

Marine Stewardship Council (MSC)

Final Draft Report

**French Polynesia albacore and yellowfin longline fishery
Southwest Pacific swordfish scope extension**

On Behalf of

Direction des Ressources Marines

Prepared by

Control Union (UK) Limited

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Authors:

**Chrissie Sieben
Kevin McLoughlin**

Control Union (UK) Limited.
56 High Street, Lymington,
Hampshire, SO41 9AH
United Kingdom
Tel: 01590 613007
Email: infofishuk@controlunion.com
Website: <http://uk.controlunion.com>

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QA

FDR – Swordfish scope extension

Role	Signature	Date
Originator:	C. Sieben	05 th October 2021
Reviewer:	M. Deleau	06 th October 2021
Approver:	T. Tsuzaki	08 th October 2021

Glossary

Term/acronym	Definition
BET	Bigeye tuna
CAB	Conformity Assessment Body
CCM	WCPFC Commission Members, Cooperating non-Members, and participating Territories
CMM	Conservation Management Measure (WCPFC)
CPUE	Catch Per Unit Effort
DRM	Directorate of Marine Resources (French Polynesia)
EPO	Eastern Pacific Ocean
F, F_{MSY}	Fishing mortality, F resulting in Maximum Sustainable Yield
F_{lim}	Fishing mortality limit reference point
$F_{current}$	Average fishing mortality at age
G	Generation Time
HCR	Harvest Control Rule
IATTC	Inter-American Tropical Tuna Commission
IUU	Illegal, unregulated or unreported
LRP	Limit Reference Point
LTL	Low Trophic Level (species)
M	Natural mortality
MEC	ME Certification Ltd
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
PCR	Public Certification Report
PI	Performance Indicator (of the MSC Standard)
PNA	Parties to the Nauru Agreement
PRI	Point of Recruitment Impairment
SAC	Scientific Advisory Committee (IATTC)
SC	Scientific Committee (WCPFC)
S, S_{MSY}	Spawning Biomass that results from fishing at maximum sustainable yield
S_{lim}	Spawning Biomass limit reference point
SG	Scoring Guidepost

SPC	Pacific Community
SRR	Stock recruitment relationship
SSIs	Stock status indicators
SWO	Swordfish
TAC	Total Allowable Catch
TRP	Target Reference Point
UoA	Unit of Assessment
UoC	Unit of Certification
VDS	Vessel Day Scheme
WCPFC	Western Central Pacific Fisheries Commission
WCP-CA	WCPFC Convention Area
YFT	Yellowfin tuna

1 Rapport Sommaire

Ce rapport porte sur l'élargissement de la portée (scope extension) de la pêche à la palangre de Polynésie française, déjà certifiée MSC pour le thon à nageoires jaunes et le thon germon afin d'inclure également l'espadon du Pacifique Sud-Ouest (*Xiphias gladius*) en tant qu'espèce du Principe 1. L'équipe d'évaluation est composée de Chrissie Sieben (chef d'équipe, Principe 2) et Kevin McLoughlin (Principe 1). Dans le cadre de cette extension de la portée, le Principe 1 a été réévalué en entier, tout comme les composantes des espèces primaires et secondaires. L'évaluation est entreprise conformément au processus de certification des pêcheries (FCP – Fisheries Certification Process) v2.2 du MSC et au Référentiel/Standard MSC (MSC, Fisheries Standard) v2.01. L'utilisation de la méthodologie de « Cadre axé sur les risques » (RBF – Risk Based Framework) n'était pas requise.

La pêche du client couvre les navires agréés par la Direction des Ressources Marines (DRM) de Polynésie Française, pêchant exclusivement dans la zone économique exclusive (ZEE) de Polynésie Française le thon germon, le thon à nageoire jaunes et l'espadon à la palangre pélagique. La flotte, entièrement basée à Tahiti, exploite généralement 40% de la ZEE de Polynésie Française mais les principales zones de pêche restent historiquement dans la partie nord de la ZEE. Il y a environ 75 palangriers commerciaux actifs titulaires d'un permis, bien que ce nombre puisse fluctuer d'une année à l'autre.

La pêche est gérée à la fois au niveau régional (par l'intermédiaire de la WCPFC, par le biais de ses mesures de conservation et de gestion - CMMs) et au niveau national (par le biais de la DRM). La WCPFC est responsable de la gestion des stocks de thon dans sa zone de convention, tandis que la DRM peut également prendre des mesures supplémentaires pour gérer la pêche dans sa zone économique exclusive (ZEE) conformément à sa Politique sectorielle qui définit les objectifs de développement des pêcheries en Polynésie Française au cours des cinq prochaines années. Bien que la ZEE de Polynésie Française chevauche à la fois la zone de convention de la WCPFC et la zone de chevauchement de la WCPFC/IATTC, seules les CMMs de la WCPFC sont appliquées lors de la pêche dans cette zone de chevauchement (ceci est conforme à la Recommandation C-12-11 de l'IATTC et s'applique sur une période de 3 ans).

Pour le Principe 1, cette évaluation de l'extension de la portée considère un seul stock dans le Pacifique Sud-Ouest, englobant les captures d'espadon dans la ZEE de Polynésie Française. La plus récente évaluation des stocks d'espadon du Pacifique Sud-Ouest a été entreprise en 2017 à l'aide d'un modèle d'évaluation intégrée Multifan-CL. Une grille d'incertitude structurelle a été utilisée pour l'élaboration de conseils de gestion où toutes les combinaisons possibles des axes d'incertitude les plus importants des modèles ponctuels ont été incluses. Des modèles de sensibilité ponctuels ont été utilisés pour explorer les répercussions relatives des données clés et des hypothèses du modèle de cas diagnostique sur les résultats et les conclusions de l'évaluation des stocks. D'après la grille d'incertitude, il est fort probable que le stock ne soit pas dans un état de surpêche et qu'il ne subisse pas de surpêche. Toutefois, des faiblesses clés ont été identifiées en ce qui concerne la gestion de ce stock. Bien que le CMM 2009-03 contienne certaines mesures de gestion visant à limiter l'expansion de la pêche à l'espadon, il ne contient pas tous les éléments d'une stratégie de récolte (Harvest stratégie) exigée par le MSC, y compris une règle de contrôle des prises (Harvest Contrôle Rules). L'évaluation actuelle et les informations sur l'état d'avancement, ainsi que le suivi en place, suggèrent que les mesures de la WCPFC en place sont suffisantes pour s'attendre à ce que les objectifs de gestion des stocks soient atteints; toutefois, rien n'indique que la stratégie de récolte est adaptée à l'état du stock, ni que les éléments de la stratégie travaillent ensemble pour atteindre les objectifs. Des conditions ont donc été soulevées par rapport aux articles 1.2.1 (Stratégie de récolte) et 1.2.2 (Règles de contrôle des prises).

Pour les espèces primaires et secondaires du Principe 2, la notation a été fondée sur les données des journaux de bord de l'UoA (Unit of Assessment, Unité d'évaluation) et sur les données des observateurs, ainsi que sur les données d'achat d'appâts. Les thons obèses (bigeye) et nageoires jaunes (YFT) de l'océan Pacifique Oriental (EPO), les thons à nageoires jaunes du Pacifique Ouest et Central (Western and Central Pacific Ocean YFT), les germons du Pacifique Sud et les sardines du Japon (Japanese pilchard) ont tous été considérés comme des espèces primaires « principales / main ». Aucune espèce secondaire « principale/main » n'a été identifiée. Parmi les stocks du Principe 2 évalués, seul le thon obèse de l'Est-Pacifique n'est pas très susceptible d'être au-dessus du PRI (Point of Recruitment Impairment). Une condition a donc été soulevée, en raison du mauvais état du stock et du nombre croissant de pêcheries du MSC qui ont cette espèce comme « principale/main » (déclenchant ainsi les exigences relatives aux effets cumulatifs qui s'applique sous l'IP/PI 2.1.1 - Indicateur de Performance/Performance Indicator).

2 Executive Summary

This report covers the scope extension of the MSC certified French Polynesia albacore and yellowfin longline fishery to also include Southwest Pacific swordfish (*Xiphias gladius*) as Principle 1 species. The assessment team consists of Chrissie Sieben (Team Leader, Principle 2) and Kevin McLoughlin (Principle 1). As part of this scope extension, Principle 1 was rescored in full, as were the Primary and Secondary species components. The assessment is being undertaken in accordance with the MSC Fisheries Certification Process (FCP) v2.2 and MSC Fisheries Standard v2.01. The Risk-Based Framework (RBF) was not required.

The client fishery covers the vessels licensed by the French Polynesia Directorate of Marine Resources (*Direction des Ressources Marines* - DRM), fishing exclusively in the Exclusive Economic Zone (EEZ) of French Polynesia for albacore, yellowfin and swordfish using pelagic longline. The fleet, entirely based in Tahiti, usually exploits 40% of the French Polynesia EEZ but the core fishing grounds remain historically in the northern part of the EEZ. There are approximately 75 licensed active commercial longliners, although this number may fluctuate year-to-year.

The fishery is managed at both the regional level (through the WCPFC, via its Conservation and Management Measures - CMMs) and at national level (through the DRM). The WCPFC is responsible for management of tuna stocks in its convention area, while the DRM may also take additional measures to manage fisheries in its Economic Exclusive Zone (EEZ) in accordance with its '*Politique Sectorielle*' which sets out the objectives for fisheries development in French Polynesia over the next five years. Although the French Polynesia EEZ straddles both the WCPFC convention area and the WCPFC/IATTC overlap area, only WCPFC CMMs are applied when fishing in this overlap area (this is in line with IATTC Recommendation C-12-11 and applies over a 3-year period).

For Principle 1, this scope extension assessment assumes a single stock in the southwest Pacific, encompassing the catches of swordfish in the EEZ of French Polynesia. The most recent stock assessment for southwest Pacific swordfish was undertaken in 2017 using a Multifan-CL integrated assessment model. A structural uncertainty grid was used for consideration in developing management advice where all possible combinations of the most important axes of uncertainty from the one-off models were included. One-off sensitivity models were used to explore the relative impacts of key data and model assumptions for the diagnostic case model on the stock assessment results and conclusions. Based on the uncertainty grid, it is highly likely that the stock is not in an overfished condition and is not experiencing overfishing. However, key weaknesses have been identified in relation to the management of this stock. Although CMM 2009-03 contains some management measures intended to limit expansion of fishing on swordfish, it does not contain all the elements of a harvest strategy required by MSC,

including a harvest control rule. The current assessment and status information, as well as the monitoring in place, suggest that the WCPFC measures in place are sufficient to expect stock management objectives to be achieved; however, there is no evidence that the harvest strategy is responsive to the state of the stock, nor that the elements of the strategy are working together to achieve objectives. Conditions have therefore been raised in relation to 1.2.1 (Harvest Strategy) and 1.2.2 (Harvest control Rules).

For Principle 2 Primary and Secondary species, scoring was based on UoA logbook and observer data, as well as bait purchasing data. Eastern Pacific Ocean (EPO) bigeye and yellowfin, Western and Central Pacific Ocean yellowfin, South Pacific albacore and Japanese pilchard were all considered as 'main' Primary species. No 'main' secondary species were identified. Of the Principle 2 stocks assessed, only EPO bigeye is not highly likely to be above the PRI. A condition was therefore raised, as a result of the poor stock status and the increasing number of MSC fisheries that have this species as 'main' (thereby triggering the cumulative impact requirements under PI 2.1.1).

The team's final determination is that the fishery meets the criteria for MSC certification. Aggregate scores for each Principle are as shown in the following table:

Principle	Score UoA4 (SWO)
Principle 1 – Target Species	80.0
Principle 2 – Ecosystem Impacts	82.3
Principle 3 – Management System	84.0

Two new conditions were raised as a result of this scope extension, in addition to the 11 pre-existing conditions:

Condition number	Condition	Performance Indicator (PI)
1	South Pacific albacore 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 (SP ALB)
2	South 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 (SP ALB)
3	WCPO yellowfin 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 (WCPO YFT)
4	WCPO yellowfin 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 (WCPO YFT)
5	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be	2.3.1

Condition number	Condition	Performance Indicator (PI)
	measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.	
6	The client should provide evidence that all relevant national and regional regulations on fishery interactions with ETP species are adhered to by the UoA so that it can be demonstrated that the fishery does not hinder recovery of ETP species.	2.3.2
7	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.	2.3.3
8	The client should ensure that short and long-term objectives, consistent with the outcomes expressed by MSC's Principles 1 and 2, are explicit within the French Polynesia management system. This may be done via the promulgation of a codified national fishery management plan, as proposed during the site visit, or by any other suitable means. The objectives should be responsive to amendments as needed to accommodate WCPFC CMMs, and take account of the general provisions of the Honolulu Convention (2000).	3.2.1
9	At the Commission level, decision-making processes should respond to important issues, and specifically to the declining catch rates of South Pacific albacore, in a transparent, timely and adaptive manner. This could be done by implementing a formal harvest strategy, as set out in CMM 2014-06 and in Condition 1, or by some other means if appropriate.	3.2.2
10	Evidence will be presented to the CAB that the tools used to implement HCRs for EPO yellowfin are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2
11	By the end of Year 2 of the second certification cycle, it should be demonstrated that 1) Eastern Pacific bigeye is highly likely to be above the PRI, <u>or</u> 2) there is evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise EPO BET as main, to ensure that they collectively do not hinder recovery and rebuilding.	2.1.1
12 (new)	By February 2024 in the second certification cycle, Southwest Pacific swordfish needs a harvest strategy that is responsive to the state of the stock, with the elements of the harvest strategy (monitoring, stock assessment, harvest control rules and management actions) working together to achieve stock management objectives reflected in PI 1.1.1 SG80.	1.2.1 (SWO)
13 (new)	By February 2024 in the second certification cycle, Southwest Pacific swordfish 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 consistent with (or above) MSY. The HCRs should be robust to the main uncertainties and the tools used to implement the HCR should be appropriate and effective in achieving the exploitation levels required under the harvest control rules.	1.2.2 (SWO)

To be completed at Public Certification Report stage

3 Report Details

3.1 Authorship and Peer Reviewers

Chrissie Sieben (Team Leader)

Chrissie Sieben has a Master's Degree in Marine Environmental Protection which she obtained at the University of Wales, Bangor, and specialises in marine and fisheries ecology, marine environmental impact assessments and sustainable fisheries development. She was the MSC fisheries scheme manager at ME Certification Ltd (which later became CU Pesca) up until December 2018. Previous to joining MEC, she worked as a fisheries consultant and marine ecologist on UK-based and international projects. Chrissie is now an independent assessor with over eight years' experience with the MSC certification requirements and has acted as team leader and P2 assessor on a range of preassessments, surveillance audits and full assessments of demersal and pelagic fisheries in the Atlantic, Mediterranean, Indian Ocean, Southern Ocean and Pacific. She also regularly participates in MSC training sessions and workshops. Chrissie speaks fluent French and Dutch in addition to English. She acts as the Team Leader for this assessment. Chrissie has successfully completed the MSC online training on the Risk-Based Framework (RBF), FCRv2.0, FCPv2.1 and FCPv2.2, as well as ISO19011 on auditing management systems. Chrissie has no conflict of interest for this assessment.

Kevin McLoughlin (Principle 1)

Kevin McLoughlin is a specialist fisheries consultant based in Australia with more than 30 years' experience across a wide range of international and domestic fisheries science issues, with close links to government policy. He represented the Australian Government on many committees and groups such as fishery assessment groups, providing advice on a diverse range of fisheries and species (including tuna, shark, various finfish, scallop and prawn). Work in assessment groups involved assessment of target species, development of bycatch action plans and ecological risk assessments. Mr McLoughlin was responsible for the production of annual status reports for Australian government-managed fisheries for a number of years. Between 2005 and 2007, Mr. McLoughlin was Australia's delegate on scientific issues at the Indian Ocean Tuna Commission and was Chair of the IOTC Working Party on Bycatch for several years. Mr McLoughlin was also a delegate at meetings of the Commission for the Conservation of Southern Bluefin Tuna.

Mr McLoughlin has worked predominantly on Principle 1 aspects of MSC assessments but has also undertaken Principle 2 and 3 work, as well as peer review and surveillance audits for several fisheries. Kevin was a team member for the full assessment of the Fiji albacore longline fishery, the New Zealand Albacore Fishery, the New Zealand Skipjack Fishery, the Parties to the Nauru Agreement Western and Central Pacific Skipjack and Yellowfin unassociated purse seine fishery, the Tri Marine Western and Central Pacific Skipjack and Yellowfin Tuna Fishery, and Australia's blue grenadier fishery. He was also a member of teams assessing Australia's Northern Prawn Fishery, Western Australia's Exmouth Gulf and Shark Bay prawn trawl fisheries, and South Australia's Spencer Gulf prawn trawl fishery. He was a peer reviewer for the New Zealand albacore troll fishery and for the North and South Pacific American Albacore Fishing Association fisheries and has undertaken surveillance audits for a number of fisheries.

Kevin has passed the MSC online training (FCRv2.0, FCP v2.1, FCP v2.2 and the Risk-Based Framework) and has no conflict of interest in relation to this fishery.

Peer Reviewers:

The MSC Peer Review College compiled a shortlist of potential peer reviewers to undertake the peer review for this fishery. One peer reviewer was selected from the following list:

- Don Aldous
- Giuseppe Scarcella

A summary of their experience and qualifications is available via [this link](#)

3.2 Version details

This scope extension follows the assessment tree used during the initial assessment of this fishery, i.e. the MSC Fisheries Certification Requirements (FCR) v2.0.

Table 1. Fisheries programme documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.2
MSC Fisheries Standard	Version 2.01
MSC General Certification Requirements	Version 2.4.1
MSC Reporting Template	Version 1.2

4 Unit(s) of Assessment and Certification

4.1 Unit(s) of Assessment (UoA)

CU UK confirms that the fishery under assessment is within the scope of the MSC Fisheries Standard (7.4 and 7.5 of the MSC Fisheries Certification Process v2.2):

- The target species is not an amphibian, reptile, bird or mammal (FCP v2.2. 7.4.2.1);
- The fishery does not use poisons or explosives (FCP v2.2 7.4.2.2);
- The fishery is not conducted under a controversial unilateral exemption to an international agreement (FCP v2.2 7.4.2.3);
- The client or client group does not include an entity that has been successfully convicted for a forced or child labour violation in the last 2 years (FCP v2.2. 7.4.2.4);
- The client or client group has not been successfully convicted for shark finning in the last 2 years (FCP v2.2 7.4.2.10);
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery (FCP v2.2 7.4.2.11 and 7.4.2.11iii);
- The fishery is not an enhanced fishery (MSC FCP v2.2 7.4.2.12); and
- The fishery is not an introduced species-based fishery (ISBF) (MSC FCP v2.2 7.4.2.13).

CU UK confirms that the client group has submitted the completed 'Certificate Holder Forced and Child Labour Policies, Practices and Measures Template' prior to the start of this assessment.

The French Polynesia albacore and yellowfin longline fishery is seeking to modify the scope of its certification by moving Southwest Pacific swordfish (*Xiphias gladius*), a stock previously considered in Principle 2, to Principle 1. The proposed new Unit of Assessment (UoA) is given in Table 2.

Table 2. New proposed UoA structure of the French Polynesia albacore and yellowfin longline fishery following scope extension. New UoA is shown in red.

Species / stock	UoA 1: South Pacific albacore (<i>Thunnus alalunga</i>) UoA 2: Western Central Pacific yellowfin (<i>T. albacares</i>) UoA 3: Eastern Pacific yellowfin (<i>T. albacares</i>) UoA 4: Southwest Pacific swordfish (<i>Xiphias gladius</i>)
Geographical range of the stock	French Polynesia Exclusive Economic Zone (all UoAs). FAO areas 71, 77
Fishing Gear	Pelagic longline (all UoAs)
Client Group	French Polynesia (DRM) licensed vessels fishing in the EEZ of French Polynesia for albacore, yellowfin and swordfish using pelagic longline (all UoAs)
Other eligible fishers	None

4.2 Unit(s) of Certification (UoC)

Table 3. Unit(s) of Certification (UoC)

Species	TBC
Stock	TBC
Geographical range of fishery	TBC
Fishing gear type(s) and, if relevant, vessel type(s)	TBC
Client group	TBC

4.3 Gap analysis for scope extension

The procedural requirements for scope extensions to MSC fisheries are set out in Annex PE of the MSC Fisheries Certification Process v2.2. In line with PE1.2.2.1, the CAB shall include the additional information in the announcement:

- A gap analysis, described in FCP 7.27.4, and justifications for the outcomes.
- The assessment components held in common between the two fisheries.
- The assessment components that will be assessed in the scope extension.
- Justification confirming whether there are any potential implications for other Performance Indicators (PIs).

For clarity, the results of the gap analysis have been reproduced in the following table.

Table 4 Gap Analysis for the scope extension of the French Polynesia albacore and yellowfin longline fishery. PIs to be rescored are shown in red

Principle	Component	Performance Indicator (PI)		Gap analysis for each new UoA
One	Outcome	1.1.1	Stock status	New stock to be rescored in full.
		1.1.2	Stock rebuilding	New stock to be rescored in full.
	Management	1.2.1	Harvest strategy	New stock to be rescored in full.
		1.2.2	Harvest control rules & tools	New stock to be rescored in full.
		1.2.3	Information & monitoring	New stock to be rescored in full.
		1.2.4	Assessment of stock status	New stock to be rescored in full.
Two	Primary species	2.1.1	Outcome	For the new UoA, the remaining scoring elements in Principle 2 primary species should be rescored.
		2.1.2	Management strategy	For the new UoA, the remaining scoring elements in Principle 2 primary species should be rescored.
		2.1.3	Information/Monitoring	For the new UoA, the remaining scoring elements in Principle 2 primary species should be rescored.
	Secondary species	2.2.1	Outcome	For the new UoA, the remaining scoring elements in Principle 2 secondary species should be rescored.
		2.2.2	Management strategy	For the new UoA, the remaining scoring elements in Principle 2 secondary species should be rescored.
		2.2.3	Information/Monitoring	For the new UoA, the remaining scoring elements in Principle 2 secondary species should be rescored.
	ETP species	2.3.1	Outcome	
		2.3.2	Management strategy	

Principle	Component	Performance Indicator (PI)		Gap analysis for each new UoA
	Habitats	2.3.3	Information strategy	Swordfish are caught in the same fishery as albacore and yellowfin. ETP Species Component scoring expected to be the same. No rescoring needed.
		2.4.1	Outcome	Swordfish are caught in the same fishery as albacore and yellowfin. Habitat Component scoring expected to be the same. No rescoring needed.
		2.4.2	Management strategy	
		2.4.3	Information	
	Ecosystem	2.5.1	Outcome	Swordfish are caught in the same fishery as albacore and yellowfin. Ecosystem Component scoring expected to be the same. No rescoring needed.
		2.5.2	Management	
		2.5.3	Information	
Three	Governance and policy	3.1.1	Legal &/or customary framework	Swordfish are caught in the same fishery as albacore and yellowfin, with the same management framework applying at regional (WCPFC) and national level. There is furthermore no fishery-specific management plan at national level. The fisheries-specific management framework therefore remains as described in the initial assessment. No rescoring needed.
		3.1.2	Consultation, roles & responsibilities	
		3.1.3	Long term objectives	
	Fishery specific management system	3.2.1	Fishery specific objectives	
		3.2.2	Decision making processes	
		3.2.3	Compliance & enforcement	
		3.2.4	Monitoring & management performance evaluation	

5 Assessment results overview

5.1 Determination, formal conclusion and agreement

Following consideration of all stakeholders' inputs and comments to the Public Comment Draft Report (PCDR), the fishery assessment team concluded that the fishery should be certified against the MSC standard. This determination remains a recommendation pending the completion of the formal objections process and the final certification decision by the CU UK official decision-making entity.

To be completed at Public Certification Report

5.2 Principle level scores

The principle level scores for each UoA in the French Polynesia fishery are shown below. This scope extension relates to UoA 4 only.

Table 5. Principle level scores

Principle	Score UoA1 (SP ALB)	Score UoA2 (WCPO YFT)	Score UoA3 (EPO YFT)	Score UoA4 (SWO)
Principle 1 – Target Species	84.1	84.2	81.7	80.0
Principle 2 – Ecosystem Impacts	85.3	85.3	85.3	82.3
Principle 3 – Management System	84.0	84.0	84.0	84.0

5.3 Summary of conditions

Two new conditions were raised as a result of this scope extension, in addition to the 11 pre-existing conditions:

Table 6. Summary of conditions

Condition number	Condition	Performance Indicator (PI)	Deadline	Exceptional circumstances?	Raised at this scope extension?
1	South Pacific albacore 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 (SP ALB)	June 2023	No	No, raised at the initial assessment
2	South 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 (SP ALB)	June 2023	No	No, raised at the initial assessment
3	WCPO yellowfin 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 (WCPO YFT)	June 2023	No	No, raised at the initial assessment
4	WCPO yellowfin 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 (WCPO YFT)	June 2023	No	No, raised at the initial assessment
5	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified,	2.3.1	End of Year 4 (December 2023)	No	No, raised at the initial assessment

Condition number	Condition	Performance Indicator (PI)	Deadline	Exceptional circumstances?	Raised at this scope extension?
	the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.				
6	The client should provide evidence that all relevant national and regional regulations on fishery interactions with ETP species are adhered to by the UoA so that it can be demonstrated that the fishery does not hinder recovery of ETP species.	2.3.2	End of Year 4 (December 2023)	No	No, raised at the initial assessment
7	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.	2.3.3	End of Year 5 (December 2024)	No	No, raised at the initial assessment
8	The client should ensure that short and long-term objectives, consistent with the outcomes expressed by MSC's Principles 1 and 2, are explicit within the French Polynesia management system. This may be done via the promulgation of a codified national fishery management plan, as proposed during the site visit, or by any other suitable means. The objectives should be responsive to amendments as needed to accommodate WCPFC CMMs, and take account of the general provisions of the Honolulu Convention (2000).	3.2.1	End of Year 3 (December 2022)	No	No, raised at the initial assessment
9	At the Commission level, decision-making processes should respond to important issues, and specifically to the declining catch rates of South Pacific albacore, in a transparent, timely and adaptive manner. This could be done by implementing a formal harvest strategy, as set out in CMM 2014-06 and in Condition 1, or by some other means if appropriate.	3.2.2	Closed at Year 1	No	No, raised at the initial assessment

Condition number	Condition	Performance Indicator (PI)	Deadline	Exceptional circumstances?	Raised at this scope extension?
10	Evidence will be presented to the CAB that the tools used to implement HCRs for EPO yellowfin are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2	Closed at 2020 expedited audit (Sieben and Gascoigne, 2020)	No	Opened at Year 1 surveillance
11	By the end of Year 2 of the second certification cycle, it should be demonstrated that 1) Eastern Pacific bigeye is highly likely to be above the PRI, <u>or</u> 2) there is evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise EPO BET as main, to ensure that they collectively do not hinder recovery and rebuilding.	2.1.1	End of Year 2 (second certification cycle)	Yes	Opened at Year 2 surveillance
12 (new)	By February 2024 in the second certification cycle, Southwest Pacific swordfish 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 reflected in PI 1.1.1 SG80.	1.2.1 (SWO)	February 2024	Yes	Yes
13 (new)	By February 2024 in the second certification cycle, Southwest Pacific swordfish 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 consistent with (or above) MSY. The HCRs should be robust to the main uncertainties and the tools used to implement the HCR should be appropriate and effective in achieving the exploitation levels required under the harvest control rules..	1.2.2 (SWO)	February 2024	Yes	Yes

Note on exceptional circumstances: FCPv2.2 - 7.18.1.6: If, at the time of drafting a condition, the CAB determines that there are exceptional circumstances, and the CAB determines that achieving a performance level of 80 may take longer than the period of certification, the CAB may draft conditions to result in improved performance to at least the 80 level within a longer, specified period set by the CAB. In the case of this scope extension, this clause was applied to both new conditions as they are being raised mid-certification cycle and may therefore extend into the second certification cycle of this fishery (pending a successful reassessment).

5.4 Recommendations

No new recommendations have been raised at this scope extension. The pre-existing recommendation raised at the Year 1 surveillance audit in relation to bait use remains valid.

Table 7. Summary of pre-existing recommendations

Recommendation	Status
Although according to UoA import data, the fishery remains in conformity with the MSC standard, the team noted that no proactive approach is taken towards ensuring that the bait used by the UoA is sourced from sustainable fisheries. Sustainable fisheries in this context are meant to include fisheries with known stock status and associated management regimes, which are either determined to be above biologically based limits or if the species is below biologically based limits, 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.	Open

6 Traceability and eligibility

6.1 Eligibility date

Pending the successful outcome of this assessment, the eligibility date is the date of certification. Product caught after the date of certification will be eligible to enter further chains of custody.

6.2 Traceability within the fishery

All vessels in the UoA require a fishing licence issued by the DRM. After hauling, the retained catch is eviscerated and demodulated following the Taniguchi method. Retained albacore, yellowfin and swordfish are adults or subadults and remain recognisable at species level.

Currently only one vessel in the UoA freezes its catch and also loins the fish – all others land their fish as fresh and only carry out the processing as described above (except for the Ulysse one, see below). On the freezer vessel, the loined fish are then plastic wrapped and blast frozen. Each packet receives a label with year, trip number, species and EU number of the vessel, and is then put in the hold where there is segregation by species.

One of the vessels, the Ulysse one, has also commenced on-board processing since the initial certification. Products include either fresh, gutted whole fish or frozen loins destined for the local or EU market. Loins are labelled with species name, weight, fishing zone, date of freezing, fishing method and unique lot number which links through to a central database. There is no mixing of non-certified and certified product of the same species – the risk of substitution therefore remains minimal as determined during the initial assessment.

Each vessel completes an SPC logbook detailing the estimated volume (tonnes) and number of individuals of retained catch per species, as well as time and coordinates of the set. All vessels are equally equipped with VMS, enabling real-time monitoring of fishing activities by the DRM.

All vessels in the UoA are domestic (French Polynesia-flagged) and are therefore required to land at the local fishing port of Papeete, run by S3P who *inter alia* manages and supervises all landing operations, as well as the auction and wholesale/export facilities buildings. Offloading of foreign vessels on the other hand, occurs in sealed containers at the international port, on the other side of Papeete – none of the vessels in the UoA land the species under assessment there.

Sorting of fresh fish happens during landing; the fish are graded (to size), all fish are weighed and receive a label (sometimes by grade category, sometimes individually). This label also acts as 1st sales note as it links the vessel with date of landing, buyer, species and weight (see Figure 1). At that point, a landing declaration is also completed (and is later transmitted to the DRM). Most of the time (95%) the fish is sold directly on the quay and passed straight to the buyer. The remaining 5% (max.) is sold through auction. The label shown in Figure 1 accompanies the product at all times and as such ensures traceability up to the 1st point of sale.

For the freezer vessels, a tent is set up to keep the landing area cool. Big boxes are lowered into the hold and loaded individually by species. The boxes are then lifted by a crane which also weighs the product. A label is then issued showing the vessel name, date of landing, species and gross weight. All frozen landings are monitored by the veterinarian. In the case of the freezer vessels, the product changes ownership directly after weighing.

The team concludes that the determination made during the initial assessment and Year 1 surveillance (Gascoigne et al., 2018; Sieben and Daxboeck, 2020) remains valid, in that the procedures described above, in conjunction with the French Polynesia monitoring, control and surveillance (MCS) system constitutes a robust traceability management system, enabling certified product to be traced up to the point of 1st sale.

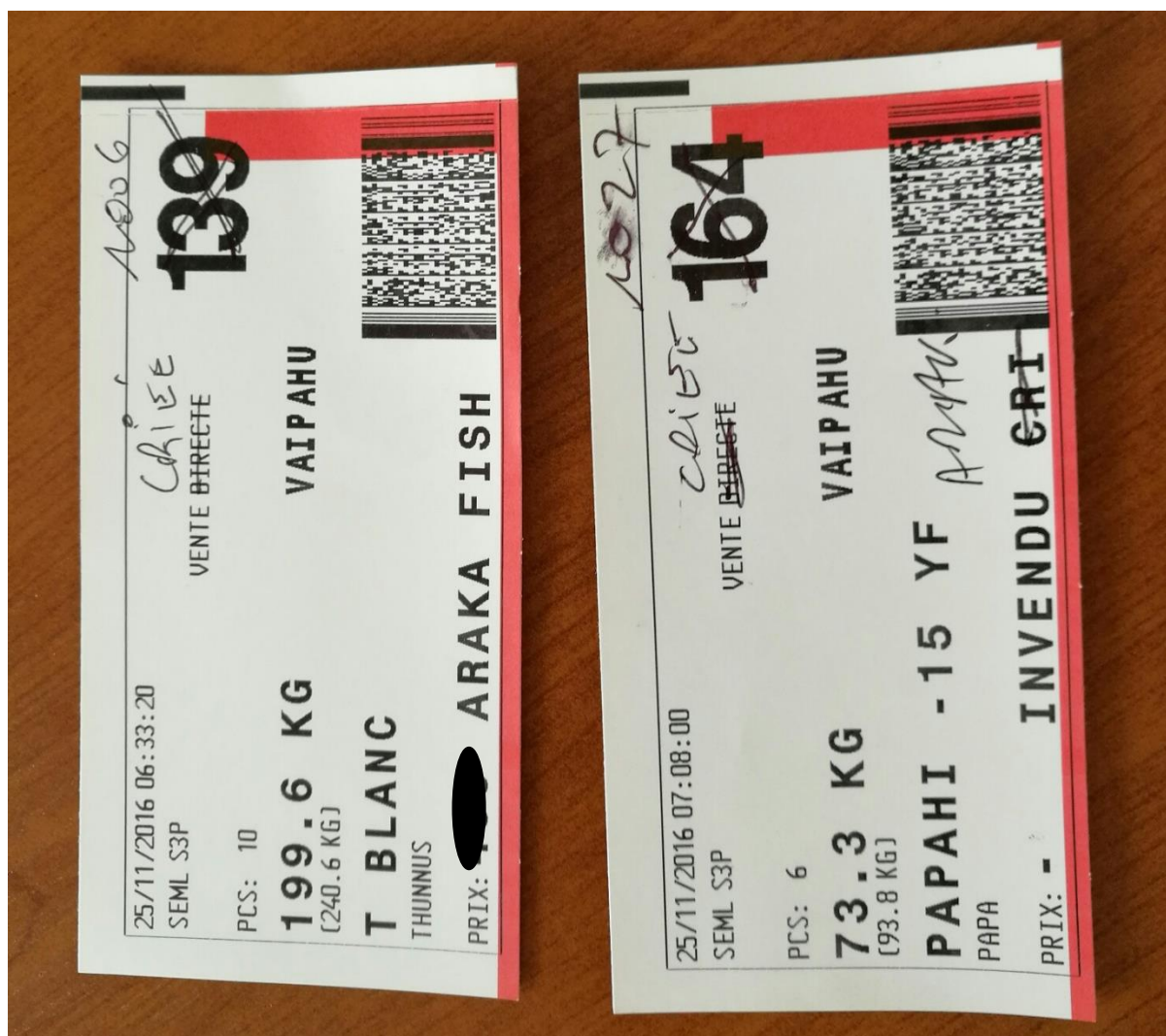


Figure 1. Example of S3P labels issued at landing for the UoA vessel Vaipahu. On this occasion the fish was sold at auction to Araka Fish. Source: Gascoigne et al. (2018).

Table 8. Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: If this may occur on the same trip, on the same vessels, or during the same season; How any risks are mitigated.	This risk is minimal – all vessels in the UoA are longliners. There is no purse seine fishery in French Polynesia.
Will vessels in the UoC also fish outside the UoC geographic area?	This risk is minimal – the vessels in the UoA have licenses to fish in the French Polynesia

Factor	Description
<p>If Yes, please describe: If this may occur on the same trip; How any risks are mitigated.</p>	<p>EEZ only. All vessels are equipped with VMS and are subject to routine real-time monitoring by the DRM.</p>
<p>Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities.</p> <p>Transport Storage Processing Landing Auction</p> <p>If Yes, please describe how any risks are mitigated.</p>	<p>On fresh vessels (all except for the Ulysse one), the retained catch is eviscerated and demodulated following the Taniguchi method. Retained albacore, yellowfin or swordfish are adults or subadults and remain recognisable at species level, enabling their separation during sorting at landing. For the Ulysse one, on-board processing of fresh fish takes place. Products include either fresh, gutted whole fish or frozen loins destined for the local or EU market. Loins are labelled with species name, weight, fishing zone, date of freezing, fishing method and unique lot number which links through to a central database. There is no mixing of non-certified and certified product of the same species. On freezer vessels, the loined fish are then plastic wrapped, blast frozen and then put in the hold where each loin remains identifiable to species-level as each packet receives a label with year, trip number, species and EU number of the vessel. Overall this risk was considered to be minimal.</p> <p>The domestic coastal fishery may also land at the local fishing port of Papeete. These are very different vessels, however, with different landing procedures, landing at different times and unloading different quantities. Labels are also not issued for product from these vessels. Given that all landings are supervised by S3P, this risk is considered minimal.</p>
<p>Does transshipment occur within the fishery?</p> <p>If Yes, please describe: If transshipment takes place at-sea, in port, or both; If the transshipment vessel may handle product from outside the UoC; How any risks are mitigated.</p>	<p>There is no at-sea or in-port transshipment in French Polynesia by domestic vessels.</p>
<p>Are there any other risks of mixing or substitution between certified and non-certified fish?</p> <p>If Yes, please describe how any risks are mitigated.</p>	<p>Vessels from outside the UoC are likely to fish for the same stocks but will not be covered by this assessment. To avoid the risk of vessels landing albacore, yellowfin or swordfish from outside the UoC as MSC (i.e. vessels not associated with this assessment) an up to date list of vessels will be published with the certificate. This list can then be used by companies with MSC CoC to ensure product is</p>

Factor	Description
	originating from a vessel covered by this assessment.

6.3 Eligibility to enter further chains of custody

The assessment team have considered the risks of traceability in the fishery and have determined that Southwest Pacific swordfish (*Xiphias gladius*), landed by vessels conforming to the UoC description given in Table 3 shall be eligible to enter into further chains of custody.

Product is eligible for landing at the domestic port of Papeete.

Further chain of custody certification will be required for certified product at the first point of sale (either directly at the point of landing or through the auction).

6.4 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to enter further chains of custody

No IPI stocks were identified in this assessment.

7 Scoring

7.1 Summary of Performance Indicator level scores

The performance indicator scores for each UoA in the French Polynesia fishery are shown below. This scope extension relates to UoA 4 only. See Section 4.3 for the gap analysis on which PIs were scored in this assessment.

Table 9. Performance Indicator scores for the Southwest Pacific swordfish scope extension (UoA 4)

Principle	Component	Wt	Performance Indicator (PI)		Wt	UoA1 (SP ALB)	UoA2 (WCPO YFT)	UoA3 (EPO YFT)	UoA4 (SWO)
One	Outcome	0.33	1.1.1	Stock status	0.5	100	100	80	90
			1.1.2	Stock rebuilding	0.5	N/a	N/a	N/a	N/a
	Management	0.67	1.2.1	Harvest strategy	0.25	70	70	80	70
			1.2.2	Harvest control rules & tools	0.25	60	60	80	60
			1.2.3	Information & monitoring	0.25	80	80	80	80
			1.2.4	Assessment of stock status	0.25	95	95	90	90
Two	Primary species	0.2	2.1.1	Outcome	0.33	75	75	75	75
			2.1.2	Management strategy	0.33	85	85	85	85
			2.1.3	Information/Monitoring	0.33	95	95	95	85
	Secondary species	0.2	2.2.1	Outcome	0.33	90	90	90	80
			2.2.2	Management strategy	0.33	90	90	90	80
			2.2.3	Information/Monitoring	0.33	95	95	95	80
	ETP species	0.2	2.3.1	Outcome	0.33	75	75	75	75
			2.3.2	Management strategy	0.33	75	75	75	75
			2.3.3	Information strategy	0.33	60	60	60	60

Principle	Component	Wt	Performance Indicator (PI)		Wt	UoA1 (SP ALB)	UoA2 (WCPO YFT)	UoA3 (EPO YFT)	UoA4 (SWO)
	Habitats	0.2	2.4.1	Outcome	0.33	100	100	100	100
			2.4.2	Management strategy	0.33	95	95	95	95
			2.4.3	Information	0.33	85	85	85	85
	Ecosystem	0.2	2.5.1	Outcome	0.33	80	80	80	80
			2.5.2	Management	0.33	85	85	85	85
			2.5.3	Information	0.33	95	95	95	95
Three	Governance and policy	0.5	3.1.1	Legal &/or customary framework	0.33	85	85	85	85
			3.1.2	Consultation, roles & responsibilities	0.33	85	85	85	85
			3.1.3	Long term objectives	0.33	90	90	90	90
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.25	60	60	60	60
			3.2.2	Decision making processes	0.25	85	85	85	85
			3.2.3	Compliance & enforcement	0.25	100	100	100	100
			3.2.4	Monitoring & management performance evaluation	0.25	80	80	80	80

7.2 Fishery overview

7.2.1 The Client fishery

The client fishery covers the vessels licensed by the French Polynesia Directorate of Marine Resources (*Direction des Ressources Marines* - DRM), fishing exclusively in the Exclusive Economic Zone (EEZ) of French Polynesia for albacore, yellowfin and swordfish using pelagic longline. The fleet, entirely based in Tahiti, usually exploits 40% of the French Polynesia EEZ but the core fishing grounds remain historically in the northern part of the EEZ as illustrated by Figure 2 (DRM, 2019). At the time of the initial assessment, there were 75 licensed commercial longliners; at the time of the Year 1 Surveillance (Sieben and Daxboeck, 2020) this number had gone up to 80, although only 66 were actively fishing in 2018 (see certificate [MSC-F-30014](#) for the list of vessels). In 2019, this was 69.

The fishery is managed at both the regional level (through the WCPFC, via its Conservation and Management Measures - CMMs) and at national level (through the DRM). The WCPFC is responsible for management of tuna stocks in its area (as agreed by its member countries), while the DRM may also take additional measures to manage fisheries in its Economic Exclusive Zone (EEZ) in accordance with its '*Politique Sectorielle*' which sets out the objectives for fisheries development in French Polynesia over the next five years. Although the French Polynesia EEZ straddles both the WCPFC convention area and the WCPFC/IATTC overlap area, the French authorities notified the IATTC Secretariat in December 2018 that French Polynesia vessels shall apply WCPFC CMMs when fishing in the overlap area (this is in line with IATTC Recommendation C-12-11 and applies over a 3-year period).

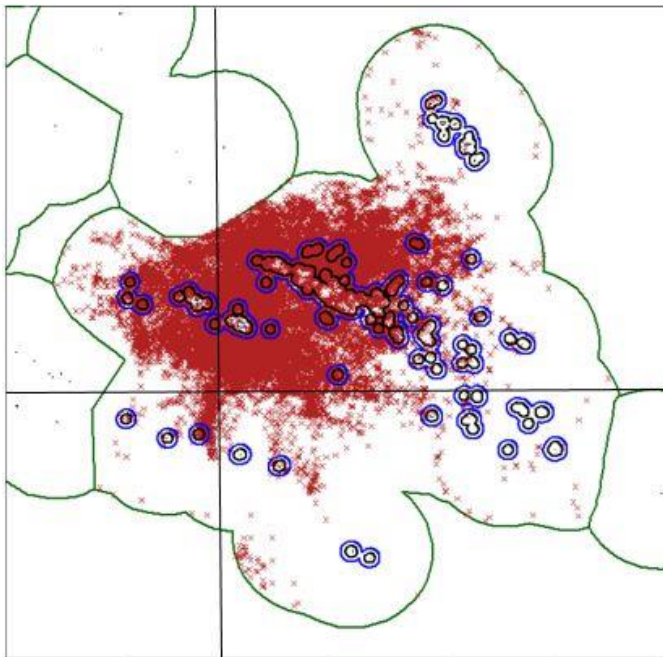


Figure 2. Longline fishing locations in the EEZ 2010-2015. Dividing lines are 20°S (limit of albacore effort limits under CMM 2015-02) and 150°W (boundary of WCPFC and IATTC). Source: DRMM.

7.2.2 Catch profiles and data availability

Two key sources of catch data are available for this fishery: vessel logbook data and observer reports. The logbooks follow the standard format set by the Pacific Community (SPC) and are available from 1993 onwards, reaching 100% coverage in 2012. For each licensed vessel, the logbooks detail estimated volume (tonnes) and number of individuals of retained catch per species, as well as time and coordinates of the sets. All logbooks are paper based but electronic reporting is being tested at the moment through cooperation with the SPC, with about half of the fleet now using SPC's OnBoard App. All logbook data should be provided to the DRM within 15 days from the end of the trip, who cross-check it using the TUFMAN database. The data are then sent to SPC for use in stock assessments and associated analyses. An overview of retained catch according to UoA logbook data for 2016-2020 is given in Table 11.

This fishery has open conditions in relation to observer coverage and ETP species interactions, progress against which is further discussed in the latest surveillance report (Sieben and Daxboeck, 2021). Despite the ongoing COVID pandemic, the DRM and Moana Nui Développement have managed to maintain observer coverage above 5%, as shown in Table 10. This is mainly thanks to a successful recruitment effort, with amended contracting procedures ensuring that hired observers can remain in their post for a longer period (at least 3.5 years). In 2019, 8 observers were being employed by Moana Nui Développement. As part of the observer programme, quarterly reports are being produced on observed interactions in the longline fishery, as well as on port sampling, data collection methods and other matters of interest. For example, at the beginning of 2021, the Ollo software was being trialled for the first time by Moana Nui Développement observers. The Ollo app was developed by SPC for longline observer eReporting into Tufman 2 in the WCPFC area (https://play.google.com/store/apps/details?id=spc.ofp.ollo&hl=en_GB&gl=US). The intent is that the app will be adopted in full by all on-board observers in the UoA. A trial project with The Nature Conservancy (TNC) on E-Monitoring has also recently commenced. A summary of 2016-20 UoA observer data is given in Table 12.

Table 10. 2019-20 observer coverage in terms of days at sea for the UoA fleet. Source: DRM

Year	Observer coverage	Days at sea (total)	Days at sea (observer)
2019	4.83%	15578	753
2020	6.40%	14862	951

Table 11. Summary of 2016-2020 UoA logbook data showing live weight (metric tonnes) and % species composition. Source: DRM. *See discussion in Section 7.4.2.

Species		Live weight (tonnes)					% of total				
		2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Albacore	<i>Thunnus alalunga</i>	3250	2125	3028	3393	2780	57.10	40.13	47.57	50.89	48.65
Yellowfin	<i>T. albacares</i>	943	1386	1263	1310	1080	16.57	26.18	19.84	19.65	18.9
Bigeye* EPO bigeye (80% of bigeye catch) WCPO bigeye (20% of bigeye catch)	<i>T. obesus</i>	557	861	1047	936	855	9.79	16.26	16.45	14.02	14.92
		446	689	838	749	684	7.8	13.0	13.2	11.2	11.9
		111	172	209	187	171	1.9	3.3	3.3	2.8	2.9
Wahoo	<i>Acanthocybium solandri</i>	246	232	222	229	231	4.32	4.38	3.49	3.43	4.04
Blue marlin	<i>Makaira nigricans</i>	209	160	221	274	240	3.67	3.02	3.47	4.1	4.2
Swordfish	<i>Xiphias gladius</i>	101	147	218	168	162	1.77	2.78	3.42	2.52	2.83
Moonfish/Opah	<i>Lampris</i> spp.	139	138	141	109	111	2.44	2.61	2.21	1.63	1.94
Striped marlin	<i>Kajikia audax</i>	73	71	77	88	97	1.28	1.34	1.21	1.32	1.69
Mahi mahi	<i>Coryphaena hippurus</i>	66	84	55	73	81	1.16	1.59	0.86	1.1	1.42
Sickle pomfret	<i>Taractichthys steindachneri</i>	27	32	41	34	28	0.47	0.60	0.64	0.51	0.49
Skipjack	<i>Katsuwonus pelamis</i>	37	20	11	14	14	0.65	0.38	0.17	0.21	0.24
Black marlin	<i>Istiompax indica</i>	16	21	16	11	18	0.28	0.40	0.25	0.17	0.32
Shortbill spearfish	<i>Tetrapturus angustirostris</i>	1	9	8	9	5	0.02	0.17	0.13	0.13	0.09
Roudi escolar	<i>Promethichthys prometheus</i>	4	4	6	6	4	0.07	0.08	0.09	0.09	0.08
Blackfin barracuda	<i>Sphyraena qenie</i>	5	2	4	3	2	0.09	0.04	0.06	0.05	0.03
Escolar	<i>Lepidocybium flavobrunneum</i>	5	2	3	5	2	0.09	0.04	0.05	0.07	0.03
Snake mackerel	<i>Gempylus serpens</i>	3			<0.01	<0.01	0.05	0.00	0.00	<0.01	<0.01

Species		Live weight (tonnes)					% of total				
		2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Pelagic stingray	<i>Pteroplatytrygon violacea</i>	3			<0.01		0.05	0.00	0.00	<0.01	0.00
Short snouted lancetfish	<i>Alepisaurus brevirostris</i>	3					0.05	0.00	0.00	0.00	0.00
Indo-Pacific sailfish	<i>Istiophorus platypterus</i>	0	1	1	1	1	0.00	0.02	0.02	0.01	0.01
Oilfish	<i>Ruvettus pretiosus</i>	1		1	<0.01	<0.01	0.02	0.00	0.02	<0.01	<0.01
Other	N/a	2					0.04	0.00	0.00	0.00	0.00
Slender sunfish	<i>Ranzania laevis</i>	1			<0.01	<0.01	0.02	0.00	0.00	<0.01	<0.01
Long snouted lancetfish	<i>Alepisaurus ferox</i>			1	4	2	0.00	0.00	0.02	0.05	0.03
Marlins, sailfishes nei	N/a			1	1	1	0.00	0.00	0.02	0.01	0.01
Sunfish	<i>Mola mola</i>			1			0.00	0.00	0.02	0.00	0.00
Various squids nei	N/a				<0.01	1	0.00	0.00	0.00	<0.01	0.01
Great barracuda	<i>Sphyrna barracuda</i>				<0.01	<0.01	0.00	0.00	0.00	<0.01	<0.01
Pacific bluefin tuna	<i>Thunnus orientalis</i>				<0.01		0.00	0.00	0.00	<0.01	0.00
Crested oarfish	<i>Lophotus lacepede</i>				<0.01	<0.01	0.00	0.00	0.00	<0.01	<0.01
Ocean sunfish	<i>Mola mola</i>				<0.01	<0.01	0.00	0.00	0.00	<0.01	<0.01
Pomfrets, ocean brems nei	Bramidae				<0.01		0.00	0.00	0.00	<0.01	0.00
Orangespine unicornfish	<i>Naso lituratus</i>				<0.01	<0.01	0.00	0.00	0.00	<0.01	<0.01
Brilliant pomfret	<i>Eumegistus illustris</i>				<0.01		0.00	0.00	0.00	<0.01	0.00
Narrow-barred Spanish mackerel	<i>Scomberomorus commerson</i>				<0.01		0.00	0.00	0.00	<0.01	0.00
Longfin escolar	<i>Scombrobrax heterolepis</i>				<0.01		0.00	0.00	0.00	<0.01	<0.01

Species		Live weight (tonnes)					% of total				
		2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Rainbow runner	<i>Elagatis bipinnulata</i>				<0.01		0.00	0.00	0.00	0.00	<0.01
Dogtooth tuna	<i>Gymnosarda unicolor</i>				<0.01		0.00	0.00	0.00	0.00	<0.01
Yellowtail amberjack	<i>Seriola lalandi</i>				<0.01		0.00	0.00	0.00	<0.01	0.00
Driftfish	<i>Cubiceps gracilis</i>				<0.01		0.00	0.00	0.00	<0.01	0.00
Atlantic pomfret	<i>Brama brama</i>				<0.01		0.00	0.00	0.00	<0.01	0.00
Total		5692	5295	6366	6668	5713	100.00	100.00	100.00	100.00	100.00

Table 12. Species and catch (retained and discarded) as recorded by observers aboard UoA vessels, 2016 – 2020. Data are shown in tonnes and as a % of total observed catch in tonnes. Note: Main species in bold; all others in black font are minor Primary or Secondary species. ETP species are in blue font. Albacore, yellowfin and swordfish are already assessed under Principle 1. Source: DRM. *See discussion in Section 7.4.2.

Species	Tonnes					% of total observed catch in tonnes					P2 designation
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
ALBACORE	106.24	95.59	81.37	132.21	102.38	44.22	27.86	39.86	38.58	34.18	N/a – Principle 1 species
YELLOWFIN TUNA (EPO and WCPO stocks)	40.79	96.3	34.46	69.33	53.86	16.98	28.07	16.88	20.23	17.98	N/a – Principle 1 species
BIGEYE TUNA*	28.56	59.5	30.25	57.53	57.48	11.89	17.34	14.82	16.79	19.19	Primary Primary
EPO bigeye (80% of bigeye catch)	22.9	47.6	24.2	46.0	45.9	9.53	13.87	11.85	13.42	15.4	
WCPO bigeye (20% of bigeye catch)	5.7	11.9	6.1	11.5	11.5	2.37	3.46	2.99	3.36	3.8	
BLUE MARLIN	8.81	7.74	5.88	14.43	13.37	3.67	2.26	2.88	4.21	4.46	Secondary
OPAH	7.34	13.88	5.21	8.38	8.26	3.05	4.05	2.55	2.45	2.76	Secondary
BLUE SHARK	3.64	4.76	2.79	7.64	6.64	1.51	1.39	1.37	2.23	2.22	ETP
WAHOO	6.9	10.23	5.26	6.73	7.60	2.87	2.98	2.58	1.96	2.54	Secondary

Species	Tonnes					% of total observed catch in tonnes					P2 designation
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
PELAGIC STINGRAY	4.85	4.5	3.26	5.74	4.04	2.02	1.31	1.6	1.67	1.35	Secondary
SKIPJACK TUNA	3.72	5.45	2.77	5.48	5.08	1.55	1.59	1.36	1.60	1.70	Primary
STRIPED MARLIN	3.37	4.62	6.01	5.33	4.45	1.4	1.35	2.94	1.56	1.49	Secondary
SWORDFISH	2.35	7.36	6.44	4.98	15.69	0.98	2.15	3.15	1.45	5.24	N/a – Principe 1 species
ESCOLAR	2.72	3	2.49	3.46	2.33	1.13	0.87	1.22	1.01	0.78	Secondary
SHORTBILL SPEARFISH	2.17	4.85	1.49	3.21	3.10	0.9	1.41	0.73	0.94	1.04	Secondary
BLACK MARLIN	1.08	1.62	1.69	1.98	2.00	0.45	0.47	0.83	0.58	0.67	Secondary
COMMON DOLPHINFISH	0.7	2.33	0.87	1.63	2.00	0.29	0.68	0.43	0.47	0.67	Secondary
SHORTFIN MAKO	2.07	3.89	1.69	1.21	0.89	0.86	1.13	0.83	0.35	0.30	ETP
SNAKE MACKEREL	1.1	0.71	0.54	1.20	0.71	0.46	0.21	0.26	0.35	0.24	Secondary
LONGFIN MAKO	0.61	0.53	0.14	1.17	0.27	0.25	0.15	0.07	0.34	0.09	ETP
ROUDI ESCOLAR	0.79	0.85	1.3	1.06	0.70	0.33	0.25	0.64	0.31	0.23	Secondary
OCEANIC WHITETIP SHARK	2.06	1.4	0.65	0.99	1.11	0.86	0.41	0.32	0.29	0.37	ETP
BIGEYE THRESHER SHARK	0.3	0.4	0.45	0.96	0.69	0.12	0.12	0.22	0.28	0.23	ETP
SICKLE POMFRET	0.38	0.76	0.85	0.93	0.81	0.16	0.22	0.42	0.27	0.27	Secondary
OILFISH	1.07	2.37	1.87	0.89	0.97	0.45	0.69	0.92	0.26	0.32	Secondary
SILKY SHARK	2.15	2.21	0.77	0.81	1.00	0.89	0.64	0.38	0.24	0.33	ETP
LONG SNOURED LANCETFISH	0.34	0.56	0.35	0.76	0.81	0.14	0.16	0.17	0.22	0.27	Secondary
BRONZE WHALER SHARK	0.1	0.8	0.21	0.70	0.24	0.04	0.23	0.1	0.21	0.08	ETP
GREAT BARRACUDA	0.84	1	0.74	0.57	0.38	0.35	0.29	0.36	0.17	0.13	Secondary
MOBULA	0.21	0.21	0.21	0.45		0.09	0.06	0.1	0.13		ETP
INDO-PACIFIC SAILFISH	0.24	0.45	0.17	0.33	0.25	0.1	0.13	0.08	0.10	0.08	Secondary

Species	Tonnes					% of total observed catch in tonnes					P2 designation
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
GREY REEF SHARK		0.04	0.02	0.33	0.01	0	0.01	0.01	0.09	<0.01	ETP
GIANT MANTA		0.28		0.28	0.28	0	0.08	0	0.08	0.09	ETP
CROCODILE SHARK		0.06	0.04	0.20	<0.01	0	0.02	0.02	0.06	<0.01	ETP
LONGFIN ESCOLAR	0.39	0.27	0.21	0.19	0.21	0.16	0.08	0.1	0.06	0.07	Secondary
UNSPECIFIED	0.06	0.47	0.15	0.18	0.15	0.02	0.14	0.07	0.05	0.05	N/a
SLENDER SUNFISH	3.03	0.46	1.79	0.16	0.26	1.26	0.13	0.88	0.05	0.09	Secondary
SILVERTIP SHARK		0.06		0.15		0	0.02	0	0.04		ETP
PETRELS AND SHEARWATERS NEI	0.22	0.33	0.11	0.11	0.46	0.09	0.1	0.05	0.03	0.15	ETP
FALSE KILLER WHALE			0.1	0.10		0	0	0.05	0.03		ETP
BARRACOUTA	0.03	0.03	0.05	0.10	0.06	0.01	0.01	0.02	0.03	0.02	Secondary
THRESHER SHARK (VULPINUS)		0.08	0.08	0.07		0	0.02	0.04	0.02		ETP
SOUTHERN BLUEFIN TUNA		0.02		0.05		0	0.01	0	0.02		Secondary
GOLDENSTRIPED SOAPFISH	0.03	0.02	0.03	0.05	0.02	0.01	0.01	0.01	0.01	0.01	Secondary
NARROW-BARRED SPANISH MACKEREL			0.01	0.05		0	0	0	0.01		Secondary
ATLANTIC POMFRET	0.03	0.01	0.01	0.05	0.03	0.01	0	0	0.01	0.01	Secondary
BLACK-FOOTED ALBATROSS		0.02	0.05	0.05	0.10	0	0.01	0.02	0.01	0.03	ETP
POMFRETS OCEAN BREAMS NEI	0.01	0.02	0	0.04	0.01	0	0.01	0	0.01	<0.01	Secondary
UNICORNFISH	0.03	0.04	0.03	0.04	0.04	0.01	0.01	0.01	0.01	0.01	Secondary
BLACKFIN BARRACUDA		0.07	0.02	0.04	0.02	0	0.02	0.01	0.01	0.01	Secondary
GALAPAGOS SHARK		0.78		0.04		0	0.23	0	0.01		ETP
OCEANIC PUFFER		0.02		0.04		0	0.01	0	0.01		Secondary
SHORT SNOUTED LANCETFISH	0.02	0.04	0.06	0.03	0.14	0.01	0.01	0.03	0.01	0.05	Secondary
DOGTUOTH TUNA		0.15		0.03		0	0.04	0	0.01		Secondary

Species	Tonnes					% of total observed catch in tonnes					P2 designation
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
SHARPTAIL MOLA		0.03	0.01	0.03	0.02	0	0.01	0	0.01	0.01	Secondary
BRILLIANT POMFRET	0.03	0.03	0.06	0.03	0.01	0.01	0.01	0.03	0.01	<0.01	Secondary
BIGNOSE SHARK		0.18	0.18	0.03	0.05	0	0.05	0.09	0.01	0.02	ETP
GREATER AMBERJACK				0.02					0.01		Secondary
BLACK GEMFISH	0	0.07	0.01	0.02		0	0.02	0	0.01		Secondary
DRIFTFISH		0.01		0.02	0.01	0	0	0	0.00	<0.01	Secondary
KAWAKAWA				0.01	0.01				0.00	<0.01	Secondary
LOGGERHEAD TURTLE				0.01	0.02				0.00	0.01	ETP
PICKHANDLE BARRACUDA		0.01		0.01	<0.01	0	0	0	0.00	<0.01	Secondary
OMOSUDID	0		0	0.01		0	0	0	0.00		Secondary
PELAGIC THRESHER SHARK	0.04	0.06	0.02	0.01		0.02	0.02	0.01	0.00		ETP
AMBERJACKS NEI	0.01	0.01		0.01		0	0	0	0.00		Secondary
OARFISHES NEI				0.00					0.00		Secondary
GOLDSILK SEABREAM				0.00					0.00		Secondary
GULLS - TERNS AND SKUAS		0		0.00		0	0	0	0.00		ETP
SAND WHITING				0.00					0.00		Secondary
COOKIE CUTTER SHARK	0		0	0.00		0	0	0	0.00		ETP
VELVET DOGFISH	0	0	0	0.00	<0.01	0	0	0	0.00	<0.01	ETP
ALASKA POLLOCK(=WALLEYE POLL,)	0.01			0.00		0	0	0	0.00		Secondary
AUSTRALIAN PILCHARD		0				0	0	0	0.00		Secondary
BARRACUDINAS ETC, NEI	0.01					0	0	0	0.00		Secondary
BATFISH	0.18					0.07	0	0	0.00		Secondary
BIGEYE SAND TIGER SHARK			0.52			0	0	0.25	0.00		ETP

Species	Tonnes					% of total observed catch in tonnes					P2 designation
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
BIRD (UNIDENTIFIED)	0	0			0.01	0	0	0	0.00	<0.01	ETP
BLACK BREAM		0				0	0	0	0.00		Secondary
BLACKTIP SHARK		0.04				0	0.01	0	0.00		ETP
BOOBIES AND GANNETS NEI	0.01					0	0	0	0.00		ETP
DEALFISHES	0.01	0				0	0	0	0.00		Secondary
DELICATE ROUND HERRING	0.03					0.01	0	0	0.00		Secondary
GREEN TURTLE	0.02					0.01	0	0	0.00		ETP
GREENBACK STINGAREE		0				0	0	0	0.00		Secondary
KITEFIN SHARK		0.02			<0.01	0	0.01	0	0.00	<0.01	ETP
LAYSAN ALBATROSS		0.01			0.02	0	0	0	0.00	0.01	ETP
LEATHERBACK TURTLE	0					0	0	0	0.00		ETP
MARINE TURTLES NEI	0.02					0.01	0	0	0.00		ETP
OCEAN SUNFISH		0.09	0.28			0	0.03	0.14	0.00		Secondary
OLIVE RIDLEY TURTLE			0.08			0	0	0.04	0.00		ETP
OMMASTREPHIDAE SQUIDS NEI		0				0	0	0	0.00		Secondary
PARKINSON'S PETREL	0					0	0	0	0.00		ETP
RAINBOW RUNNER	0.02	0.02			0.05	0.01	0.01	0	0.00	0.02	Secondary
RAZORBACK SCABBARD FISH	0.02	0.04			0.06	0.01	0.01	0	0.00	0.02	Secondary
RED SEA CATFISH	0.06					0.02	0	0	0.00		Secondary
RUBY SNAPPER / DEEPWATER RED SNAPPER	0.01	0				0	0	0	0.00		Secondary
SANDBAR SHARK	0.21	0.21	0.05		0.05	0.09	0.06	0.02	0.00	0.02	ETP
SANDEELS(=SANDLANCES) NEI	0					0	0	0	0.00		Secondary
SCALLOPED HAMMERHEAD		0.11				0	0.03	0	0.00		ETP

Species	Tonnes					% of total observed catch in tonnes					P2 designation
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020	
SERGEANT-MAJOR		0.05				0	0.01	0	0.00		Secondary
SHORT-FINNED PILOT WHALE	0.1	0.1				0.04	0.03	0	0.00		ETP
SILVER GEMFISH		0.09				0	0.03	0	0.00		Secondary
SNAKE MACKERELS ESCOLARS NEI	0.02	0.12				0.01	0.03	0	0.00		Secondary
STINGRAYS NEI	0.01					0	0	0	0.00		Secondary
TIGER SHARK	0.1	0.58				0.04	0.17	0	0.00		ETP
YELLOWTAIL AMBERJACK		0.04				0	0.01	0	0.00		Secondary
DUSKY SHARK					0.13					0.04	ETP
THRESHER SHARK					0.03					0.01	ETP
CRESTED OARFISH					0.06					0.02	Secondary
GREAT HAMMERHEAD					0.05					0.02	ETP
OCEANIC PUFFER					0.01					<0.01	Secondary
OARFISHES NEI					<0.01					<0.01	Secondary
	240.27	343.06	204.15	342.66		100.00	100.00	100.00	100.00	100.00	

7.2.3 Bait use

Information on bait use in the fishery stems from import data provided by the various fishing companies in the UoA, as summarised in Table 13. According to the data, *Sardinops melanostictus*, sourced from Japan, was the only species that would qualify as ‘main’ which is in accordance with the initial assessment when this species was identified as ‘main’, together with Pacific saury (*Cololabis saira*) (Gascoigne et al., 2018).

Note that during the most recent surveillance for this fishery (Sieben and Daxboeck, 2020), the following recommendation in relation to bait use was issued: *Although according to UoA import data, the fishery remains in conformity with the MSC standard, the team noted that no proactive approach is taken towards ensuring that the bait used by the UoA is sourced from sustainable fisheries. Sustainable fisheries in this context are meant to include fisheries with known stock status and associated management regimes, which are either determined to be above biologically based limits or if the species is below biologically based limits, 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.*

Table 13. Summary of bait import data for fishing companies in the UoA. Source: DRM.

Bait species		Imported quantity (tonnes) 2018	% of total landings 2018	P2 designation
<i>Cololabis saira</i>	Pacific saury	242	3.80	Primary
<i>Illex</i> spp.	Shortfin squid	16	0.25	No stock information – considered Primary on precautionary basis
<i>Sardinops</i> spp.	N/a (most likely Japanese pilchard)	167	2.62	Primary
<i>Sardinops melanostictus</i>	Japanese pilchard	857	13.46	Primary
<i>Sardinops sagax</i>	Pacific sardine	110	1.73	Primary
Total bait imported		1392	21.87	
Total landings 2018		6366	100	

7.2.4 Total Allowable Catch (TAC) and Landings Data

TACs are not used to manage the fishery. UoA landings data for Southwest Pacific swordfish are shown below.

Table 14. 2018-20 TAC and Catch Data – Southwest Pacific swordfish (t). Source: DRM (2020) and DRM logbook data. There are no other eligible fishers; the UoA is therefore the same as the UoC.

TAC	Year	N/a	Amount	N/a
UoA share of TAC	Year	N/a	Amount	N/a
UoC share of total TAC	Year	N/a	Amount	N/a
Total green weight catch by UoC	Year	2020	Amount	162

	Year	2019	Amount	168
	Year	2018	Amount	218

7.3 Principle 1: Swordfish

7.3.1 Biology and ecology

Swordfish (*Xiphias gladius*) are a widely distributed pelagic species, observed from 50°N to 50°S and across all longitudes in the Pacific Ocean. Swordfish are mainly a warm-water species, but have the widest temperature tolerance of any billfish, and can be found in waters from 5-27°C. Swordfish are commonly observed in surface waters, although they are believed to swim to depths of 650 m or greater. They are opportunistic predators, feeding at the surface as well as the bottom of their depth range. Their diet consists mostly of pelagic fishes, and occasionally squids and other cephalopods. At lower depths they feed on demersal fishes. Swordfish are not a key low trophic level species.

Swordfish are sexually dimorphic (females grow larger and faster than males) and seem to have different spatial distributions (Young and Drake 2002; Mejuto et al., 2008a; cited in Takeuchi et al. (2017)). Uncertainty in growth rates and maturity of swordfish has contributed to stock assessment uncertainty. In response to this uncertainty, the WCPFC Scientific Committee recommended that additional work on age, growth and age validation be undertaken. New growth and maturity estimates were developed based on otolith readings, which indicate that swordfish live longer and grow more slowly than previously estimated (Farley et al., 2016). The maximum estimated age for (female) swordfish was 14 years from rays and 21 years from otoliths (the authors indicate that age estimates from otoliths are likely to be more reliable than for rays, especially in larger/older fish). The study found that the length at 50% maturity for female swordfish in the southwest Pacific is 161.5 cm orbital fork length (FL) and the age at 50% maturity is approximately 4.4 years (Farley et al., 2016). These estimates are used in the current WCPO stock assessment.

7.3.2 Stock definition

Multiple stocks of swordfish have been identified in the Pacific Ocean. Although uncertainty remains in relation to the degree to which individuals migrate and sub-populations mix, recent research provides insight into stock structure. Larval surveys suggest that spawning takes place in tropical and sub-tropical regions, with the exception of the western Pacific equatorial region. Genetic studies indicate that there is no uniform gene flow among Pacific swordfish populations (Takeuchi et al., 2017). In the Pacific, there is genetic evidence of three independent populations (north, southwest and southeast) with no mixing across the equator in the western Pacific (Farley et al., 2016).

Takeuchi et al. (2017) summarise the results of a large-scale collaboration on swordfish electronic tagging in the South Pacific. This programme provided over 50 electronic tag tracks with durations of greater than 30 days. The data indicated that, in combination with long duration conventional recoveries, a division of the stock into south-western and south-central regions (west and east of 175°W), as had been assumed in earlier assessments, was not defensible on biological grounds. Significant differences in behaviour were found between fish tagged in the Tasman Sea and those tagged in the south Pacific Ocean to the east of New Zealand (Takeuchi et al., 2017). Movement patterns across the Tasman and Coral Seas suggest limited mixing or the partial overlap of sub-populations that may not mix strongly on the spawning grounds. There appeared to be no mixing between the southern and northern WCPO, nor the WCPO and the eastern Pacific Ocean. The Takeuchi et al. (2017) assessment for the WCPO discussed below is based on this stock delineation, i.e. a single stock in the southwest Pacific, encompassing the catches of swordfish in the EEZ of French Polynesia (see Figure 2 in Takeuchi et al. (2017)).

7.3.3 Catch and landings

Swordfish have historically been taken predominantly by distant water longline fleets, notably Japanese but also from China, Taiwan and Korea, which took swordfish mainly as a bycatch in the directed tuna fishery. The annual catch of swordfish in the WCPFC statistical area south of the equator increased gradually from around 2,000 t in the 1970s to an average of over 8,800 t since 2010 (Figure 3). Reported catch peaked at 10,681 t in 2007 and has been lower in recent years at 7,415 t in 2017 and 7,239 t in 2018. The decline continued in 2019 with a catch of 5,937 t (Williams and Ruaia, 2020)

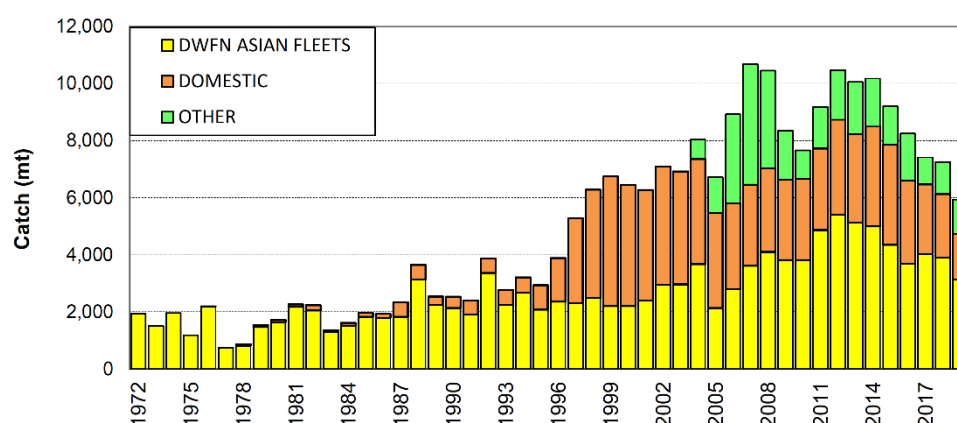


Figure 3. WCP-CA (south of the equator) longline swordfish catch (t) by fleet. Source: Williams and Ruaia (2020).

7.3.4 Stock Status and Assessment

The most recent stock assessment for southwest Pacific swordfish was undertaken in 2017 using a Multifan-CL integrated assessment model (Takeuchi et al., 2017) and the outcomes were presented at WCPFC SC13 in August 2017 (WCPFC-SC, 2017). Results are shown in Table 15. Attempts were made to use a sexually-disaggregated stock assessment model to better account for sexual dimorphism and spatial heterogeneity in sex ratios. However, this approach was unsuccessful and a sex-aggregated swordfish model was used instead. As for the previous assessment (Davies et al., 2013), a two-region model, delineated at 165°E, for the WCPFC area south of the equator was implemented. As with other assessments for WCPFC stocks, a structural uncertainty analysis (model grid) was used for consideration in developing management advice where all possible combinations of the most important axes of uncertainty from the one-off models were included. One-off sensitivity models were used to explore the relative impacts of key data and model assumptions for the diagnostic case model on the stock assessment results and conclusions.

Table 15. Summary of reference points over the 72 models in the structural uncertainty grid for management advice. Note that $SB_{recent}/SB_{F=0}$ is calculated where SB_{recent} is the mean SB over 2012-2015 instead of 2011-2014 (used in the stock assessment report), at the request of the Scientific Committee. Source: WCPFC-SC (2017).

Reference point	Mean	Median	Min	10%	90%	Max
C_{latest}	9,884	9,884	9,318	9,343	10,157	10,287
MSY	8,172	7,913	5,905	6,396	10,150	11,360
Y_{Recent}	7,628	7,775	4,998	6,062	8,948	9,684
f_{mult}	1.27	1.15	0.66	0.79	1.89	2.32
F_{MSY}	0.16	0.14	0.10	0.10	0.22	0.23

$F_{\text{recent}}/F_{\text{MSY}}$	0.88	0.87	0.43	0.53	1.26	1.51
SB_{MSY}	17,314	17,740	7,278	8,943	26,661	30,460
SB_0	84,173	84,075	57,070	71,199	98,039	111,000
SB_{MSY}/SB_0	0.20	0.21	0.11	0.12	0.28	0.28
$SB_{F=0}$	78,619	78,301	61,996	64,342	92,120	100,691
$SB_{\text{MSY}}/SB_{F=0}$	0.22	0.23	0.10	0.12	0.32	0.33
SB_{latest}/SB_0	0.33	0.32	0.24	0.25	0.44	0.46
$SB_{\text{latest}}/SB_{F=0}$	0.35	0.35	0.26	0.27	0.44	0.49
$SB_{\text{latest}}/SB_{\text{MSY}}$	1.85	1.61	0.85	0.99	3.14	4.05
$SB_{\text{recent}}/SB_{F=0}$	0.36	0.35	0.27	0.29	0.43	0.48
$SB_{\text{recent}}/SB_{\text{MSY}}$	1.86	1.58	0.88	1.02	3.10	3.96

Data availability for the swordfish stock assessment is largely as described in the PCR for the tuna stocks previously assessed for the French Polynesia Longline Fishery (Gascoigne et al., 2018). As described in Section 7.2.2, the key sources of catch data available for the fishery are vessel logbook data and observer reports. Data on catch weight and effort at an operational level are available for most fleets and size composition data from observers. Tagging data and a range of biological data from historical research projects are also available. A detailed description of the data used in the stock assessment is provided in the 2017 assessment report (Takeuchi et al., 2017). A total of 13 longline fisheries were defined, based on sub-area boundaries, nationality and time period. For all fisheries, catch data were expressed as the number of swordfish captured and fishing effort as the number of hooks set. Length-frequency and/or weight-frequency data were available from many of the defined fisheries. The 2017 assessment report describes all the analyses that provided inputs to the assessment, including the development of standardised catch-per-unit-effort (CPUE) analyses (Takeuchi et al. 2017).

Summarising the outcomes, SC13 noted the following:

- The central tendency of relative recent spawning biomass was median ($SB_{\text{recent}}/SB_{F=0} = 0.35$) with a probable range of 0.29 to 0.43 (80% probability interval);
- The central tendency of relative recent fishing mortality was median ($F_{\text{recent}}/F_{\text{MSY}} = 0.86$) with an 80% probability interval of 0.51 to 1.23. While this suggested that there was likely a buffer between recent fishing mortality and F_{MSY} , it also showed that there was some probability that recent fishing mortality was above F_{MSY} ;
- There was a roughly 32% probability (23 out of 72 models) that the recent fishing mortality was above F_{MSY} with $p(F_{\text{recent}}/F_{\text{MSY}} > 1) = 0.32$. The median estimate (0.86) is above that estimated from the 2014 assessment grid ($F_{\text{current}}/F_{\text{MSY}} = 0.74$);
- Across all models in the uncertainty grid the spawning biomass declines steeply between the late 1990s and 2010 but since then the rate of decline has been less. Those declines are found in both model regions, but are higher in the eastern Region 2 (equator to 50°S, 165°E to 130°W) (Figure 4).

WCPFC SC13 management advice and implications were that:

- Based on the uncertainty grid adopted by SC13, the southwest Pacific swordfish spawning biomass is likely above the 20% $SB_{F=0}$, biomass LRP adopted for tunas and the SB_{MSY} level

(noting that the Commission has yet to adopt an LRP for south Pacific swordfish) and it is highly likely that the stock is **not in an overfished condition** (0% probability). Recent F is likely below F_{MSY} , and it appears that the stock is **not experiencing overfishing** (32% probability of overfishing) (see Figure 5);

- There had been an increase in fishing mortality notably from the mid-1990s, and that the biomass relative to unfished levels was estimated to have declined rapidly during the late-1990s to 2010, followed by a more gradual but continued decline thereafter, across the uncertainty grid. It was noted the fishing mortality was likely below F_{MSY} ;
- Consistent with its previous advice (from SC9), SC13 recommended that the Commission consider developing appropriate management measures for the area north of 20°S to the equator which is not covered by CMM 2009-03, noting that:
 - Recent catches between the equator and 20°S continued to represent the largest component of the catch in Region 2 (equator to 50°S, 165°E to 130°W) and represented half the total catches from the stock (Figure 6, Figure 7), and;
 - Catches in that area contributed substantially to fishing mortality and spawning biomass depletion levels in the eastern part of Region 2 that are substantially higher than in the western region (Region 1) (Figure 6, Figure 7).

SC13 recommended that current restrictions on catches south of 20°S also be maintained.

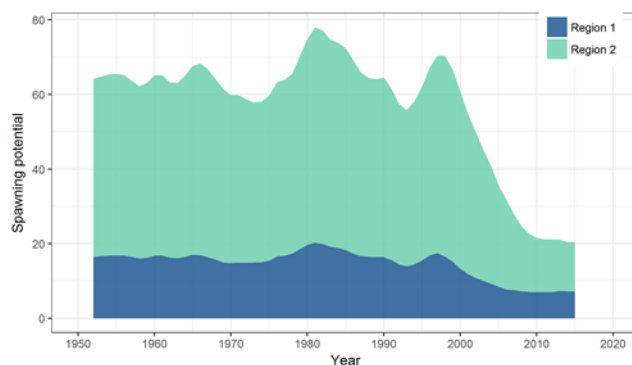


Figure 4. Estimated annual average spawning potential by model region for the diagnostic case model, showing the relative sizes among regions. From WCPFC-SC (2017).

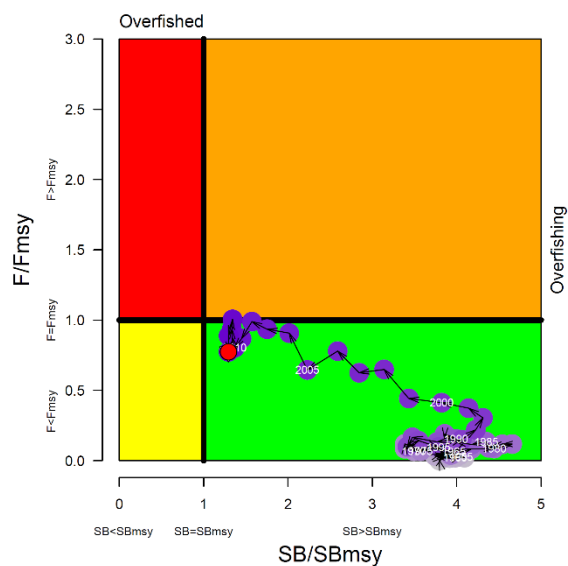


Figure 5. Estimated time-series (or “dynamic”) Kobe plot for SW Pacific swordfish ‘diagnostic case’ model run. From WCPFC-SC (2017).

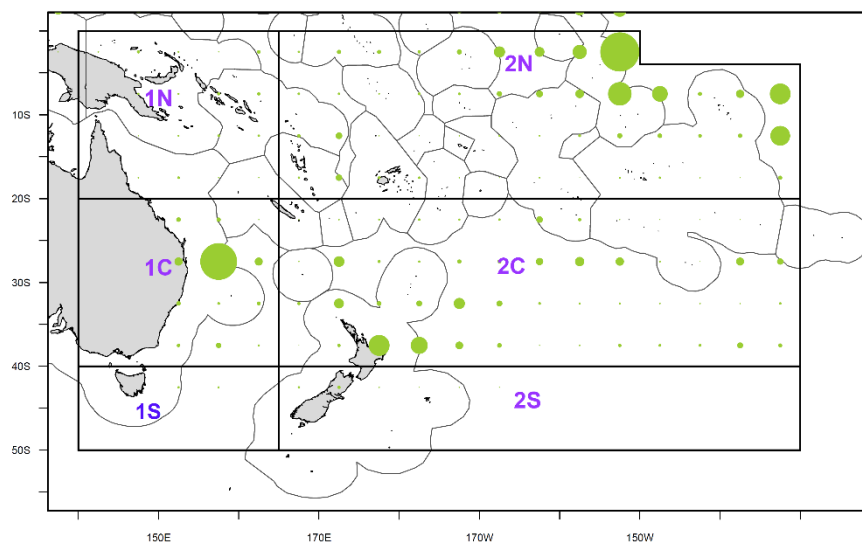


Figure 6. Catches of swordfish (numbers) in the southwest Pacific, 2006–2015. Raised catch estimates available from the SPC. The black lines represent the boundaries of the assessment regions 1 and 2 (outer lines) for swordfish in the southwest Pacific Ocean, and the six fishery sub-areas within those regions. From Takeuchi et al. (2017).

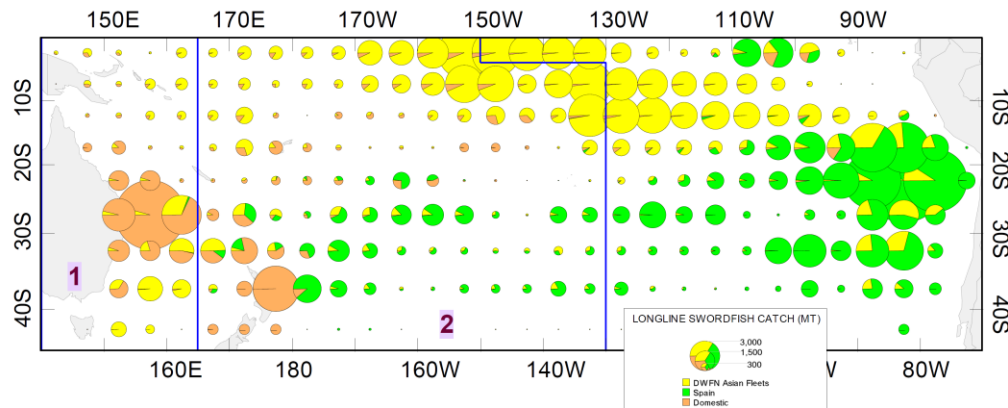


Figure 7. Distribution of South Pacific longline swordfish catch, 1995–2018 (Williams and Ruaia, 2020).

7.3.5 Stock Management

Currently, the only other southwest Pacific swordfish stock that has been MSC certified is the Australian Eastern Tuna and Billfish Fishery, first certified in 2015 and re-certified in 2020.

WCPFC CMM 2014-06 has been adopted to establish a harvest strategy for key tuna species. Workplans have also been adopted at Commission meetings to meet the requirements of CMM 2014-06. These measures do not apply to swordfish. CMM 2009-03 is the current management measure in place at the WCPFC level. This CMM notes that catch and effort should not be increased in order to ‘keep the stock above its associated reference points’. As indicated above, WCPFC has not yet explicitly defined target and limit reference points for swordfish. However, the WCPFC Convention states the objective of ensuring long-term conservation and sustainable use of highly migratory stocks, consistent with Article 5 of the Fish Stock Agreement which incorporates the guidelines for application of precautionary reference points.

CMM 2009-03 provides for a range of measures to manage the swordfish in the WCPO, including:

- CCMs limiting the number of their fishing vessels for swordfish in the Convention Area south of 20°S, to the number in any one year between the period 2000–2005;
- CCMs limiting the amount of swordfish caught by fishing vessels flagged to them in the Convention Area south of 20°S to the amount caught in any one year during the period 2000–2006;
- CCMs shall not shift their fishing effort for swordfish to the area north of 20°S, as a result of this measure;
- CCMs were required to nominate the maximum total catch of swordfish that it shall continue to be permitted to fish in the area south of 20°S. This amount shall be no more than their maximum verified catch declared to the Commission for any one year in the period 2000-2006.

WCPFC-SC (2017) has recommended that further measures should be developed for the area north of 20°S which is not covered by CMM 2009-03. Management arrangements for southwest Pacific swordfish were discussed at the 2019 Commission meeting (WCPFC, 2019). WCPFC16 tasked the Scientific Committee in 2021 (SC17) to provide an evaluation of the long-term future of the southwest Pacific swordfish stock status under CMM 2009-03 based upon the latest SC-agreed stock assessment (an update is due in 2021).

7.3.6 Swordfish performance indicator scoring rationales

Scoring table 1. PI 1.1.1 – Stock status (Swordfish)

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is likely that the stock is above the point where recruitment would be impaired (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	Yes	Yes	Yes

Rationale

The latest stock assessment (Takeuchi et al., 2017) was conducted using the integrated Multifan-CL assessment model. The approach is based on a structural uncertainty grid that includes steepness, size data weighting, diffusion rate and natural mortality as the main uncertainties. Outputs include estimates of spawning stock biomass, spawning potential and recruitment. This indicates that the southwest Pacific swordfish spawning biomass is likely above the 20%SB_{F=0} biomass LRP adopted for tunas. There is no determination of the PRI for swordfish. MSC Guidance (GSA2.2.3.1) indicates that when there is no analytical determination of the PRI a default value of 75%B_{MSY} is appropriate where B_{MSY} is analytically determined to be lower than 27%B₀. Here, the median SB_{MSY}/SB_{F=0} = 0.23, hence a proxy of 17%SB_{F=0} is appropriate. The median SB_{ratest}/SB_{F=0} = 0.35, with a probable range of 0.27 to 0.44 (80% probability interval).

There are uncertainties in the assessment which reduce confidence in the estimation of spawning potential. As discussed in Takeuchi et al. (2017) these include:

- Compared to the tropical tuna assessments, data inputs for this assessment are less substantial. In particular, a somewhat larger penalty on deviations from the stock recruitment relationship (SRR) (equivalent to annual recruitments having a CV of 0.5) was required in order to have stable model behaviour (the tropical tuna assessments typically keep this penalty as small as possible so that the SRR assumptions do not overly impact the estimates of recruitment);
- Fisheries data in general are very uninformative about SRR parameters and it is generally accepted that the steepness parameter, which controls the shape of the curve at lower stock sizes, is not well estimated in fisheries models. As for many other WCPFC stock assessments, a fixed value of steepness equal to 0.8 was assumed for the diagnostic case but alternative options of 0.65 and 0.95 were included in the structural uncertainty grid reflecting the wide range of plausible values for this parameter;

- The longline nature of the fishery, catching mainly larger, older swordfish, is not strongly informative with regards to recruitment dynamics.

The uncertainty grid used in the assessment examines sensitivity to a wide range of parameter settings. Outputs across the grid produce estimates of stock size well above the proxy PRI of $17\%SB_{F=0}$, providing a high level of certainty. **SG60, SG80 and SG100 requirements are met.**

b	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)		
	Guide post	The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?	Yes	No

Rationale

Takeuchi et al. (2017) also provides the following estimates relevant to this scoring issue:

- Biomass is estimated to have declined throughout the model period for all models in the grid, but the decline is particularly steep in the last 15 years;
- The median ratio of SB_{latest} to SB_{MSY} was 1.61 (range 0.85-4.05, 11% of which were < 1.0) (SB_{latest} refers to 2015);
- The median estimate of F_{recent}/F_{MSY} was 0.86 (range 0.42-1.46), with 23 out of the 72 runs (32%) indicating that $F_{recent}/F_{MSY} > 1$ (F_{recent} refers to 2012-2015).

The available information indicates that **SG80 is met**. However, the decline in biomass and concern that fishing mortality could be too high reduces the confidence that the stock status is consistent with MSY. **SG100 is not met.**

References

Takeuchi et al. (2017) and WCPFC-SC (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	The level of spawning biomass in the absence of fishing ($SB_{F=0}$) Assumed PRI: $75\%B_{MSY}$	Median estimate $SB_{latest}/SB_{F=0}$: 0.35 (80% range 0.27-0.44)	Above reference level for all runs in uncertainty grid

stock relative to PRI
(SIa)

Reference point used in scoring stock relative to MSY (SIb) Level of spawning biomass in the absence of fishing ($SB_{F=0}$) Median estimate SB_{latest}/SB_{MSY} : 1.85, range 0.85 – 4.05, 80% range 0.99 – 3.14. Median estimate above, 11% of models below MSY

Generic WCPFC objective: level of spawning biomass relative to MSY (SB_{MSY})

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	90
Condition number (if relevant)	N/a

Scoring table 2. PI 1.1.2 – Stock rebuilding (Swordfish)

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the shorter of 20 years or 2 times its generation time . For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the stock.
	Met?	N/a		N/a

Rationale

The stock does not require rebuilding.

b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is evidence that the rebuilding strategies are rebuilding stocks, or it is likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	There is strong evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.
	Met?	N/a	N/a	N/a

Rationale

The stock does not require rebuilding.

References

N/a

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	N/a
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	
Condition number (if relevant)	

Scoring table 3. PI 1.2.1 – Harvest strategy (Swordfish)

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	Yes	No	Not scored

Rationale

MSC defines a harvest strategy as ‘the combination of monitoring, stock assessment, harvest control rules and management actions’. At the WCPFC level, swordfish have not been included in the CMM 2014-06 workplans for the development of harvest strategies. CMM 2009-03 is still the effective management measure. Although CMM 2009-03 contains some management measures intended to limit expansion of fishing on swordfish, it does not contain all the elements of a harvest strategy required by MSC. The stock assessment of swordfish has been updated twice since the adoption of CMM 2009-03, both assessments indicating that the stock was not overfished nor subject to overfishing. The current assessment and status information, as well as the monitoring in place, suggest that the WCPFC measures in place are sufficient to expect stock management objectives to be achieved, **meeting SG60 requirements**. However, there is no evidence that the harvest strategy is responsive to the state of the stock, nor that the elements of the strategy are working together to achieve objectives. **SG80 is not met**.

b	Harvest strategy evaluation			
	Guide post	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.

	Met?	Yes	Yes	Not scored
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Rationale

The swordfish harvest strategy is reflected in the measures in CMM 2009-03. The 2017 stock assessment (Takeuchi et al., 2017) found that the stock is likely not overfished and not subject to overfishing. This provides evidence that the measures in place have been achieving sustainability objectives. **SG60 and SG80 requirements are met.** The measures contained in CMM 2009-03 have not been tested and **SG100 is not met (not scored is indicated due to si(a) not meeting SG80).**

c	Harvest strategy monitoring		
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.	
	Met?	Yes	

Rationale

WCPFC monitoring in place for the fishery includes mandatory logbooks with records of catch and effort for each fishing operation, a Vessel Monitoring System, tagging data, biological studies and port inspections. While observer coverage is high for some of the swordfish operations (e.g., the Australian fleet has 100% electronic monitoring), coverage on much of the longline fishing is limited (5% requirement for longliners). Observer coverage in the client fishery has been below 5% since 2011 (2.8% in 2018 and 4.9% in 2019), although this increased to above 5% in 2020 – see Section 7.2.2.

The available data support a sophisticated stock assessment process providing robust estimates of stock status that is sufficient to determine whether the harvest strategy is working. **SG60 requirements are met.**

d	Harvest strategy review		
	Guide post	The harvest strategy is periodically reviewed and improved as necessary.	
	Met?	Not scored	

Rationale

Not scored because not all SG80 requirements have been met. Regardless, **SG100 would not be met** given the current harvest strategy is based on CMM 2009-03, the effectiveness of which has not been reviewed in any detail.

e	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	N/a	N/a	N/a

Rationale

The target species is not a shark. this scoring issue is not relevant.

f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	N/a	N/a	N/a

Rationale

Swordfish are a target species and there are no requirements such as minimum or maximum landing sizes or quotas which could lead to any of the catch being unwanted. Based on the most recent Part 1 report submitted by French Polynesia to the WCPFC (DRM, 2020), swordfish discards in the longline fishery amounted to 1.17%. This scoring issue is therefore not relevant.

References

DRM (2020) and Takeuchi et al. (2017)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	60-79
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	70
Condition number (if relevant)	12

Scoring table 4. PI 1.2.2 – Harvest control rules and tools (Swordfish)

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	Generally understood HCRs are in place or available that are expected to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, most of the time.
	Met?	Yes	No	No

Rationale

The WCPFC has generally understood MSY management targets which imply that the PRI will be avoided. The latest stock assessment continues to indicate the stock is above B_{MSY} . CMM 2009-03 and other WCPFC management arrangements do not constitute well-defined HCRs. CMM 2009-03 was introduced to limit expansion of the fishery at a time when the assessment indicated that the swordfish was not overfished, nor was there overfishing. The Commission has tasked the Scientific Committee to provide an evaluation of the effectiveness of CMM 2009-03 in 2021 based on an updated stock assessment. The preparedness to introduce CMM 2009-03 and the measures that have been adopted in relation to tuna stocks indicates that generally understood HCRs are in place and **SG60 requirements are met**. However, these HCRs are neither well defined, nor have they been tested to ensure that the exploitation rate is reduced as limit reference points are approached; consequently, **SG80 and SG100 requirements are not met**.

b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a wide range of uncertainties including the ecological role of the stock, and there is evidence that the HCRs are robust to the main uncertainties.
	Met?		No	Not scored

Rationale

No well-defined HCRs are in place for the swordfish fleets operating under WCPFC rules, hence **SG80 requirements are not met**.

c	HCRs evaluation			
	Guide post	There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	Yes	No	No

Rationale

The 2017 stock assessment indicates that the stock is not overfished nor subject to overfishing, and that the stock remains at or above a level that is consistent with MSY. In addition, WCPFC has adopted a workplan for the development of harvest strategies for key tuna species which will meet MSC requirements. This provides evidence that tools in place/available have been effective in controlling exploitation. **SG60 requirements are met**. However, no HCRs have been adopted thus **SG80 and SG100 are not met**.

References

CMM 2009-03; Takeuchi et al., 2017

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	60-79
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	60
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Condition number (if relevant)	13
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Scoring table 5. PI 1.2.3 – Information and monitoring (Swordfish)

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Yes	Yes	No

Rationale

Although the harvest strategy requires further development, there is a sophisticated stock assessment of the stock based on sufficient information to support the current approach (i.e., information is available on stock structure, growth, reproduction, fleet composition, catch and effort etc.). The information available **meets SG60 and SG80 requirements**. Uncertainties highlighted in the stock assessment indicate that the information is not comprehensive and **SG100 is not met**.

b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Yes	Yes	No

Rationale

As described above, there is sufficient monitoring of removals and collection of additional information to support regular stock assessment. Data are provided to WCPFC at varying levels of detail. The key sources of catch data available for the fishery are vessel logbook data and observer reports. Data on catch weight and effort at an operational level are available for most fleets and size composition data from observers. A total of 13 longline fisheries were defined, based on sub-area boundaries, nationality and time period. For all fisheries, catch data were expressed as the number of swordfish captured and fishing effort as the number of hooks set. The 2017 assessment report describes all the analyses that provided inputs to the assessment, including the development of standardised CPUE analyses (Takeuchi et al. 2017). Compliance with CMM 2009-03 involves reporting by CMMs to WCPFC. French Polynesia has reported against this requirement in its annual reports to the Commission (DRM, 2019, 2020). DRM provide fishery landings, effort and discard data from observers at an operational level. This monitoring supports the generally understood HCR **meeting SG60 and SG80 requirements**.

Uncertainty remains in some key datasets that inform the WCPFC stock assessment. A more comprehensive harvest strategy with appropriate harvest control rules is required for the fishery. There is insufficient information and therefore **SG100 is not met**.

c	Comprehensiveness of information		
	Guide	There is good information on all other fishery removals from the stock.	
	post		
	Met?	Yes	

Rationale

All key fisheries taking swordfish in the WCPO provide catch data to WCPFC. These data are incorporated into the stock assessment. The 2017 stock assessment does not highlight that there are missing data which would impact upon the assessment. Information on recreational catch of swordfish is limited. Kolody et al. (2006) report that catches by recreational fisheries have been negligible, hence are unlikely to be important in the stock assessment. Illegal, unregulated or unreported (IUU) catch is typically considered as a compliance issue and estimates of IUU catch levels are not included in the stock assessment. The 2017 stock assessment for bigeye tuna included a sensitivity analysis that assumed an alternative catch history to that typically used, with higher catches for the longline fishery to account for potential under-reporting due to factors such as IUU fishing (McKechnie et al. 2017). This sensitivity did not have a significant effect on the conclusions of the assessment. **SG80 requirements are met**.

References

DRM (2019, 2020); CMM 2009-03; Kolody et al. (2006); Takeuchi et al. (2017) and McKechnie et al. (2017)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	80
Condition number (if relevant)	N/a

Scoring table 6. PI 1.2.4 – Assessment of stock status (Swordfish)

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		Yes	No

Rationale

Stock assessments are undertaken periodically by SPC on behalf of WCPFC (most recently in 2017 and prior to that in 2013). These integrated stock assessments (using Multifan-CL) consider a range uncertainty and take into account the details of various fisheries taking the stock (for example, a total of 13 longline fisheries were defined in the 2017 assessment). Recent growth studies (Farley et al., 2016) provided reduced uncertainty in the 2017 assessment. The assessment explores uncertainty through a structural uncertainty analysis for consideration in developing management advice. This assessment is appropriate for the generally understood HCR, **meeting SG80**. Takeuchi et al. (2017) indicates that there remains a range of model assumptions that should be investigated either internally or through directed research (including further analysis of the size data available, and consideration of additional data required to enhance CPUE standardisation). **SG100 is not met**.

b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Yes	Yes	

Rationale

The stock assessment provides reference point outputs such as MSY-related values and values of current biomass compared with the biomass in the absence of fishing. The assessment provides outputs of management-related indicators that are appropriate to the stock and can clearly be estimated, **meeting the SG60 and SG80 requirements**.

c	Uncertainty in the assessment			
	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	Yes	Yes	Yes

Rationale

SPC Offshore Fisheries Programme undertakes ongoing work to improve the quality of data sets used in the assessment. The stock assessment attempts to reduce uncertainties and biases in input datasets (e.g., via stratification in space and time, and via catch per unit effort standardisation). The assessment also includes an exploration of uncertainties in the model assumptions, via sensitivity analyses for various different model options (growth and mortality schedules, steepness, connectivity patterns and different treatment of the CPUE data set). The Multifan-CL model uses a statistical framework to derive outputs conditional on a suite of structural assumptions and the data. The model outputs the best point estimates, along with estimates of uncertainty for desired parameters. The probabilistic stock status outputs provide an appropriate representation of uncertainty. **SG60, SG80 and SG100 are met.**

d	Evaluation of assessment			
	Guide post	The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.		
	Met?	Yes		

Rationale

SPC Offshore Fisheries Programme provides an ongoing program of review of assessment approaches and model assumptions. Alternative hypotheses are explored (within funding and time constraints) and assessments are updated and modified according to a schedule determined by WCPFC Commission and SC meetings. The assessment model structure has been updated to reflect the availability of new data or new interpretations of existing data. Sensitivity analyses have been undertaken to explore the impact of options such as changing assumptions for fixed parameters or different treatments of the data. Furthermore, likelihood profiles and retrospective analyses have been undertaken to explore any systematic biases in the model and the results used to select what is now termed the diagnostic case.

Uncertainty is examined through the use of a grid of models for the formulation of management advice. This confirms that alternative hypothesis and assessment approaches have been rigorously explored. **SG100 requirements are met.**

e	Peer review of assessment		
	Guide post	The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?	Yes	No

Rationale

WCPFC stock assessments are undertaken by SPC and internally reviewed by the WCPFC SC. External review of some WCPFC stock assessments are carried out, but this is not the case for the swordfish stock assessment to date. **This meets SG80 requirements but not SG100.**

References

Farley et al. (2016), Takeuchi et al. (2017) and WCPFC-SC (2017)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	90
Condition number (if relevant)	N/a

7.4 Principle 2

7.4.1 Introduction

As detailed in Section 4.3, only the Primary Species and Secondary Species components are required to be assessed under this scope extension.

Primary species (MSC Component 2.1) are defined as follows:

- 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) are defined as follows:

- 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)

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

7.4.2 Primary and secondary species

To identify trends in retained and discarded catch data (for species other than albacore, yellowfin and swordfish, which are assessed under Principle 1), up to date UoA logbook and observer data were requested, as summarized in Section 7.2.2. The overall catch profile of the fishery remains as per the initial assessment with only bigeye exceeding the 5% threshold for ‘main’ Primary species in the logbook data. A similar catch profile is apparent in the UoA observer data for 2016 – 2020 (Table 12) with no new ‘main’ species identified.

Given that approximately 80% of the catch is taken on the eastern side of the WCPO/EPO boundary (150°W) based on the initial PCR (Gascoigne et al., 2018), the team determines that at 20% of the bigeye catch, Western Central Pacific Ocean (WCPO) bigeye is not considered a ‘main’ species. Eastern

Pacific Ocean (EPO) bigeye was therefore the only 'main' bigeye stock in this assessment and is assessed under Primary species. MSC requires any Principle 1 species to also be assessed as Principle 2 species outside their respective UoAs. South Pacific (SP) albacore, EPO yellowfin and WCPO yellowfin were therefore also considered as 'main' Primary species.

Based on the bait import data shown in Section 7.2.3, Japanese pilchard (*Sardinops melanostictus*) is the only 'main' bait species identified. In Japanese waters, the species is assessed against reference points and managed through a total allowable catch (TAC) system by the Fisheries Agency of Japan (FAJ) with allowable biological catches (ABCs) proposed every year by the Fisheries Research and Education Agency (FRA). On that basis, Japanese pilchard was assessed as a primary stock.

Based on the data in Table 11 and Table 12 there are no 'main' secondary species.

The primary and secondary species scoring elements are as summarised in Table 16.

Table 16. Principle 2 scoring elements

Component	Scoring elements	Designation	Data-deficient
Primary species	EPO bigeye SP albacore EPO yellowfin WCPO yellowfin Japanese pilchard	Main	No
	WCPO bigeye WCPO skipjack Pacific sardine Pacific saury Shortfin squid	Minor	Yes (shortfin squid as stock unknown), however not assessed with RBF.
Secondary species	See Table 11 and Table 12	Minor	Yes, however not assessed with the RBF.

7.4.3 Principle 2 Performance Indicator scores and rationales

Scoring table 7. PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	<p>Main primary species are likely to be above the PRI.</p> <p>OR</p> <p>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.</p>	<p>Main primary species are highly likely to be above the PRI.</p> <p>OR</p> <p>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.</p>	<p>There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY.</p>
	Met?	<p>EPO bigeye – Yes</p> <p>EPO yellowfin – Yes</p> <p>SP albacore – Yes</p> <p>WCPO yellowfin – Yes</p> <p>Japanese pilchard – Yes</p>	<p>EPO bigeye – No</p> <p>EPO yellowfin – Yes</p> <p>SP albacore – Yes</p> <p>WCPO yellowfin – Yes</p> <p>Japanese pilchard – Yes</p>	<p>EPO bigeye – No</p> <p>EPO yellowfin – No</p> <p>SP albacore – Yes</p> <p>WCPO yellowfin – Yes</p> <p>Japanese pilchard – No</p>

Rationale

The follow ‘main’ species or stocks were identified: Eastern Pacific Ocean (EPO) bigeye, EPO yellowfin, South Pacific (SP) albacore, Western and Central Pacific Ocean (WCPO) yellowfin – See Section 7.4.2 for detail.

EPO bigeye: This stock was assessed in 2020. Two approaches in the 2020 assessment are a ‘benchmark’ stock assessment (Xu et al., 2020) and a ‘risk analysis’ (Aires-da-Silva et al., 2020) which examines the probability of exceeding target and limit reference points. Interim target and limit reference points in terms of biomass and fishing mortality were defined in IATTC Resolution C-16-02. The S_{LIMIT} is the spawning biomass that produces half of the virgin recruitment ($SB=0.5R_0$) assuming a Beverton-Holt stock-

recruitment relationship with a steepness of 0.75. This spawning biomass is equal to 0.077 of the equilibrium virgin spawning biomass (Maunder and Deriso, 2014). The fishing mortality reference level (F_{LIMIT}) adopted is the fishing mortality rate that, under equilibrium conditions, maintains the spawning population level at S_{LIMIT} .

There were 44 converged reference model runs for the benchmark assessment (Xu et al., 2020). Five of the 44 runs suggest that the spawning biomass of bigeye at the beginning of 2020 was lower than the limit reference level. Three of the 44 runs suggest that the fishing mortality of bigeye in 2017-2019 was higher than the limit reference level. The overall results of the risk analysis, which include 447 models, indicate that the probabilities that the F and S limit reference points have been exceeded are not negligible ($P(F_{cur} > F_{LIMIT}) = 5\%$; $P(S_{cur} < S_{LIMIT}) = 6\%$). Further, the results separate into two distinct states, one 'pessimistic' and the other 'optimistic', that cannot be discerned based on data, model valuation, or other criteria currently available. It is possible that either the pessimistic or the optimistic scenario reflects reality. This is reflected as a bimodal pattern in the statistical distributions of the management quantities, indicating that the stock is either well below or well above the target reference points. In particular, if the pessimistic scenario is correct, the probability of exceeding the limit reference points with the current adopted closure is 10%, or slightly higher (IATTC, 2020).

Given the lack of confidence in the 2018 assessment outcomes and questions over its usefulness for management, data-based stock status indicators (SSIs) have been developed to monitor the bigeye stock. The purse-seine-based indicators used include: number of sets, by set type, closure-adjusted capacity, catch by set type, catch-per-set by set type, and average length of the fish in the retained catch, by set type. The indicators are used for historical comparisons and to identify trends, and can provide information that may be useful for stock management. The indicators are based on relative quantities; i.e. instead of comparing a value with a reference point based on the MSY of a species, it is compared with the distribution of its historical values (based on data from 2000 and using reference levels set at the 10% and 90% percentiles). IATTC (2020) provides an update of the indicators for consideration in conjunction with the 2020 stock assessment. These indicators do not provide information on the state of the stock relative to the PRI, but do provide additional information for consideration. An important feature of the indicators is an increasing trend in the number of purse seine floating object sets over time. There has been a decrease in catch per set of bigeye in the floating object fishery since 2000. There has also been a decline in average length of bigeye in both the unassociated and floating object fisheries. Longline catch has also decreased markedly since 2000. Bigeye CPUE has declined over time in the longline fishery (apart from an increase for 2020). Overall, IATTC staff conclude that the SSIs suggest that fishing mortality has increased for bigeye, mainly due to the increase in the number of floating object sets.

As indicated above, the spawning biomass limit reference point is equal to 0.077 of the equilibrium virgin spawning biomass. This value is analytically determined and could be considered as the PRI for bigeye. However, this level of depletion is greater than is typically used for tuna stocks. A more precautionary approach is adopted here, the default MSC PRI of $20\%S_0$. The benchmark assessment and risk analysis indicate that is likely (70th percentile) that $S_{current}$ is above the $20\%S_0$ PRI, **meeting SG60 requirements**. As indicated above, if the pessimistic scenario is correct, the probability of exceeding the limit reference point with the current adopted closure is 10%, or slightly higher. In addition, the estimated S_{cur}/S_0 is below 20% for several of the assessment runs. Given this and the increasing fishing mortality over time evident in the SSIs, it is concluded that the first part of **SG80 is not met**.

Therefore, to meet SG80, there should be 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. The following overlapping MSC UoAs were identified at this surveillance stage (landed catch is also shown):

- Northeastern Tropical Pacific Purse Seine yellowfin and skipjack tuna fishery: Fishery assessed against MSC Certification Requirements v1.3 (no harmonization needed)

- Eastern Pacific Ocean tropical tuna - purse seine (TUNACONS) fishery: EPO BET is a Principle 1 species, no harmonization required.
- US Pacific Tuna Group Purse Seine FSC and FAD Set Fishery: data not found in ACDR
- AGAC four oceans Integral Purse Seine Tropical Tuna Fishery: 18,324t (2018) from ACDR
- Eastern Pacific Purse Seine Skipjack and Yellowfin tuna fishery (FSC and FAD set fishery): 679t (2018) from ACDR
- French Polynesia albacore and yellowfin longline fishery: 750t (2019) from this surveillance (based on 80% of catches stemming from EPO)

Total EPO bigeye catch 2019: 93,458t (from IATTC (2021))

Not including the TUNACONS fishery for which no data were available during this surveillance, the MSC fisheries combined account for *ca.* 21% of the total EPO bigeye catch. Given that this estimate is based on landings only, and given the likely significant bigeye catches in the TUNACONS fishery, the team considered it appropriate to assume that MSC catches are likely to exceed the 30% threshold cited under GSA3.4.6, beyond which fisheries may be influential in hindering recovery of a given stock. SG80 is therefore not met in full. Therefore, only SG60 is considered to be met.

EPO yellowfin: Interim LRPs for biomass and fishing mortality were adopted by IATTC at its 87th meeting in 2014, and reaffirmed in IATTC Resolution C-16-02 (Harvest Control Rules for Tropical Tunas). However, the interim LRP (7.7% of the virgin spawning biomass) is considered by the assessment team to be insufficiently precautionary, hence the default MSC PRI of 20% S_0 is used.

The 2020 stock assessment employed 48 model runs, representing 12 different model configurations, each with four different values of steepness (0.7, 0.8, 0.9, 1.0) (Mintev et al., 2020). The point estimate for the spawning biomass at the beginning of 2020 ranged from 145% to 345% of the LRP. The probability that the spawning biomass at the beginning of 2020 is below the LRP ranges from 0 to 2%. The point estimate of the fishing mortality in 2017-2019 ranged from 22% to 65% of the LRP (the F_{LIMIT} adopted is the fishing mortality rate that, under equilibrium conditions, maintains the spawning population level at S_{LIMIT}). The probability that the fishing mortality in 2017-2019 is higher than the LRP was estimated to be zero for all models. In relation to a PRI of 20% S_0 , across the 48 model runs, estimates of $S_{current}/S_0$ ranged from 11% to 30% and averaged 20% (average for steepness $h=1.0$ was 22%, for $h=0.9$ was 21% and for $h=0.8$ was 20%). Only at a steepness of $h=0.7$ was the average $S_{current}/S_0$ less than 20%. **SG60 and SG80 are considered met, but SG100 is not** because there are some outcomes which suggest the stock may be below the default MSC PRI.

Albacore: The latest stock assessment was carried out by Tremblay-Boyer et al. (2018). The PRI for this stock is not known, although WCPFC has adopted 20% $SB_{F=0}$ as a limit reference point (LRP) for the stock, where $SB_{F=0}$ is calculated as the average over the period 2006–2015 (Figure 8). B_{MSY} is analytically determined in the stock assessment to be below the LRP ($\sim 15.6\%SB_{F=0}$). The guidance in GSA2.2.3.1 states: *In the case where either B_{MSY} or the PRI are analytically determined, those values should be used as the reference points for measuring stock status unless additional precaution is sought. ... In the case where B_{MSY} is analytically determined to be lower than $40\%B_0$ (as in some highly productive stocks), and there is no analytical determination of the PRI, the default PRI should be $20\%B_0$ unless $B_{MSY} < 27\%B_0$, in which case the default PRI should be $75\%B_{MSY}$.* Since B_{MSY} is analytically determined while the PRI is not, but B_{MSY} is $< 27\%B_0$, then following guidance, scoring should be based on $75\%B_{MSY}$ as a proxy for the PRI - unless 'additional precaution is sought'. Albacore is a productive species so there is no reason for requiring extra precaution in this case. Sla is therefore scored based on $75\%B_{MSY} = 12\%B_0$ rather than on B_{lim} . To achieve SG60 it has to be likely ($\geq 70^{th}$ %ile), for SG80 to be highly likely ($\geq 80^{th}$ %ile) and for SG100 there has to be a high degree of certainty

($\geq 95^{\text{th}}$ %ile) that current stock status is above the PRI. Majuro plots (Figure 9) summarise the results for each of the models in the structural uncertainty grid with respect to $SB_{\text{recent}}/SB_{F=0}$. None of the runs fall below 20% $SB_{F=0}$ (the reference level shown in the plots), and hence none fall below 12% $SB_{F=0}$. Therefore, there is a high degree of certainty that the stock is above the PRI proxy and **SG60, SG80 and SG100 are met**.

	Mean	Median	Min	10%	90%	Max
C_{latest}	61719	61635	60669	60833	62704	63180
MSY	100074	98080	65040	70856	130220	162000
YF_{current}	71579	71780	56680	62480	80432	89000
f_{mult}	6.2	4.96	1.89	2.44	12.05	17.18
F_{MSY}	0.07	0.07	0.05	0.05	0.09	0.1
$F_{\text{recent}}/F_{\text{MSY}}$	0.23	0.2	0.06	0.08	0.41	0.53
SB_{MSY}	71407	68650	26760	39872	100773	134000
SB_0	443794	439800	308800	353870	510530	696200
SB_{MSY}/SB_0	0.16	0.17	0.07	0.1	0.21	0.23
$SB_{F=0}$	469004	462633	380092	407792	534040	620000
$SB_{\text{MSY}}/SB_{F=0}$	0.15	0.15	0.06	0.09	0.2	0.22
SB_{latest}/SB_0	0.55	0.56	0.33	0.42	0.69	0.74
$SB_{\text{latest}}/SB_{F=0}$	0.53	0.52	0.3	0.37	0.69	0.77
$SB_{\text{latest}}/SB_{\text{MSY}}$	4	3.42	1.45	1.96	7.07	10.74
$SB_{\text{recent}}/SB_{F=0}$	0.51	0.52	0.32	0.37	0.63	0.72
$SB_{\text{recent}}/SB_{\text{MSY}}$	3.88	3.3	1.58	1.96	6.56	9.67

Figure 8. South Pacific albacore: Summary of stock status in relation to reference points across the 72 models in the uncertainty grid; C=catch, YF_{current} =equilibrium yield at F_{current} ; F_{mult} =multiplier of current effort required to fish at F_{MSY} ; latest=2016; recent=2012-15 (Tremblay-Boyer et al., 2018).

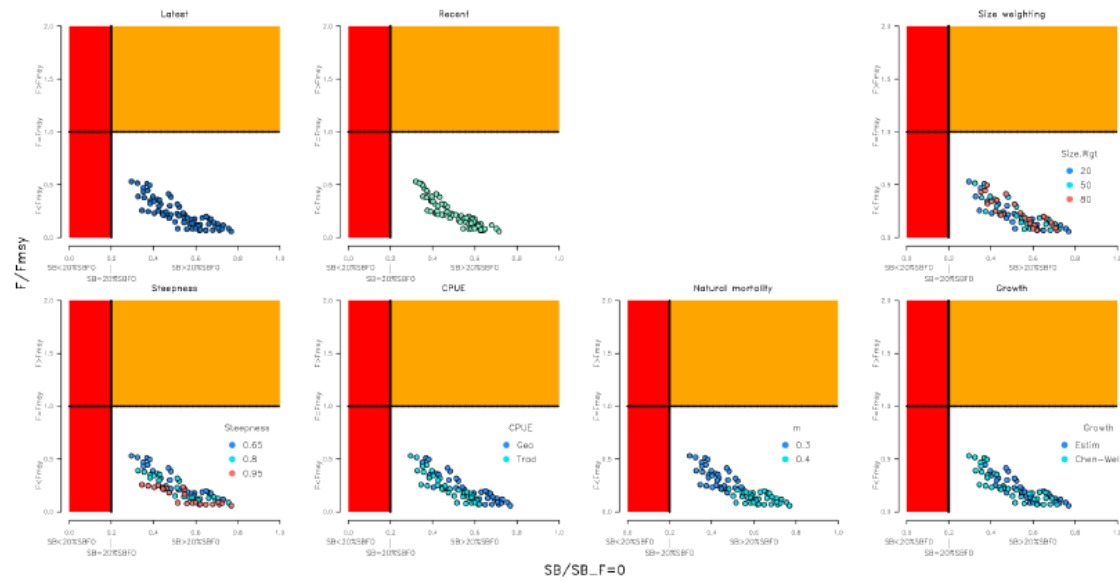


Figure 9. South Pacific albacore: Majuro plots summarising the results for each of the models in the structural uncertainty grid. The plots represent estimates of stock status in terms of spawning potential depletion and fishing mortality. The red zone represents spawning potential levels lower than the agreed limit reference point. The orange region is for fishing mortality greater than F_{MSY} . The points represent SB_{latest} for each model run except the two second from the left which show SB_{recent} . Otherwise, the different panels and colour-coding represent different sensitivity runs (Tremblay-Boyer et al., 2018).

WCPO yellowfin: The latest stock assessment was carried out by Vincent et al. (2020). The PRI for this stock is not known, although WCPFC has adopted 20% $SB_{F=0}$ as a limit reference point (LRP) for the stock, where $SB_{F=0}$ is calculated as the average over the period 2009–2018. B_{MSY} is analytically determined in the stock assessment to be 23.6% $SB_{F=0}$ (median of grid). The guidance in GSA2.2.3.1 states: *In the case where either B_{MSY} or the PRI are analytically determined, those values should be used as the reference points for measuring stock status unless additional precaution is sought. (...) In the case where B_{MSY} is analytically determined to be lower than 40% B_0 (as in some highly productive stocks), and there is no analytical determination of the PRI, the default PRI should be 20% B_0 unless $B_{MSY} < 27\% B_0$, in which case the default PRI should be 75% B_{MSY} .* On this basis, since the PRI is not analytically determined but B_{MSY} is, and B_{MSY} is estimated to be $< 40\% B_0$, the PRI is taken to be 75% B_{MSY} . Yellowfin is a productive stock so there is no reason for additional precaution. This means that the default PRI is 17.7% $SB_{F=0}$ (i.e. slightly below the LRP). $SB_{F=0}$ is calculated from the estimated recruitments and a Beverton-Holt stock recruitment relationship (SRR) and offers a basis for comparing the exploited population relative to population subject to natural mortality only. Stock status was evaluated by estimating $SB_{recent}/SB_{F=0}$ and $SB_{latest}/SB_{F=0}$, where SB_{latest} and SB_{recent} are the estimated spawning potential in 2018 and the mean over 2014–17, respectively. To achieve SG60 it has to be likely (≥ 70 th %ile), for SG80 to be highly likely (≥ 80 th %ile) and for SG100 there has to be a high degree of certainty (≥ 95 th %ile) that current stock status is above 17.7% $SB_{F=0}$. The 10th percentile is estimated directly in the uncertainty grid, so if this is above the PRI, this would satisfy SG60 and SG80 but not SG100. For SG100 to be met, three or fewer scenarios (out of 72), or the minimum value from the grid, should fall below 17.7% $SB_{F=0}$. In the final grid used to characterise uncertainty (72 runs) the 10th %ile of $SB_{latest}/SB_{F=0}$ and $SB_{recent}/SB_{F=0}$ respectively was 47% and 51%, so **SG60 and SG80 are met**. The minimum value of the grid is 40% and 42% (latest and recent respectively), which is well above the default PRI. **SG100 is met**.

Table 17. WCPO yellowfin: Summary of stock status estimates relative to reference points, across all 72 models in the structural uncertainty grid used to characterise uncertainty; latest = 2018, recent = 2014-17; $SB_{F=0}$ = average spawning potential in the absence of fishing for 2008-17, following the definition of the LRP agreed by the SC. Source: Table 3 in Vincent et al. (2020).

Parameter	Min.	10%	Median	90%	Max.
$F_{\text{recent}} / F_{\text{MSY}}$	0.233	0.269	0.357	0.473	0.588
$SB_{\text{latest}} / SB_{F=0}$	0.404	0.471	0.542	0.601	0.664
$SB_{\text{latest}} / SB_{\text{MSY}}$	1.466	1.665	2.282	3.293	4.889
$SB_{\text{recent}} / SB_{F=0}$	0.424	0.507	0.583	0.641	0.677
$SB_{\text{recent}} / SB_{\text{MSY}}$	1.538	1.773	2.432	3.571	5.267
$SB_{\text{MSY}} / SB_{F=0}$	0.121	0.175	0.236	0.278	0.302

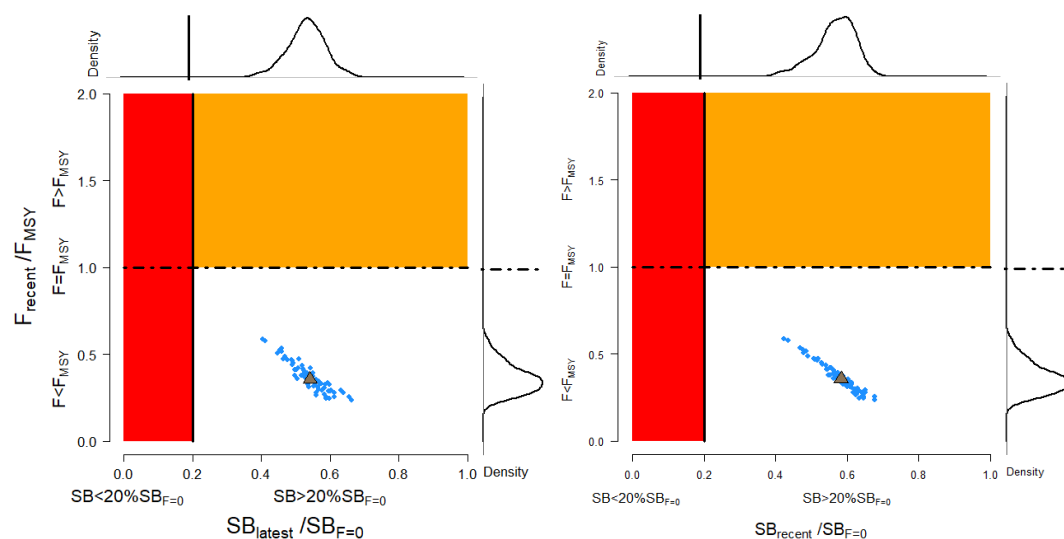


Figure 10. Yellowfin: Majuro plots summarising the results from the structural uncertainty grid: Left: recent (2014-17); Right: latest (2018); y-axis = F/F_{MSY} ; orange zone = $F > F_{\text{MSY}}$; x-axis = $SB/SB_{F=0}$; red zone = $SB < 20\% SB_{F=0}$. Source: Figure 55 in Vincent et al. (2020)

Japanese pilchard: Stock assessments are carried out by the Japanese government Fisheries Research Agency (FRA). According to a stock assessment carried out by Furuichi et al. (2018) (cited in Yatsu (2019)), the current (2016) SSB is above B_{limit} (Figure 11) and the biomass is expected to increase under F_{current} . Figure 12 shows an upward trend in

biomass, providing further confidence that the stock is highly likely above biologically based limits. In any case, catches of this species were estimated at just under 100,000 t in 2015 (derived from Figure 2 in Yatsu (2019)). The UoA used just under 1,000 tonnes of this species in 2018, or *ca.* 1% of the total catch, and is therefore highly unlikely to hinder recovery of this species. **SG60 and SG80 are met.** However, given that the most recent year in the stock assessment was 2016, there is no high degree of certainty about the status of this species. **SG100 is not met.**

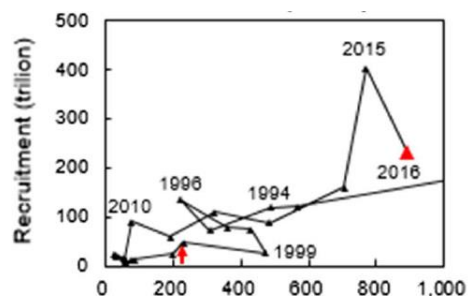


Figure 11. Relationship between spawning stock biomass and recruitment for *Sardinops melanostictus*. Arrow indicates B_{limit} . From Yatsu (2019).

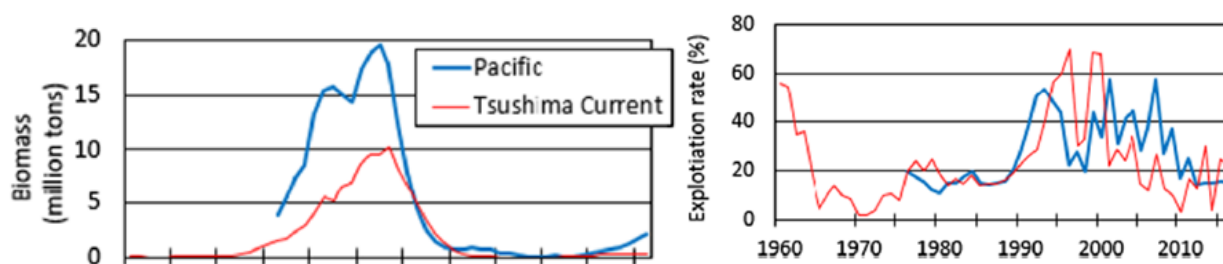


Figure 12. Trajectories of biomass (top) and exploitation rate (catch weight per biomass) of Japanese pilchard, showing both the Pacific and Tsushima current stocks. From Yatsu (2019).

b	Minor primary species stock status
	<div data-bbox="293 1222 1525 1350"> Guide post </div> <div data-bbox="1525 1222 2045 1350"> Minor primary species are highly likely to be above the PRI. OR </div>

	Met?

If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.

No

Rationale

Minor primary species were assessed using the all or nothing approach. Minor species include WCPO bigeye and skipjack, Pacific sardine, Pacific saury and shortfin squid. Without more information on which shortfin squid (*Illex* spp.) stock is being used as bait, this minor scoring element was considered as data-deficient. Because the RBF was not applied, this caps the scoring at 80 (this is in any case irrelevant as SG80a is not met).

References

Vincent et al. (2019), Tremblay-Boyer et al. (2018), Xu et al. (2020), Xu et al. (2019), Aires-da-Silva et al. (2020), IATTC (2020), Ducharme-Barth et al. (2020), Vincent et al. (2020), Minte-Vera et al. (2020)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	60 - 79
Information gap indicator	More information needed on which shortfin squid (<i>Illex</i> spp.) species is being used as bait Analysis of which MSC fisheries have EPO bigeye as 'main' to be completed by assessment team

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Scoring element	Score
EPO bigeye	60
EPO yellowfin	80
SP albacore	100
WCPO yellowfin	100

Japanese pilchard	80
Minor species	80
Overall Performance Indicator score	75
Condition number (if relevant)	11

Scoring table 8. PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	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 PRI.	There is a strategy in place for the UoA for managing main and minor primary species.
	Met?	Main species – Yes Minor species – Yes (default)	Main species – Yes Minor species – Yes (default)	EPO bigeye, yellowfin, WCPO yellowfin, SP albacore – Yes Japanese pilchard – No Minor species – No

Rationale

In the context of this performance indicator (Source: MSC FCR v2.01; Table SA8):

- “Measures” are actions or tools in place that either explicitly manage impacts on the component or indirectly contribute to management of the component under assessment having been designed to manage impacts elsewhere.
- A “partial strategy” represents a cohesive arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and an awareness of the need to change the measures should they cease to be effective. It may not have been designed to manage the impact on that component specifically.
- 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.

EPO bigeye and yellowfin: The IATTC harvest strategy for tropical tunas, including bigeye and yellowfin, is set out in Resolution C-17-02, which was carried over for the year 2021 through Resolutions C-20-05 and C-20-06. Interim limit and target reference point were adopted by IATTC in 2014. These were reaffirmed by Resolution C-16-02 which details the

HCR and the way in which scientific advice should be framed. The status of bigeye and yellowfin is estimated, relative to the defined reference points, with outcomes discussed at Scientific Advisory Committee meetings and at annual Commission meetings. The HCR requires that if the estimated fishing mortality is higher than F_{MSY} then it should be reduced to F_{MSY} . There is a well-defined HCR in place intended to ensure that the exploitation rate is reduced if the stock falls below S_{MSY} or if fishing mortality exceeds F_{MSY} . IATTC Resolution C-16-02 provides the detail of the control rule adopted by the members of the Commission. The HCR is as follows:

- Multi-year management measures (closures are given as an example) will attempt to keep F below F_{MSY} for the species requiring the strictest management (i.e. the most vulnerable of the three tropical tuna species in terms of stock status);
- If the probability that $F > F_{lim}$ is $>10\%$, management measures shall be established such that there is at least a 50% probability that F will reduce to F_{MSY} or below, and a probability of $<10\%$ of $F > F_{lim}$;
- If the probability that $SB < SB_{lim}$ is $>10\%$, management measures shall be established such that there is at least a 50% probability that SB will recover to SB_{MSY} or above, and a probability of $<10\%$ that SB will decline to $< SB_{lim}$ within two generations or 5 years, whichever is greater.

Therefore, if there is a 10% or greater probability of reaching the LRP for fishing mortality or spawning biomass, the HCR triggers the establishment of additional management measures to reduce fishing mortality. There are currently two management tools used by the IATTC, agreed among fishing nations and passed as IATTC Resolutions: these are season closures and mechanisms to limit fishing capacity. The harvest strategy is implemented such that the aim of the HCR is to keep F from exceeding “the best estimate of the rate corresponding to the maximum sustainable yield (F_{MSY}) for the species that requires the strictest management”. This concept implies that yellowfin, bigeye and skipjack are linked by identification of the stock that is in greatest need of protection, defining conservation actions for that stock and implementing the same management measures equally to all three species. The team concludes that this meets the definition of a strategy under Principle 2. **SG60, SG80 and SG100 are met.**

SP albacore: CMM 2014-06 sets out the roadmap to establishing a harvest strategy for key stocks managed by WCPFC. Under CMM 2014-06 WCPFC have also agreed a workplan with indicative timeframes to adopt or refine harvest strategies for South Pacific albacore, which is reviewed annually. At WCPFC15 (December 2018), the Commission adopted an interim TRP for this stock with the objective of an 8% increase in longline CPUE (estimated by SPC to be achieved at 56% $SB_{F=0}$). This brings WCPFC up to date according to the Harvest Strategy Workplan. The next deadline is for agreement of a management procedure (HCR), which at WCPFC16 was pushed back from 2021 to 2022 to avoid a clash with a stock assessment in 2021. The elements of the harvest strategy are the following:

- Data collection on the stock and fishery
- Stock assessment process
- Limit reference point (20% $SB_{F=0}$) and interim target reference point (56% $SB_{F=0}$)
- Management tools set out in CMM 2015-02 which requires that CCMs do not increase the number of their vessels actively targeting South Pacific albacore in the Convention area south of 20°S over 2005 or 2002-4 levels, and includes data gathering and reporting requirements
- Monitoring of implementation of CMM 2015-02 via data gathering and Part 1 and 2 reports to the Commission.

On the basis of the above, the team concludes that this meets the definition of a strategy under Principle 2. **SG60, SG80 and SG100 are met.**

WCPO yellowfin, bigeye (minor) and skipjack (minor): 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, the latest version of which was drafted at WCPFC16 (December 2019). In the meantime, skipjack, yellowfin and bigeye are managed through CMM 2020-01, the objectives of which are as follows:

- Yellowfin and bigeye: Pending agreement on a target reference point the spawning biomass depletion ratio ($SB/SB_{F=0}$) is to be maintained at or above the average $SB/SB_{F=0}$ for 2012-2015.
- Skipjack: 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.

The elements of the WCPFC harvest strategy are the following:

- Data collection on the stock and fishery
- Stock assessment process
- Limit reference point ($20\%SB_{F=0}$), interim target reference point ($50\%SB_{F=0}$) (for skipjack only) and management target ($SB_{2012-15}$);
- Management tools set out in 2020-01, including the PNA 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 (although this does not include French Polynesia);
- Monitoring of implementation of CMM 2020-01 via data gathering and Part 1 and 2 reports to the Commission.

This management strategy is reviewed annually during the Commission meeting.

On the basis of the above, a strategy is in place for the WCPO stocks. **SG60, SG80 and SG100 are met.**

Japanese pilchard: This species is managed using reference points with stock assessments carried out by the Japanese government Fisheries Research Agency (FRA), who estimate stock biomass relative to reference points B_{lim} (the point below which recruitment might be impaired) and B_{ban} (the point at which the fishery is closed; the lowest point in the time series). They also estimate an ABC (allowable biological catch) for various options of target fishing mortality which managers then use to set a TAC. At UoA level, the fishery's contribution to total catch is minimal (~1%, see 2.1.1), which in itself constitutes a partial strategy. **SG60 and SG80 are met. SG100 is not met**, because there is no full strategy in place at the UoA level.

Minor primary species intervene at SG100 only and were assessed using the all or nothing approach. Minor species include WCPO bigeye and skipjack, Pacific sardine, Pacific saury and shortfin squid. Without more information on which shortfin squid (*Illex* spp.) stock is being used as bait, this scoring issue is not considered to be met in full. **SG100 is not met.**

b	Management strategy evaluation
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	Guide post	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Main species – Yes Japanese Pilchard - Yes Minor species – Yes (default)	Main species – Yes Japanese Pilchard - Yes Minor species – Yes (default)	No Japanese Pilchard – No No

Rationale

EPO bigeye and yellowfin: The harvest strategy is implemented such that the aim of the HCR is to keep F from exceeding “the best estimate of the rate corresponding to the maximum sustainable yield (F_{MSY}) for the species that requires the strictest management”. This concept implies that yellowfin, bigeye and skipjack are linked by identification of the stock that is in greatest need of protection, defining conservation actions for that stock and implementing the same management measures equally to all three species. Although IATTC staff conclude that the SSIs suggest that fishing mortality has increased for bigeye, yellowfin and skipjack, mainly due to the increase in the number of floating object sets, and which therefore puts into question the overall efficacy of the strategy at stock level, it is important to note that this PI is scored at the UoA level: *GSA3.5: The intent of the P2 Species Management Pls (2.1.2, 2.2.2, 2.3.2) is to assess the arrangements in place to manage the impact that the UoA has on the P2 species to ensure that it does not pose a risk of serious or irreversible harm to them*. On that basis, the team considered the overall contribution of the UoA to catches of these stocks, corresponding to ca. 0.9% for EPO bigeye and 0.5% for EPO yellowfin (based on data presented in IATTC (2019)). These low contributions provide some objective basis for confidence that the strategy will work at the UoA level for both stocks. **SG60 and SG80 are met. SG100 is not met** because this has not been tested specifically.

SP albacore: No projections have been undertaken for SP albacore based on the most recent stock assessment. SG100 is not met. Currently the stock is above PRI with a high degree of certainty and F is and has always been below F_{MSY} (see Tremblay-Boyer et al. (2018)). Therefore, there is some objective basis for confidence that the partial strategy is working. **SG60 and SG80 are met.**

WCPO yellowfin: Yellowfin fishing mortality has always been below F_{MSY} , and the stock has never declined below the default target of SB_{MSY} (Vincent et al., 2020). From this it can be inferred that while the harvest strategy may not have been fully tested, there is evidence that it is achieving its objectives; therefore, **SG60 and SG80 are met but not SG100.**

Japanese pilchard: There is considered to be a partial strategy, and information on UoA bait use and total landings and/or TACs provide an objective basis for confidence that the fishery is having a negligible impact on the species. **SG60 and SG80 are met.** There is, however, no formal ‘testing’, so **SG100 is not met.**

Minor species: Minor primary species intervene at SG100 only and were assessed using the all or nothing approach. Minor species include WCPO bigeye and skipjack, Pacific sardine, Pacific saury and shortfin squid. The absence of formal testing of the UoA impact on any of these species concerned means there can be no high degree of confidence. **SG100 is not met.**

c	Management strategy implementation		
	Guide post	There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).
	Met?	Main species – Yes Minor species – Yes (default)	Main species – Yes Minor species – No

Rationale

Evidence for implementation of the partial strategies at UoA level for all species includes VMS and observer data, logbook data, unloads data and the MCS system as described under Principle 3 in Gascoigne et al. (2018), as well as a lack of systematic non-compliance by the UoA (see Gascoigne et al. (2018) and Sieben and Daxboeck (2020)). On that basis, **SG80 is met**. For the main primary species that are targeted by the fishery (and for which there is no unwanted catch: EPO yellowfin and bigeye, SP albacore, WCPO yellowfin), logbooks (which provide 100% coverage) enable the impact of the UoA on these stocks to be evaluated with a high degree of certainty, providing clear evidence that the strategy is being implemented successfully and is achieving its overall objective at UoA level. The same is true for Japanese pilchard for which the bait purchasing data (as compiled by DRM) provides a high degree of certainty that the UoA impact on that species is negligible. **SG100 is met** for these species.

Minor species intervene at SG100 only and were scored using the all or nothing approach. As per the data in scoring issue e, the majority of skipjack are discarded which makes the observer data a key source to estimate UoA impacts on that stock. Because of the low levels of observer coverage in the UoA (Section 7.2.2), there can be no clear evidence that the strategy is achieving its overall objective for this species and **SG100 is therefore not met** for minor species overall.

d	Shark finning		
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.
	Met?	N/a	N/a

Rationale

None of the Primary species are sharks; this scoring issue is not relevant.

e	Review of alternative measures
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	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	EPO bigeye, EPO yellowfin, WCPO yellowfin, SP albacore – N/a Minor species – Yes (default)	EPO bigeye, EPO yellowfin, WCPO yellowfin, SP albacore – N/a Minor species – Yes (default)	EPO bigeye, EPO yellowfin, WCPO yellowfin, SP albacore, Japanese pilchard – N/a Minor species – No

Rationale

Based on data presented in DRM (2020), 2019 primary species discard rates for the French Polynesia fleet were as follows:

Albacore: 1.3%

Bigeye: 1.9%

Yellowfin: 4.0%

Skipjack: 81.6%

Japanese pilchard is a targeted species with no unwanted catch in the source fishery. The team therefore concludes that discard rates for the main primary species are minimal and this scoring issue is therefore not applicable.

Minor species intervene at the SG100 level only (SG60 and SG80 are met by default) and were scored using the all or nothing approach. Although there are no significant unwanted catches for WCPO yellowfin or any of the bait species (which are sourced from targeted fisheries), the 2019 WCPO skipjack discard rate was high. In the absence of a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of this stock, **SG100 is not met for minor species** overall.

References

IATTC Resolution C-16-02, C-17-02, C-20-05 and C-20-06

WCPFC CMM 2020-01, 2015-02, 2014-06

Gascoigne et al. (2018), IATTC (2019)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	≥80
Information gap indicator	More information needed on which shortfin squid (<i>Illex</i> spp.) species is being used as bait

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

<u>Scoring element</u>	<u>Score</u>
EPO bigeye	95
EPO yellowfin	95
SP albacore	95
WCPO yellowfin	95
Japanese pilchard	85
Minor species	80
Overall Performance Indicator score	85
Condition number (if relevant)	N/a

Scoring table 9. PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on main primary species with respect to status.
	Met?	Yes	Yes	Yes

Rationale

Main primary species: There is quantitative information on the catch of main primary species (landings and discards) from logbooks, port sampling and observers, or from bait purchasing data (Section 7.2.3). Each of the main primary stocks has a stock assessment (see 2.1.1a), providing quantitative information on total landings and stock biomass. As the vast majority of main primary species are retained for sale (i.e., discards are negligible – see 2.1.2e), logbooks (which provide 100% coverage) enable the impact of the UoA on these stocks to be evaluated with a high degree of certainty; **SG100 is met**.

b	Information adequacy for assessment of impact on minor primary species			
	Guide post	Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.		
	Met?	No		

Rationale

Minor species were assessed using the all or nothing approach. Although most skipjack are discarded, the observer data presented in Section 7.2.2 provide some quantitative information to estimate the impact of the UoA on that stock. WCPO bigeye is mainly retained and as per scoring issue a, logbook data provide adequate information for the UoA impact to be estimated. For the bait species (Pacific sardine, Pacific saury and shortfin squid), there is quantitative information on the purchase of bait (based on DRM data). However, because no stock information is available on shortfin squid (which is used in small quantities – see Table 13), **SG100 is not met in full**.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main primary species.	Information is adequate to support a partial strategy to manage main primary species.	Information is adequate to support a strategy to manage all primary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Yes	Yes	No

Rationale

For the main primary species, the information required to support a strategy or partial strategy is available as set out in scoring issue a: i.e. data on landings and discards are available via logbooks, port sampling and observers, or in the case of the bait species, from bait purchasing data. Each of the main primary stocks has a stock assessment, providing quantitative information on total landings and stock biomass. As the vast majority of main primary species are retained for sale (i.e., discards are negligible – see 2.1.2e), logbooks (which provide 100% coverage) enable the impact of the UoA on these stocks to be evaluated with a high degree of certainty, thus providing adequate information to support the partial strategy. **SG60 and SG80 are met**. However, in the absence of a formal strategy for all primary species, including minor species, **SG100 is not met**.

References

Logbook and observer data (Section 7.2.2); Minte-Vera et al. (2020), Tremblay-Boyer et al. (2018), Xu et al. (2020), Ducharme-Barth et al. (2020) and Vincent et al. (2020)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	≥80
Information gap indicator	More information needed on which shortfin squid (<i>Illex</i> spp.) species is being used as bait

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	85
Condition number (if relevant)	N/a

Scoring table 10. PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
a	Main secondary species stock status			
	Guide post	<p>Main secondary species are likely to be above biologically based limits.</p> <p>OR</p> <p>If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main secondary species are highly likely to be above biologically based limits.</p> <p>OR</p> <p>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.</p> <p>AND</p> <p>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 have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.</p>	<p>There is a high degree of certainty that main secondary species are above biologically based limits.</p>
	Met?	N/a	N/a	N/a

Rationale

No main secondary species were identified (Section 7.4.2), this scoring issue is therefore not relevant.

b	Minor secondary species stock status
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	Guide post
	Met?

Minor secondary species are highly likely to be above biologically based limits.

OR

If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species

No

Rationale

There is a long list of minor secondary species (see Table 11, Table 12 and Table 13), not all of which have been assessed and some of which are data-deficient. The Risk-Based Framework has not been used to assess minor species; **this caps the PI score at 80.**

References

Logbook data, observer data (Section 7.2.2)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	80
Condition number (if relevant)	N/a

Scoring table 11. 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		
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Scoring Issue	SG 60	SG 80	SG 100
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a	Management strategy in place			
	Guide post	There are measures in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above 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 above 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?	Yes (default)	Yes (default)	No

Rationale

In the absence of main secondary species, **SG60 and SG80 are met by default**. Minor species were not assessed in detail and are **not considered to meet SG100** overall.

b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	Yes (default)	Yes (default)	No

Rationale

In the absence of main secondary species, **SG60 and SG80 are met by default**. Minor species were not assessed in detail and are **not considered to meet SG100** overall.

c	Management strategy implementation			
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	Guide post	There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
	Met?	Yes (default)	No

Rationale

In the absence of main secondary species, **SG80 is met by default**. Minor species were not assessed in detail and are **not considered to meet SG100** overall.

d	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	N/a	N/a	N/a

Rationale

Sharks in French Polynesia are protected (Gascoigne et al., 2018) and are therefore considered under ETP species. This scoring issue is not relevant.

e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate.
	Met?	Yes (default)	Yes (default)	No

Rationale

Since there are no main secondary species, **SG60 and SG80 are met by default**. Not all minor secondary species are desirable, and as far as the team is aware there is no biennial review of alternative measures to minimise these catches. **SG100 is not met**.

References

Logbook data, observer data (Section 7.2.2); Gascoigne et al. (2018)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	80
Condition number (if relevant)	N/a

Scoring table 12. PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and adequate to assess the impact of the UoA on main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and adequate to assess with a high degree of certainty the impact of the UoA on main secondary species with respect to status.
	Met?	Yes	Yes	No

Rationale

There is quantitative information on the catch of secondary species (landings and discards) from logbook and observer data, which is sufficient to determine that there are no main secondary species. **SG60 and SG80 are therefore met.** Most secondary species are discarded, however, which makes the observer data a key source to estimate UoA impacts on the stocks concerned. Because observer coverage in this fishery is low (see Section 7.2.2), there can be no high degree of certainty. **SG100 is not met.**

b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post	Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.		
	Met?	No		

Rationale

There is a long list of minor secondary species (see Table 11 and Table 12). The impact of the UoA on these stocks in terms of catch (landings, discards, mortality to point of discard) can be evaluated via the observer reports, but observer coverage is low and in some cases little is known about the stock structure and status, so **SG100 is not met** in full.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main secondary species.	Information is adequate to support a partial strategy to manage main secondary species.	Information is adequate to support a strategy to manage all secondary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective .
	Met?	Yes (default)	Yes (default)	No

Rationale

There are no main secondary species and **SG60 and SG80 are therefore met by default**. In the absence of a formal strategy for all minor species, **SG100 is not met**.

References

Logbook data, observer data (Section 7.2.2); Gascoigne et al. (2018)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	80
Condition number (if relevant)	N/a

7.5 Principle 3

As detailed in Section 4.3, Principle 3 was not reassessed under this scope extension. The French Polynesia fisheries management framework remains as described in the Public Certification Report for the initial assessment (Gascoigne et al., 2018) and the Year 1 surveillance report (Sieben and Daxboeck, 2020).

8 References

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9 Appendices

Appendix 1 Assessment information

Appendix 1.1 Previous assessments

The French Polynesia albacore and yellowfin longline fishery was certified on the 19th June 2018. The initial assessment team consisted of Dr Jo Gascoigne (Team Leader, Principle 1), Chrissie Sieben (Principle 2) and Dr. Charles Daxboeck (Principle 3). The initial assessment was conducted in accordance with the MSC Fisheries Certification Requirements v2.0. To date, the following assessment activities have taken place:

Assessment activity	Report publication	Team
Year 1 surveillance	March 2020	C. Sieben, C. Daxboeck
Expedited audit – Principle 1 (Eastern Pacific yellowfin)	October 2020	C. Sieben, J. Gascoigne
Year 2 surveillance	July 2021	C. Sieben, C. Daxboeck
Southwest Pacific swordfish scope extension	This report	C. Sieben, K. McLoughlin

An overview of pre-existing assessment conditions and recommendations is given in Table 18 and Table 19.

Table 18. Summary of pre-existing assessment conditions

Condition number	Condition	Performance Indicator (PI)	Year closed	Justification
1	South Pacific albacore 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 (SP ALB)	Open	N/a
2	South 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 (SP ALB)	Open	N/a
3	WCPO yellowfin 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 (WCPO YFT)	Open	N/a
4	WCPO yellowfin 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 (WCPO YFT)	Open	N/a
5	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.	2.3.1	Open	N/a
6	The client should provide evidence that all relevant national and regional regulations on fishery interactions with ETP species are adhered to by the UoA	2.3.2	Open	N/a

Condition number	Condition	Performance Indicator (PI)	Year closed	Justification
	so that it can be demonstrated that the fishery does not hinder recovery of ETP species.			
7	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.	2.3.3	Open	N/a
8	The client should ensure that short and long-term objectives, consistent with the outcomes expressed by MSC's Principles 1 and 2, are explicit within the French Polynesia management system. This may be done via the promulgation of a codified national fishery management plan, as proposed during the site visit, or by any other suitable means. The objectives should be responsive to amendments as needed to accommodate WCPFC CMMs, and take account of the general provisions of the Honolulu Convention (2000).	3.2.1	Open	N/a
9	At the Commission level, decision-making processes should respond to important issues, and specifically to the declining catch rates of South Pacific albacore, in a transparent, timely and adaptive manner. This could be done by implementing a formal harvest strategy, as set out in CMM 2014-06 and in Condition 1, or by some other means if appropriate.	3.2.2	Closed at Year 1	Based on the evidence presented at national and regional level, the team concluded that this PI should be re-scored, and this condition closed. See Appendix 8 in Sieben and Daxboeck (2020) for rescoring.
10	Evidence will be presented to the CAB that the tools used to implement HCRs for EPO yellowfin are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2	Closed during 2020 expedited audit	This PI was rescored during the P1 expedited audit for EPO yellowfin. See Appendix 5 in Sieben and Gascoigne (2020)

Condition number	Condition	Performance Indicator (PI)	Year closed	Justification
11	By the end of Year 2 of the second certification cycle, it should be demonstrated that 1) Eastern Pacific bigeye is highly likely to be above the PRI, <u>or</u> 2) there is evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise EPO BET as main, to ensure that they collectively do not hinder recovery and rebuilding.	2.1.1	Opened at Year 2	N/a

Table 19. Summary of pre-existing recommendations

Recommendation	Status
Although according to UoA import data, the fishery remains in conformity with the MSC standard, the team noted that no proactive approach is taken towards ensuring that the bait used by the UoA is sourced from sustainable fisheries. Sustainable fisheries in this context are meant to include fisheries with known stock status and associated management regimes, which are either determined to be above biologically based limits or if the species is below biologically based limits, 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.	Open

Appendix 1.2 Small-scale fisheries

To help identify small-scale fisheries in the MSC program, the CAB should complete the table below for each Unit of Assessment (UoA). For situations where it is difficult to determine exact percentages, the CAB may use approximations e.g., to the nearest 10%.

Unit of Assessment (UoA)	Percentage of vessels with length <15m	Percentage of fishing activity completed within 12 nautical miles of shore
All	0	0

Appendix 2 Evaluation processes and techniques

Appendix 2.1 Site visit

Due to the Covid-19 pandemic and the associated global travel restrictions in place, the MSC instated a derogation (26th February 2021) to ensure that site visits planned during the derogation period, could be held remotely. At the time of audit planning, measures in French Polynesia restricted all travels from/to the country to exceptional circumstances and a quarantine period of 14 days is requested to all incoming travellers (<https://tahititourisme.com/en-us/covid-19/> and:

<http://www.polynesiefrancaise.pref.gouv.fr/Actualites/Communiqués-de-presse/2020/Nouvelles-mesures-reglementairesapplicables-du-16-mars-2021-au-07-avril-2021-inclus>.

The site scope extension site visit was therefore held remotely on the 4th May 2021.

The individuals met during the remote meetings and their roles in the fishery are listed in Table 20. Stakeholders were notified about the assessment via a notifications posted on the MSC website on the 1st April 2021, as well as via direct email contact on the 1st April 2021.

The audit was carried out in accordance with the MSC Fisheries Certification Procedure v2.2 for procedure and the MSC Standard v2.01 for scoring.

Appendix 2.2 Stakeholder Participation

An overview of meetings and stakeholder submissions is given in Appendix 4. At this FdR stage, no written stakeholder submissions have been received.

Table 20. List of attendees at the remote meetings.

Name	Position	Type of consultation
Anne-Marie Trinh	Offshore Fisheries Project Coordinator	Provision of information during the site visit
Marie SOEHNLEN	Offshore Fisheries Project Manager, DRM	Provision of information during the site visit
Taiana RAOULX	Moana Nui Developpement	Provision of information during the site visit
Kevin McLoughlin	CU (UK)	Assessment team (off site)
Chrissie Sieben	CU (UK)	Assessment team (off site)

Appendix 2.3 Evaluation techniques

No public announcements were made, other than through the MSC website and MSC update emails, as well as through Control Union's fishery notifications (published on the MSC website) and emails to individual stakeholders.

The assessment was based on a review of publicly available data and documentation, and data, information and documentation provided by stakeholders prior to and during the site visit. Some information was also provided after the site visit. Where data analyses were carried out by the assessment team, this is indicated in the report. Data sources are explained in detail in Section 7.2.2 of this report.

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.

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.

The Risk-Based Framework was not used.

Appendix 3 Peer review reports

Appendix 3.1 Peer reviewer 1

General comments

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Is the scoring of the fishery consistent with the MSC standard, and clearly based on the evidence presented in the assessment report?	Yes	This report covers the scope extension of the MSC certified French Polynesia albacore and yellowfin longline fishery to also include Southwest Pacific swordfish (<i>Xiphias gladius</i>) as Principle 1 species. It also contains correctly the evaluation of P2 in term of primary and secondary species and does not consider P3. I would suggest providing more information in the background section about P1 (especially the chapter 6.3.5 does not provide information in respect to swordfish nor on data collection), also the rationales of P1 PIs should be more coherent with MSC standards (see PI comments). Finally, I suggest to take into account Table G2 of MSC Fisheries Standard v2.0 due to the clear evidence that uncertainty remains in relation to stock structure. The team should consider that information and uncertainties related to stock structure need to be scored in PIs 1.2.2, 1.2.3 and 1.2.4.	Information has been added to address the reviewer's comments and P1 issues are responded to against the specific PI comments.
Are the condition(s) raised appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCP v2.1, 7.18.1 and sub-clauses]	Yes	The report added 2 conditions, which are correctly in line with the previous ones about the other target species on HS and HCRs. The new conditions are drafted in a way that would reach SG 80 within the timeframe.	Thank you – no comment required.
Enhanced fisheries only: Does the report clearly evaluate any additional impacts that might arise from enhancement activities?		N/a	N/a

Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary)		<p>I would suggest the following changes to improve the quality of the report:</p> <ul style="list-style-type: none"> • add SWO in the glossary; • in Table 1 (pages 13-14 about GAP analysis) provide a justification directly related to P3 Fishery specific management system. In theory the swordfish fishery can have a completely different management system; • In table 5 and appendixes 5.13-14 justify the use of Exceptional circumstances for the new conditions; • in section 6.2.1 provide a map of the spatial distribution of fishing activities; • in section 6.2.3 it is not clear why the recommendation is not raised also for the present fishery. 	Thank you, these have all been added.

Performance indicator comments

UoA stock	UoA gear	PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
Swordfish	Longline	1.1.1	Yes	No (scoring implications unknown)	NA	In P1.1.1a it is not clear if the score of 100 is correct. The team correctly defines the PRI as 75% BMSY which should be around 13 kt. According to Table 13 the Median value of SB recent should be 28kt and its lower limit (Min) around 6 kt. According to SA2.2.1.3 high degree of certainty means greater than or equal to the 95th percentile. Therefore SG 100 should not be met. However, I would ask the team to provide the numeric outputs of such comparisons (also requests in "Current stock	The assessors note that the scoring and rationale is harmonised with the Australian Eastern Tuna and Billfish Fishery and conclude the reference levels presented are appropriate and support the current scoring. A minor addition to the text has been made to clarify the conclusion. For 1.1.1a, all sensitivity analysis outcomes are above the PRI.	Not accepted (no change)

UoA stock	UoA gear	PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
						status relative to reference point") to avoid misinterpretations.		
Swordfish	Longline	1.1.2	NA (PI not scored)	NA (PI not scored)	NA			NA (No response needed)
Swordfish	Longline	1.2.1	No (material score reduction expected to <60)	No (material score reduction expected to <60)	Yes	In 1.2.1a the team has to make clear reference both to the WCPFC measures and other measures implemented in the present country and other countries (e.g. Australia), if relevant, to better justify a 60 score.	There have been changes to the Australia swordfish fishery harvest strategy which make it less relevant than previously. Additional text has been included in the rationale to support the score.	Accepted (no score change, change to rationale)
Swordfish	Longline	1.2.2	No (material score reduction expected to <60)	No (material score reduction expected to <60)	Yes	In 1.2.2a the team states that the WCPFC has generally understood MSY management targets which imply that the PRI will be avoided. However, it is not clear what are the management arrangements in term of measures (e.g. temporal spatial closure, etc.) that are in place or would decrease exploitation if the stock goes close to PRI.	Additional text has been included in the rationale to support the score.	Accepted (no score change, additional evidence presented)
Swordfish	Longline	1.2.3	No (material score reduction expected to <80)	No (material score reduction expected to <80)	NA	In 1.2.3b the team has to provide evidence of the presence of monitoring of stock abundance from CPUE or surveys data. The present rationale is not reporting any kind of stock abundance series.	Additional text has been included in the rationale to support the score.	Accepted (no score change, additional evidence presented)
Swordfish	Longline	1.2.3	Yes	No (change to rationale expected, not to scoring)	NA	In 1.2.3c the team has to provide evidences of absence of IUU fishery and of availability of subsistence/recreational fisheries data.	Additional text has been included in the rationale to address this.	Accepted (no score change, change to rationale)

UoA stock	UoA gear	PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
Swordfish	Longline	1.2.4	Yes	Yes	NA	I agree with scoring and rationales.		NA (No response needed)
Swordfish	Longline	2.1.1	Yes	Yes	NA	I agree with scoring and rationales.	Thank you, no comment required.	NA (No response needed)
Swordfish	Longline	2.1.2	Yes	Yes	NA	I agree with scoring and rationales.	Thank you, no comment required.	NA (No response needed)
Swordfish	Longline	2.1.3	No (scoring implications unknown)	No (scoring implications unknown)	NA	In 2.1.3c the team has to make clear reference to what kind of information is available to support a partial strategy to manage main primary species.	This has been clarified; the scoring has not changed	Accepted (no score change, change to rationale)
Swordfish	Longline	2.2.1	Yes	Yes	NA	I agree with scoring and rationales.	Thank you, no comment required.	NA (No response needed)
Swordfish	Longline	2.2.2	Yes	Yes	NA	I agree with scoring and rationales.	Thank you, no comment required.	NA (No response needed)
Swordfish	Longline	2.2.3	Yes	Yes	NA	I agree with scoring and rationales.	Thank you, no comment required.	NA (No response needed)

Appendix 4 Stakeholder input

Appendix 4.1 Site visit meeting

Stakeholder	Date	Participants	CAB response required
DRM	04/05/2021	See Table 20	No
<p><u>Meeting summary</u></p> <p>The focus of this meeting was the provision of information for this assessment which is not repeated here. Where relevant, the information has been incorporated directly into the report and is referenced accordingly.</p> <p>Discussion points:</p> <ul style="list-style-type: none"> - Any relevant changes to fishing operations as it relates to swordfish; - Swordfish stock assessment - Verification of Principle 1 findings - EPO bigeye (demonstrably effective strategy between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding) - Bait use 			

No written stakeholder submissions were received during any of the ACDR, CRPDR or PCDR reporting stages.

Appendix 5 Conditions and Client Action Plan

Prior to this scope extension, there were 11 pre-existing conditions, two of which have been closed out. During this scope extension assessment, two additional conditions have been identified. An overview of all conditions with their corresponding action plans is given below.

Appendix 5.1 Condition 1 (Harvest strategy – South Pacific albacore)

Performance Indicator	1.2.1. There is a robust and precautionary harvest strategy in place
Score	70
Justification	<p>WCPFC sets out its intention to define a formal harvest strategy for each of its key stocks, including South Pacific albacore, in CMM 2014-06, which has an associated workplan. Meanwhile, the elements of the WCPFC harvest strategy which are actually in place are the following:</p> <ul style="list-style-type: none"> • Data collection on the stock and fishery • Stock assessment process • Limit reference point (explicit) and target reference point • Current harvest control rule (CMM 2015-02) and ‘available’ HCR • Monitoring of implementation of CMM 2015-02 via data gathering and Part 1 and 2 reports to the Commission • This management strategy is reviewed annually during the Commission meeting. <p>It is relevant to consider first of all what the objectives of the WCPFC harvest strategy are, particularly given that there is still no explicit target reference points (despite the fact that this was scheduled to be decided in 2016 under the workplan for CMM 2014-06).</p> <p>There are two sources of objectives:</p> <ul style="list-style-type: none"> • Objectives associated with the (currently still implicit) TRP options. These would be those associated with F_{MSY} (from the stock assessment), MEY (see Pilling et al., 2015) and/or $45\%SB_{F=0}$ (as proposed by FFA to WCPFC13 and intended to be used as the basis for the management provisions under the Tokelau Arrangement); • Objectives associated with CMM 2015-02: this is not clearly expressed in the CMM, but the explicit objective can be assumed to be (as per paragraph 1) no increase in the number of fishing vessels actively fishing for South Pacific albacore south of 20°S over current or recent historic levels. <p>The most recent biomass estimate is $\sim 40\%SB_{F=0}$, which is above SB_{MSY} (see 1.1.1b), with F at $39\%F_{MSY}$. Hence if the target is taken to be purely biological (i.e. MSY reference points), then it is being exceeded, by a wide margin. However, biomass is below the bio-economic reference point put forward by the FFA and the Tokelau Arrangement countries (see WCPFC13 report), and well below MEY (which at current albacore prices, implies a target $\gg 50\%SB_{F=0}$; Pilling et al., 2015). Hence bio-economic targets are not being met. Furthermore, the projections in SC12-SA-WP-06 (Pilling et al., 2016a) show that if the fishery continues with current (2014) effort, the biomass is predicted to decline, with a 19% probability of falling below the agreed LRP by 2033. Hence, from a purely biological point of view, the harvest strategy has not been tested as yet, but will be tested in the relatively near future. From an economic point of view, the harvest strategy is clearly failing, but this is not</p>

	<p>within the remit of MSC (although it is considered in relation to WCPFC's decision-making processes – see PI 3.2.2).</p> <p>Fishing effort on albacore has increased considerably over the last few years, however, particularly above 20°S, where there is no CMM in place. It does, however, appear to have stabilised since 2010 (when the first CMM for SPA was put in place), albeit at a relatively high level compared to historical catches. On this basis, it is reasonable to argue that the WCPFC harvest strategy has not been 100 % successful in stabilising the fishing impact on the stock, but it has most likely had some effect in slowing the increase in fishing mortality. It is also worth noting that the longline fishery targets albacore above the size at maturity, so is impacting potential recruitment, even at high exploitation rates, less than, say, the purse seine bigeye fishery (this is the reason why estimates of SB_{MSY} are low relative to $SB_{F=0}$). In addition, the Tokelau Arrangement, once implemented, will provide a more clearly-defined harvest strategy, at least within participant EEZs.</p> <p>On this basis, the team felt that SG60 is met in relation to the regional harvest strategy ('expected to achieve' objectives associated with stock status), but cannot for the moment be argued to be 'responsive to the state of the stock' as required by SG80.</p>
Condition	South Pacific albacore 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.
Condition Start	Date of certification
Condition Deadline	June 2023 (see below)
Milestones	<p>The milestones were originally aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017) (Attachment L) which set the deadline to Dec 2021 as per the MSC-approved CAB-wide variation request (MegVar). Following the two Covid-19 derogations issued by MSC in March 2020 and March 2021, this deadline has been extended to June 2023. The revised milestones are as follows:</p> <p>2020 – 2022: The client will provide evidence that it is actively working to ensure that the harvest strategy for South Pacific albacore is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80. 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.</p> <p>June 2023: Harvest strategy is in place. (Score: 80)</p>
Client Action Plan	<p>The action plan was revised following the realignment of milestones in 2021: DRM, which is the Marine resources authority of French polynesia, representing French Polynesia's government at RFMO meetings, will be proactive and coordinate during WCPFC meetings with other CCMs who have fisheries with the same MSC conditions, MSC and other stakeholders in order to get the plenary discussions focused on relevant harvest strategy matters and to obtain the appropriate progress in the commission's work.</p> <p>DRM will also make statements at WCPFC meetings, whether they are virtual or in person, to push harvest strategy matters forward and make sure the Commission's progress stays aligned with the given milestones. Especially, DRM will try her best to convince other delegations to WCPFC to take a strong public position on</p>

	<p>advancing harvest strategies, and will underscore to WCPFC that the MSC has established hard deadlines for P1 conditions for certified tuna fisheries, which for WCPO South Pacific albacore HCRs is by June 2023, and that if these deadlines are not met, the corresponding WCPO South Pacific albacore MSC certifications will be suspended. DRM at WCPFC will also support establishing a scientist/manager dialogue group that will hold its first meeting in 2022.</p> <p>DRM will also support technical work of WCPFC/SPC, as well as capacity workshops on Management Strategy Evaluation (MSE) in the WCPO region so as to increase the leverage of WCPFC members for the discussion and adoption of robust Harvest Strategies.</p> <p>DRM will as much as possible participate in meetings of the Tuna MSC alignment group and meetings of the SPA roadmap working group.</p> <p>DRM will encourage the industry to participate in any industry groups in support of a HS for SPA as applicable. DRM will for example encourage the industry to engage in direct RFMO advocacy tactics to demonstrate market support for specific tuna sustainability asks. For example, industry could publicly support the high-level appeals for RFMOs developed by global NGOs, that are participants in the NGO Tuna Forum or other organizations.</p> <p>At the MSC annual surveillance audit in 2022, information will be provided to the CAB regarding the actions taken by DRM and other relevant parties during the year, to achieve a harvest strategy which is responsive to the state of the stock at the WCPFC level, and that the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.</p> <p>At the MSC annual surveillance audit and re-certification audit in 2023, evidence that the harvest strategy is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving the required objectives, will be provided to the CAB.</p>
Consultation condition	on DRM support for implementation of the action plan was evidenced through a letter of support, provided in the Public Certification Report, and reconfirmed to the assessment team during the Year 1 surveillance audit.
Progress Status	The condition deadline has been extended to June 2023. This condition is on target as per the Year 2 surveillance audit.

Appendix 5.2 Condition 2 (Harvest control rules – South Pacific albacore)

Performance Indicator	1.2.2. There are well defined and effective harvest control rules (HCRs) in place
Score	60
Justification	<p>Following SA2.5, a HCR may be considered to be 'available' and 'expected to reduce the exploitation rate as the PRI is approached' at SG60 if i) 'stock biomass has not previously been reduced below BMSY or has been maintained at that level for a recent period of time' (SA2.5.2a) and ii) 'there is an agreement or framework in place that requires the management body to adopt HCRs before the stock declines below BMSY' (SA2.5.3b).</p> <p>The first requirement is met as described in PI 1.1.1. The second requirement is met by CMM 2014-06 and associated workplan. Although the key workplan milestones</p>

	<p>for SPA for 2016 (WCPFC13) (agree acceptable levels of risk of falling below the LRP and agree a TRP) were not met, the reports of both SC12 and WCPFC13 show that there was a strong attempt to meet them. The workplan has been revised and it has been agreed in this new workplan that a TRP will be agreed for SPA for by 2017 'at the latest'. For the moment, the assessment team (and other CABs for relevant fisheries) agreed to continue taking WCPFC's plan to put in place a well-defined HCR for SPA at face value – although this obviously cannot continue indefinitely unless concrete progress is made. SG60 is met but SG80 is not met.</p> <p>Because the HCR is scored in scoring issue a as 'available' rather than 'well-defined', scoring issues b and c cannot be met at the SG80 level.</p>
Condition	<p>South 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.</p>
Condition Start	Date of certification
Condition Deadline	June 2023 (see below)
Milestones	<p>The milestones were originally aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017) (Attachment L) which set the deadline to Dec 2021 as per the MSC-approved CAB-wide variation request (MegVar). Following the two Covid-19 derogations issued by MSC in March 2020 and March 2021, this deadline has been extended to June 2023. The revised milestones are as follows:</p> <p>2020 – 2022: The client will provide evidence that it is actively working to ensure that a well-defined regional-level harvest control rule is put in place, with associated management actions (in the form of a CMM or another form as appropriate) which together act effectively to reduce exploitation rates as the point of recruitment impairment is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the harvest control rule should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important). The evidence provided 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 60.</p> <p>June 2023: The client will provide evidence that a well-defined regional-level harvest control rule is in place, with associated management actions (in the form of a CMM or another form as appropriate) which together act effectively to reduce exploitation rates as the point of recruitment impairment is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the harvest control rule should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important). Score 80.</p>
Client Action Plan	<p>The action plan was revised following the realignment of milestones in 2021: This client action plan (condition 2) is closely linked to the previous one (for condition1).</p> <p>DRM will be proactive and coordinate during WCPFC meetings with other CCMs who have fisheries with the same MSC conditions as DRM, MSC and other stakeholders in order to get the plenary discussions focused on relevant HCR matters and to obtain the appropriate progress in the commission's work.</p>

		<p>DRM will also make statements at WCPFC meetings, whether they are virtual or in person, to push HCR matters forward and make sure the Commission's progress stays aligned with the given milestones.</p> <p>Especially, DRM will try her best to convince other delegations to WCPFC to take a strong public position on advancing harvest strategies and harvest control rules, and will underscore to WCPFC that the MSC has established hard deadlines for P1 conditions for certified tuna fisheries, which for WCPO South Pacific albacore HCRs is by June 2023, and that if these deadlines are not met, the corresponding WCPO South Pacific albacore MSC certifications will be suspended. DRM at WCPFC will also support establishing a scientist/manager dialogue group that will hold its first meeting in 2022.</p> <p>DRM will also support technical work of WCPFC/SPC, as well as capacity workshops on Management Strategy Evaluation (MSE) in the WCPO region so as to increase the leverage of WCPFC members for the discussion and adoption of robust Harvest Strategies.</p> <p>DRM will as much as possible participate in meetings of the Tuna MSC alignment group and meetings of the SPA roadmap WG.</p> <p>DRM will encourage the industry to participate in any industry groups in support of relevant HCR for SPA as applicable. DRM will for example encourage the industry to engage in direct RFMO advocacy tactics to demonstrate market support for specific tuna sustainability asks. For example, industry could publicly support the high-level appeals for RFMOs developed by global NGOs, that are participants in the NGO Tuna Forum or other organizations.</p> <p>At the MSC annual surveillance audit in 2022, information will be provided to the CAB regarding the actions taken by DRM and other relevant parties during the year, to achieve a well-defined regional-level HCR, with the required components.</p> <p>At the MSC annual surveillance audit and re-certification audit in 2023, DRM will bring evidence that a well-defined regional level HCR is set, with associated management actions (in the form of a CMM or another form as appropriate) which together act effectively to reduce exploitation rates as the PRI is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the HCR should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important). This position was reiterated by France (EU), who stated the stock is very important, as highlighted by French Polynesia and New Caledonia, and looked forward to the adoption of a new CMM in 2021.</p>
Consultation condition	on	DRM support for implementation of the action plan was evidenced through a letter of support, provided in the Public Certification Report, and reconfirmed to the assessment team during the Year 1 surveillance audit.
Progress Status		The condition deadline has been extended to June 2023. This condition is on target as per the Year 2 surveillance audit.

Appendix 5.3 Condition 3 (Harvest strategy – Western Central Pacific yellowfin)

Performance Indicator	1.2.1. There is a robust and precautionary harvest strategy in place
Score	70
Justification	<p>The stated objective of the WCPFC harvest strategy (as defined in the target reference point given in CMMs 2015-01 and 2016-01) is to maintain the stock at the MSY level. CMM 2014-06 commits WCPFC to developing a formal harvest strategy for yellowfin and the other key stocks; none of the milestones for yellowfin have yet been met, however (see 2014-06 workplan and summary report from WCPFC13). For the moment, the elements of the WCPFC harvest strategy are the following:</p> <ul style="list-style-type: none"> • Data collection on the stock and fishery • Stock assessment process • Limit reference point (explicit) and target reference point (provisional – from CMM 2015-01 and 2016-01) (F_{MSY}) • Current harvest control rule (CMM 2016-01) and ‘available’ HCR (s • Monitoring of implementation of CMM 2015/2016-01 via data gathering and Part 1 and 2 reports to the Commission • This management strategy is reviewed annually during the Commission meeting. <p>Given that the stock status of WCPO yellowfin is healthy, as it has been since stock assessments started, the efficacy of the harvest strategy for yellowfin has not been tested. The most recent stock assessment suggests that catches are approximately at MSY level, such that in the long run, this level of fishing mortality would result in biomass declining to \simMSY levels, which is the current (implicit) target biomass (via F_{MSY} as set out in CMMs 2015-01 and 2016-01).</p> <p>Fishing effort on yellowfin has increased more or less continuously over the last few decades. Since 2000, catches have stabilised at just over 500,000 t. Overall, the fishery is achieving stock management objectives (reference points), since F is estimated to be $<F_{MSY}$ with $\sim 95\%$ confidence, although it is not clear how much the harvest strategy implemented by WCPFC has to do with this. On this basis, the team felt that SG60 is met.</p> <p>It is impossible to evaluate in detail what WCPFC might do in the future, should yellowfin stock status decline to target levels or below. CMM 2014-06 provides for the development of a harvest strategy, but is somewhat vague on the management measures to be put in place in order to be confident of maintaining stock biomass at the target level; progress by WCPFC to date on the implementation of the 2014-06 workplan has been disappointing (see WCPFC13 summary report).</p> <p>PNA harvest strategy:</p> <p>PNA operate a 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 focus of the scheme is, however, skipjack rather than yellowfin. For skipjack, fishing effort in 2010 is suggested as a proxy reference point for $50\%SB_{F=0}$ (VDSTSC3 Working Paper 1a), but this reference point is not apparently applied to yellowfin. Nevertheless, the document shows that the stock status of yellowfin is taken into account in setting the TAE. The PNA harvest strategy applies to \simhalf the total catch of the stock.</p> <p>Overall scoring:</p>

	<p>Overall, given the following points, the team considered that SG60 is met:</p> <ul style="list-style-type: none"> • The stock status is good, and status quo projections suggest that it will remain above the MSY level (Pilling et al. 2016d) • A combination of WCPFC and PNA harvest strategies are able to limit effort to an appropriate level • WCPFC and PNA are able to be at least somewhat responsive to the status of the stocks (cf bigeye) • An HCR can be argued to be 'available' – see 1.2.2. <p>The team concluded, however, that SG80 is not met, because the harvest strategy is insufficiently responsive to the status of the stock. The team were not confident based on past or current form that, should yellowfin stock status be revealed at the next stock assessment to be approaching or below target levels, WCPFC and/or PNA would be able to stabilise or decrease fishing mortality in a fully effective and timely way under the existing harvest strategy.</p>
Condition	WCPO yellowfin 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.
Condition Start	Date of certification
Condition Deadline	June 2023 (see below)
Milestones	<p>The milestones were originally aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017) (Attachment L) which set the deadline to Dec 2021 as per the MSC-approved CAB-wide variation request (MegVar). Following the two Covid-19 derogations issued by MSC in March 2020 and March 2021, this deadline has been extended to June 2023. The revised milestones are as follows:</p> <p>2020 – 2022: The client will provide evidence that it is actively working to ensure that the harvest strategy for Western Central Pacific yellowfin is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80. 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.</p> <p>June 2023: The client will provide evidence that the harvest strategy is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving management objectives reflected in PI 1.1.1 SG80. Score 80.</p>
Client Action Plan	<p>The action plan was revised following the realignment of milestones in 2021: DRM will be proactive and coordinate during WCPFC meetings with other CCMs who have fisheries with the same MSC conditions as DRM, MSC and other stakeholders in order to get the plenary discussions focused on relevant harvest strategy matters and to obtain the appropriate progress in the commission's work.</p> <p>DRM will also make statements at WCPFC meetings, whether they are virtual or in person, to push harvest strategy matters forward and make sure the Commission's progress stays aligned with the given milestones. Especially, DRM will try her best to convince other delegations to WCPFC to take a strong public position on advancing harvest strategies, and will underscore to WCPFC that the MSC has established hard deadlines for P1 conditions for certified tuna fisheries, which for WCPO YFT HCRs is by June 2023, and that if these deadlines are not met, the corresponding WCPO YFT</p>

	<p>MSC certifications will be suspended. DRM at WCPFC will also support establishing a scientist/manager dialogue group that will hold its first meeting in 2022.</p> <p>DRM will also support technical work of WCPFC/SPC, as well as capacity workshops on Management Strategy Evaluation (MSE) in the WCPO region so as to increase the leverage of WCPFC members for the discussion and adoption of robust Harvest Strategies.</p> <p>DRM will as much as possible participate in meetings of the Tuna MSC alignment group and any other meeting that would happen on the subject.</p> <p>DRM will encourage the industry to participate in any industry groups in support of a HS for WCPO YFT as applicable. DRM will for example encourage the industry to engage in direct RFMO advocacy tactics to demonstrate market support for specific tuna sustainability asks. For example, industry could publicly support the high-level appeals for RFMOs developed by global NGOs, that are participants in the NGO Tuna Forum or other organizations.</p> <p>At the MSC annual surveillance audit in 2022, information will be provided to the CAB regarding the actions taken by DRM and other relevant parties during the year, to achieve a harvest strategy which is responsive to the state of the stock at the WCPFC level, and that the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.</p> <p>At the MSC annual surveillance audit and re-certification audit in 2023, evidence that the harvest strategy is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving the required objectives, will be provided to the CAB.</p>
Consultation on condition	DRM support for implementation of the action plan was evidenced through a letter of support, provided in the Public Certification Report, and reconfirmed to the assessment team during the Year 1 surveillance audit.
Progress Status	The condition deadline has been extended to June 2023. This condition is on target as per the Year 2 surveillance audit.

Appendix 5.4 Condition 4 (Harvest control rules – Western Central Pacific yellowfin)

Performance Indicator	1.2.2. There are well defined and effective harvest control rules (HCRs) in place
Score	60
Justification	<p>For the WCPFC harvest strategy, the harvest control rule is set out in CMM 15-01 (WPCO bigeye, yellowfin and skipjack). For PNA, the harvest control rule is to adjust the TAE to maintain 'optimal exploitation' (assumed to be likewise a proxy for F_{MSY}).</p> <p>In practice, because yellowfin stock status is good (target F being achieved with ~90% probability, as noted above), and has always been good (meeting the requirements of SA2.5.2a), limits on the fishery have not really been required up till now.</p> <p>CMM 14-06 (described in 1.2.1a above) requires WCPFC to adopt a HCR for this stock, with an associated workplan. Status quo projections suggest that the stock will remain above B_{MSY} over this time period (Pilling et al., 2016d). Therefore, the requirements of SA2.5.3b are met.</p>

	<p>The team concluded on this basis that responsive HCRs are ‘available’ at WCPFC. In addition, the combined impact of CMM 15-01 and the PNA vessel day scheme imply that the existing HCRs, although somewhat weak, are somewhat responsive to the status of the stock. On this basis, SG60 is met for WCPO yellowfin.</p> <p>The team did not consider, however, that this approach could be described as ‘well-defined’ pre-agreed rules, nor can it be said to ‘ensure’ that the exploitation rate is reduced. SG60 is met, but SG80 is not.</p> <p>Because the HCR is scored in scoring issue a as ‘available’ rather than ‘well-defined’, scoring issues b and c cannot be met at the SG80 level.</p>
Condition	WCPO yellowfin 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.
Condition Start	Date of certification
Condition Deadline	June 2023 (see below)
Milestones	<p>The milestones were originally aligned with the latest iteration of the WCPFC harvest strategy WCPFC (2017) (Attachment L) which set the deadline to Dec 2021 as per the MSC-approved CAB-wide variation request (MegVar). Following the two Covid-19 derogations issued by MSC in March 2020 and March 2021, this deadline has been extended to June 2023. The revised milestones are as follows:</p> <p>2020 – 2022: The client will provide evidence that it is actively working to ensure that a well-defined regional-level harvest control rule is put in place, with associated management actions (in the form of a CMM or another form as appropriate) which together act effectively to reduce exploitation rates as the point of recruitment impairment is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the harvest control rule should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important). The evidence provided 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 60.</p> <p>June 2023: The client will provide evidence that a well-defined regional-level harvest control rule is in place, with associated management actions (in the form of a CMM or another form as appropriate) which together act effectively to reduce exploitation rates as the point of recruitment impairment is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the harvest control rule should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important). Score 80.</p>
Client Action Plan	<p>The action plan was revised following the realignment of milestones in 2021: This client action plan (condition 4) is closely linked to the previous one (for condition3).</p> <p>DRM will be proactive and coordinate during WCPFC meetings with other CCMs who have fisheries with the same MSC conditions as DRM, MSC and other stakeholders in order to get the plenary discussions focused on relevant HCR matters and to obtain the appropriate progress in the commission’s work.</p>

	<p>DRM will also make statements at WCPFC meetings, whether they are virtual or in person, to push HCR matters forward and make sure the Commission's progress stays aligned with the given milestones. Especially, DRM will try her best to convince other delegations to WCPFC to take a strong public position on advancing harvest strategies, and will underscore to WCPFC that the MSC has established hard deadlines for P1 conditions for certified tuna fisheries, which for WCPO YFT HCRs is by June 2023, and that if these deadlines are not met, the corresponding WCPO YFT MSC certifications will be suspended. DRM at WCPFC will also support establishing a scientist/manager dialogue group that will hold its first meeting in 2022.</p> <p>DRM will also support technical work of WCPFC/SPC, as well as capacity workshops on Management Strategy Evaluation (MSE) in the WCPO region so as to increase the leverage of WCPFC members for the discussion and adoption of robust Harvest Strategies.</p> <p>DRM will as much as possible participate in meetings of the Tuna MSC alignment group and any other meeting that would happen on the subject.</p> <p>DRM will encourage the industry to participate in any industry groups in support of relevant HCR for WCPO YFT as applicable. DRM will for example encourage the industry to engage in direct RFMO advocacy tactics to demonstrate market support for specific tuna sustainability asks. For example, industry could publicly support the high-level appeals for RFMOs developed by global NGOs, that are participants in the NGO Tuna Forum or other organizations.</p> <p>At the MSC annual surveillance audit in 2022, information will be provided to the CAB regarding the actions taken by DRM and other relevant parties during the year, to achieve a well-defined regional-level HCR, with the required components.</p> <p>At the MSC annual surveillance audit and re-certification audit in 2023, DRM will bring evidence that a well-defined regional level HCR is set, with associated management actions (in the form of a CMM or another form as appropriate) which together act effectively to reduce exploitation rates as the PRI is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the HCR should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important).</p>
Consultation on condition	DRM support for implementation of the action plan was evidenced through a letter of support, provided in the Public Certification Report, and reconfirmed to the assessment team during the Year 1 surveillance audit.
Progress Status	The condition deadline has been extended to June 2023. This condition is on target as per the Year 2 surveillance audit.

Appendix 5.5 Condition 5 (ETP species outcome)

Performance Indicator	2.3.1 ETP species outcome
Score	75
Justification	<p>Scoring issue b (SG80): Known direct effects of the UoA are highly likely to not hinder recovery of ETP species.</p> <p>Turtles: Recorded impact on turtles (from observer reports) are one each for four species: green, hawksbill, leatherback and loggerhead, over the three years of</p>

	<p>observer data, scaling up to approximately to 10 interactions per year (all species combined) but with low percentages of observer information there is uncertainty in the precision of this scaled value. No analysis has been done for this fishery on the potential impact of turtle bycatch. However, at least two Regional Management Units (RMUs – loggerhead (recorded in bycatch) and olive ridley (no records) overlap with the French Polynesia EEZ and are considered to be at high risk from bycatch in longlines.</p> <p>The US government (NOAA-Fisheries) have done an analysis for the American Samoa longline fishery, which has a similar bycatch profile (although with fewer species of shark). They estimate that 10 interactions with green turtles corresponds to 0.05 mortalities on adult nesting females (because interactions occur almost exclusively with juveniles). Green turtles in French Polynesia most likely come from the central South Pacific population segment (the smallest), and on that basis, this would correspond to an impact of 0.0017 % of adult nesting females per year. Similarly, the analysis concludes that the impact on the leatherback population (SW Pacific) is ~0.0001 % per year and the hawksbill population (Oceania) and the loggerhead population (South Pacific) is ~0.001 %. On this basis, NOAA concluded that American Samoa is meeting its obligations under the US Endangered Species Act. (These analyses are worked out based on a figure of 10 interactions / year for each species.)</p> <p>A key part of this analysis hinges on the fact that all the turtles caught are juveniles (hence natural mortality is applied to work out the mortality per nesting female associated with one juvenile mortality). This is known in American Samoa from observer data, but is an assumption here. It is reasonable for leatherback, loggerheads and hawksbills, which do not nest in French Polynesia, but may not always apply for green turtles, because there is regular or punctual nesting recorded for Bora Bora, Maiao, Maupiti, Scilly (classed as a turtle reserve since 1992) and Bellinghausen in the Society Islands Archipelago, as well as on Tikehau and Mataiva in the Tuamotu Islands (www.temanaotemoana.org). Of all of the islands and atolls surveyed in French Polynesia 41 % (57 in total) have been identified as potential green turtle nesting sites. If the fishery takes nesting-age females, the impact will be more serious. If all interactions are with adult females, the impact on the central South Pacific population would be 0.3 % per year, but the impact on local nesting populations could be higher. A survey of nesting at Tetiaroa, however, suggests that the population is stable or increasing.</p> <p>On this basis, it is not known whether the direct effects of the UoA are highly likely to not hinder recovery of ETP species therefore SG80 is not met.</p> <p>Birds: It is difficult to evaluate bird interactions in detail, because they are not always identified to species in the observer reports. However, given the low level of interactions and generally the low level of fishing pressure over a very large area (5,000,000 km²; 118 islands of which 51 are uninhabited), the team has some confidence that impacts are likely to be small – SG60 is therefore met for seabirds. There are, however, some petrel species on the French Polynesia red list (IUCN, 2015). Given that most of the interactions are with unidentified petrels, there is no high level of confidence, that populations are not hindered. The lack of identification to species level and observer coverage lower than CMM requirements (5 %) (CMM 2007-01, point 6) means there is low certainty of the scale of the fishery's impact. Improved data collection and higher observer coverage would be required for SG80 to be met.</p>
Condition	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be

	measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.
Condition Start	Date of certification.
Condition Deadline	End of Year 4 (December 2023)
Milestones	<p>Year 1: Evaluate current data collection strategy and identify areas of improvement. Develop improved data collection plan; this can be through increased observer coverage, improved self-reporting or through some other measure as appropriate (Score: 75).</p> <p>Year 2: Demonstrate new data collection plan has been implemented. (Score: 75).</p> <p>Year 3: Continued data collection. Data analysis and 'put additional management measures in place if analysis suggest this is necessary (Score: 75).</p> <p>Year 4: Data analysis results show that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species. (Score: 80)</p>
Client Action Plan	<p>To ensure that the UoA meets national and international requirements for the protection of ETP species and that direct effects of the UoA are highly likely to not hinder recovery of ETP species, the client will:</p> <p>Year 1 to 4: From year 1 onwards, French Polynesia will rely on a combination of self-reporting and increased observer coverage.</p> <ul style="list-style-type: none"> - For observer coverage issues, French Polynesia will make sure the observer coverage rate reaches a minimum of 5%. Solve the administrative and budget problems that prevent the observer program being truly effective. - For identification problems with birds, we will improve the quality of the data the following way : <p>Year 1:</p> <ol style="list-style-type: none"> 1. Improve regional logsheets by including a box for “birds interactions” and “turtles interactions”, so the captain can mention those interactions when they occur and the DRMM can start inputting the data in Tufman. 2. E-reporting will start being implemented: at least 20 vessels will be equipped with tablets. E-reporting will help customize the regional logsheets for country-specific data collection requests, such as interactions with ETP species. 3. Have a training by Manu for observers (and maybe captains and crew) on seabird identification (species present in French Polynesia and migratory seabirds that are transiting the area of French Polynesia) and on proper data collection (the way to take proper pictures to identify a bird etc). The pictures will be sent to seabirds experts either in real time or after trip completion. As Manu is already part of a bird expert network, pictures will be sent to Manu first, and Manu will be in charge of forwarding them to the appropriate experts, for expert identification. 4. The “white paper”, concerning the fishery development strategy for the next 10 years, will be submitted to the French Polynesia’s Assembly. It contains

	<p>an item (item #1) that consists of “improving the data collection on the fishery and improve the scientific knowledge through a shared expertise”. This action being sealed in this strategic document, it helps to secure its implementation on the long term. This action deals inter alia with keeping a minimum of 5 % observer coverage.</p> <p>Year 2:</p> <ol style="list-style-type: none"> 1. DRMM keeps on inputting in Tufman the self reporting data on interactions with birds and turtles from the logsheets and measure the level of interaction. Compare it to the level of interaction from observer logbooks. 2. If the first wide E-reporting test of year 1 is successful, E-reporting will be further spread to 20 more vessels. E-reporting will help customize the regional logsheets for country-specific data collection requests, such as interactions with ETP species. 5. Have a training by Manu for observers, captains and crew on seabird identification (species present in French Polynesia and migratory seabirds that are transiting the area of French Polynesia) and on proper data collection (the way to take proper pictures to identify a bird etc). The pictures will be sent to seabirds experts either in real time or after trip completion. As Manu is already part of a bird expert network, pictures will be sent to Manu first, and Manu will be in charge of forwarding them to the appropriate experts, for expert identification. 3. Implement a project with the observer program and Manu to make a seabird identification guide book for observers and fishermen (captains and crew), based on the actual French Polynesia’s seabird atlas 4. Work with SPC to develop more details on the observer guidebook regarding bird identification (optional, because the guide book is regional) 5. Implementation of the adopted “white paper”. The item above-mentioned (#1) is implemented, starting by building a roadmap to comply with the 5 % observer coverage objective including solving on the long term the administrative and budget matters. 6. Build a management measure concerning the interactions with ETP species, in the framework of the “EEZ-wide AMG”, including for example trigger points or additional mitigation measures if needed. <p>Year 3:</p> <ol style="list-style-type: none"> 1. DRMM keeps on inputting in Tufman the self reporting data on interactions with birds and turtles from the logsheets and measure the level of interaction. Compare it to the level of interaction from observer logbooks. Both logsheet and logbooks data can now start being compared with year one. 2. If the two first wide E-reporting tests are successful, E-reporting will be further spread to 20 more vessels. E-reporting will help customize the regional logsheets for country specific data collection request, such as interactions with ETP species. 3. Have a training by Manu for observers, captains and crew on seabird identification (species present in French Polynesia and migratory seabirds that are transiting the area of French Polynesia) and on proper data collection (the way to take proper pictures to identify a bird etc). The pictures will be sent to seabirds experts either in real time or after trip
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	<p>completion. As Manu is already part of a bird expert network, pictures will be sent to Manu first, and Manu will be in charge of forwarding them to the appropriate experts, for expert identification.</p> <ol style="list-style-type: none"> Manu will train the observer program so that for the following years, the program can train the captains and crew alone in seabird identification. Manu will also monitor the identification made by the observers, captains and crew to judge the level of confidence within the identification of these species, in order to improve it. Finalize the project with the observer program and Manu to make a seabird identification guide book for observers and fishermen (captains and crew) and circulate it. If the data are already available and strong enough, start analyzing the data collected since year 1, aiming at describing and measuring the impact of longline on seabirds in French Polynesia. Implementation of the adopted “white paper”. The item above-mentioned is implemented (#1), the roadmap to comply with the 5 % observer coverage objective is being implemented. Implement the new management measure concerning the interactions with ETP species, in the framework of the “EEZ-wide AMG”. <p>Year 4:</p> <ol style="list-style-type: none"> DRMM keeps on inputting in Tufman the self reporting data on interactions with birds and turtles from the logsheets and measure the level of interaction. Compare it to the level of interaction from observer logbooks. Both logsheet and logbooks data are compared with the previous years. We can eventually start seeing any trends in interactions. Once a year from year 4 onwards, the DRMM/observer program will provide training to fishermen and observers on seabird identification for both migratory species transiting the area and French Polynesia’ species at least on an annual basis. The DRMM/observer program will also keep circulating the identification guidebook throughout the years and monitor the identifications made to make sure they are reliable. When needed, Manu will provide help for training, identification, monitoring and networking with seabird experts. Analyze the bird interaction data collected since year 1, aiming at describing and measuring the impact of longline on seabirds in French Polynesia. <p>Implement the management measure concerning the interactions with ETP species, in the framework of the “EEZ-wide AMG” and assessment of its effectiveness. Re-adjustment if necessary to ensure ETP management strategy is adequate to ensure direct effects of the UoA are highly likely to not hinder the recovery of ETP species.</p>
Consultation on condition	French Polynesian Bird Association (<i>Manu</i>) to provide training to fishers and observers on bird identification, monitor it and participate in a project to make a seabird identification guidebook for species present in French Polynesia, intended for fishers and observers.
Progress Status	Progress against this condition is on target as per the Year 2 surveillance audit.

Appendix 5.6 Condition 6 (ETP species management)

Performance Indicator	2.3.2 ETP species management
Score	75
Justification	<p>Scoring issue d (SG80): There is some evidence that the measures/strategies are being implemented successfully.</p> <p>All ETP species: during site visit interviews with a wide range of stakeholders, non-compliance with the French Polynesian Environmental Code (Code de l'Environnement - Ministerial Ordinance N° 466 CM 2018), which declares the French Polynesia EEZ as a shark, whale and sea turtle sanctuary) was not a cause for concern in this fishery. The DRM equally reported no issues with non-compliance in relation to the Code de l'Environnement. Overall, whilst there is no evidence that the measures described in Sla are not being implemented successfully, the observer coverage in this fishery is currently too low to provide evidence that this is indeed the case.</p> <p>During the site visit, some specific issues on implementation of ETP management came to light:</p> <ul style="list-style-type: none"> - Implementation of CMM 2008-03 point 6 '...shall ensure that the operators of all such longline vessels carry and use line cutters and de-hookers to handle and promptly release sea turtles caught or entangled promptly release sea turtles caught or entangled...' does not appear to be consistently adhered to. - The evidence of interaction rate comes from observer data, and current observer rates are below those required by CMM requirements (5 %) (CMM 2007-01, point 6). - For some species (birds) identification is a problem; it is not possible to say, for example, whether the fishery interacts with the petrel species which are protected. <p>On the basis of the above points the measures/strategies are not being implemented successfully, SG60 is met but SG80 is not met.</p>
Condition	The client should provide evidence that all relevant national and regional regulations on fishery interactions with ETP species are adhered to by the UoA so that it can be demonstrated that the fishery does not hinder recovery of ETP species.
Condition Start	Date of certification
Condition Deadline	December 2023 (note: extended by one year following MSC derogation)
Milestones	<p>Year 2: Identify short-comings at fleet level in the implementation of relevant national and regional regulations in relation to ETP species. Identify short-comings at DRM to ensure compliance with CMMs, particularly in relation to observer coverage (CMM 2007-01). (Score: 75)</p> <p>Year 3: Put in place measures to ensure implementation of relevant national and regional regulations in relation to ETP species at fleet and DRM level. (Score: 75)</p> <p>Year 4: Demonstrate that all relevant national and regional regulations on fishery interactions with ETP species are adhered to by the UoA. (Score: 80).</p>

Client Action Plan	<p>To ensure that all relevant national and regional regulations on fishery interactions with ETP species are adhered to by the UoA so that it can be demonstrated that the fishery does not hinder recovery of ETP species, the client will:</p> <p>From Year 3 (2022) onwards : Make sure the observer coverage rate reaches a minimum of 5% and once a year, provide the training mentioned below (*).</p> <p>Year 3 (2022):</p> <ol style="list-style-type: none"> 1. The DRM will inform the fishermen and other stakeholders about the need to incorporate these CMM in new local rules and explain what they consist of (for example : obligation to have on board and use line cutters, de –hookers) 2. The DRM will make sure fishermen and other stakeholders implement the new measures : <ol style="list-style-type: none"> a. help them to get the necessary equipment on board, b. have information sessions/trainings on good practices for handling ETP species and applicable regulations by the DRM/observer program* c. seek support from SPC or others to provide documentation on a regular basis (posters, flyers on good practices etc), secure budget at DRM for a regular provision of documentation, from year 2 onwards. <p>Year 4 (2023):</p> <ol style="list-style-type: none"> 1. (from year 4 onwards) Controls on board vessels to make sure fishermen implement the applicable rules, have and use the necessary equipment; report on the offenses and sanctions if some are not compliant. 2. If level of non-compliance is high, keep on doing the above actions 2a, 2b, 2c.
Consultation on condition	<p>As mentioned in the Client Action Plan, DRM will work with Manu and also rely on DRM's observer programme. A letter of support from Manu for the relevant activities in the action plan is provided in Appendix 8 in the Public Certification Report (Gascoigne et al., 2018).</p>
Progress Status	<p>Progress against this condition is on target as per the Year 2 surveillance audit.</p>

Appendix 5.7 Condition 7 (ETP species information)

Performance Indicator	2.3.3 ETP species information
Score	60
Justification	<p>Scoring Issue a (SG80): 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.</p> <p>Some quantitative information is available from observers but the level of implementation is below the 5% target required by CMM 2007-01. While some</p>

	<p>quantitative data are clearly available, the team considered that by not meeting the 5% target, these data were insufficient 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. SG80 is therefore not met. This is further supported by the problems with species identification of birds in the observer data.</p> <p>Scoring issue b (SG80): Information is adequate to measure trends and support a strategy to manage impacts on ETP species.</p> <p>As set out in 2.3.2, there is a strategy through the CMMs which should work well if implemented. Although some information is available on UoA impacts on ETP species (SG60 is met), the current low levels of observer coverage, combined with bird identification issues mean that it may not be possible to measure trends in interactions for some species. SG80 is not met.</p>
Condition	The evidence base for determining interaction rates with ETP species, in particular seabirds and turtles, should be improved so that trends in interactions can be measured over time and so that it can be determined whether the UoA may be a threat to protection and recovery of the ETP species. Should a potential threat be identified, the fishery should demonstrate that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species.
Condition Start	Date of certification
Condition Deadline	December 2024 (note: extended by one year following MSC derogation)
Milestones	<p>Year 2: Evaluate current data collection strategy and identify areas of improvement. Develop improved data collection plan; this can be through increased observer coverage, improved self-reporting or through some other measure as appropriate (Score: 60).</p> <p>Year 3: Demonstrate new data collection plan has been implemented. (Score: 60).</p> <p>Year 4: Continued data collection. Data analysis and 'put additional management measures in place if analysis suggest this is necessary (Score: 75).</p> <p>Year 1 of second certification cycle (pending successful reassessment): Data analysis results show that the current ETP management strategy in place is adequate to ensure direct effects of the UoA are highly likely to not hinder recovery of ETP species. (Score: 80)</p>
Client Action Plan	The Client Action Plan for this condition is the same as for condition 5. However, because conditions raised against outcome performance indicators are not covered by the MSC Covid Derogation, the milestones for condition 5 have not been extended. The client fishery has therefore elected to adhere to the original milestones for condition 7. Should additional time be required due to the pandemic, a variation request may be submitted at the following surveillance audit, so that the extension can also be applied to condition 5 and the milestones be aligned between both conditions.
Consultation on condition	As mentioned in the Client Action Plan, DRM will work with Manu and also rely on DRM's observer programme. A letter of support from Manu for the relevant

	activities in the action plan is provided in Appendix 8 in the Public Certification Report (Gascoigne et al., 2018).
Progress Status	On target as per the Year 2 surveillance audit.

Appendix 5.8 Condition 8 (Fishery-specific objectives)

Performance Indicator	3.2.1 Fishery-specific objectives
Score	60
Justification	For full rationale see Evaluation table for PI 3.2.1 in Gascoigne et al. (2018). No part of SG80 is met since objectives are not explicit either in relation to translation of WCPFC objectives into national policy / regulation, or in relation to national-level objectives for the development and management of the fleet and fishery.
Condition	The client should ensure that short and long-term objectives, consistent with the outcomes expressed by MSC's Principles 1 and 2, are explicit within the French Polynesia management system. This may be done via the promulgation of a codified national fishery management plan, as proposed during the site visit, or by any other suitable means. The objectives should be responsive to amendments as needed to accommodate WCPFC CMMs, and take account of the general provisions of the Honolulu Convention (2000).
Condition Start	Date of certification
Condition Deadline	December 2022 (note: extended by one year following MSC derogation)
Milestones	<p>Year 2 (2021): Demonstrate that there have been positive advances by DRM, in consultation with all affected stakeholders and other partners, regarding the development of explicit fishery-specific long- and short-term objectives. Score: 60.</p> <p>Year 3 (2022): Demonstrate that the objectives have been agreed via an appropriate national legal instrument or by some other means, and are being used to guide fisheries decision-making. Score: 80.</p>
Revised Client Action Plan	<p>To ensure that short and long-term objectives, consistent with the outcomes expressed by MSC's Principles 1 and 2, are explicit within the French Polynesia management system and to ensure that the objectives are responsive to amendments as needed to accommodate WCPFC CMMs, and take account of the general provisions of the Honolulu Convention (2000), the client will:</p> <p><u>Year 2:</u></p> <ol style="list-style-type: none"> 1. Within the DRM, finalize the work on the draft management plan for the longline fishery, translating explicitly WCPFC CMMs and adding all the necessary items to meet MSC SG 80 requirements in the fields which fall within French Polynesia's authority. The provisions of this management plan should be responsive to amendments as needed to accommodate WCPFC CMMs and take into account the general provisions of the Honolulu Convention. Drafting this management plan, French Polynesia will consider maintaining viable catch rates for its fleet targeting SP ALB. 2. If needed, work with France to address the issues which fall within France's jurisdiction regarding French Polynesia longline fishery. 3. Consult stakeholders on the draft management plan to make sure they understand the need for it, its objectives, the WCPFC and MSC SG 80 requirements. These consultations will

	<p>also allow DRM to have the stakeholders' feedback, in order to improve the draft, so that it can be accepted by all parties.</p> <p><u>Year 3:</u></p> <ol style="list-style-type: none"> 1. Submit the management plan for the longline fishery to the Assembly (or minister's council depending on the most suitable authority) for promulgation and therefore enforcement. 2. Implement the management plan's provisions.
Consultation on condition	DRM has the power to develop and promulgate fisheries objectives and/or management plans (under the <i>Code de l'Environnement</i>). No consultation is therefore required with other organisations necessary to implement this condition.
Status	On target as per the Year 2 surveillance audit.

Appendix 5.9 Condition 9 (Decision-making processes)

Performance Indicator	3.2.2 – Decision-making processes
Score	75
Justification	<p>For full rationale see Evaluation table for PI 3.2.2 in Gascoigne et al. (2018). SG60 is met for both management systems. SG 80 is met for French Polynesia, where the management system is very precautionary, but is not met for WCPFC.</p> <p>Commission decision-making processes are based heavily on Scientific Committee reports on the status of target and non-target species and respond to serious issues, such as overfishing, and suspected overfished (e.g. status of bigeye). However, at the Thirteenth Regular Session of the WCPFC, December 2016, the Ocean Fisheries Programme of SPC reported that although the South Pacific Albacore stocks were not overfished, the decline in CPUE since 1992 has raised concerns over the economic viability of the fishery. The SPC projections suggest that current catch and effort is not sustainable and the SPC bio-economic analysis suggests that consideration should be given for the implementation of alternative management measures as the CMM for South Pacific Albacore (CMM 2010-5) appears to not be effective in constraining effort. Far so, the decision-making process has not responded effectively. The team decided to treat this issue as 'important' (based on its impact on many WCPFC CCMs), although not (as yet) 'serious' (based on the stock status). Therefore, for regional-level decision-making processes, the team concluded that SG60 is met, but SG80 is not yet met.</p>
Condition	At the Commission level, decision-making processes should respond to important issues, and specifically to the declining catch rates of South Pacific albacore, in a transparent, timely and adaptive manner. This could be done by implementing a formal harvest strategy, as set out in CMM 2014-06 and in Condition 1, or by some other means if appropriate.
Condition Start	Date of certification
Condition Deadline	December 2023 (note: condition closed ahead of target)
Milestones	Year 1: Some evidence that the Commission is responding to the issue of SP ALB catch rates, e.g. by progressing with the harvest strategy as per the agreed workplan, or some other evidence. (Score: 75)

	<p>Year 2: As per Year 1. (Score: 75)</p> <p>Year 3: As per Year 1 (Score: 75)</p> <p>Year 4: Decision-making processes have responded to the albacore catch rate issue by putting in place a harvest strategy, or by some other suitable means. (Score: 80)</p>
Client Action Plan	<p>At the Commission level, in order to make the 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, the client will undertake the same actions as per condition 1 on SP ALB HS.</p> <p>The client will also undertake activities to ensure appropriate focus is given to economic viability of catch rates at the commission level.</p> <p><u>Note that:</u></p> <p>French Polynesia asked SPC for a bio-economic analysis of the French Polynesian longline fishery very early in the process on considering economic issues in fisheries at the regional level (2012), which shows French Polynesia is concerned about addressing not only biological issues in the fisheries management, but also economic viability.</p> <p>French Polynesia wants viable catch rates as one of her objectives for her domestic fleet on SP ALB. To respond to that objective, the first step is to know where we are.</p> <p>In 2017, French Polynesia did her best especially to make sure SC13 recommends that the advice from SC11 (longline fishing mortality and longline catch be reduced to avoid further decline in the vulnerable biomass so that economically viable catch rates can be maintained, especially for longline catches of adult albacore) is taken into consideration when the TRP for SP ALB is discussed at WCPFC 14.</p>
Consultation on condition	WCPFC have already expressed their intention of addressing this issue (see CMM 2014-06), so consultation with WCPFC is not required.
Status	Closed during Year 1 surveillance audit (Sieben and Daxboeck, 2020)

Appendix 5.10 Condition 10 (Harvest control rules – Eastern Pacific yellowfin)

Performance Indicator	1.2.2 – Harvest control rules
Score	75
Justification	<p>The main tool is a seasonal closure which is used to restrict effort, based on the level of F-mult for whichever of the two stocks it is lowest. Trends in both bigeye and yellowfin S provide some evidence that the HCR is effective; SG60 is met. For yellowfin, F is at the target level (F-mult=0.99). For bigeye, however, F-mult is estimated to be too low, which IATTC scientists believe is due to problems with the stock assessment. A review of the assessment is underway, and the current closure should be sufficiently precautionary for the meantime, but for the moment we do not have good evidence that the tools are achieving an appropriate level of exploitation (F) for bigeye. This is relevant for yellowfin, on the basis that the tools apply to both stocks, so the same situation could arise for yellowfin in other</p>

	<p>circumstances – i.e. there is concern that the tool to reduce effort may not be applied when required by the HCR.</p> <p>Furthermore, the sensitivity analysis for yellowfin that included a stock-recruitment relationship with a steepness of 0.75 estimated the SBR required to support the MSY to be 0.35, compared to 0.27 for the base case assessment, and results in an estimate of S below the MSY level. If there is a stock recruitment relationship, which is a common assumption in many other tuna stock assessments, then effort would have to be reduced significantly. SG80 is not met.</p>
Condition	Evidence will be presented to the CAB that the tools used to implement HCRs for EPO yellowfin are appropriate and effective in achieving the exploitation levels required under the HCRs.
Condition Start	Year 1 surveillance
Condition Deadline	December 2023 (note: condition closed during 2020 Expedited audit)
Milestones	<p>Year 1 (2020) – Year 3 (2022): the client should 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 EPO yellowfin 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. (Score 60).</p> <p>Year 4 (2023): HCR adopted. (Score: 80)</p>
Client Action Plan	<p>Year 1 (2020)- year 3 (2022):</p> <p>Given that French Polynesia is part of France’s delegation at IATTC meetings, DRM will be proactive and coordinate before and during IATTC meetings with France’s head of delegation and other delegations who have fisheries with the same MSC conditions as DRM, MSC and other stakeholders in order to obtain the appropriate progress in the commission’s work regarding HCR for EPO YFT.</p> <p>DRM will also coordinate with France’s head of delegation to make statements at IATTC meetings to make sure the progress made by the Commission is aligned with the given milestones.</p> <p>At the MSC annual surveillance audit in 2020, 2021, 2022, information will be provided to the CAB regarding the actions taken by DRM and other relevant parties during the year, to ensure that well defined harvest control rules taking into account the main uncertainties are in place for EPO yellowfin and that these are consistent with the harvest strategy and to ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>Year 4 (2023):</p> <p>DRM will be proactive and coordinate before and during IATTC meetings with France’s head of delegation and other delegations in order to get their support for the adoption of appropriate HCR for EPO YFT.</p> <p>At the MSC annual surveillance audit in 2023, information will be provided to the CAB that the HCR has been adopted by IATTC</p>
Consultation on condition	No consultation is required since IATTC have already expressed their intention of undertaking this process (see rationale) and the client for this fishery is the French Polynesia government itself (the DRM)

Status	Closed during 2020 P1 expedited audit (Sieben and Gascoigne, 2020)
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Appendix 5.11 Condition 11 (Primary species outcome)

Performance Indicator	2.1.1 – Primary species outcome
Score	75
Justification	<p>Scoring issue a (SG80): 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.</p> <p>The following is an extract: (...) the spawning biomass limit reference point is equal to 0.077 of the equilibrium virgin spawning biomass. This value is analytically determined and could be considered as the PRI for bigeye. However, this level of depletion is greater than is typically used for tuna stocks. A more precautionary approach is adopted here, the default MSC PRI of 20%S_0. The benchmark assessment and risk analysis indicate that is likely (70th percentile) that $S_{current}$ is above the 20%S_0 PRI, meeting SG60 requirements. As indicated above, if the pessimistic scenario is correct, the probability of exceeding the limit reference point with the current adopted closure is 10%, or slightly higher. In addition, the estimated S_{cur}/S_0 is below 20% for several of the assessment runs. Given this and the increasing fishing mortality over time evident in the SSIs, it is concluded that the first part of SG80 is not met. Therefore, to meet SG80, there should be 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. The following overlapping MSC UoAs were identified at this surveillance stage (landed catch is also shown):</p> <ul style="list-style-type: none"> Northeastern Tropical Pacific Purse Seine yellowfin and skipjack tuna fishery: Fishery assessed against MSC Certification Requirements v1.3 (no harmonization needed) Eastern Pacific Ocean tropical tuna - purse seine (TUNACONS) fishery: EPO BET is a Principle 1 species, no harmonization required. US Pacific Tuna Group Purse Seine FSC and FAD Set Fishery: data not found in ACDR AGAC four oceans Integral Purse Seine Tropical Tuna Fishery: 18,324t (2018) from ACDR Eastern Pacific Purse Seine Skipjack and Yellowfin tuna fishery (FSC and FAD set fishery): 679t (2018) from ACDR French Polynesia albacore and yellowfin longline fishery: 750t (2019) from this surveillance (based on 80% of catches stemming from EPO) <p>Total EPO bigeye catch 2019: 93,458t (from IATTC (2021))</p> <p>Not including the TUNACONS fishery for which no data were available during this surveillance, the MSC fisheries combined account for <i>ca.</i> 21% of the total EPO bigeye catch. Given that this estimate is based on landings only, and given the likely significant bigeye catches in the TUNACONS fishery, the team considered it appropriate to assume that MSC catches are likely to exceed the 30% threshold cited under GSA3.4.6, beyond which fisheries may be influential in hindering recovery of a given stock. SG80 is therefore not met in full.</p>
Condition	By the end of Year 2 of the second certification cycle, it should be demonstrated that 1) Eastern Pacific bigeye is highly likely to be above the PRI, <u>or</u> 2) there is evidence of recovery

	<p>or a demonstrably effective strategy in place between all MSC UoAs which categorise EPO BET as main, to ensure that they collectively do not hinder recovery and rebuilding.</p> <p>Note: Because the team anticipates that this condition may not be lifted within the next two years, this condition is raised under 'exceptional circumstances' as per FCPv2.2 7.18.1.6.</p>
Condition Start	Year 2 surveillance
Condition Deadline	End of Year 2 (second certification cycle).
Milestones	<p>Year 3: Demonstrate that work has begun to ensure that EPO BET can recover to a level above the PRI and/or demonstrate that work has begun to develop an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60</p> <p>Year 4: Demonstrate that the work continues to ensure that EPO BET can recover to a level above the PRI and/or demonstrate that the work continues to develop and implement an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60</p> <p>Year 1 (recertification cycle): Demonstrate that the work continues to ensure that EPO BET can recover to a level above the PRI and/or demonstrate that the work continues to develop and implement an effective strategy in between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 60</p> <p>Year 2 (recertification cycle): Demonstrate that EPO BET is either highly likely above the PRI or is recovering to a level above the PRI, or demonstrate that there is an effective strategy in place between all relevant MSC UoAs to ensure that they collectively do not hinder recovery and rebuilding of the stock. Score: 80</p> <p>Note: SA3.4.6 (MSC Fisheries Standard v2.0): At the SG80 level, where a species is below the level at which recruitment could be impaired, the team shall recognise "evidence of recovery" or a "demonstrably effective strategy" as being in place such that all MSC UoAs do not collectively hinder recovery of the species using any or a combination of the following as rationale:</p> <ol style="list-style-type: none"> Direct evidence from time series estimates of stock status. Indirect evidence from time series of indicators or proxies of stock status indicative of the state of the whole stock. Indicators, proxies or absolute estimates of exploitation rate that show that fishing mortality experienced by the stock is lower than F_{MSY}. Direct evidence that the proportion of combined catch by all MSC UoAs relative to the total catch of the stock does not hinder recovery.
Client Action Plan	<p>Year 3: This Client Action Plan is based on three steps:</p> <ol style="list-style-type: none"> The client will review the latest EPO BET stock status and stock status indicators. If there is no indication of recovery to a point where the stock is highly likely to be above the PRI, then step 2 will be implemented. The client will review which overlapping fisheries are in the MSC program that have this stock as 'main' to determine the overall MSC UoA catch of EPO BET in relation

	<p>to the regional catch estimate. If the proportion of the MSC UoA catches remains above 30%, then step 3 will be implemented.</p> <ol style="list-style-type: none"> 3. The client will reach out to overlapping MSC UoAs and commence discussions on the development of a communal strategy between the overlapping fisheries that have this stock as 'main' to ensure that they collectively do not hinder recovery and rebuilding of EPO BET. <p>Year 4:</p> <ol style="list-style-type: none"> 1. The client will review the latest EPO BET stock status and stock status indicators. If there is no indication of recovery to a point where the stock is highly likely to be above the PRI, then step 2 will be implemented. 2. The client will review which overlapping fisheries are in the MSC program that have this stock as 'main' to determine the overall MSC UoA catch of EPO BET in relation to the regional catch estimate. If the proportion of the MSC UoA catches remains above 30%, then step 3 will be implemented. 3. The client will continue discussions with overlapping MSC UoAs on the development of a communal strategy between the overlapping fisheries that have this stock as 'main' to ensure that they collectively do not hinder recovery and rebuilding of EPO BET. <p>Year 1 (recertification cycle):</p> <ol style="list-style-type: none"> 1. The client will review the latest EPO BET stock status and stock status indicators. If there is no indication of recovery to a point where the stock is highly likely to be above the PRI, then step 2 will be implemented. 2. The client will review which overlapping fisheries are in the MSC program that have this stock as 'main' to determine the overall MSC UoA catch of EPO BET in relation to the regional catch estimate. If the proportion of the MSC UoA catches remains above 30%, then step 3 will be implemented. 3. Together with overlapping MSC UoAs, the client will provide evidence of implementation of a communal strategy between the overlapping fisheries that have this stock as 'main' to ensure that they collectively do not hinder recovery and rebuilding of EPO BET. <p>Year 2 (recertification cycle):</p> <ol style="list-style-type: none"> 1. The client will review the latest EPO BET stock status and stock status indicators. If there is no indication of recovery to a point where the stock is highly likely to be above the PRI, then step 2 will be implemented. 2. The client will review which overlapping fisheries are in the MSC program that have this stock as 'main' to determine the overall MSC UoA catch of EPO BET in relation to the regional catch estimate. If the proportion of the MSC UoA catches remains above 30%, then step 3 will be implemented. 3. Together with overlapping MSC UoAs, the client will provide evidence that a communal strategy between the overlapping fisheries that have this stock as 'main' has been implemented and is demonstrated to be effective so that they collectively do not hinder recovery and rebuilding of EPO BET.
Consultation on condition	Consultation with IATTC and overlapping MSC fisheries that have EPO BET stock as 'main' will be done.

Status	Open
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Appendix 5.12 Condition 12 (Harvest strategy – Southwest Pacific swordfish)

Performance Indicator	1.2.1 – Harvest strategy
Score	70
Justification	See rationale in Scoring table 3. PI 1.2.1 – Harvest strategy (Swordfish)
Condition	By February 2024 in the second certification cycle, Southwest Pacific swordfish 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 reflected in PI 1.1.1 SG80.
Condition Start	This scope extension (add date)
Condition Deadline	<p>February 2024 (note, this condition deadline has been harmonized with overlapping MSC fisheries, following the two Covid-19 derogations issued by MSC in March 2020 and March 2021).</p> <p>Note on exceptional circumstances: FCPv2.2 - 7.18.1.6: If, at the time of drafting a condition, the CAB determines that there are exceptional circumstances, and the CAB determines that achieving a performance level of 80 may take longer than the period of certification, the CAB may draft conditions to result in improved performance to at least the 80 level within a longer, specified period set by the CAB. In the case of this scope extension, this clause was applied to both new conditions as they are being raised mid-certification cycle and may therefore extend into the second certification cycle of this fishery (pending a successful reassessment).</p>
Milestones	<p>Year 3 and Year 4 (2022 and 2023): the client will provide evidence that it is actively working to ensure that the harvest strategy for Southwest Pacific swordfish is responsive to the state of the stock and that the elements of the harvest strategy work together towards achieving the management objectives reflected PI 1.1.1 SG80. (Score: 70).</p> <p>Year 5 (February 2024): provide evidence that a harvest strategy has been adopted for Southwest Pacific swordfish that is responsive to the state of the stock and in which the elements of the harvest strategy work together towards achieving the management objectives reflected PI 1.1.1 SG80. (Score: at least 80).</p>
Client Action Plan	<p>Year 3 and Year 4 (2022 and 2023): DRM will be proactive and coordinate during WCPFC and SPC meetings with other CCMs who have fisheries targeting Southwest Pacific swordfish (in particular the Australian Eastern Tuna and Billfish Fishery), MSC and other stakeholders in order to get the plenary discussions focused on relevant stock assessment and harvest strategy matters and to obtain the appropriate progress in the commission's work, following on the last stock assessment (Takeuchi et al. 2017), and considering the existing CMM 2009-03.</p> <p>DRM will also make statements at WCPFC/SPC meetings, whether they are virtual or in person, to push harvest strategy matters forward and make sure the Commission's progress stays aligned with the given milestones. Especially, DRM will try her best to convince other delegations to WCPFC to take a strong public position on advancing harvest strategies, and will underscore to WCPFC that deadlines have been established for P1 conditions for</p>

	<p>certified swordfish fisheries according to MSC requirements, which for Southwest Pacific swordfish is by February 2024.</p> <p>Year 5 (February 2024): DRM will bring evidence that relevant stock assessment and a well-defined harvest strategy are set and act effectively to reduce exploitation rates as the PRI is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY.</p>
Consultation on condition	Consultation with WCPFC, SPC and Australian Eastern Tuna and Billfish Fishery will be done according to the action plan
Status	Open

Appendix 5.13 Condition 13 (Harvest control rules – Southwest Pacific swordfish)

Performance Indicator	1.2.2 – Harvest control rules and tools
Score	60
Justification	See rationale in Scoring table 4. PI 1.2.2 – Harvest control rules and tools (Swordfish)
Condition	By February 2024 in the second certification cycle, Southwest Pacific swordfish 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 consistent with (or above) MSY. The HCRs should be robust to the main uncertainties and the tools used to implement the HCR should be appropriate and effective in achieving the exploitation levels required under the harvest control rules..
Condition Start	This scope extension (add date)
Condition Deadline	<p>February 2024 (note, this condition deadline has been harmonized with overlapping MSC fisheries, following the two Covid-19 derogations issued by MSC in March 2020 and March 2021).</p> <p>Note on exceptional circumstances: FCPv2.2 - 7.18.1.6: If, at the time of drafting a condition, the CAB determines that there are exceptional circumstances, and the CAB determines that achieving a performance level of 80 may take longer than the period of certification, the CAB may draft conditions to result in improved performance to at least the 80 level within a longer, specified period set by the CAB. In the case of this scope extension, this clause was applied to both new conditions as they are being raised mid-certification cycle and may therefore extend into the second certification cycle of this fishery (pending a successful reassessment).</p>
Milestones	<p>Year 3 and Year 4 (2022 and 2023): the client will provide evidence that it is actively working to ensure that well defined HCRs are in place for Southwest Pacific swordfish that</p> <ul style="list-style-type: none"> a) reduce the exploitation rate as the PRI is approached, and are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, b) have been selected so that they are robust to the main uncertainties, and c) are appropriate and effective in achieving the required exploitation levels. <p>(Score: 60).</p> <p>Year 5 (February 2024): provide evidence that harvest control rules with the characteristics indicated above are in place for Southwest Pacific swordfish. (Score: at least 80).</p>

Client Action Plan	<p>Year 3 and Year 4 (2022 and 2023): DRM will be proactive and coordinate during WCPFC and SPC meetings with other CCMs who have fisheries targeting Southwest Pacific swordfish (in particular the Australian Eastern Tuna and Billfish Fishery), MSC and other stakeholders in order to get the plenary discussions focused on relevant Harvest Control Rules and to obtain the appropriate progress in the commission's work considering the existing CMM 2009-03.</p> <p>DRM will also make statements at WCPFC/SPC meetings, to push HCR forward and make sure the Commission's progress stays aligned with the given milestones. Especially, DRM will try her best to convince other delegations to WCPFC to take a strong public position on advancing HCR, and will underscore to WCPFC that deadlines have been established for P1 conditions for certified swordfish fisheries according to MSC requirements, which for Southwest Pacific swordfish is by February 2024.</p> <p>Year 5 (February 2024): DRM will bring evidence that a well-defined regional and local level HCR is set, with associated management actions which together act effectively to reduce exploitation rates as the PRI is approached and is expected to keep the stock fluctuating around a target level consistent with (or above) MSY. The selection of the HCR should consider the main uncertainties regarding the status of the stock or the impact of the fishery (or other uncertainties if considered important).</p> <p>DRM will bring evidence of the implementation and the incorporation of the regional HCR into the local rules if applicable.</p>
Consultation on condition	<p>Consultation with WCPFC, SPC and Australian Eastern Tuna and Billfish Fishery will be done according to the action plan</p>
Status	<p>Open</p>

Appendix 6 Surveillance

Table 21. Fishery Surveillance Programme

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 4	On-site	Off site	On-site	Off-site

Table 22. Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
1	On-site	2	<p>All information pertaining to the Principle 1 and Principle 2 conditions can be provided remotely by the stakeholders. For the remote audits, remote conferencing should take place so that matters can be discussed in sufficient detail.</p> <p>Note: it is not proposed that the Year 4 surveillance happens at the same time as the reassessment site visit. This is because under the FCP v2.2 the drafting of the ACDR is likely to delay the site visit beyond the certificate anniversary.</p>
2	Off site	2	
3	On-site	2	
4	Off site	2	

Table 23. Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
1	See certificate	30 days prior anniversary date of certificate	N/a
2	See certificate	30 days prior anniversary date of certificate	N/a
3	See certificate	30 days prior anniversary date of certificate	N/a
4	See certificate	30 days prior anniversary date of certificate	N/a

Appendix 8 Harmonised fishery assessments

In terms of Principle 1, this scope extension overlaps with a single fishery: the Australian Eastern Tuna and Billfish Fishery (albacore tuna, yellowfin tuna, bigeye tuna and swordfish) which has the following scores, based on the reassessment Public Certification Report (Daume et al., 2020) and which is fully harmonised with this assessment:

1.1.1: 90

1.1.2: N/a

1.2.1: 70

1.2.2: 60

1.2.3: 80

1.2.4: 90

Table 24. Overlapping fisheries

Fishery name	Certification status and date	Performance Indicators to harmonise
Australian Eastern Tuna and Billfish Fishery (albacore tuna, yellowfin tuna, bigeye tuna and swordfish)	Recertified, 26 August 2020	All P1 (swordfish)

In terms of Principle 2, cumulative impacts were triggered under scoring of PI 2.1.1 (primary species – Eastern Pacific bigeye). During harmonisation discussions with overlapping MSC fisheries that have this stock as ‘main’, there was consensus that the 1st part of 2.1.1 scoring issue a (SG80) was not met. As the majority of overlapping fisheries are still at the ACDR stage, the assessment team took the precautionary view and raised a condition under the cumulative impact requirements. See Scoring table 7. PI 2.1.1 – Primary species outcome

Appendix 9 Objection Procedure

To be added at Public Certification Report stage

The report shall include all written decisions arising from the Objection Procedure.

Reference(s): MSC Disputes Process v1.0, FCP v2.2 Annex PD Objection Procedure