around the globe. They are fast growing and mature at an early age, suggesting fairly high resilience. Although the species is harvested throughout its range, there has been no indication of population declines (Collette et al. 2011). Neither species is likely to be below biologically based limits, and the negligible catches are evidence that the UoA does not negatively impact stock status or hinder recovery. As for unobserved fishing mortality: The fishing poles are lightweight (confirmed by visual inspection during the site visit) and occasionally snap when large fish are caught, so that the snapped end falls into the ocean. Alternatively, an entire pole may be lost. Poles snap about two to three times per fishing trip, while entire poles are lost only once or twice per year (K. Yoshinaga, personal communication, 08 Feb 2017). Hooks are barbless, and lost pole and line gear is not expected to have substantial ghost fishing impacts. Based on the above, **SG100 is met**.		
References		Collette et al. 2011; Smith-Vaniz and Williams 2015; Tian and Watari 2015; http://abchan.fra.go.jp/digests2017/html/2017_42.html		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
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**			
	Guidepost	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	There are two minor and no main secondary species. **SG80 is met by default** because there are no main secondary species, and thus neither measures nor a partial strategy are necessary. The UoA does not target the minor secondary species and catches very small quantities, which may constitute a partial strategy. However, there is no full strategy in place for managing those species, so SG100 is not met.		
b	Management strategy evaluation			
	Guidepost	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	The UoA catches very small quantities (catch proportions ≤ 0.01%) of the minor secondary species and does not target those species. Thus measures are in place for managing secondary species, and SG60 is met. The data show that catches of these species are occasional and not increasing over time, giving an objective basis for confidence that the measures taken by the vessel-crew to avoid these species do work. Additionally, available information suggests that both secondary species are abundant**. SG80 is therefore met**. However, there is no testing of a partial strategy or strategy, so SG100 is not met.		
c	Management strategy implementation			

	Guidepost		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
	Justification	The UoA catches very small quantities (catch proportions ≤ 0.01%) of the minor secondary species, and data show that catches of these species are occasional and not increasing over time. This constitutes evidence that the measures from the vessel are being implemented successfully. Stakeholder interviews confirmed that dolphinfish and yellowtail amberjack are rarely caught in these tuna pole and line fisheries (H. Nishida). **SG80 is met**. Since there is no partial strategy/strategy in place, SG100 cannot be met.		
d	Shark finning			
	Guidepost	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?	Y	Y	Y
	Justification	As discussed in Section **Error! Reference source not found.**, sharks are rarely hooked and are not brought onto the vessel. Fishing licenses also contain requirements that include measures to reduce bycatch mortality of sharks, and compliance appears to be high, based on stakeholder interviews. Therefore, there is a high degree of certainty that shark finning does not take place. **SG100 is met.**		
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?	n/a	n/a	n/a
	Guidepost	There is no unwanted catch of secondary species (second part of definition in SA3.1.6 does not apply), so this scoring issue is not applicable. As stated before, lost pole and line gear is not expected to have substantial ghost fishing impacts.		
References		Logbook data in Table 14; H. Nishida, pers. comm., 24 January 2018		

OVERALL PERFORMANCE INDICATOR SCORE:	**85**
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			
	Guidepost	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?	Not applicable	Not applicable	Not applicable
	Justification	This scoring issue is not applicable because there are no main secondary species.		
b	**Information adequacy for assessment of impacts on minor secondary species**			
	Guidepost			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			Y
	Justification	Quantitative catch information is available for minor secondary species, which is adequate to estimate UoA impacts on their status. Met.		
c	Information adequacy for management strategy			
	Guidepost	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species,

				and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	Y	Y	N
	Justification	Quantitative catch information is available for minor secondary species, which is adequate to support management measures, a partial strategy, or a full strategy. **SG80 is met**. However, information is not sufficient to evaluate whether a strategy is achieving its objective with a high degree of certainty, considering the limited information on the status of these species. SG100 is not met.		
References		Logbook data in Table 14		
				90
CONDITION NUMBER (if relevant):				**N/a**

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			
	Guidepost	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?	Not scored	Not scored	Not scored
	Justification	There are no formal limits set for any of the ETP species groups identified in Section 3.5.5. This scoring issue is therefore not scored.		
b	Direct effects			
	Guidepost	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	N
	Justification	No ETP species were identified for this fishery. According to interviews with the fishing vessel crew and scientists, turtles, seabirds, marine mammals, and sharks (including sharks of conservation concern such as silky shark, *Carcharhinus falciformis*, and oceanic whitetip shark, *Carcharhinus longimanus*) are not caught (T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018). The WCPFC requires vessels to release any incidentally caught seabirds and sea turtles with the least possible harm (CMMs 2015-03 and 2008-03), and the vessel operators are aware of these requirements. In addition, the Eisei Maru No.8 does not use FADs, which reduces risk of encountering potential ETP species. Because no interactions with ETP species have been identified, it is highly likely that the UoA does not hinder recovery of ETP species. SG80 is met. However, since there are no observer reports, or other research reports, without more data it cannot be said that there is a 'high degree of confidence' according to the MSC definition. SG100 is not met.		
c	Indirect effects			

	Guidepost		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	Indirect effects on ETP species might include disturbance, noise or pollution. For seabirds, the vessel does not operate in coastal areas, so generally disturbance while breeding or resting in specific areas would not apply. The vessel uses aggregations of seabirds as a tool to locate schools of fish, so this might result in some disturbance during feeding, but the impact of a single pole and line vessel, or even the entire WCPFC North Pacific pole and line fleet (76 active vessels in 2016) is highly likely to be negligible given the very large area of the fishery. Neither the vessel, nor the fishing poles are fitted with bird-deterrents (as observed by the team on site). Noise might impact cetaceans, but again, the impact of one vessel which is relatively small compared to most ocean-going vessels traffic, is highly likely to be negligible. The Eisei Maru No.8 has a waste management plan and plastic is not permitted to be dumped at sea (see Figure 26 below. NB: in English because many of the crew are not Japanese). Marine pollution, such as plastics, oil, garbage, including fishing gear, waste and sewage will also be dealt with in CMM 2017-04, which will enter into force on 1st January 2019. To counter the issue of ghost fishing, CCMs are encouraged to develop communication frameworks to enable the recording and sharing of information on fishing gear loss in order to reduce loss and facilitate recovery of fishing gear.		

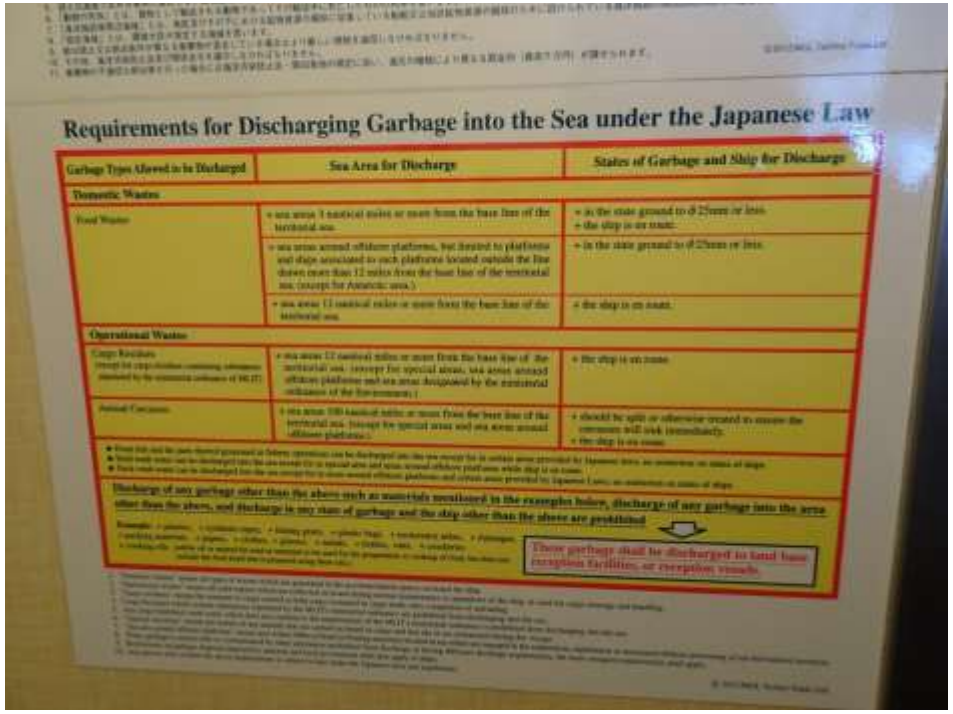


Figure 26. Requirements for discharging garbage into the sea under the Japanese Law (photo taken by CU Pesca during site visit)

Based on the above, there is a high degree of confidence that indirect effects on ETP species are not significant, and SG100 is met.

References	T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018; WCPFC Tuna Fishery Yearbook

OVERALL PERFORMANCE INDICATOR SCORE:	**90**
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)			
	Guidepost	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	N
	Justification	MSC definitions: A "**strategy**" represents a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically. A strategy needs to be appropriate to the scale, intensity and cultural context of the fishery and should contain mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts. A "**comprehensive strategy**" (applicable only for ETP component) is a complete and tested strategy made up of linked monitoring, analyses, and management measures and responses. The vessel has implemented several measures to ensure the interaction with ETP species is limited/non-existent: Barbless hooks are used for fishing (confirmed by visual inspection during the site visit, see also Figure 1), so that when a non-target species is hooked, fishers can simply loosen or cut the line to release the fish alive without bringing it on deck (K. Yoshinaga, personal communication, 08 Feb 2017). Sharks are not brought on board, and the species are not identified. See also Section **Error! Reference source not found.**) There are no modifications to the gear or the vessel, as observed by the team during the site visit, to scare off seabirds. The fishery does not use artificial FADs, which reduces risks of encountering potential ETP species		

		The Eisei Maru No. 8 has a waste management plan and plastic is not permitted to be dumped at sea (see Figure 26 above), which limits indirect effects on ETP species. These combined measures can be considered to be a partial strategy. At a national level Japan has a Red Data Book identifying ETP species found within the country (Ministry of the Environment 2015). In terms of national legislation, there is a Law for the Conservation of Endangered Species of Wild Fauna and Flora (Law No. 75) that aims to conserve endangered species and contribute to conservation of the natural environment (Ministry of the Environment 2016a). There is also a Wildlife Protection and Hunting Law (Law No. 32) that protects birds and mammals by establishing wildlife protection areas (Ministry of the Environment 2016b). FSM participates in the Regional Observer Programme (ROP) which at a regional level aims to collect verified catch data, other scientific data, and additional information related to the fishery, including on the implementation of CMMs. In addition, at an international level, the WCPFC requires vessels to release any incidentally caught seabirds and sea turtles with the least possible harm (CMMs 2015-03 and 2008-03), and the vessel operators are aware of these requirements. No ETP species have been identified for this fishery, but below outlines several strategies that the fishery should adhere to, were they to interact with ETP species: <u>Elasmobranchs</u>: There are various CMMs in place at regional level which relate to shark bycatch. CMM 2010-07 is the overarching measure on sharks which stipulates *inter alia* that fins on board vessels should total no more than 5% of the weight of sharks on board up to the first point of landing and that CCMs should develop a national NPOA in line with the FAO's IPOA. In fisheries for tunas and tuna-like species that are not directed at sharks, CCMs shall take measures to encourage the release of live sharks that are caught incidentally and are not used for food or other purposes. Species-specific CMMs are further in place for silky sharks (CMM 2013-08) and oceanic whitetip sharks (CMM 2011-04), both of which prohibit CCMs from retaining on board, transshipping, storing on a fishing vessel, or landing any oceanic whitetip or silky shark, in whole or in part, in the fisheries covered by the Convention. CCMs are further required to release any individuals as soon as possible after being brought alongside the vessel, and to do so in a manner that results in as little harm to the shark as possible. The team considered that the above national and international measures constitute a strategy, designed to minimise mortality on elasmobranchs and sharks specifically, and that **SG80 is met**. Although the strategy goes above and beyond regional requirement (i.e. the ban on shark finning) the fact that there is no observer coverage for pole and line vessels, prevent SG100 from being met, as there is no 'complete and tested strategy made up of linked monitoring, analyses, and management measures and responses'.		
b	Management strategy in place (alternative)			
	Guidepost	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?	n/a	n/a	n/a

	Justification	Since there are requirements for protection and rebuilding provided through national ETP legislation or international agreements, the team has only scored scoring issue (a), following SA3.11.2.1.		
c	Management strategy evaluation			
	Guidepost	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.
	Met?	Y	Y	N
	Justification	As stated above in PI2.3.2a, the vessel takes several measures to limited the interactions with ETP. During the site visit, the captain and crew reported that seabirds and sea turtles are not incidentally caught, and other stakeholders confirmed that pole and line fisheries are not a significant source of mortality on these species (T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018). This provides an objective basis for confidence that the measures/partial strategy will work and **SG80 is met**. However, as there is no quantitative analysis carried out, SG100 is not met.		
d	Management strategy implementation			
	Guidepost		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	N
	Justification	As stated above in PI2.3.2a, the vessel takes several measures to limited the interactions with ETP. During the site visit, the captain and crew reported that seabirds and sea turtles are not incidentally caught, and other stakeholders confirmed that pole and line fisheries are not a significant source of mortality on these species (T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018). The lack of interactions with ETP species is seen as evidence that the strategy is being implemented successfully and is achieving its objective. **SG80 is met**. However, due to the lack of observer data the team does not consider there to be clear evidence, and SG100 is not met.		
e	Review of alternative measures to minimize mortality of ETP species			
	Guidepost	There is a review of the potential effectiveness and practicality of alternative	There is a **regular** review of the potential effectiveness and practicality of alternative	There is a **biennial** review of the potential effectiveness and practicality of alternative

		measures to minimise UoA-related mortality of ETP species.	measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	n/a	n/a	n/a
	Justification	There is no unwanted mortality of ETP species, so this is not scored (see SA3.11.3, SA3.5.3 and SA3.1.6). Hooks are barbless, and as said before, lost pole and line gear is not expected to have substantial ghost fishing impacts.		
References		Ministry of the Environment, 2015; Ministry of the Environment 2016a; Ministry of the Environment 2016b. WCPFC: CMM 2015-03, CMM 2008-03, CMM 2010-07, CMM 2013-08, CMM 2011-04		
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
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			
	Guidepost	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	According to interviews with the fishing vessel crew and scientists, turtles, seabirds, and sharks are not caught (T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018). Pole and line fishing gear is known to produce very little bycatch (Gilman and Lundin 2010), and visual inspections confirmed that fishing poles are lightweight and outfitted with barbless hooks, such that they cannot catch very large fish or marine mammals. The fishing crew keeps catch logbooks and has not recorded any catches of ETP species. The fishing vessel has not had independent observers on board because there is no legal requirement for them to do so (except in FSM waters, but so far this has not been required by NORMA). Given this information, **SG80 is met**: the available information is deemed 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. However, SG100 is not met, as the team does not consider the information sufficient to assess with certainty all impacts from the UoA on ETP species.		
b	Information adequacy for management strategy			

	Guidepost	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
	Justification	As stated under PI2.3.2, there is a strategy in place to manage impacts and minimize mortality and injury of ETP species. However, this cannot be regarded as a comprehensive strategy. The lack of observer data also makes it difficult to evaluate with a high degree of certainty whether the strategy is achieving its objectives. **SG80 is met**, SG100 is not.		
References		T. Arakawa, pers. comm., 23 January 2018; H. Nishida, pers. comm., 24 January 2018; Gilman and Lundin, 2010.		
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
CONDITION NUMBER (if relevant):				**N/a**

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(s) covered by the governance body(s) responsible for fisheries management.		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guidepost	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?	Y	Y	Y
	Justification	The Eisei Maru No. 8 does not fish near seamounts or reefs and avoids protected areas, including those designated by other nations (K. Yoshinaga, personal communication, 08 Feb 2017). Because fishing takes place in deep water using pole and line, and targeted species are caught near the ocean surface, the gear does not interact with bottom habitats. The fishing poles are lightweight (confirmed by visual inspection during the site visit) and occasionally snap when large fish are caught, so that the snapped end falls into the ocean. Alternatively, an entire pole may be lost. Poles snap about two to three times per fishing trip, while entire poles are lost only once or twice per year (K. Yoshinaga, personal communication, 08 Feb 2017). Hooks are barbless, and lost pole and line gear is not expected to have substantial ghost fishing impacts. Due to the nature of the gear, which is used at the surface of deep oceanic areas, there is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats, and **SG100 is met**.		
b	VME habitat status			
	Guidepost	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?	Y	Y	Y
	Justification	The Eisei Maru No. 8 does not fish near VME habitats such as seamounts or reefs, and the vessel avoids protected areas, including those designated by other nations (K. Yoshinaga, personal communication, 08 Feb 2017). For example, the crew complies with Micronesia's		

		requirement that vessels not approach near reefs. In addition, fishing takes place in deep water using gear that operates at the ocean surface and does not contact the sea bottom. Based on vessel compliance with regulations and the nature of the gear, which is used at the surface in deep water, there is evidence that the UoA is highly unlikely to reduce structure and function of VME habitats to a point where there would be serous or irreversible harm. **SG100 is met.**		
c	**Minor habitat status**			
	Guidepost			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?			Y
	Justification	Fishing takes place in deep water using gear that operates at the ocean surface and does not contact the sea bottom. Based on vessel compliance with regulations and the nature of the gear, which is used at the surface in deep water, there is evidence that the UoA is highly unlikely to reduce structure and function of minor habitats to a point where there would be serous or irreversible harm. **SG100 is met**.		
References		K. Yoshinaga pers. comm., 08 Feb 2017		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
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			
	Guidepost	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?	Y	Y	N
	Justification	The Eisei Maru No. 8 does not fish near VME habitats such as seamounts or reefs, and avoids protected areas, including those designated by other nations (K. Yoshinaga, personal communication, 08 Feb 2017). For example, the crew complies with the Federal State of Micronesia's (FSM) requirement that vessels not approach near reefs. In addition, fishing takes place in deep water using gear that operates at the ocean surface and does not contact the sea bottom, and there is minimal risk of impacts from lost gear. The gear type and operations of this fishery constitute an operational strategy for managing impacts on encountered habitats. Thus SG80 is met. Other relevant MSC UoAs (such as the Meiho skipjack and albacore fishery) and non-MSC pole and line fisheries also have no expected impact on habitats. The need for more active management of habitat impacts is not apparent; however, SG 100 is not met because there is no comprehensive habitat management strategy including all of these fisheries.		
b	Management strategy evaluation			
	Guidepost	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?	Y	Y	N
	Justification	Fishing takes place in deep water with gear that is used at the ocean surface and does not contact the sea bottom. The effectiveness of the strategy has not been tested, so SG 100 is not met, but information on the nature of the gear type and operations of this fishery provides an objective basis for confidence that the UoA does not harm encountered habitats, thus **SG80 is met**.		
c	Management strategy implementation			

	Guidepost		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?		Y	N
	Justification	Fishing takes place in deep water with gear that is used at the ocean surface and does not contact the sea bottom. The Eisei Maru does not fish near VME habitats such as seamounts or reefs, and avoids protected areas, including those designated by other nations (K. Yoshinaga, personal communication, 08 Feb 2017). Based on vessel compliance with regulations, data on fishing locations, and the nature of the gear, there is some quantitative evidence that the operational strategy is being successfully implemented. **SG80 is met**. However, there is no clear quantitative evidence, such as verified electronic data or observer reports, of the strategy being effectively implemented. SG100 is therefore not met.		
d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guidepost	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.
	Met?	n/a	n/a	n/a
	Justification	Per GSA3.14.3 (MSC FCR v2.0), this scoring issue is not scored if there is no impact on VMEs by the UoA, other MSC UoAs, and other relevant non-MSC fisheries.		
References		Acoura Marine 2016; K. Yoshinaga pers. comm., 08 Feb 2017		
OVERALL PERFORMANCE INDICATOR SCORE:				**80**
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			
	Guidepost	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?	Y	Y	Y
	Justification	The fishery and gear are used at the surface of deep oceanic water, and fished areas have been identified (Fig. 1). The main habitats in the UoA can be considered the pelagic layers of the Pacific Ocean adjacent to the coast of Japan and in the tropical Pacific, largely in international waters east of the Mariana Islands, east of the Federated States of Micronesia (FSM), and around the Marshall Islands. Although the main habitats themselves are not vulnerable, coral reefs exist off the coasts of the tropical Pacific islands. Reefs off the islands in the tropical Pacific have been mapped by the U.S. National Oceanic and Atmosphericc Administration (NOAA) and other institutes (Edwards et al. 2012; CoRIS; PIBHMC). The Japan Coast Guard hosts a map website that includes maps of benthic habitats and sensitive areas such as coral reefs (CeisNet). Some reefs occur off Miyake and Hachijo islands south of Tokyo Bay. The distribution of habitats, including vulnerable habitats such as reefs, is therefore well characterized over the range of the UoA. **SG100 is met.**		
b	Information adequacy for assessment of impacts			
	Guidepost	Information is adequate to broadly understand the nature of the main impacts of	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable	The physical impacts of the gear on all habitats have been quantified fully.

		gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	
	Met?	Y	Y	Y
	Justification	The Eisei Maru No. 8 keeps logbook records of fishing operations, including fishing days and GPS coordinates of fished areas, which can be used to determine physical impacts of gear on habitats. For example, the records can be used to confirm that the Eisei Maru does not fish near VME habitats such as seamounts or reefs, and avoids protected areas, including those designated by other nations. Regular fishing operations do not impact habitats because fishing takes place in deep water using gear that operates at the ocean surface. On that basis, **SG100 is met**.		
c	Monitoring			
	Guidepost		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?		Y	Y
	Justification	The fishery continues to keep logbooks of its operations, so any increases in risk to main habitats can be detected, and SG80 is met. The governmental institutes mentioned under scoring issue (a) continue to map ocean habitat distributions, allowing for measurement of changes in habitat distributions over time, and **SG100 is also met**.		
References		Edwards, K.F., M.S. Kendall and K.R. Buja. 2012. Atlas of the Shallow-Water Benthic Habitats of Majuro Atoll, Republic of the Marshall Islands. NOAA Technical Memorandum NOS NCCOS 153, Biogeography Branch. Silver Spring, Maryland USA. 55 pp. NOAA Coral Reef Information System (CoRIS), Micronesia. https://www.coris.noaa.gov/portals/micronesia.html Japan Coastal Environmental Information Service & Environmental Sensitivity Index (CeisNet): http://www2.kaiho.mlit.go.jp/ Pacific Islands Benthic Habitat Mapping Center (PIBHMC): http://www.soest.hawaii.edu/pibhmc/cms/		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**

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			
	Guidepost	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	Y
	Justification	Large marine ecosystems (LMEs) relevant to the UoA include the Oyashio and Kurushio Current ecosystems, which have been studied and characterized (NOAA 2018). No specific LME has been identified in the tropical Pacific areas fished by the Eisei Maru. However, the Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC) maintains a website (http://oceanfish.spc.int/) that hosts scientific information and publications relating to regional ecosystems. Key elements within these ecosystems include oceanic conditions, primary production, dynamics of fish populations (Yatsu et al. 2013). Over 95% of the UoA catch consists of the target species, albacore and skipjack, and no ETP species are caught. In addition, habitat impacts from the fishing gear are minimal. Ecosystem impacts from the fishery therefore relate mostly to removals of the target species. In 2016 the total global harvest of North Pacific albacore was about 51,200 mt, and for Western Central Pacific skipjack the total harvest was 1,740,300 mt (ISSF 2017). The 2016 UoA catches of albacore and skipjack comprised approximately 0.87% and 0.08% of the global harvests, respectively. Tunas are considered high trophic level predators, and declines in their abundance may affect abundance of their prey species and the structure of their marine community (Baum and Worm 2009). Research has been conducted on the ecosystem effects of fishery removals of top predators in the Pacific, including albacore and skipjack, and published studies suggest that some trophic effects do occur but are minor and unlikely to disrupt ecosystem structure (Cox et al. 2002, Sibert et al. 2006). **SG100 is met**.		
References		Baum, J. K., & Worm, B. (2009). Cascading top-down effects of changing oceanic predator abundances. *Journal of Animal Ecology*, *78*(4), 699-714. Cox, S. P., Essington, T. E., Kitchell, J. F., Martell, S. J., Walters, C. J., Boggs, C., & Kaplan, I. (2002). Reconstructing ecosystem dynamics in the central Pacific Ocean, 1952 1998. II. A preliminary assessment of the trophic impacts of fishing and effects on tuna dynamics. *Canadian Journal of Fisheries and Aquatic Sciences*, *59*(11), 1736-1747. NOAA. 2018. Large Marine Ecosystems of the World. http://www.lme.noaa.gov/		

	Sibert, J., Hampton, J., Kleiber, P., & Maunder, M. (2006). Biomass, size, and trophic status of top predators in the Pacific Ocean. *Science*, *314*(5806), 1773-1776. Yatsu, A., Chiba, S., Yamanaka, Y., Ito, S-I., Shimizu, Y., Kaeriyama, M., and Watanabe, Y. 2013. Climate forcing and the Kuroshio/Oyashio ecosystem. – ICES Journal of Marine Science, 70: 922–933.
OVERALL PERFORMANCE INDICATOR SCORE:	**100**
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			
	Guidepost	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	Measures aimed at managing Principle 1 and 2 components are sufficient for addressing potential fishery impacts on the ecosystem. The UoA harvests of target species are small compared to total harvests, and there are minimal negative impacts on other species (primary, secondary, and ETP) and habitats, and for managing waste, constituting a 'partial strategy' for management of the impacts of the UoA on the ecosystem. **SG80 is met**. Because there is no formal strategy that consists of a plan, SG100 is not met.		
b	Management strategy evaluation			
	Guidepost	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	The target stocks are in good condition, and the impacts of the UoA on bycatch and ETP stocks and habitats are negligible (see scoring for Principle 1 and Principle 2 above). There is therefore high confidence that the overall impacts of the UoA on the ecosystem are constrained to a low level and the partial strategy is working, so **SG80 is met**. There is, however, nothing that constitutes 'testing' so SG100 is not met.		
c	**Management strategy implementation**			

	Guidepost		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
	Justification	The analysis of stock status and UoA impacts as described above, provide evidence that that the partial strategy is being implemented successfully. **SG80 is met**. In relation to SG100, there is not clear evidence in all cases; for example in relation to the prohibition on discarding plastic at sea, there is no definitive evidence that this never happens in practice. SG100 is not met.		
References		Logbook data in Table 14, Furuichi et al. 2018, Uemura et al. 2018		
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			
	Guidepost	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	Large marine ecosystems (LMEs) relevant to the UoA include the Oyashio and Kurushio Current ecosystems, which have been well characterized (Heileman and Belkin undated; Belkin et al. undated). No specific LME has been identified in the tropical Pacific areas fished by the Eisei Maru. However, the Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC) maintains a website (http://oceanfish.spc.int/) that hosts scientific information and publications relating to regional ecosystems. Available information is adequate to identify and broadly understand key ecosystem elements relevant to the UoA. **SG80 is met**.		
b	Investigation of UoA impacts			
	Guidepost	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	Y
	Justification	Over 95% of the UoA catch consists of the target species, albacore and skipjack, and no ETP species are caught. In addition, habitat impacts from the fishing gear are minimal. Ecosystem impacts from the fishery therefore relate mostly to removals of the target species. Tunas are considered high trophic level predators, and declines in their abundance may affect abundance of their prey species and the structure of their marine community (Baum and Worm 2009). Research has been conducted on the ecosystem effects of fishery removals of top predators in the Pacific, including albacore and skipjack, and published studies suggest that some trophic effects do occur but are minor and unlikely to disrupt ecosystem structure (Cox et al. 2002, Sibert et al. 2006). Based on this information, main interactions between the UoA and key ecosystem elements have been investigated in detail**. SG100 is met**.		
c	Understanding of component functions			

	Guidepost		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	Y
	Justification	Main functions of the the target species, primary and secondary species, and habitats in the ecosystem are understood. Tunas are considered high trophic level predators, and declines in their abundance may affect abundance of their prey species and the structure of their marine community (Baum and Worm 2009). Japanese anchovy and pilchard occupy an intermediate role in the ecosystem, feeding on zooplankton while in turn being preyed upon by large fish predators, birds and mammals (Takasuka et al. 2008). Relative impacts of the UoA on these components have been identified based on catch data (Tables 3 and 14). **SG100 is met**.		
d	Information relevance			
	Guidepost		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	Sufficient information is available on UoA impacts on the components and ecosystem elements to allow for inference of main consequences on the relevant ecosystems. **SG100 is met**.		
e	Monitoring			
	Guidepost		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	These ecosystems are of high ecological and economical importance, and they continue to be actively studied and monitored. The information collected is adequate to support development of strategies to manage ecosystem impacts. **SG100 is met**.		

References	Logbook data in Table 14, Cox et al. 2002, Baum and Worm 2009, Furuichi et al. 2018, Sibert et al. 2006, Takasuka et al. 2008, Uemura et al. 2018 Belkin, I, M.C. Aquarone, and S Adams. "X-23 Kuroshio Current: LME #49." NOAA National Marine Fisheries Service, n.d. http://lme.edc.uri.edu/images/Content/LME_Briefs/lme_49.pdf. Heileman, S, and I Belkin. "X-24 Oyashio Current: LME# 51." NOAA National Marine Fisheries Service, n.d. http://lme.edc.uri.edu/images/Content/LME_Briefs/LME_51.pdf. Oceanic Fisheries Programme of the Secretariat of the Pacific Community website (http://oceanfish.spc.int/)
OVERALL PERFORMANCE INDICATOR SCORE:	**100**
CONDITION NUMBER (if relevant):	**N/a**

Appendix 1.4 Principle 3 scoring rationales

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			
	Guidepost	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	Regarding the management of skipjack and tuna resources, the 2 regional fisheries management organizations (RFMOs) have established international cooperation mechanisms to manage the shared highly migratory resources. The WCPFC and IATTC share the management responsibilities of albacore resources in WCPO; skipjack is considered to be two separate stocks, but nevertheless data are shared and there is scientific cooperation. The RFMOs have agreed on a number of Memoranda of Understanding (MoU) with related fisheries organizations, which help foster cooperation and coordination among regional and national entities, so that both stocks within the Japanese EEZ, WCPFC and IATTC convention areas are organized and effective. The decisions taken at RFMOs are binding and Japan is a member of both RFMOs. The Ministry of Agriculture, Forestry and Fisheries (MAFF) in Japan sets the overarching legal framework of fisheries management in Japan, administered by the Fisheries Agency (FA). Chapter 1, Article 2 of the Fisheries Basic Act (2001), the overarching framework for the management of fisheries in Japan, requires conservation and management of fisheries resources to ensure its sustainable use as a component of the marine ecosystem, following the recommendations of the UN Convention on the Law of the Sea (UNCLOS). The Law of Conservation and Management of Marine Living Resources guides to protect Japan's surrounding ecosystem and habitat. These are generally in accordance with MSC Principles 1 and 2. For FSM, the development and management of the marine resources within FSM falls under the jurisdiction of the National Oceanic Resources Management Authority (NORMA). NORMA works under Title 24 (Marine Resources) of the FSM Code, which establishes a comprehensive framework		

		for fisheries management. The Board of Directors of NORMA, comprised of five members (one representative from each state and one at-large member), established under Title 24, is responsible for adopting fisheries regulations, concluding domestic and foreign fishing agreements and issuing domestic, domestic-based and foreign fishing permits. FSM is a member of FFA, PNA, SPC and WCPFC and must therefore adopt WCPFC CMMs. Based on the above, there is an effective national legal system and binding procedures governing cooperation with other parties, which aim to deliver management outcomes consistent with MSC Principles 1 and 2. Therefore, **SG 100 is met**.		
b	Resolution of disputes			
	Guidepost	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 national level, the Fisheries Basic Act has set up the Fisheries Policy Discussion Committee within MAFF, which deals with issues related to all fisheries-related laws in Japan (Chapter 4 Article 35-39). This approach allows to solve issues by discussion before it actually develops into a dispute, therefore development of legal disputes are rare. The Committee can advise the Minister or related administration's chief or request cooperation for information and clarification. The scheduled committee meetings and minutes are open and available online. It is considered that this is generally effective, as disputes are minimal in the fisheries management in Japan. At RFMO level, Article 31 of the WCPFC convention establishes a dispute settlement mechanism, which consists of appointing a review panel to settle disputes among members of the Commission. Meanwhile, the Commission requires that any decision should be consensus-based. The dispute settlement mechanism outlined in the Convention allows for a transparent process. At the FSM national level, there is a mechanism in the FSM Code to resolve disputes concerning infractions and penalties awarded for non-compliance to regulations concerning the tuna fishery. Title 6 (Judicial Procedure), Chapter 9, Section 902 stipulates that "*any appeal authorized by law may be taken by filing a notice of appeal with the presiding judge of the Supreme Court of FSM from which the appeal is taken, or with the clerk of the court for the District in which the court was held, within 30 days after the imposition of the sentence or entry of the judgment, order, or decree appealed from, or within such longer time as may be prescribed by rules of procedure adopted by the Chief Justice.*" Any infractions beyond administrative penalties are the responsibility of the Department of Justice. SG80 is met. However, most fisheries infractions are settled out of court for efficiency reasons as court cases tend to be lengthy, so it is not clear that the dispute resolution system has been fully tested. Although there are appropriate dispute settlement mechanisms well considered and in place in both level of management, so far it falls short to say these have been tested and proven to be effective in all cases. Therefore SG80 is considered to be met, but SG100 is not.		

c	Respect for rights			
	Guidepost	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	Japan's Fisheries Law chapter II (article 6 to 51) observes and protect rights of coastal fishermen that are dependent on fishing for food or livelihood. The systematic co-management system protected by Fisheries Cooperative Law has developed to allow fishermen's discretion in the management of local resources within the legal framework. Under the Fisheries Cooperative Law, all distant-water pole and line fishermen in Japan are the members of the Japan Skipjack and Tuna Fisheries Cooperative (JSTFC) and the association works hand-in-hand with all related government agencies to observe and implement necessary management regulations and also to feedback their opinions into the government policy. Management decision is devolved to the determination within FC or FCA by the member (fishermen)'s agreement. The convention on the conservation and management of highly migratory fish stocks in the WCPO recognizes that smaller island developing States have unique needs which require special attention and consideration in the provision of financial, scientific and technological assistance. WCPFC coordinates a close relationship with the regional fisheries body known as the Pacific Islands Forum Fisheries Agency (FFA), an organization comprised of independent Pacific Island countries who share a common fisheries interest in the Pacific Ocean region. FFA members are also members of the WCPFC. At IATTC, the Antigua Convention states that it takes into account the special circumstances and requirements of the developing countries of the region, particularly the coastal countries, in order to achieve the objective of the Convention. Both the WCPFC and IATTC have an intention and a management system that observes the legal rights created explicitly or established by custom for people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. However, the WCPFC considers common allocation principles such as historical participation, the rights of Coastal States and the rights of developing States, but these are not yet formally part of an allocation process of fishing rights. While IATTC has demonstrated the intention to develop and implement methods to allow a fair distribution and mechanisms to achieve this objective, such mechanisms are not formal commitments. As a result, neither meet SG100 In FSM, the customary right for people to fish for food and livelihood is explicit in the FSM Bill of Rights Chapter 1, Sub-section 114 which states *"due recognition shall be given to local customs in providing a system of law and nothing in this chapter shall be construed to limit or invalidate any part of the existing customary law, except as otherwise provided by law."* To support the livelihoods of local fishers NORMA allocates a portion of the optimum sustainable yield to domestic fishing vessels, while foreign and industrial vessels are kept outside coastal waters. This demonstrates a clear formal, legal commitment to the rights of small-scale and subsistence fishers.		

		Based on the above, SG80 is met but SG100 is not met.
References		Fisheries Basic Act (2001), Fisheries Act 1949; WCPFC 2004, WCPFC 2018, IATTC 1990; IATTC 2003; JTRFMO 2009; UNCLOS 1999; Federated States of Micronesia Code Title 18, Title 24 Sections 103-120, 301-306, and 502-510; Federated States of Micronesia Bill of Rights Chapter 1
OVERALL PERFORMANCE INDICATOR SCORE:		**85**
CONDITION NUMBER (if relevant):		**N/a**

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 organizations 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			
	Guidepost	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	The functions, roles and responsibilities are explicitly defined and well understood in both national and international management framework for both species. At international level, WCPFC and IATTC have defined roles and responsibilities of member states. The roles of the Japanese government are also well defined and understood through the Fisheries Act. The Ministry of Agriculture, Forestry and Fisheries (MAFF) is responsible for management of marine biological resources and fishery production activities, administered by the Fisheries Agency (FA). All distant-water fisheries are managed directly by the Ministry and the fisheries are operated with Minister-issued licenses. For FSM, the functions, roles and responsibilities of NORMA and its staff are well defined under Title 24, Chapter 3 (Management Authority). The National Fisheries Corporation works with NORMA in promoting the development of pelagic fisheries and related industries. NORMA remains representative of the FSM as a whole, with members of each State, appointed by the President of the Federated States of Micronesia, holding a position on the Board of Directors. Duties and functions of NORMA are explicitly described in Chapter 3 of Title 24. SG100 is met.		
b	Consultation processes			
	Guidepost	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	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of

			demonstrates consideration of the information obtained.	the information and explains how it is used or not used.
	Met?	Y	Y	N
	Justification	The WCPFC has four subsidiary bodies to support the decision-making of the Commission, which meets prior to the Commission meeting held every December. The Scientific Committee (SC), Technical and Compliance Committee (TCC), The Northern Committee (NC) meets in September and makes recommendations to the Commission on species that are found in the Convention Area. Each committee is comprised of representatives of member states. Decisions taken by the Commission are generally done by consensus and in cases where decisions have to be taken by vote, usually on substantive matters, a "two-chamber system" applies. Decisions made on scientific committee, and at the commission and other committees are usually explained in its documents published and available through the RFMO's website. The IATTC accepts stakeholders such as fishing industry representative, NGOs, and other affected or interested individuals. Same as WCPFC, there are established guidelines for observer participation at IATTC. At the national level, the Japanese Fisheries Policy Council plays a key role in consultation processes that regularly seek and accept relevant information including local knowledge to incorporate into management measures. The council meeting is open for all interested parties but only the invited person is allowed to make comments in the meeting.The FAJ regularly undertakes both formal and informal consultation with fishing industry stakeholders and other groups. The government interacts throughout the year with industry stakeholders that provide the parties opportunities to inform the management system. Within the JSTFCA, all distant-water pole and line and purse seine operators who target skipjack gather to discuss resources management and countermeasures at the Distant-water Skipjack Fisheries Countermeasure Association. All distant-water pole and line vessel owners targeting skipjack belong to a separate discussion group as well. SCTFCA coordinates all these meetings acting as a secretariat to maintain discussion among member fishermen, FA, and other related government and industry groups. Through these opportunities fishermen have opportunities to meet and directly ask FA officials to express their opinion. It seems the engagement of coordination and meetings among them are strong, and considered that at least informally, the management system demonstrates consideration of the information and explains how it is used or not used, although the resultant process may not become publicly available. For FSM, the Board of Directors and NORMA consult with relevant stakeholders such as Congress, Department of Justice, Department of Resources and Development, and State representatives (as required) when adopting regulations for the conservation, management and exploitation of the EEZ and when negotiating foreign and domestic-based fishing agreements. NORMA also consults with the States and NGOs at annual Fisheries Symposium workshops about fisheries management regulations and agreements. They consult more widely in relation to specific topics: for example, the FSM Tuna Management Plan was drafted initially in early 2011, then amended following public consultation in Pohnpei in October 2011. Further consultations were held with stakeholders when the plan was revised in 2015. Based on the above, SG80 is met. Since it is not completely clear whether the consultation systems explain, formally, how information is used or not, SG100 is not met.	
c	Participation			

	Guidepost		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	N
	Justification	WCPFC offer clear language in the treaty that includes an article on transparency (Article 21 of the Convention) and very clear observer rules (Rule 36 of the Rules of Procedure) that invite all affected and interested parties to be involved. However, the WCPFC reports also show the limited transparency for observers requesting information and some sessions are held behind closed doors, despite some formal request from NGOs. Therefore the whole process is not open to the entire public. In 2014, WCPFC received an official joint letter from accredited observer NGOs pointing to an erosion of transparency and limited access to some meetings closed for participation. ISC recently adopted restrictive rules for observer participation and high participation fees for observers were discussed in the 2016 document of WCPFC13-2016-OP07. At the Japanese national level, the Fisheries Policy Council plays a key role in consultation processes that regularly seek and accept relevant information. The council normally consists of government employees, science research staff, representatives from fisheries industry or cooperatives, appointed experts from academia and in addition, observers are also allowed to request attendance, although they are not usually given any opportunity to comment at the meetings. In contrast, internal meetings and coordination among the selected official members are frequently held and opinions are coordinated internally. In 2017, WWF Japan was invited to the policy discussions prior to ISC for the first time, with public comments invited online by the Japanese government. This implies that there is a tendency to improve the opportunity for participation for all interested and affected parties to be involved. However, it is difficult to say that such participation is encouraged at both international and national level. For FSM, organisational stakeholders such as those listed in SIb are formal consultees. Public consultations (e.g. annual workshops and one-off consultations such as in relation to the Tuna Management Plan) are also held from time to time, providing an opportunity for all parties to be involved (It should be borne in mind that FSM is a small place in terms of population and this provides greater informal access to decision-makers than would be the case in a larger state.) SG80 is met. It is not clear to what extent the system facilitates effective engagement, however, so SG100 is not met.		
References		WCPFC, 2003; WCPFC, 2014g; WCPFC 2016b; FRI 2018; IATTC, 2003; IATTC, 2011; Federated States of Micronesia Code Title 24 Chapters 1, 3 and 5 Federated States of Micronesia Tuna Management Plan 2015; Office of the National Public Auditor NORMA report 2012		
OVERALL PERFORMANCE INDICATOR SCORE:				**85**
CONDITION NUMBER (if relevant):				**N/a**

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			
	Guidepost	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 national level, Chapter 1, Article 2 of the Fisheries Basic Act (2001), the overarching framework for the management of fisheries in Japan, requires conservation and management of fisheries resources to ensure its sustainable use as a component of marine ecosystem, following the UN Convention on the Law of the Sea (UNCLOS), which Japan ratified in 1996. There are also conservation and sustainable use policies that incorporate precautionary and ecosystem approaches into fisheries management decisions. WCPFC Article 2 states that the convention's objective is to ensure effective management, long-term conservation and sustainable use of highly migratory stocks in the WCPO, in a manner compatible with both the LOSC and the USFSA. WCPFC article 5 and 6 set out principles for conservation and management and application of precautionary approach respectively. Additionally, WCPFC explicitly states that article 5 should also be applied to areas under national jurisdiction within the Convention area where highly migratory stocks may be found. IATTC Antigua Convention also explicitly states that it is "committed to ensuring the long-term conservation and the sustainable use of fish stocks covered by this Convention " From the above, clear long-term objectives clearly exist in both national and international (regional) management frameworks that govern both species, and there is an explicit policy to include precautionary approach in the objective, which is consistent with MSC Principles and Criteria. While the long-term goal is explicit in the written document, it does not seem required at actual management at all times. In Japan, there is a history of decision-making practiced within the fishery policy council to adopt TACs that are exceeding scientifically recommended ABCs, against its precautionary approach in place. Japan's Fishery White Paper has clearly stated for the first time in the 2017, with its part 2 reads that the government aims to set measurable objectives and precautionary approach starting from major commercial fisheries. At WCPFC, the latest stock assessments for bigeye tuna indicated that overfishing was not occurring but management action has not been sufficiently precautionary to prevent the stock becoming overfished. A similar case is shown in the management of Pacific Bluefin tuna resources managed under WCPFC. FSM fixes a long-term fisheries objective in Title 24, Chapter 1, Sub-section 101 of the FSM Code. The key objective is *to ensure the sustainable development, conservation and use of the marine resources in the exclusive economic zone by promoting the development of, and investment in,*		

		fishing and related activities in the context of effective stewardship. NORMA has developed and implemented the Tuna Management Plan (2015) to work towards meeting this key objective for the tuna fishery. Based on the above, SG80 is met. At both the national and regional level management objectives, including the application of the precautionary approach, are explicit in policy and legislation and consistent with MSC Principles and Criteria but while long-term objectives consistent with the precautionary approach are explicit within management policy, it is difficult to agree that the SG100 requirements are fully met in practice, as shown in e.g. the examples for bigeye and especially bluefin tuna, where management action has not been sufficiently precautionary to prevent the stock becoming overfished as indicated in the latest assessmen. A partial score at SG100 is given for this scoring issue.
References		Fisheries Basic Act (2001), Fisheries Act 1949; IATTC 2003; WCPFC 2013; WCPFC 2018; Federated States of Micronesia Code Title 24 Chapter 1 Federated States of Micronesia Tuna Management Plan 2015
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		**N/a**

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			
	Guidepost	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	Y	P
	Justification	At WCPFC and IATTC level, there are well-defined short and long-term objectives consistent with achieving the outcomes expressed by MSC's Principle 1 and 2. Japan's "Our countries marine biological resources management policy (MAFF, 2017)" states that highly migratory fish species that migrate through several EEZs and/or several high seas are managed by cooperation among coastal and fishing countries and countries who are fishing in the area, directly by the coastal country or based on the decisions of relevant RFMOs. Japan's marine biological resources management policy (MAFF, 2017) states that Japan manages skipjack resources through introduction and implementation of management measures through working with/ compliant with WCPFC decision, in addition, establishment of voluntary measures at each fishery cooperatives, such as establishment of off-fishing days in the case of pole and line skipjack fisheries. The same policy (MAFF, 2017) does not state specific management objective for albacore resources, but it is considered that RFMO objective replaces their management objective based on Our Counties' Marine Biological Resources Management Policy. NORMA has adopted an ecosystem approach in the development of the Tuna Management Plan (2015), which is in line with Principle 2 objectives (Principle 1 objectives being addressed at WCPFC and IATTC level). The objectives of the TMP relevant to Principle 2 are: ecosystem & biodiversity maintenance; waste minimisation; reduction in the quantity of bycatch; collection of accurate data from all tuna fisheries in FSM (including bycatch and discard data, etc.). Measures that address issues concerning marine species preservation and protection of endangered species are also outlined in Title 23 (Resource Conservation) of the FSM Code. Chapter 1 (Marine Species Preservation) prohibits the use of explosives, poisons, chemicals etc. and restricts the taking of turtles and marine mammals; Chapter 3 (Endangered Species) prohibits the capture and possession of any threatened or endangered species. The client vessel, Eisei Maru No.8 has recently established a clear numerical target to show its commitment for sustainable fishery, as to constrain their catch of juvenile (<1.5kg) under 5%, catch of juvenile albacore (<4kg) under 10%, and bigeye tuna bycatch under 1% of the total catch. This		

		voluntary restriction was implemented from January 25th, 2018 although the vessel has never exceeded these numbers in the past. Their company has been operating pole and line fishery since 1962, and their long-term commitment for the sustainable fisheries is clear in its company policy. The objective is consistent with achieving the outcomes expressed by MSC's Principles 1 and 2. At international level (WCPFC and IATTC), the objectives are well-defined and measurable. However, since the national objectives are not entirely clear, a partial score of 90 is given for this PI.
References		MAFF, 2017; JSTFCA, 2018; IATTC, 2003, IATTC, 2005; IATTC, 2011; WCPFC, 2004, WCPFC, 2008; WCPFC, 2011; Federated States of Micronesia Code Title 23 and 24; Federated States of Micronesia Tuna Management Plan 2015
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		**N/a**

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			
	Guidepost	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	SC provides scientific advice based on the precautionary approach, with its report submitted to the WCPFC annual meeting in December. Conservation and management measures are adopted by member's consensus and are binding. If consensus cannot be reached, voting, grounds for appealing decisions, conciliation and review are all part of the established decision-making process, as described in Article 20 of the Convention. The SC conducts assessments annually, reflecting concerns with status of stocks or uncertainty in the assessments. Procedures and stock assessment methodology for the assessments are now fine-tuned amongst CCMs of the WCPFC. 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. A similar process is used for North Pacific albacore with the ISC forming the key, joint WCPFC and IATTC reference group. ALBWG conducts stock assessments for ISC. External reviews have been carried out for ISC. IATTC adopted CMM at its 73rd meeting, thus pursuant to the Article 22(4) of the WCPFC Convention that provides for cooperation with the IATTC regarding stocks that occur in the Convention Areas of both organization, WCPFC adopted the same content for its CMM (CMM2005-03). In 2013 IATTC adopted a supplemental resolution to define "current effort" but the WCPFC has yet to follow suit. At IATTC, ISC Albacore Working Group provides scientific recommendation by consensus, to be adopted at the Commission. The decision-making processes at WCPFC and IATTC are well established and documented. From Japan, Fishery Agency staff and industry representatives attend the WCPFC to represent Japan's interests. Before the WCPFC meetings, JSTFC organizes Japanese skipjack and albacore fishermen to discuss collective interests of the group so that delegates to the Commission will reflect it. The tuna pole and line fishery and purse seine fishery form a member group called the Distant-water skipjack fisheries council within JSTFCA to coordinate opinions among Japanese skipjack fishermen to reach a consensus. When a WCPFC decision is made, the Japanese government is responsible for its implementation as a member, by preparing necessary legislation and regulations as needed.		

		Within Japan, to implement the decision of RFMO to restrict fishing efforts at current levels, license (permits) controls are conducted. MAFF announced in 2017 its policy to continuously reduce permit numbers on designated fisheries including distant-water pole and line fishery by restricting permit issuance on only active vessels with recent catch records thus limiting the number of license. The number of distant-water skipjack and tuna fisheries permits is controlled by tonnage and capacity of vessels, separately for longline and pole and line fisheries. The vessel capacity ranks were set, and for each ranks, the number of permits are determined every 5 years, by reviewing the already permitted active vessels. The total number of permits to be issued are determined at the Fisheries Policy Council, in principle deducting the number of vessels that went out of business or become inactive from the previously permitted vessel numbers for each ranks of vessel capacity, in consideration of fisheries stock status. The total number of permits are announced in an official gazette (total of longline and pole and line only). Before decision making at the Fishery Policy Council, several resources management working group meetings are held where prefectural and local fishermen's opinions are invited (FA, 2016) For FSM, the Board of Directors of NORMA, comprised of five members, established under FSM Code Title 24. Chapter 3, is the national management system's decision-making body. A basis for decision-making is established through the development and implementation of the Tuna Management Plan, most recently revised in 2015. A decision-making process that result in measures and strategies to achieve the fishery-specific objectives exist in the management of these fisheries. SG80 is met.		
b	Responsiveness of decision-making processes			
	Guidepost	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 account of the wider implications of decisions.	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.
	Met?	Y	Y	N
	Justification	At ISC, the latest catch monitoring - and research results are presented, and serious issues identified in relevant research. Monitoring and evaluation are consulted on at the Commission-level. For example, to evaluate the implementation of CMM 2005-03 (WCPFC adopted the same CMM through its cooperation scheme), which requires CCMs to not increase the level of fishing effort for North Pacific albacore beyond current levels, it was required that counties report back their level of compliance to the Northern Committee for evaluation. The type of information to be provided as proof of compliance was specified by the NC. Most of the decision-making processes at WCPFC and IATTC respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation. However, at both WCPFC and IATTC, for example they have been not successful to maintain and recover Pacific Bluefin tuna stock by failing to agree on necessary CMMs in a timely and precautionary manner. Both of the Northern Pacific skipjack and albacore stocks have been healthy and there had been no serious issues identified to test responsiveness of the management, but this at least shows that decision-making processes in place for these RFMOs are not always sufficiently effective or timely.		

		NORMA's primary roles are to prepare, monitor and amend regulations and management plans for the offshore fishery within FSM's EEZ. They take an adaptive management approach, which monitors and addresses changing conditions based on the information available. This approach is reflected Paragraph 7 of the Fishing Access Agreement for a Domestic-Based Foreign Fishing Fleets, which allows NORMA if it determines through consultations with regional scientific authoritie, that if there is a serious threat to a stock, to take precautionary measures to preserve the stocks by limiting or closing access to all or part of the FSM EEZ. It is not clear that it responds to 'all issues'. Based on the above, SG80 is met, but the SG100 level is not met.		
c	Use of precautionary approach			
	Guidepost		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	
	Justification	The WCPFC requires members of the Commission to apply the precautionary approach as described in Annex 6 and Annex II. SC provides scientific advice, based on the best available information and precautionary approach, to the WCPFC annual meeting. At the annual meeting however, the adoption the CMMs is based on the member's consensus. SC12 report of the WCPFC, 2016 shows that adoption of appropriate reference point for a formal harvest strategy for its key stocks, including skipjack has been delayed faced with disagreement on the interpretation of the stock assessments, and this has been continuing. For the management of North Pacific skipjack and albacore, however, the stocks are generally considered at healthy level and there are continuous efforts presented in the meeting record to precautionary manage the stocks in principle. SG80 is met.		
d	Accountability and transparency of management system and decision-making process			
	Guidepost	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 national level, stakeholders are able to request a range of information on the performance of the fishery and management actions either by directly asking to FA or through FCA or by attending formal advisory committee meetings and other local gatherings. Explanation may be limited		

		depending on the type of information or contact persons, but generally it can be requested and answered. Formal reporting to all interested stakeholders, with comprehensive information on the fishery's performance and management actions are not yet available in Japan and those information are usually internally circulated within the industry. The minutes of the Fishery Policy Council are available for review online. For FSM, information concerning fishery licensing, as well as key documents are publically available on the NORMA website: www.norma.fm. New regulations and amendments to regulations are gazetted in local newspapers and public notices. FSM is required to submit annual reports to WCPFC concerning research, statistics and the status of their fisheries; these include information on fleet composition, effort, interactions with ETP species and data from observer or port sampling programmes. This information is publically available on the WCPFC website. The Office of the National Public Auditor provides information concerning FSM fishery performance on its publically available website: www.fsmopa.fm At the RFMO level, recommendations from research, monitoring and evaluation, and performance reviews are formally published. Likewise, reports of the plenary sessions of meetings are published and are publicly available. WCPFC and IATTC maintain publicly accessible websites where meeting minutes and reports from the commission and subsidiary bodies are posted and freely available for download. These provide a high level of public access and transparency that shows how scientific information is used to inform management actions which are then monitored for effectiveness and discussed at the Commission. However, some information such as observer reports or compliance review reports that shows actual fisheries performance can be limited for access and it does not provides comprehensive information on the fishery's performance and management actions. Thus in both the national and regional situation, SG 80 is met but not SG100.		
e	Approach to disputes			
	Guidepost	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	Y
	Justification	The Japanese management system has well-established decision-making mechanisms for administrative and legal appeals and has in place legal and other frameworks to respond to judicial decisions in a timely fashion. The Fishery Policy Council is held to discuss issues in a timely fashion to comply with RFMO decisions or judicial decisions arising from any legal challenges, thus avoiding disputes by consulting with industry and cooperatives. For FSM, there is no evidence available to suggest that NORMA or its Board of Directors are disrespectful to, or defiant of national laws, or legally binding agreements reached at the international level. As outlined in 3.1.1 NORMA and the Department of Justice have well-established mechanisms and frameworks for addressing legal disputes concerning the fishery. NORMA attempts to curtail disputes by consulting with the industry through stakeholder meetings and workshops to raise public awareness and provide input into amendments of management measures and/or policy. These consultative processes enable NORMA to minimize disputes and respond to judicial decisions in a timely fashion.		

		The WCPFC dispute mechanism is set out in Article 31 of the Convention. 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. This is in fact a proactive measure to avoid member's disputes on decision. WCPFC (the Commission) has not been subject to any court challenges so far. As the national and regional management system acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges. SG100 is met
References		FA, 2016; FA, 2017. Fisheries Act 1996; IATTC 2003; IATTC 2014; ISSF 2013; WCPFC 2004; WCPFC 2006; WCPFC 2014; Federated States of Micronesia Code Title 24 Chapter 3; Federated States of Micronesia Tuna Management Plan (2015); Fishing Access Agreement for a Domestic Based Fishing Fleet Paragraph 7
OVERALL PERFORMANCE INDICATOR SCORE:		**85**
CONDITION NUMBER (if relevant):		**N/a**

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			
	Guidepost	Monitoring, control and surveillance mechanisms exist0, 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	Both the WCPFC and IATTC have strategies to improve compliance including vessel registration and catch and effort monitoring and diplomatic and other pressures applied to nation states. Most information on compliance comes from port monitoring, observer programs and the vessel monitoring systems. The WCPFC has a Compliance Monitoring Scheme (CMS) in place that assesses members' compliance with obligations, identifies areas of conservation and management that may need refinement, responds to non-compliance and monitors and resolves non-compliance issues. Independent Review of the Compliance Monitoring Scheme are also conducted for reviewing its effectiveness. The Technical and Compliance Committee (TCC) meets in October and is the "enforcement" committee of the Commission. The TCC reviews members' adherence to Commission decisions and monitors individual countries' implementation of those measures through their reports. The TCC also makes recommendations to the Commission with respect to encouraging, improving and enforcing compliance by members with the decisions of the Commission. The Commission evaluates compliance by members annually with respect to: catch and effort limits and reporting for target species, spatial and temporal closures, observer and Vessel Monitoring Systems (VMS) coverage and provision of scientific data. However, the WCPFC has historically not made this information publicly available. For the first time in 2013 the Commission did publish information on compliance by individual countries (WCPFC 2013). The Inter-American Tropical Tuna Commission (IATTC) has a compliance-monitoring plan that includes collecting information from member nations on compliance and enforcement of measures, requiring a plan of action to improve any issues from member nations not under compliance, and allows the Commission to develop sanctions and incentives to improve compliance (IATTC 2011). Vessel Monitoring Systems are required on all vessels fishing for highly migratory species in the western and central Pacific Ocean south of 20°N and east of 175°E. There are measures in place allowing for the boarding and inspection of vessels in the Convention Area (WCPFC 2006) and the WCPFC maintains a list of illegal, unreported and unregulated (IUU) vessels (WCPFC 2010). However, there is also an opinion that assessing the effectiveness of these enforcement measures is difficult because there is a general lack in the transparency of information with regards to surveillance activities,		

		infractions and enforcement actions and outcomes (Gilman et al. 2013). Vessels fishing in the Convention Area are required to install a transmitting device known as an Automatic Location Communicator (ALC), which transmits a signal to a land-based receiving station where fisheries managers can view and track the location of fishing vessels. Another important MCS element is the boarding and inspection of fishing vessels on the high seas by patrol vessels registered with the Commission by CCMs. These patrol vessels conduct routine operations throughout the Pacific Ocean. The Commission also requires regular scientific review of its conservation and management measures that are aimed at reducing the mortality rate of key species, as well as those taken incidentally, such as sharks. The Commission's regional observer program objective is to achieve 5% coverage of the effort in each fishery by 30 June 2012 for vessels operating in high seas areas but this does not include pole and line vessels. At the national level, FA maintains license and registration to cooperatives, WCPFC FFA vessels, port monitoring, observer programs (for longline vessels) and the vessel monitoring systems. However there is no comprehensive system description of MCS within Japan or review of effectiveness of them, therefore it is not clear if the MCS system is comprehensive to be implemented domestically. FSM has a monitoring, control and surveillance (MCS) system. Title 24 of the FSM Code sets out the terms and conditions of fishing permits and foreign fishing agreements. The MCS Division of NORMA, comprised of 5 officers, is responsible day-to-day implementation of MCS. Reporting requirements of licence-holders include daily vessel positions, details on sets and gear specifications and information on catch of species retained and discarded. The MCS Division is also responsible for ensuring that licensed fishing vessels are listed on the WCPFC Record of Fishing Vessels and the FFA Regional Register of Good Standing and that licensed vessels have been fitted with Vessel Monitoring System (VMS) as required by the Commission. A Fisheries Management and Surveillance Working Group has also been established by NORMA to formulate and implement national fisheries management and surveillance strategies; this consists of representatives from NORMA and the Department of Justice as well as other National and State departments and divisions and meets every quarter. Enforcement responsibilities sit primarily with the Maritime Police under the Department of Justice and Office of the Attorney General, which are given power to penalise parties in breach of compliance regulations as stipulated in Title 24 of the FSM Code. The Maritime Police responsibilities include maritime surveillance of the FSM EEZ and enforcement of fisheries and maritime laws. Regular dockside inspections are conducted on commercial fishing vessels entering FSM ports. Four patrol boats conduct surveillance activities in areas of fishing operations. The majority of infractions committed by tuna vessels are minor. NORMA reports that there has been a decline in non-compliance infractions as the fleet has become more aware of the rules and regulations through outreach work. At both national and regional level the MCS system is generally implemented and has demonstrated an ability to enforce relevant management measures, strategies and/or rules, but its comprehensiveness and effectiveness is still in question for Japan. Furthermore, there is no observer program for pole and line vessels. Overall, the team considered that SG100 is not met.		
b	Sanctions			
	Guidepost	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 RFMOs, enforcement responsibility resides with member States. Although WCPFC maintains the MCS scheme and conducts member performance reviews, so far there is no application of trade sanctions against non-compliant Member States, although theoretically these may be possible (Medley and Powers 2015). At national, Japanese level, sanctions are issued through the Ministerial Order on Designated Fisheries Permit and Control, based on the Fisheries Law and the Law on Marine Resources Protection for violation of regulation on fishery permits and relevant conditions, vessel capacity, catch reporting, surveillance compliance, VMS, transshipment and landing of fish, etc. The sanctions are either imprisonment, fines, permit removals or suspensions, confiscation of catch, boat or gear, etc. or combination of these. A person who is found by the Supreme Court of FSM to non-compliant is subject to a civil penalty. In determining the amount of the penalty, the Supreme Court of FSM takes into account the nature, circumstances, extent and gravity of the prohibited acts committed and, with respect to the violator, the degree of culpability, any history of prior offenses, whether there are multiple violations which together constitute a serious disregard of conservation and management measures. Fines are relatively severe, and NORMA enforcement staff are of the view they provide effective deterrence; infractions by tuna vessels are generally minor and relate to errors rather than deliberate infringements. There is no formal record so far demonstrating the application of the sanction to the fishery, and the vessel under assessment has never been found to be non-compliant. Sanctions to deal with non-compliance exist, as describe above, and thought to provide effective deterrence. **SG80 is met**. IUU fishing continues to be a problem in tuna fisheries, although tightening the Port State Controls has been thought to reduce this problem There is limited evidence that santions are probably effective in that area. SG100 is therefore not met.		
c	Compliance			
	Guidepost	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	Y
	Justification	WCPFC and IATTC's CMS review demonstrates that management regulations are generally complied with by fishers. Especially for the pole and line fishery, there no compliance issues have been identified at neither Commission. The fishery's practice is being generally simple and considered as an environmentally friendly method, and there is little incentive for non-compliance. The number of operators requesting a license has been constantly declining due to the dwindling industry in Japan, which reflects less competition than before. The fishery permit, logbooks, catch records, cooperation with fishery cooperatives of the fishery under assessment demonstrate that the fishery is compliant. There is evidence that tuna vessels fishing in FSM waters comply with the management system. Vessel operators provide daily logbooks and (where relevant) catch unloading records. The Marine Police Enforcement Unit conducts surveillance activities in areas of fishing operations, and these patrols		

		indicate that non-compliance of the vessel operators is low. There is high degree of confidence that Japanese pole and line fisheries comply with the set regulations including providing information of importance to the effective management of the fishery, thus SG100 is met.		
d	Systematic non-compliance			
	Guidepost		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	There is no evidence of systematic non-compliance in the fishery. Especially the pole and line fishery does not come with much incentive for non-compliance, and it is generally thought as an environmentally friendly fishing method of all tuna fishery with no evidence for systematic non-compliance. Catch documents, logbooks and VMS are reviewed at the time of license renewal. There has been no cases reported non-compliance concerning the fishery under assessment. The guidepost is met.		
References		WCPFC 2004, IATTC 2003, IATTC 2011, Gilman et al. 2013; Medley and Powers, 2015; Fisheries Act; Federated States of Micronesia Code Title 24 Chapter 5		
OVERALL PERFORMANCE INDICATOR SCORE:				**85**
CONDITION NUMBER (if relevant):				**N/a**

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			
	Guidepost	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 mechanisms in place to evaluate the management system through regular committee meetings and working groups where member countries needs to report their performance to the Commission. The WCPFC Secretariat submits a report on compliance of members with the reporting provisions of the Commission (CMM 2013-02). Progress with implementation of CMMs is monitored through the reporting, and the members Annual Reports to the Commission. Scientific stock assessment procedures and methodology for the assessments are now fine-tuned amongst members and cooperating non-members of the WCPFC, through workshops and working papers which present various peer-review opportunities and external reviews (e.g. Ianelli et al, 2012), before presented to the WCPFC SC meeting. A similar process is used for North Pacific albacore with the ISC forming the key, joint WCPFC and IATTC reference group. External reviews have been carried out. After objectives have been established at WCPFC, the compliance by each member has been monitored through Compliance Monitoring Scheme review Panel. Japanese pole and line fishery performance has been reviewed at the time of license renewal, catch reporting, daily VMS monitoring by FA officials through satellite tracking. Some evaluations are performed by JSTFCA under their obligation to guide member fishers. However, the Japanese management system seems to lack a comprehensive review system to evaluate its own compliance and monitoring scheme, without having a monitoring strategy or its effectiveness analysis documented for this fishery. The FSM Code Title 24 (Marine Resources) is the main document for managing fisheries resources in FSM. Many of the provisions of Title 24 have been repealed and reenacted since it was first published in 1982 and currently there are amendments and inclusions being considered by NORMA to submit to Congress for approval. The National Tuna Management Plan 2015 requires the plan to be reviewed at least every two years (although in practice new versions are agreed over slightly longer timeframes than this; most recently in 2011 and 2015). As of 2012, NORMA has been subject to periodic audits by the Office of the National Public Auditor, most recently in 2012 and 2017, focusing on foreign fisheries access agreements. Based on the above, the team concludes that, both nationally and internationally, there are mechanisms in place to evaluate key parts of the fishery-specific management system, but not all parts of the management-system. Therefore SG80 is met, SG100 is not met.		

b	Internal and/or external review			
	Guidepost	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. The WCPFC completed an external performance review in 2012. It has an "occasional review but there is no evidence yet that this will be regular. IATTC is subject to regular internal review. This is demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission and which are published. The IATTChas_carried out an external performance review in 2016. This implies that the RFMO now meets SG80 with respect to occasional external review. Scientific assessment has its own internal and external review system consisted of several layers of regular meeting processes to form its decision-making, including making member states and stakeholders. Japan's FRA conducts regular internal review and occasional external review on their findings and reports. Their members review JSTFCA's management system internally regularly, and externally through occasional meetings with experts and government officials. Before decision making at the Fishery Policy Council, several resources management working group meetings are held where prefectural and local fishermen's opinions are invited (FA, 2016). As of 2012, NORMA has been subject to periodic audits by the Office of the National Public Auditor, as described above. Although a government body, these auditors were external to the fishery-specific management system and so the audit acts as an external review of the performance and effectiveness of many aspects of the management system. The audit in 2012 covered operational duties of the Board of Directors, implementation and effectiveness of the current Tuna Management Plan, vessel licence fees, data and reporting and NORMA's internal policy framework; while the 2017 audit considered fisheries access agreements, including the VDS. The Pacific Islands Regional Oceanscape Program (PROP) of the World Bank in 2015 conducted a review of the NORMA fisheries management system to assess enforcement, seafood export hygiene (competent authority), training of observers and enforcement officers, capacity building for NORMA and community management in coastal fisheries. Currently a review of the FSM fisheries legislation and seafood safety is being conducted by the European Union to identify gaps in the sanitary controls for seafood products to be exported to the European Union countries Based on the above, throughout the international and national management-system, both internal and external reviews are regularly conducted. Since at this stage, there is no "regular" external review at RFMO level, SG100 is not met but SG80 is met.		
References		WCPFC, 2013; WCPFC, 2010; FA, 2016; Federated States of Micronesia Title 24; Office of the National Public Auditor NORMA reports 2012 and 2017; Pacific Islands Regional Oceanscape Program (PROP) NORMA review 2015		

OVERALL PERFORMANCE INDICATOR SCORE:	**80**
CONDITION NUMBER (if relevant):	**N/a**

Appendix 2 Pilot WCPFC Principle 1 harmonisation meeting: report

Appendix 2.1 Harmonisation Meeting for Western Pacific Tuna Fisheries

1. Background

In July 2015 the MSC Board signed off an internal MSC Tuna Strategy that was developed to address concerns in regard to the certifications of highly migratory species that are managed by Regional Fisheries Management Organisations (RFMO). Specifically, strategy aimed to develop recommendations and actions in relation to tuna and swordfish fisheries. Among a number of key risks and recommendations identified, was the need to reduce CAB inconsistencies in the application of the MSC standard. In early 2016 the MSC developed and consulted on a pilot harmonisation workshop proposal that would apply to RFMO managed stocks, including tuna and swordfish. A key aim of the pilot harmonisation meeting was to create a single point for harmonisation among 'certified' and 'in assessment' fishery assessments, with a focus of harmonising the scores and justifications for Principle 1.

The first pilot workshop for the proposed harmonisation process for fisheries with multiple assessments on one stock/region was held in Hong Kong on 21-22 April 2016. The first pilot considered four stocks in the western Pacific managed by the Western and Central Pacific Fisheries Commission (WCPFC). These stocks were: yellowfin tuna, skipjack tuna, North Pacific albacore, South Pacific albacore.

Funding for the pilot was by the MSC and CABs. MSC funded the participation of P1 and P3 assessors, an independent peer reviewer, meeting facilitator, and MSC advisory staff. A participants list is attached as Appendix A.

2. Meeting Outcome

The proposed outcomes of this process leading into the meeting were a complete set of updated P1 scores, rationales and updated condition statuses. In order to get to these outputs, a harmonisation team leader was assigned to each stock and tasked gather new information (namely the latest scientific and management advice from WCPFC) and reports containing the rationales for Principle 1 Performance Indicators from the most recent assessment (PCDR or PCR). In addition, the latest condition statuses were prepared, with all the aforementioned information provided to stakeholders in a public Dropbox. Following a 30-day stakeholders review period, assessment team members then collated information in preparation for the meeting.

As mentioned above, the proposed outcome of the pilot was a complete set of updated P1 scores, rationales and updated condition statuses for each of the four stocks. However, while the process successfully dealt with harmonisation and aided CAB and team discussions, the meeting did not result in definitive text. Therefore, the CAB experts agreed that the information from this meeting would be considered at the next surveillance or full assessment audit for individual fisheries. Additionally, if new information presented at those audits resulted in a change of score/condition, they would initiate further harmonisation discussions to update scores as needed. This was agreed by the MSC and deemed appropriate in this case.

3. Document overview

The document presents the outcome from the Hong Kong harmonisation meeting. This is a working document prepared by all involved assessors to inform and guide CAB teams as they assess tuna fisheries in the WCPFC area. It is intended as a point of reference for multiple ongoing assessments as of April 2016. As mentioned above, if new information becomes available, harmonisation between assessment teams will still be required. New information of relevance may come from fisheries under assessment, the WCPFC, other tuna fisheries under assessment in different regions, MSC interpretations, etc.

The initial expectation of definitive P1 texts included that those texts would then be publically available. Though the meeting has only resulted in a working document, there was general agreement that this document should still be made publically available. It should be noted, though, that it is a record of discussions and a point of reference rather than binding in any formal sense.

4. Meeting Record

On Day 1, three of the four species were examined in detail for Principle 1 (Skipjack, Yellowfin and Southern Albacore). Northern Albacore was examined on Day 2, during which there was also a discussion about the process of scoring different management elements in P3.

The main intent of discussions on P1 was to harmonise scores, rationales, core reasoning, etc., but not to produce generic rationales to be used as boilerplate for WCPFC assessments. It was agreed that rationales should be consistent in reasoning and performance scores, but will usually differ in wording by CAB and assessment. It is important to note that in some cases, scores were numerically aligned, but individual wording in the rationales for those scores may have differed. In those cases, rationales were discussed to ensure alignment.

In examining the detail for each element for the examined species, it was found that, for most elements, there was very close alignment which required no further harmonisation.

- Skipjack (SKJ): a total of 3/6 Performance Indicators (PI) and 17/20 Scoring Issues (SI) were already harmonised among 4 existing assessments in the WCPFC. PIs that were pre-harmonised were 1.1.1, 1.2.2 and 1.2.4. A total of 3 SIs differed. A consensus was reached on these scores and rationales, which will be harmonised at the next surveillance audits or reassessments as appropriate.
- Yellowfin (YFT): a total of 3/6 PIs and 15/20 SIs were already harmonised among 4 existing assessments in the WCPFC. PIs that were pre-harmonised were 1.1.1, 1.1.2 and 1.2.1. A total of 5 SIs differed, were discussed, and consensus reached.
- Southern Albacore (SPA): a total of 2/6 PIs and 14/20 SIs were already harmonised among 5 existing assessments in the WCPFC. PIs that were pre-harmonised were 1.1.1 and 1.2.2. A total of 5 SIs differed, were discussed, and consensus reached.
- Northern Albacore (NPA): A total of 3/6 PIs and 17/20 Sis were already harmonised among three existing assessments. PIs that were pre-harmonised include 1.1.1, 1.1.2 and 1.2.2. A total of 5 SIs differed, were discussed, and consensus reached.

For all stocks, for most SIs, discussions identified similarities in intent and logic such that changes or further harmonisation was not required. There were, however, some SIs that required changes to be adopted by

individual assessments. Most of these were relatively minor but a few required changes in scores and wording. The tables below detail these as agreed at the meeting.

Two generic issues identified during the meeting included: i) the problems that arise from dealing with assessments done under up to 4 different versions of the MSC requirements, and ii) differing timelines under which various assessments are operating.

A major outcome of the meeting was the fact that each assessment team, and all Independent Experts (IE) present, now have a consistent (and harmonised) understanding of how to score, write-up and interpret each element for P1 for the WCDPFC tuna fisheries under MSC assessment. This should provide much more consistent scores, rationales and milestones in future iterations, assessments and surveillance audits.

For all the stocks, Conditions need to be raised at PI1.2.1, SI(A) and Pi1.2.2 SI(A,B,C). For both, to meet various requirements at CR SA7.11, it was agreed that i) the Conditions raised need to have a consistent duration (end point), and ii) that milestones should reflect the work plans on harvest strategies/harvest control rules agreed at the WCPFC Annual Meeting in December 2015.

With regard to scoring at PI 1.2.2 (Harvest Control Rules, HCR), consideration was given to December 2015 MSC Interpretation, IA Rulings, and recently published Maldives Pole and Line 3rd surveillance report. It was agreed that for all stocks, at this time, SG60 scoring at SI(A) and SI(C) should use the "availability" criteria as previously agreed in harmonisation calls in 2015.

For each Unit of Certification (UoC), the most recent scores are tabulated below to show where differences in overall PI exist and where Conditions currently exist or may be raised. During the meeting, for each UoC, one IE led the discussion, working through each SI to check consistency of rationales used and scoring. Where Conditions were identified, consideration was given to harmonising milestones and timelines. However, it should be noted that the meeting was a pilot and that the time available did not allow for a detailed review of all conditions and milestones.

Each UoC is summarized below.

Appendix 2.2 Skipjack tuna

The table below shows the summary of scores from most recent reports available for four UoC.

Table 1. Summary of scores in most recent reports for WCPFC skipjack and new scores agreed by the meeting.

Date published	Version	Fishery Name	1.1.1	1.1.2	1.2.1	1.2.2	1.2.3	1.2.4	Principle
PCR 2011	FAM v2	PNA - skipjack	100	90	80	60	85*	95	84
PCDR Dec 2015	CR v1.3 (PI1.2.2 use v2)	Trimarine	100	90	70	60	90	95	86.9
PCDR March 2016	CR v1.3 (PI1.2.2 use v2)	Solomon Isl	100	90	70	60	90	95	86.9
CDR August 2015	CR v1.3 (PI1.2.2 use v2)	Japan P&L	100	90	70	60	90	95	86.9
Harmonised scores			100	90	70	60	90	95	

Performance indicator scores with conditions are shown in red text.

* There is full alignment on scores for all SIs for PNA skipjack with the other fisheries (all pass at SG80 and 1 of 2 pass at SG100) but these were combined differently in the PNA assessment to give a score of 85.

Two ongoing assessments are at the PCDR stage, and one is at the CDR stage. Initial harmonisation of these three assessments was carried out during July-September 2015 prior to the development of the two PCDRs. There was good agreement between all IEs, peer reviewers and CABs involved in the harmonisation. The three ongoing assessments differ from the one existing PCR (for PNA unassociated purse seine) which is now due for re-assessment. The changes are due to differences in certification standard used (CR V1.3/2 vs FAM V2), fishery developments over the past five years, but, most importantly, to the considerations of a now larger set of IEs and its interpretation of the CR.

The table below shows for each PI and SI, whether rationales and scores are aligned between the three ongoing assessments, need amendment, etc. The basis for comparison is the most recent, publically available assessment – the Solomon Islands unassociated purse seine assessment published in March 2016. Scores in the Solomon Islands PCDR are shown in brackets in the first column for each PI and SI.

Table 2. Conclusions of the pilot harmonisation for WCPFC skipjack.

PI (Harmonised score)	SI (Harmonised score)	Issues and workshop conclusions
1.1.1 (100)	A (100)	All reports are in alignment for rationales provided and scores.

	B (100)	All reports are in alignment for rationales provided and scores.
1.1.2 (90)	A (80)	All reports are in alignment for rationales provided and scores.
	B (100)	All reports are in alignment for rationales provided and scores.
	C (80)	All reports are in alignment for rationales provided and scores. New Information on agreed Target Reference Point (WCPFC CMM 2015-06) needs to be included in updated PCDR and Published Certification Reports (PCR) at appropriate time.
	D (N/R)	All reports are in alignment for rationales provided and scores.
1.2.1 (70)	A (60)	All reports except PNA PCR are in alignment for rationales provided and scores. Consensus on revised scoring.
	B (80)	All reports are in alignment for rationales provided and scores.
	C (60)	All reports except PNA PCR are in alignment for rationales provided and scores. Consensus on revised scoring.
	D (not scored)	All reports are in alignment for rationales provided and scores. No need to score given si(A) and si(C) are less than 80; Japanese Pole and Line CDR needs to be amended to remove existing rationale and score.
	E (N/R)	All reports are in alignment for rationales provided and scores.
1.2.2 (60)	A (60)	All reports are in alignment for rationales provided and scores. Note that discussion on HCR Interpretation, IA Rulings, recently published Maldives Pole and Line 3rd surveillance, etc led to reaffirmation to score using SG60 “availability” criteria as agreed in harmonisation calls in 2015. New Information on agreed Target Reference Point (WCPFC CMM 2015-06) needs to be included in updated PCDR and Published Certification Reports (PCR) as appropriate.
	B (<80)	All assessments except that for Solomon Islands scored and used SI in condition setting. Solomon Islands assessment requires updating.
	C (60)	All reports are in alignment for rationales provided and scores. Note that discussion on HCR Interpretation, E IA Rulings, recently published Maldives Pole and Line 3rd surveillance, etc led to reaffirmation to score using SG60 “availability” criteria as agreed in harmonization calls in 2015.

		New Information on agreed Target Reference Point (WCPFC CMM 2015-06) needs to be included in updated PCDR and Published Certification Reports (PCR).
1.2.3 (90)	A (100)	All reports are in alignment for rationales provided and scores.
	B (80)	All reports are in alignment for rationales provided and scores.

Appendix 2.3 North Pacific Albacore

Table 7. Summary of scores from most recent reports for three North Pacific albacore UoC and new scores agreed by the meeting.

CR version	Fishery Name	Gear(s)	1.1.1	1.1.2	1.1.3	1.2.1	1.2.2	1.2.3	1.2.4	P1
CR v1.2	AAFA & WFOA Pacific albacore tuna - north	Handlines, pole lines, Trolling lines	100	70	-	85	60	100	95	85
CR v1.3 (PI1.2.2 use v2)	CHMSF British Columbia Albacore Tuna North Pacific	Trolling lines	100	70	-	90	60	90	100	85
CR v1.3 (PI1.2.2 use v2)	Japanese pole & line	Pole and line	100	70		80	60	90	100	83.8
Scores after harmonisation Day 2			100	70		80	60	90	100	

Performance indicator scores with conditions are shown in red text.

Table 8 shows for each PI/SI, whether scores and rationale are aligned between the 3 assessments or need to be amended for harmonization. The basis for comparing scores and rationales is the most recent CHMSF assessment published in June 2015. Scores for the CHMSF assessment are shown in brackets for PI and SI.

Table 8. Summary of outcome by SI for North Pacific albacore

PI (harmonised score)	SI (harmonised score)	Issues and preliminary conclusions
1.1.1 (100)	A (100)	All reports are in alignment for scores but use different approaches in justifying scores. It was suggested that alternative graphical displays could be considered in the CHMSF report.
	B (100)	All reports are in alignment for rationales and provided scores
1.1.2(70)	A (80)	All reports are in alignment for scores. Since the WCPFC adopted at its 8th Annual Session a hierarchy of SSB LRPs, with the lower Level default being 20%$SSBB_{F=0}$. Rationales for CHMSF and WFOA/AAFA can be aligned
	B (-)	All reports are in alignment for scores (80 N; 100 N) but use different approaches in justifying scores. The WCPFC LRP should be updated to 20%$SB_{F=0}$
	C (-)	All reports are in alignment for scores (80 N; 100 N) but use different approaches in justifying scores. NB Score for all the three fisheries for PI 1.2.2 should be 65
	D (N/R)	All reports are in alignment for rationales and provided scores
1.2.1(90)	A (80)	All reports are in alignment for scores but use different approaches in justifying scores
	B (80)	All reports are in alignment for scores but use different approaches in justifying scores
	C (60)	All reports are in alignment for rationales and provided scores
	D (100)	Japanese P&L denies 100 score. AAFA/CHMSF score at 100. Since no harvest strategy has been formalized and it is not subject to a formal review process the score of 100 is not justifiable. Alignment is needed.
1.2.2(60)	A (60)	All reports are in alignment for rationales and provided scores In scoring issue (A) the rationales need to explicitly state which elements of SA2.5.2 and SA2.5.3 are used. Note that discussion on HCR Interpretation, E IA Rulings, recently published Maldives Pole and Line 3rd surveillance, etc led to reaffirmation to score using SG60 “availability” criteria as agreed in harmonization calls in 2015. It was agreed to follow the logic used for the other stocks.
	B (-)	All reports are in alignment for rationales and provided scores
	C (60)	All reports are in alignment for rationales and provided scores In SI (C) the rationales need to explicitly state which element (a or b) of SA2.5.5 is used. Note that discussion on HCR Interpretation, E IA Rulings, recently published Maldives Pole and Line 3rd surveillance, etc led to reaffirmation to score using SG60 “availability” criteria as agreed

PI (harmonised score)	SI (harmonised score)	Issues and preliminary conclusions
		in harmonization calls in 2015. It was agreed to follow the logic used for the other stocks.
1.2.3(90)	A (100)	All reports are in alignment for scores but use slightly different approaches in justifying scores – needs to be attended to.
	B (80)	Because there are some sources of uncertainty such as the absence of updated estimates of life history parameters, and the simplified treatment of the spatial structure of north Pacific albacore population dynamics, it was agreed that the fishery does not meet the SG 100 as scored by the AAFA/WFOA. A score of 80 was agreed during the meeting.
	C (80)	All reports are in alignment for rationales and provided scores
1.2.4(100)	A (100)	All reports are in alignment for rationales and provided scores
	B (60)	All reports are in alignment for rationales and provided scores
	C (100)	All reports are in alignment for rationales and provided scores
	D (100)	All reports are in alignment for rationales and provided scores
	E (100)	AAFA/WFOA only scored 80 as no external review of the stock assessment was done. The CHMSF and Japanese P&L scored 100, noting the 2011 assessment was externally reviewed by CIE. Agreed to score as 100.

Appendix 2.4 Harmonisation meeting participants

Attendee	Organisation/Representing
Sandy Morison	SCS
Sian Morgan	SCS
Max Stocker	MRAG/SAI
Kevin Stokes	Acoura
Adrian Gutteridge	MSC
Bill Holden	MSC
Stephanie Good	MSC
Suzi Keshavarz	MSC
Peter Watt	MEC
Steve Kennelly (Facilitator)	ICIC
Fong Lee	South Seas Tuna Corporation Limited
Ronald Lo	South Seas Tuna Corporation Limited
Chris Hsu	South Seas Tuna Corporation Limited
Bob Trumble	MRAG
Kenji Matsunaga	Meiho Gyogyo KK
Andrias Hermawan	Meiho Gyogyo KK
Jo Akroyd	Acoura
Dave Japp	MSC
Maurice Brownjohn	PNA
Ivan Mateo	SAI Global
Antonio Hervas	ASI
Roland Salangsang	DD Corporation/Philbest Canning

Bayani Fredeluces	RD Fishing Group
Arnel Gonato	RD Fishing Group
Jo Gascoine	MEC

Appendix 3 Conditions

Condition 1: WCPO Skipjack – Harvest Strategy

Performance Indicator	**1.2.1a. 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.**
Score	70
Rationale	Scoring issue a (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. Extract: The team considered that the current management framework (WCPFC plus PNA) can be expected to ensure that F and SB remain at appropriate levels; this is supported by the current stock status and status quo projections (see Figure 7). The status quo projections suggest that the stock is fluctuating around the agreed management target (dropping below but then rebuilding). Although the 'status quo' from 2016 was while CMM 2015-01 rather than 2017-01 was in force, a comparison of the two CMMs does not suggest any significant different in effort levels arising from this change in management. The target is well above estimated SBMSY and the formal management objective is to maintain stock at the target level 'on average', so the harvest strategy appears to be working. On this basis, SG60 is met. SG80 requires that the harvest strategy is 'responsive to the state of the stock'. Although work is ongoing in WCPFC towards a formal HCR, there is nothing in place at present, and management has been on an ad hoc basis. In practice, a HCR should be responsive to the state of th most vulnerable stock in a mixed fishery, which is likely bigeye or yellowfin, rather than skipjack. However, the harvest strategy was not particularly responsive to the stock status for bigeye throughout the period when it was considered depleted (until structural changes to the 2017 stock assessment suggested a more optimistic outcome). Likewise for PNA, there is not a clear linkage between potential catch and TAE, and the process for determining TAE is not transparent. The team concluded that there is not sufficient evidence that the harvest strategy is responsive to the state of the stock; SG80 is not met.
Condition	WCPO skipjack needs a harvest strategy that is responsive to the state of the stock, with and the elements of the harvest strategy (monitoring, stock assessment, harvest control rules and management actions) working together to achieve stock management objectives.
Milestones	The milestones have been aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017b); Attachment L). 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 the FA and the JTFCA. Year 1 (2019) – Year 3 (2021): the client will provide evidence that it is actively working to ensure that the harvest strategy for WCPO skipjack is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving the management objectives reflected in the target and limit reference points. This evidence will include a summary of the actions taken by the client and other relevant parties to achieve this outcome in alignment with the WCPFC 2017 agreed work plan. (Score: 70). Year 4 (2022)*: HCR adopted. Harvest strategy in place. (Score: 80)
Client action plan	MSC Ishihara Marine Products. Co., Ltd. Action Plan: We have established our action plan to get the following done to meet the SG80 requirements on all three conditions set by the CAB by the third annual surveillance: Year 1

	We will work to ensure that the harvest strategy for both skipjack and albacore skipjack tunas is adopted at WCPFC annual meetings. As a first step, we will actively push the FAJ to let the Japanese delegation to the WCPFC establish a basis on which the awareness of the necessity to limit the catch of both skipjack and albacore can be boosted at meetings of the commission in the foreseeable future and the development and adoption of appropriate harvest control rules can be encouraged there as outlined in CMM 2014-06 and the Commission work plan agreed in 2015. Action plans established by the FAJ and relevant organizations such as the JTFA include examination of harvest strategies necessary to achieve their management objectives, which is necessary for appropriate management strategy to be created and submitted to WCPFC annual meetings in line with the agreed work plan. This examination will expressly demonstrate that such organizations in Japan support the process for the development of harvest strategies and harvest control rules. Year 2 and onwards We will assess each year progress of the WCPFC and PNA towards meeting the conditions and will continue to seek dialogue with FAJ and JTFA to ensure Japanese involvement in and advocacy for development and implementation of a clear harvest strategy involving target and limit reference points (already set), harvest control rules (as in CMM 2014-06), and clear linkage between catch and effort.
Consultation on condition	No consultation is required since WCPFC have already expressed their intention of undertaking this process (see CMM 2014-06 and current harvest strategy workplan). As members of the WCPFC and IATTC, the Japanese government are committed to the implementation of Harvest Control Rules and LRP. This commits all parties, including Japan, to progress towards implementation of HCR. The client has nonetheless consulted with MAFF, which has agreed to keep pursuing conservation and management measurement through CMM2014-06 at WPFC level.

***** The milestones have been aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017a), and with the CAB-wide Variation Request that has been submitted for alignment of P1 conditions and timelines on HMS stocks.

Condition 2: WCPO Skipjack – Harvest Control Rules

Performance Indicator	**1.2.2a. 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.** **1.2.2b. The HCRs are likely to be robust to the main uncertainties.** **1.2.2c. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.**
Score	60
Rationale	Scoring issue a (SG80): **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. WCPO skipjack stock biomass has not previously been reduced below the MSY level, according to the stock assessment (see Figure 7). Short-term projections suggest that biomass will decline below the agreed TRP in 2018 but in the longer term will increase again, and will be maintained consistently above the MSY level (see 1.1.1b). Unlike bigeye and yellowfin, there is no consistent downwards trend in skipjack biomass across the region over the time series. WCPFC have an agreed, legally-binding framework in place to establish place formal harvest strategies and control rules for their main stocks, including WCPO skipjack (see CMM 2014-06 and associated workplans). SA2.5.3b is therefore met. On this basis, for a HCR can be considered to be 'available' for this stock. SG60 is met. Since the harvest strategy is not 'in place', SG80 is not met. On that basis, the conditions are met such that a HCR for WCPO skipjack can be considered to be 'available', meeting the requirements at **SG60**. Since there is no HCR 'in place', SG80 is not met. Scoring issue b (SG80): The HCRs are likely to be robust to the main uncertainties. Since a HCR is 'available' rather than 'in place', it cannot be argued to be robust to the main uncertainties. Not met. Scoring issue c (SG80): **Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs. Under SA2.5.5, in order to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the use of effective HCRs in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points and the agreed trigger level (guidance for SA2.5.6: 'evidence that current F is equal to or less than F_{MSY} should usually be taken as evidence that the HCR is effective'). A formal framework is in place for the development of a harvest strategy for the stock (CMM 2014-06 and workplans; see above). F is estimated to be $0.45F_{MSY}$ (reference case model); 95% CI $0.64F_{MSY}$. The criteria for 'available' tools at **SG60 are therefore met**. SG80 is not met because there is not a well-defined HCR.
Condition	WCPO Skipjack needs a harvest control rule that ensures that the exploitation rate is reduced as the PRI is approached and is expected to keep the stock fluctuating around the target level and robust to the main uncertainties. The tools used to implement the HCR should be effective in achieving the required exploitation levels.

Milestones	The milestones have been aligned with the latest iteration of the WCPFC harvest strategy workplan ((WCPFC 2017b)). *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 the FA and the JTFCA.* Year 1 (2019)-Year 3 (2021): the client will provide evidence that it is actively working to ensure that well defined harvest control rules taking into account the main uncertainties are in place for WCPO skipjack and that these are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. This evidence will include a summary of the actions taken by the client and other relevant parties to achieve this outcome in alignment with the WCPFC agreed work plan (Score: 70). Year 4 (2022)*: HCR adopted. Harvest strategy in place. (Score: 80)
Client action plan	Same as for Condition 1.
Consultation on condition	No consultation is required since WCPFC have already expressed their intention of undertaking this process (see CMM 2014-06 and current harvest strategy workplan). As members of the WCPFC and IATTC, the Japanese government are committed to the implementation of Harvest Control Rules and LRP. This commits all parties, including Japan, to progress towards implementation of HCR. The client has nonetheless consulted with MAFF, which has agreed to keep pursuing conservation and management measurement through CMM2014-06 at WPFC level, see evidence below.

***** The milestones have been aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017a), and with the CAB-wide Variation Request that has been submitted for alignment of P1 conditions and timelines on HMS stocks.

Condition 3: NP Albacore – Harvest Control Rules

Performance Indicator	**1.2.2a. 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.** **1.2.2b. The HCRs are likely to be robust to the main uncertainties.** **1.2.2c. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.**
Score	60
Rationale	Scoring issue a (SG80): **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. Stock biomass has been above the estimated MSY level throughout the time series, and since the probabilities that $SB<SB_{MSY}$ and $F>F_{MSY}$ are low (see 1.2.1a), it is not likely that the stock biomass will fall below this level in the next five years (see PI 1.1.1; Section **Error! Reference source not found.**; **Error! Reference source not found.**). WCPFC have an agreed, legally-binding framework in place to establish place formal harvest strategies and control rules for their main stocks, including WCPO yellowfin (see CMM 2014-06 and associated workplans; Section **Error! Reference source not found.**). The requirements of SA2.5.2-3 are therefore met for a HCR to be 'available'. SG60 is met. Since the harvest strategy is not 'in place', SG80 is not met. Scoring issue b (SG80): The HCRs are likely to be robust to the main uncertainties. Since a HCR is 'available' rather than 'in place', it cannot be argued to be robust to the main uncertainties. Not met. Scoring issue c (SG80): **Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs. Under SA2.5.5, in order to conclude that 'available' HCRs are 'effective' (SG60), MSC requires evidence of i) the use of effective HCRs in other stocks or fisheries under the same management body; or ii) a formal agreement or framework with trigger levels which will require the development of a well-defined HCR. It also requires consideration of current exploitation rates in relation to biological reference points and the agreed trigger level (guidance for SA2.5.6: 'evidence that current F is equal to or less than FMSY should usually be taken as evidence that the HCR is effective'). Taking this last point first, it is clear that $F<F_{MSY}$ (see 1.1.1). A formal agreement for the development of a well-defined HCR is provided by CMM 2014-06, with a framework provided by the associated workplan (updated after WCPFC13 and again after WCPFC14 to reflect the failure to move forward on some of the milestones). A trigger level is provided by the agreed limit reference point ($20\%SB_{F=0}$). The recent assessment provides some evidence that the tools in use are sufficiently effective at controlling exploitation rates. Overall, therefore, under the MSC requirements and guidance for 'available' HCRs, SG60 is met. SG80 is not met.
Condition	NP Albacore needs a harvest control rule that ensures that the exploitation rate is reduced as the PRI is approached and is expected to keep the stock fluctuating around the target level and robust to the main uncertainties. The tools used to implement the HCR should be effective in achieving the required exploitation levels.
Milestones	The milestones have been aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017b)). 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 the FA and the JTFCA.

	Year 1 (2019) – Year 4 (2022): the client will provide evidence that it is actively working to ensure that the harvest strategy for WCPO NP Albacore is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving the management objectives reflected in the target and limit reference points. This evidence will include a summary of the actions taken by the client and other relevant parties to achieve this outcome in alignment with the WCPFC 2017 agreed work plan. (Score: 70). Year 5 (2023)*: HCR adopted. Harvest strategy in place. (Score: 80)
Client action plan	Same as for condition 1.
Consultation on condition	No consultation is required since WCPFC have already expressed their intention of undertaking this process (see CMM 2014-06 and current harvest strategy workplan). As members of the WCPFC and IATTC, the Japanese government are committed to the implementation of Harvest Control Rules and LRP. This commits all parties, including Japan, to progress towards implementation of HCR. The client has nonetheless consulted with MAFF, which has agreed to keep pursuing conservation and management measurement through CMM2014-06 at WPFC level.

* The milestones have been aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017b), and with the CAB-wide Variation Request that has been submitted for alignment of P1 conditions and timelines on HMS stocks.

Appendix 3.1 Response from MAFF to consultation by the client

石原水産株式会社　神代様

Dear Mr. Kumashiro

Ishihara Marine products CO.,Ltd.

御連絡ありがとうございます。

水産庁国際課で WCPFC 交渉を担当しております藤原孝浩と申します。

改めて、よろしくお願いいたします。

Thank you for contacting us.

I am Takahiro Fujiwara, and in charge of negotiation with WCPFC in Fishery agency, International Affairs Division.

さて、カツオとビンナガの漁獲規制について、御存知のとおり、我が国周辺水域を含む太平洋の西側におけるカツオ・マグロ類は、

WCPFC（中西部太平洋まぐろ類委員会）で資源管理が行われています。

Well, regarding harvest control regulation of skipjack and albacore, as you know, Skipjack and Tuna of west Pacific Ocean including water area around our country are stock controlled by WCPFC.

カツオについては、現在、熱帯マグロ類という括りで、メバチ・キハダとともに管理措置（CMM2017-01）と、カツオ単独での措置（CMM2015-06）があります。

その内容は、基本的に漁獲努力量規制（隻数制限、操業日数制限など）がメインであり、漁獲量を規制するものはほとんどありません。

ただし、カツオの一本つりについては、CMM2017-01 のパラ 51 において、「2001 年～2004 年の平均または 2004 年水準を超えないこと」との漁獲量制限が設けられています。

As for Skipjack, at present, as tropical tuna category, there is control measures (CMM2017-01) for Thunnus obesus and Thunnus albacares, and (CMM2015-06) for Skipjack. Basically the contents of catch effort regulation (vessel number regulation, operation day regulation etc) is main part, and there is no any rule to control catch amount.

ビンナガについて、WCPFC では赤道以北で、主に北緯 20 度以北に生息するビンナガを北太平洋ビンナガとして管理措置（CMM2005-03）があります。

ここでは、隻数を現行レベルを超えないようにとの規制が入っています。

As for Albacore, WCPFC has control measures (CMM2005-03) for North Pacific Ocean Albacore living mainly around N.Lat.20° and above the equator.

このように、全く管理措置がとられていないというのは誤りかと思いますが、その内容としては、我が国としても、諸手を振って賛同できるかというと、そうではありません。

近年の我が国周辺水域へのカツオの来遊減少は、熱帯水域における大量漁獲によるものと考え、WCPFC 加盟当初から、我が国は管理措置の強化を主張してきました。

しかしながら、WCPFC 加盟メンバーの大半を占める太平洋島嶼国は、熱帯水域と温帯水域のカツオは別資源であること、

熱帯水域のカツオの資源量は良好であることを理由に規制の強化には反対の立場をとっています。

こうした状況の中、少しずつではありますが、管理措置を導入してきたという経緯があります。

今後も、こうした状況を進展させるべく、交渉を進めていくことになります。

Like this, it seems wrong that there is no control management measure, but we also can't say to fully agree with the measurement. We consider that recent decrease of Skipjack coming to water area around our country is caused by large amount fishing at tropical water area and we have insisted to strengthen the control management measure since we have joined WCPFC. However Pacific islands, majority of WCPFC member, take conflicting position against strengthening the measurement with the reason why tropical stock is the different with the temperate zone stock and Albacore stock in tropical area is abundantly. In the circumstance, we have history to add measurements gradually and in the future, we will keep negotiation to progress the situation better.

メールの本文に記載された保存管理措置 CMM2014-06 は、いわゆる「漁獲戦略」といわれているものかと思います。WCPFC では、このプロセスを進めていくこととなっており、我が国出席者が作業部会の議長をつとめるなど、議論に積極的に貢献しています。ただ、全漁

業者に係ってくるものですので、関係者すべてがしっかりと理解することが重要になりますが、なかなか難解であり、理解が進んでいないのが現状です。

そのため、このプロセスを進めるにあたっては慎重さも同時に求められます。（具体的な内容はまだ決まっておりません。）

I think that conservation and management measurement CMM2014-06 mentioned in e-mail is the so-called 'harvest strategy' and we will progress it at WPFC. We positively contribute the discussion such as our attendee acts as the chair of task force. However this is the matter related to all fishermen and it is important to understand for all related people, and because of the difficulty, it still hasn't progressed yet at present. Therefore it also require to be careful at the same time.

(The specific details hasn't fixed yet.)

前置きが長くなりましたが、MSC 認証の取得を進めるにあたって、本件の問合せがあったものと理解しています。お電話でもお話しさせていただきましたが、すでに WCPFC 海域のまき網の素群れ操業による漁獲物を使ったツナ缶について PNA が MSC 認証を取っているはずです。

同じ管理手法がとられているカツオについて、管理が不十分というのは、当方としてはよく分かりません。

This introduction has become quite long, but we understand to receive your inquiry for the process to be certified for MSC. We already told via phone, but PNA got MSC certification for Tuna can using fish materials caught by Purse seine fishing operation in the area of WCPFC. We don't understand why the measurement is not sufficient for Skipjack using the same measurement with them.

また一本つりのカツオのみを用いたカツオのたたきに対する MSC 認証を取りたいとのお話だったかと思いますが、すでに近海かつお一本つりは MEL を採っているうえ、今般 MEL が国際認証となるべく動いているとの話も聞いています。さらに宮城県のカツオとビンナガは MSC を取得済みとも聞いております。

国際的な管理措置を強化すべきとの方向で交渉は進めていきますが、交渉相手がいるものですから、劇的に変わることはなかなか難しいものと思います。一方で、すでに揃っている材料で以って MSC 認証を取得するという方向性も検討いただいたほうがいいのかなと個人的に感じています。

This time, you are telling that you would like to get MSC certified for Tataki made by only pole and line Skipjack, but off shore pole and line Skipjack is already certified by MEL and I heard that MEL is on the progress to be global certification and furthermore, Skipjack and Albacore in Miyagi prefecture has already certified.

We will progress the negotiation to strengthen the global management measure, but there are other parties, therefore I think it's quite difficult to change dramatically.

On the other hand, I personally feel that it's better to seek the way to get MSC certified with the materials already out.

※御参考：水産エコラベルの推進について（水産庁 HP）

http://www.jfa.maff.go.jp/j/kikaku/budget/suishin.html

※Reference:　The promotion of Marine Eco label（Fishery agency HP）

もし何か他にも御質問がございましたら、メールいただければ可能な範囲で御対応させていただきます。

よろしくお願いいたします。

If you have any other question, please send email. We will response as possible.

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水産庁　資源管理部　国際課

Fishery agency resource management department international affair division

国際協定第２係長

藤　原　　孝　浩

Takahiro　Fujiwara

TEL：03-3502-8459(直通) PHS：88021

E-Mail：takahiro_fujiwara550@maff.go.jp

==========

From: Toshitaka Kumashiro [mailto:t-kumashiro@ishiharasuisan.co.jp]

Sent: Thursday, October 11, 2018 5:28 PM

To: 藤原　孝浩 <takahiro_fujiwara550@maff.go.jp>

Cc: 石原水産 吉永 勝彦 <k-yoshinaga@ishiharasuisan.co.jp>

Subject: カツオとびん長の漁獲管理規制について

※　このメールには、添付ファイル又は URL の記載がありますので、

メール送信元に注意してファイルの開封又は URL へのアクセスをしてください。

水産庁

国際課

ふじわら様

Dear Fishery agency, international affair division,

Mr. Fujiwara

いつも大変お世話になっております。

Thank you for your help all the time.

お電話にてご説明させていただきましたように、弊社はカツオとびん長の一本釣りにてMSC認証を取得しようと監査を受けている最中です。

As I explained on the phone, we are in the assessment to be MSC certified for Skipjack and Albacore.

すでに水産庁様のご方針にてご活動中かと思いますが、重ねて下記の件をお願い申し上げます。

I think you are already working with Fishery agency policy, but additionally find our request as below.

WCPFC への日本の代表団としてご参加されている水産庁様として、近い将来の同委員会の総会で、鰹とびん長の漁獲制限の必要性の認識を高め得て、かつ、CMM(保護管理措置）2014-06 や 2015 年に合意された同委員会の作業計画で概要が示されたような適切な漁獲管理規制の作成と採用を促し得るような基盤が確立されるようにお願い申し上げます。

To fishery agency who participates WCPFC as the delegation of Japan, we request to establish the basement to be able to increase awareness of recognition of harvest management for Skipjack and Albacore and to make and set an appropriate harvest management regulation such as summary shown in action plan of committee agreed in 2015 and CMM(conservation management measure)2104-06.

よろしくお願い申し上げます。

Thank you in advance.

石原水産株式会社

Ishihara marine products

神代利隆

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Appendix 4 Peer Review Reports

Appendix 4.1 Peer Reviewer 1

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 peer reviewer considers that the evidence presented by the CAB team fully justifies the scores given to each PI, including (when applicable) the scoring issues subscores. Therefore, the peer reviewer agrees with all the scores assigned.		Thank you.

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: Yes: the conditions are appropriately written to achieve the SG80 outcome within the specified timeframe. But with a cautionary note: ultimately, the adoption of measures to address the conditions does not depend on the client, nor even on the most immediate level of national fisheries management (Japan, in this case), but on an RFMO – specifically, the WCPFC. Hence, it might not be 100% warranted that the WCPFC will reach the consensus necessary to implement the measures implied in the conditions, within the specified timeframe.		Thank you. We have recognised this in the wording of the condition and emphasised that the client will need to work through the FA and the JTFCA.

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: It might be sufficient, but its ultimate success will depend on the client's capacity to ensure the collaboration of the Japanese delegation to the WCPFC. And in turn, the Japanese delegation to the WCPFC will have to exert considerable efforts in advancing the implementation of appropriate harvest control rules by the WCPFC. However, Japan is an important skipjack and albacore fishing nation, and it seems reasonable to assume that it should have enough influence within the WCPFC to foster the adoption of the required harvest control rules.		Thank you, as said above, we are aware of this, as is the client.

Part 1. Principle 1 scoring rationales - Skipjack

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	Yes	Yes	NA	The certifiers have given a score of 100 for this PI in both scoring issues. The evidence given supports that the fishery meets the requirements to score 100 at both SIa and SIb. Hence the score of 100 is fully agreed.	No response required
1.1.2	NA	NA	NA		
1.2.1	Yes	Yes	Yes	The certifiers have assigned an overall score of 70 in this PI. The 70 score carries a raised condition (condition #1, detailed in p. 12 and again in p. 73). The peer reviewer considers both the overall score of 70 and the raised condition adequate. The raised condition is well written and, if implemented, is likely to achieve the SG of 80 within the specified timeframe.	No response 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
1.2.2	Yes	Yes	Yes	Similary as in the PI 1.2.1, the certifiers have deemed that the fishery only meets the score level of 60. The peer reviewer agrees fully with this score, the reasoning behind it and the raised condition (condition #2, p. 12 & 73).	No response required
1.2.3	Yes	Yes	NA	The certifiers have assigned an overall performace score of 90 (SIa achieves 100, but SIb only achieves 80). The peer reviewer agrees that there is evidence to support this score.	No response required
1.2.4	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 95 assigned by the certifiers.	No response required
Part 2. Principle 1 scoring rationales - Albacore					

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	Yes	Yes	NA	The certifiers have assigned an overall performance score of 80 under this PI, resulting from a score of 80 in SIa and also 80 in SIb. The peer reviewer agrees with this score.	No response required
1.1.2	NA	NA	NA		
1.2.1	Yes	Yes	NA	The certifiers have given an overall score of 85. The peer reviewer agrees with this score.	No response required
1.2.2	Yes	Yes	Yes	The certifiers have deemed that the fishery only meets the score level of 60. The peer reviewer agrees fully with this reasoning and with the raised condition (condition #3, p. 12 & 73).	No response 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
1.2.3	Yes	Yes	NA	The certifiers have assigned a score of 100 to the SIa and 80 in SIb, leading to an overall performance score of 90. The peer reviewer agrees that there is evidence to support this overall score.	No response required
1.2.4	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100 assigned by the certifiers.* *One SI (b) is scored with 80. However, this particular SI does not include a scoring level of 100. Hence, it is deemed adequate that it does not affect the overall score of 100 assigned to the entire PI, given that all other SIs reach 100.	No response required
2.1.1	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100 assigned by the certifiers.	No response 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
2.1.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 80.	No response required
2.1.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 95.	No response required
2.2.1	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100.	No response required
2.2.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 85.	No response required
2.2.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 95.* * Note: see General Comment (1)	No response required
2.3.1	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100.	No response 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
2.3.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 80*. *the PI might well reach 100 if a fisheries observer programme was implemented. Such a program would likely produce the evidence required to meet the SG 100.	No response required
2.3.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 80*.	No response required
2.4.1	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100.	No response required
2.4.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 80.	No response required
2.4.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100.	No response 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
2.5.1	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100.	No response required
2.5.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 80.	No response required
2.5.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 100.	No response required
3.1.1	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 95.	No response required
3.1.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 85.	No response required
3.1.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 80.	No response required
3.2.1	Yes	Yes	NA	The peer reviewer agrees with the partial score of 90.	No response 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
3.2.2	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 85.	No response required
3.2.3	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 85.	No response required
3.2.4	Yes	Yes	NA	The peer reviewer agrees with the overall performance score of 90.	No response required

Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary) can be added below and on additional pages

1) There is only one apparent (and small) mistake detected regarding the scoring: specifically for PI 2.2.3, in p. 130 it seems that the overall performance score attributed is 95. However, in the Table "Summary of PI Level Scores" (p. 72), an overall performance score of 100 is indicated for this PI. This has been rectified.

2) Besides, a few minor formatting or typing mistakes were identified:

-There seems to be a typo in p. 34, under the title "*4.4.1 Albacore biology and stock definition*", it says "*Skipjack is not a key Low Trophic Level (LTL) species according to the definition in FCR Annex SA 2.2.9*." It should say "Albacore" instead of "Skipjack". This has been rectified.

-There also are several "(*Error! Reference source not found.*)" messages throughout the text, which should be deleted and/or replaced with the intended reference. This has been rectified.

-p. 54: where it says "Because fishing takes place in *deep* water (…)": it should say "*in surface waters"* or "*in the upper layer of the water column*", or some other similar sentence. This has been amended.

3) Finally, a general comment regarding the lack of a fisheries observer programme, which has a special incidence in all PIs related to ETP species (2.3.1, 2.3.2, 2.3.3): a very similar fishery to the assessed here, is the pole and line skipjack fishery in the Azores islands (Portugal). The fishery is performed by vessels considerably smaller (25-30 LOA) than the Eisei Maru vessel, but their catch profile is comparable. The Azores skipjack pole and line fishery has a fisheries observer programme going on since 20 years ago. Its results could be used to further sustain the scores given at 2.3.1, 2.3.2, and 2.3.3.

Thank you. Unfortunatelly, we were not able to find the fishery you refered to. It is also uncertain whether observer data from a fishery in the Atlantic Ocean would be applicable to this Pacific fishery under assessment.

Appendix 4.2 Peer Reviewer 2

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 report is well written and provides clear information on the fishery and its impacts. Evidence is provided to support the conclusion that the fishery achieves the standards for certification with conditions.		Thank you.

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: The conditions raised follow the wording of the scoring guide and the milestones are appropriate. As for a number of tuna fisheries in the Pacific, achieving SG80 outcomes depends on progress being made at WCPFC and IATTC. There is a good level of harmonization with other fisheries harvesting the same resources		Thank you. We have recognised this in the wording of the condition and made clear that the client will need to work through the FA and the JTFCA.

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 action plan is satisfactory. As with MSC assessments of other RFMO tuna fisheries, the conditions require agreement to be reached by RFMO representatives on scientific and management committees. However, the action plan aligns with the work plan agreed by the WCPFC in 2015 and processes in progress at IATTC. The milestones and the client action plan recognize that the client cannot guarantee outcomes at the RFMOs and focus client advocacy for change. Whilst this is appropriate there should be some consideration at surveillance audits whether progress is being made against RFMO work plans in adopting harvest strategies and harvest control rules.		Thank you. At surveillance audits, we will look at the evidence presented by the client: This evidence will include a summary of the actions taken by the client and other relevant parties to achieve this outcome in alignment with the WCPFC 2017 agreed work plan

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
Principle 1- Skipjack					
1.1.1	Yes	Yes	NA	The assessment team has taken relevant information into account and the PI is appropriately scored.	No response required.
1.1.2	Yes	NA	NA	NA	
1.2.1	Yes	Yes	Y	Scores and justifications for all scoring elements are appropriate and harmonised with other relevant fisheries. Scoring issues 1.2.1a should be described as "not scored" at the SG100 level given SG80 not being. Addressing the condition raised will require development of the harvest strategy through WCPFC processes. This is an ongoing issue for tuna	'SG100 not scored' has been amended.

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
				fisheries under the jurisdiction of RFMOs.	
1.2.2	Y	Y	Y	A score of 60 for 1.2.2a is appropriate. Generally understood harvest rules are not in place (not meeting SG80), but is available should the stock approach the point of recruitment impairment (SG 60). In addition, available information indicates that the stock is unlikely to become overfished or fall below SBMSY. Harmonisation with other fisheries for this PI is noted. Scores and justifications for 1.2.2b and 1.2.2c are appropriate. SG100 levels should be described as "not scored. Addressing the condition raised will require adoption of harvest control rules through WCPFC processes. This is an ongoing issue for tuna fisheries under the jurisdiction of RFMOs.	'SG100 not scored' has been amended.

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	Y	Y	NA	A score of 90 is justified and in harmony with other WCP skipjack fisheries	No response required.
1.2.4	Y	Y	NA	Agreed	No response required.
Principle 1- Nth Pacific Albacore					
1.1.1	Y	N	NA	A score of 100 could be considered for SI a. The SS3 assessment provides probabilistic estimates of parameters of interest, has been extensively explored and subjected to sensitivity testing of biological assumptions and data treatment and weighting. The stock assessment estimates 2015 spawning stock biomass, SSB_{2015}, to be 2.3 times $20\%SSB_0$. This is well above the WCPFC and IATTC-implicit, and MSC default, LRP of $20\%SSB_0$. The SSB was estimated to be 80,618 t and was 2.47 times greater than the LRP	We agree that this is a judgement call; a score of 100 could also be reasonably argued – as the reviewer has done. However, given that we feel this would be borderline, we have chosen to keep the score at a precautionary SG80.

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
				(20%$SSB_{current,F=0}$ adopted by the Northern Committee of the WCPFC) of 34,374 t. There is no indication of any recruitment impairment. There is a high degree of certainty that the current spawning stock biomass is above the point where recruitment would be impaired as the SSB_{MSY} (24,770 t) is lower than the LRP estimate (32,614 t). Score 80 for Sib is appropriate	
1.1.2				NA	
1.2.1	N	N	NA	NC13 recommended that the Commission adopt the revision to the title of previously adopted precautionary management framework for North Pacific albacore so that it may be recognized as a harvest strategy. In addition, NC13 recommended that the	This is true, but in practice, the interim harvest strategy lacks some of the key elements of a harvest strategy – i.e. notably any clearly defined means of implementing it. It also contradicts its own objective, as noted in the main report text. So logically, taking this

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
				Commission direct the Secretariat to make this harvest strategy available, as a stand-alone harvest strategy document, on a web page dedicated to this and other harvest strategies, including interim harvest strategies, agreed to by the Commission (WCPFC 2017). SI d requires that that the HS is **periodically** reviewed. There needs to be evidence of periodic reviews ie reviews at regular time intervals	document to be the harvest strategy, this stock would score worse for this PI than it has in the past, scoring against CMM 2005-03 / Resolution C-05-02. But that makes no sense, because 2005-03 and C-05-02 are still in force, and are still in practice, what is used to manage the stocks; hence they are used as the basis for the scoring. True, and the interval between 2005 and now is hard to describe as 'regular'. However, the Northern Committee has held a series of MSE meetings over the last couple of years, with more due, and since this means that the harvest strategy is in the middle of a large revision, it seems unfair to score this as not met.
1.2.2	Y	Y	Y	The scoring and condition raised are harmonised with other relevant	No response 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
				fisheries. The assessment team has taken relevant information into account and the PI is appropriately scored.	
1.2.3	Y	Y	NA	The assessment team has taken relevant information into account and the PI is appropriately scored.	No response required.
1.2.4	Y	Y	NA	The assessment team has taken relevant information into account and the PI is appropriately scored and in harmony with other WP Nth albacore scores	No response required.
Principle 2					
2.1.1	Y	Y	NA	There are no main primary species. Reported retained catches other than the target species are at very low levels. Relevant information has been	No response 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
				considered and the PI has been appropriately scored.	
2.1.2	Y	Y	NA	The PI has been appropriately scored.	No response required.
2.1.3	Y	Y	NA	The PI has been appropriately scored.	No response required.
2.2.1	Y	Y	NA	There are no main secondary species. I concur with the scores	No response required.
2.2.2	Y	Y	NA	There are no main secondary species. I concur with the scores	No response required.
2.2.3	Y	Y	NA	There are no main secondary species. I concur with the scores	No response required.
2.3.1	Y	N	NA	SIb), it is at least highly likely that there are no significant detrimental direct effects of the UoA on ETP species, but without more data it cannot be said that there is a 'high degree of	This has been amended and now reflects a score of SG80 for SI2.3.1b

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
				confidence' according to the MSC definition. Hence the SG80 is met but not the SG100.	
2.3.2	Y	Y	NA	I concur with the assessment teams scoring	No response required.
2.3.3	Y	Y	NA	I concur with the assessment teams scoring	No response required.
2.4.1	Y	Y	NA	I concur with the assessment teams scoring	No response required.
2.4.2	Y	Y	NA	I concur with the assessment teams scoring	No response required.
2.4.3	Y	Y	NA	I concur with the assessment teams scoring	No response required.
2.5.1	Y	Y	NA	Given the scale of the fishery, relevant information has been considered and the PI has been appropriately scored	No response 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
2.5.2	Y	Y	NA	This PI has been scored appropriately	No response required.
2.5.3	Y	Y	NA	This PI has been scored appropriately	No response required.
Principle 3					
3.1.1	N	N	NA	SIc. Both the WCPFC and IATTC have an intention and a management system that observes the legal rights created explicitly or established by custom for people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. 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. While IATTC has demonstrated the intention to develop and implement	This has been amended: Both the WCPFC and IATTC have an intention and a management system that observes the legal rights created explicitly or established by custom for people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. However, 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.

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
				methods to allow a fair distribution and mechanisms to achieve this objective, such mechanisms are not formal commitments. As a result, neither meet SG100	While IATTC has demonstrated the intention to develop and implement methods to allow a fair distribution and mechanisms to achieve this objective, such mechanisms are not formal commitments. As a result, neither meet SG100
3.1.2	Y	Y	NA	Concur with assessment team score	No response required.
3.1.3	Y	Y	NA	Concur with assessment team score	No response required.
3.2.1	Y	Y	NA	The report provides information on some measurable objectives at national level but says that "are not clear" this would suggest not "well defined" as is necessary for a 100 score. So the partial score allocated is appropriate	No response required.
3.2.2	Y	Y	NA	3.2.2b It has been shown that WCPC do not necessarily respond to ALL serious issues eg Sth Pacific albacore, catch	No response 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
				rates have been declining consistently for several years, and the stock is below potential candidate bio-economic target reference points. The stock status still shows it is not overfished and overfishing is not occurring nonetheless, a CPUE decline is an important issue and so far the WCPFC decision-making process has not responded. However, as this PI is fishery specific and as the albacore in this fishery is Northern I can agree with the score allocated	
3.2.3	Y	Y	NA	The score is appropriate	No response required.
3.2.4	Y	N	NA	SIb 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. The WCPFC completed an external performance	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. The WCPFC completed an external performance

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
				review in 2012. The RFMO meets SG80 with respect to "occasional review but there is no evidence yet that this will be regular so SG 100 is not met. IATTC is subject to regular internal review. This is demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission and which are published. The IATTChas_carried out an external performance review in 2016. This implies that the RFMO now meets SG80 with respect to occasional external review. There is no mention in scoring justification of IATTC. Since at this stage, there is no "regular" external review SG100 is not met but SG80 is met.	review in 2012. It has an "occasional review but there is no evidence yet that this will be regular. IATTC is subject to regular internal review. This is demonstrated by the various committees and working groups that meet regularly and report their findings to the Commission and which are published. The IATTChas_carried out an external performance review in 2016. This implies that the RFMO now meets SG80 with respect to occasional external review.

Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary) can be added below and on additional pages

Throughout the report there are a number of “Error reference source not found” eg Sections 4.2.1, 4.3.2, 4.5.2, 6.1 condition 3 NPALB. This has been amended.

The main bait is described as anchovy and pilchard but sect 4.2.1 says main bait sardines – This has been amended (pilchard and sardines are both common names used for *Sardinops melanostictus*).

Very good report and excellent background provided – Thank you.

Appendix 5 Stakeholder submissions

No formal stakeholder submissions were received prior to publication of the PCDR.

(REQUIRED FOR FR AND PCR)

1. The report shall include all written submissions made by stakeholders about the public comment draft report in full, together with the explicit responses of the team to points raised in comments on the public comment draft report that identify:

a. Specifically what (if any) changes to scoring, rationales, or conditions have been made.
b. A substantiated justification for not making changes where stakeholders suggest changes but the team makes no change.

(Reference: FCR 7.15.5-7.15.6)

Appendix 6 Surveillance Frequency

Pending the successful outcome of this evaluation, the surveillance level for this fishery is set at the default level (Level 6), requiring 4 annual on-site audits.

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & re-certification site visit

Appendix 7 Objections Process

(REQUIRED FOR THE PCR IN ASSESSMENTS WHERE AN OBJECTION WAS RAISED AND ACCEPTED BY AN INDEPENDENT ADJUDICATOR)

The report shall include all written decisions arising from an objection. *(Reference: FCR 7.19.1)*