

# WCPC Thai Union purse seine tuna Fishery Improvement Project

## Three-Year Audit Report

Version 1.2, September 2021

### Purpose

The three-year audit report template was developed by FishChoice. The objectives of the three-year audit report are:

1. To assess the fishery's MSC performance indicator scores
2. To verify the results of the FIP's environmental workplan progress as reported on FisheryProgress
3. *Optional: To provide recommendations to the FIP on environmental workplan actions that should be modified, including recommendations for additional actions/tasks that should be taken or suggested changes to timelines, to help the FIP achieve their stated objectives.*

### Completing and Submitting the Audit

FisheryProgress requires the use of this three-year audit report template and the information must be submitted in English. FIPs should update the template below with audit results. *Note that text in italics provides additional guidance about information that should be included in each section and should be removed from the final version of this document, and highlighted text should be replaced to reflect the information for your fishery.* Save this document as a PDF upon completion and submit to FisheryProgress. Once the audit is complete, FIPs should update all relevant data fields on FisheryProgress based on the audit report, including multi-species/multi-gear excel files.

### FIP Information

Fill in the following table. The management authority is the regulatory authority with fishing management responsibilities; there may be multiple authorities where joint jurisdictional responsibilities occur.

Target species scientific name(s) and common name(s) [state target stock(s), if relevant]	Bigeye tuna ( <i>Thunnus obesus</i> ) WCPO Yellowfin tuna ( <i>Thunnus albacares</i> ) Skipjack Tuna ( <i>Katsuwonus pelamis</i> )
Fishery location	Western and Central Pacific Ocean (national EEZs and high seas)
Gear type(s)	Purse Seine (Free school and FADs)

Estimated FIP Landings (weight in tons)	250,000mt
Vessel type(s) and size(s)	Purse seining vessels – Large scale (70m) Vessels predominantly flagged to Taiwan but with some flagged to coastal states.
Number of vessels	46 tuna purse seiners (out of 325 active purse seiners in WCP-CA).
Management authority	The Western Central and Pacific Fisheries Commission (WCPFC) [Other coastal states management bodies are also likely to be included within the full assessment]
Auditor name(s)	Charlotte Tindall
Auditor Organization/Affiliation	Charlotte Tindall Consulting
Date of report completion	28/11/22

Acronym	
CMM	Conservation Management Measure
CPUE	Catch Per Unit Effort
EM	Electronic Monitoring
ETP	Endangered Threatened and Protected species
FIP	Fisheries Improvement Project
HCR	Harvest Control Rule
ISSF	International Seafood Sustainability Foundation
IUU	Illegal Unreported and Unregulated fishing
LRP	Limit Reference Point
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NGO	Non-Government Organisation
PRI	Point of Recruitment Impairment
RFMO	Regional Fisheries Management Organisation
SB	Spawning Biomass
SPC	Pacific Community - Oceanic Fisheries Programme
TAC	Total Allowable Catches
TRP	Target Reference Point
UoA	Unit of Assessment
VMS	Vessel Monitoring System
WCPFC	Western Central Pacific Fisheries Commission
WCPO	Western Central Pacific Ocean

## FIP Background (Optional)

*This section is optional. If the auditor completes this section, use it to provide additional information about the context in which the FIP operates.*

The FIP covers 47 purse seine vessels, flagged to either Taiwan or a range of Pacific island states, fishing for three tropical tuna species (Bigeye, yellowfin and skipjack) in the Western and Central Pacific Ocean (WCPO) within Pacific countries' EEZs but also on the high seas. The fishery deploys and fishes on FADs as well as fishing on free-school tuna. The FIP undertook a MSC pre-assessment in 2019 and has since been working to address issues on: harvest strategies, ecosystem impacts of FADs, entangling FADs, FAD management, ETP management and information and secondary species management.

## Stakeholder Consultation & Meetings

*In-person and virtual interviews with stakeholders are meant to inform the auditor with regards to the fishery's performance and to elicit information regarding the contributions that the FIP's participants have provided in making progress towards the FIP's objectives. Stakeholders represent the most critical source of information regarding a fishery independent of the FIP lead and FIP participants. Stakeholders can shed light on the diversity of perspectives on the fishery and can highlight any areas of controversy. The stakeholder consultation process allows an auditor to hear a range of perspectives and make an objective and balanced evaluation of the fishery against the MSC Fisheries Standard and the environmental workplan results.*

*A successful stakeholder consultation process will instill confidence in stakeholders that the assessment of a given fishery was well informed by a balanced, accessible, and equitable process to which they were able to contribute meaningfully. It should not be a forum to debate issues, but to identify the full range of relevant information and issues and bring them to the attention of the auditor. It should also help the auditor identify the improvements that have occurred in the fishery as a direct result of the FIP's activities and provide a foundation upon which the auditor can provide recommendations for potential adjustments that need to be considered for the FIP to fulfill the environmental objectives that they have set out to achieve. For additional guidance on conducting stakeholder consultation, see Annex GPX of the [MSC Fisheries Certification Requirements and Guidance Version 2.0](#).*

*Fill in the following table and include a high-level summary of the subjects that were discussed. Additional rows may need to be added or modified depending on number of participants and meetings completed. Stakeholders may include: official participants in the fishery improvement project, as well as government representatives, industry (fishers, processors, exporters, mid supply chain and end buyers, etc.), environmental and social NGOs, and the scientific community, or those who are impacted by the project or have a role in making changes to address environmental challenges in the fishery.*

Name	Affiliation	Date and Subjects Discussed
<b>Tom Evans</b>	<b>Key Traceability: FIP Coordinator</b>	Discussed actions of the project in particular the ETP & Shark Finning Management Policy, Non-entangling and jelly FADs and advocacy to the WCPFC to improve and speed up development of harvest control rules and strategies.
<b>FIP Working Group</b>		<p>Key Traceability sent notes from the FIP annual review meeting to which I had posed questions (<i>answers in italics</i>):</p> <p><b>General questions:</b></p> <ol style="list-style-type: none"> <li>1. What do FIP participants feel are the main achievements of the FIP? <i>All participants feel BioFAD pilots and the move to NEFADs have made the greatest impact on sustainable fishing.</i></li> <li>2. What is the focus of the FIP going forward? <i>All participants feel BioFADs are the main target to keep the FIP going, all elements are in a certifiable position and will be heading to MSC soon, just extra work in FAD management is needed.</i></li> <li>3. Are there any updates on plans for engagement with ISSF and TNC (on biodegradable FADs, FAD retrieval and ecosystem actions around FADs)? <i>We have all agreed to put vessels in the ISSF/SPC BioFAD trials, this will total of 5 vessels, 20 FADs on each</i></li> <li>4. What % of biodegradable material per FAD is the FIP aiming for? (see Activity 1.4: March 2022 update) <i>They are aiming for eventually 100% but have agreed an incremental rise is best, ISSF has just started working on %s and how to increase step by step and we will be engaging with them.</i></li> </ol> <p><b>Specific questions:</b></p> <ol style="list-style-type: none"> <li>5. Has skipper training (on bycatch mitigating and handling) taken place? How many skippers trained/left to train? <i>About 75% of skippers have undergone training, we are hoping ISSF will hold the postponed training in Q1 2023 to make sure we meet the rest</i></li> <li>6. Have commonly encountered posters been put on all vessels? Has this been verified? <i>Yes, but verification needs to be done.</i></li> <li>7. Do observers now routinely collect information on FADs and is there evidence of this? <i>The Currently observers only record FAD or free school, we need to push them to do more</i></li> </ol>

## Summary of Findings and Recommendations

*Summarize the progress the FIP has made in the past three years. Optional: provide any recommendations for the FIP (e.g., regarding modifications to FIP actions, or potential gaps in the FIP's workplan necessary to achieve the FIP's objectives).*

Overall on Principle 1, the fishery scores well for stock health (WCPO bigeye, yellowfin and skipjack); although this review recommends that stock assessment for Bigeye tuna is reviewed in 2023 to check that downwards trends are not continuing. Harvest strategies and control rules are still needed for all stocks, so these gain a conditional pass in this review, however it is worth noting that the scoring of the bigeye tuna harvest strategy and control rules above 60 has been challenged in the PNA tuna fisheries. For Principle 2, there are no primary species and secondary also score well although more evidence is needed to confirm that shark finning is not taking place in line with the fisheries' ETP and shark-finning policy. While there is more information on ETP species, more up to date data is needed as well as evidence that bycatch mitigation policies are being implemented. There has been progress on the move to non-entangling FADs and trialing biodegradable Jelly-FADs but to achieve an unconditional pass on habitats and ecosystems this review finds that more work needs to be done on marking and retrieving FADs as well as moving to 100% biodegradable FADs. Fisheries management (Principle 3) scores well but recent MSC assessments for similar fisheries have given conditional passes for decision making and compliance with requirements to improve fisheries controls on bigeye stocks, transparency of transshipments and reduce illegal fishing e.g. using FADs during closed seasons.

The FIP has put effort into advocacy to the WCPFC to introduce harvest control rules and harvest strategies in order to improve Principle 1 scores. For Principle 2, the fishery has taken steps to understand FAD use in the fishery and developed a FAD policy which requires among other things the use on non-entangling FADs. The FIP is also collaborating to trial biodegradable Jelly-FADs in the fishery (ongoing). In addition, the FIP has reviewed observer data to determine impacts on bycatch and ETP species and has developed a ETP and shark-finning policy in which 75% of skippers have been trained. Vessels of the fishery are part of the ISSF Pro-active vessels list as that they are annually audited on shark-finning, bycatch mitigation measures and use of non-entangling FADs.

There are a number of recommendations that could be taken forward as the fishery moves towards assessment for MSC certification.

### **General recommendations:**

- Review fishery against the new MSC Standard (v3) which includes new requirements for ETP species, evidence review and FAD management;

### **Principle 1:**

- Review outcome of bigeye stock assessment in 2023 as 2018 catch data indicates that overfishing may be occurring (although stock assessment based on 2014-17 data did not find evidence of overfishing).
- Continue to lobby WCPFC to agree and finalise harvest control rules including target reference points for bigeye, yellowfin and skipjack tuna as well as management procedures and strategy evaluation systems (MSE).

### **Principle 2:**

- Access and analyze data across all 47 vessels (as there should be 100% observer coverage) and more up to date data (i.e. for years 2018-2022) to ensure it is fully representative. Use data to provide evidence of catch data; fate of by-catch; implementation of relevant CMMs (for ETP species) e.g. use of dip nets for recovery and release of turtles, safe release of whale sharks.
- Lobby WCPFC to improve observer records of type of FADs used, and bycatch mitigation methods
- Develop a FAD management plan which includes:
  - Move towards biodegradable FADs as soon as possible with targets and timelines;
  - Marking all FADs electronically and contributing information regionally

- Developing a FAD recovery system with targets and timelines.
- Participate in studies to understand the ecological and biological differences between free school and FAD-associated tuna
- Provide verification evidence of the use of non-entangling and biodegradable FADs
  
- Provide evidence that skippers have undertaken training on FADs and By-catch mitigation
- Complete skipper training for rest of the fleet
- Verify that the ETP policy is available on vessels and ETP identification guides have been posted in visible areas on the vessel.
- Verify implementation of ETP and shark finning policy through compiling evidence e.g. no shark finning recorded in observer reports, use of mitigation measures

**Principle 3:**

- Lobby WCPFC to respond to issues (e.g. adequate control of fishing effort of big-eye tuna, IUU fishing and transparency of transshipment information) in a timely manner (In relation to Performance Indicators 3.2.2. and 3.2.3)

### Summary of MSC Performance Indicator Scores

Fill in the “previous score” scoring category (<60, 60-79, ≥80) for each performance indicator (PI) according to the most recent set of scores available on FisheryProgress (see the Improvement Progress tab of the FIP’s profile – the most recent scores will be on the right-most column).

Fill in the “current score” scoring category (<60, 60-79, ≥80) for each performance indicator (PI) by referring to the [MSC Fisheries Standard v2.01](#). **Provide a rationale that explicitly addresses each of the performance indicator’s scoring issues (and references when applicable) only if the current score given is different than the previous score.**

Fisheries that contain combinations of multiple target species, gear types, and/or governing jurisdictions (UoAs) should complete the [Multi-species/Gear/Jurisdiction Indicator Score spreadsheet](#) and use the table below to provide the lowest score for each performance indicator. If a rationale is provided, the auditor may choose to address only the scoring issues for the lowest scoring UoA for that performance indicator.

Principle	Component	Performance Indicator	Previous Score [2019]	Current Score [2022]	Rationale or Key Points
1	Outcome	1.1.1 Stock status	>80	>80	<b><u>Western Central Pacific Ocean (WCPO) Bigeye tuna (<i>Thunnus obesus</i>)</u></b> According to the most recent stock assessment (Ducharme-Barth et al., 2000) there is a 100% likelihood the spawning biomass (SB) is above the Limit Reference Point (LRP) defined as 20% of SB. However, it may be approaching this LRP in the equatorial areas and is potentially being buffered by the stock in temperate regions. There is also 88% chance that for the period 2014-2017 fishing mortality is below MSY. However, the median catch levels for 2018 was higher (159,288t) than estimated median MSY (140,720t) so it will be

						<p>important to review Bigeye tuna stock in the 2023 stock assessment to see if this trend continues.</p> <p><b>Scoring Issues:</b>  1.1.1a) There is a high degree of certainty (&gt;80% probability) that the stock is above the Point of Recruitment Impairment (PRI). (SG80)  1.1.1b) It is highly likely that the stock is at or fluctuation around a level consistent with MSY based on catches between 2014 and 2017. According to the most recent stock assessment in 2020, there was an 88% chance that fishing mortality is lower than fishing at MSY; and the stock is not undergoing overfishing. However, fishing mortality has increased in the past two decades, particularly on juveniles and catches in 2018 were over MSY levels.(SG80)</p> <p><b><u>WCPO Yellowfin tuna (<i>Thunnus albacares</i>)</u></b>  According to the most recent stock assessment (Vincent et al., 2020), there is 100% probability that the stock is above the Limit Reference Point (LRP) defined as 20% of SB. There is also a 100% likelihood that the spawning biomass (SB) is above the level that can sustain a Maximum Sustainable Yield (MSY) of fishing, and the stock is not overfished. See also Hare et al., 2021.</p> <p>1.1.1a) There is a high degree of certainty (&gt;80% probability) that the stock is above the Point of Recruitment Impairment (PRI). (SG80)  1.1.1b) It is highly likely that the stock is at or fluctuating around a level consistent with MSY. The latest stock assessment found 100% likelihood that fishing mortality rates are lower than Fmsy, and the stock is not undergoing overfishing. (SG80)</p> <p><b><u>WCPO Skipjack Tuna (<i>Katsuwonus pelamis</i>)</u></b>  According to the latest stock assessment undertaken in 2019 (Vincent, M. et al. 2019) the skipjack stock is not overfished or undergoing overfishing.</p> <p>1.1.1a) There is a high degree of certainty (&gt;80% probability) that the stock is above the Point of Recruitment Impairment (PRI). All models in the stock assessment indicated there was no probability of the spawning biomass being currently lower than the Limit Reference Points (LRP) (SG80)  1.1.1b) It is highly likely that the stock is at or fluctuating around a level consistent with MSY. The latest stock assessment found 100% likelihood that fishing mortality rates are lower than Fmsy.</p> <p><b>Recommendations:</b></p>
				>80	>80	
				>80	>80	

					<ul style="list-style-type: none"> <li>Review outcome of bigeye stock assessment in 2023 as 2018 catch data indicates that overfishing may be occurring (although stock assessment based on 2014-17 data did not find evidence of overfishing).</li> </ul>	
	1.1.2	Stock rebuilding	n/a	n/a		
Management	1.2.1	Harvest Strategy	60-79	60-79	<p><b><u>Western Central Pacific Ocean (WCPO) Bigeye tuna (<i>Thunnus obesus</i>)</u></b></p> <p>1.2.1a) There are a series of measures that can be seen together as a harvest strategy and it is expected these will achieve management objectives given stocks are currently above limit points (achieving SG 60). It does not reach SG80 as the elements of the harvest strategy do not yet work fully together in being responsive to the stock. WCPFC has developed a conservation and management measure (CMM 2014-06) which requires the development of harvest strategies for key stocks (including big-eye tuna). While a Limit Reference Point (LRP) of 20% of spawning biomass and agreed in principle along with 20% maximum acceptable risk of breaching LRP; Target Reference Points (TRP) have not yet been agreed but the current indicative workplan sets a target of 2024. In the meantime, the interim Conservation and Management Measures CMM 2021-01, states that pending agreement on TRPs, the spawning biomass should be maintained at or above average 2012-2015. Within CMM 2021-01 there are also a range of management measures: for purse seine vessels there are effort and FAD controls as well as requirements to land all tuna and have observers on board. <b>(SG 60)</b></p> <p>1.2.1b) The harvest strategy is likely to work based on stock status indicators although this needs to be reviewed in 2023 <b>(SG60-80)</b></p> <p>1.2.1c) Stock assessments take place every three years and therefore monitoring is in place to determine if the harvest strategy is working <b>(SG 60)</b></p> <p>1.2.1d) There is no formal harvest strategy that is periodically reviewed and updated (does not achieve SG100).</p> <p><b><u>WCPO Yellowfin tuna (<i>Thunnus albacares</i>)</u></b></p> <p>The same rationale for bigeye tuna applies to yellowfin tuna.</p> <p><b><u>WCPO Skipjack Tuna (<i>Katsuwonus pelamis</i>)</u></b></p> <p>1.2.1a) There are a series of measures that can be seen together as a harvest strategy and it is expected these will achieve management objectives given stocks are currently above limit points (achieving SG 60). The current harvest strategy for skipjack (CMM 2021-01) states that 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</p>	
				[Scored 70 in recent update of WPSTA Western and Central Skipjack and Yellowfin Purse Seine Fishery: extension to also cover Bigeye]		
			60-79	60-79		[Potentially 80 in line with ISSF, 2022 report]



					<p>biomass in the absence of fishing (50%Blatest/B0), adopted in accordance with CMM 2015-06.</p> <p>It does not reach SG80 in my opinion as the elements of the harvest strategy do not yet work fully together in being responsive to the stock. However, the ISSF review of tuna stocks against the MSC standard suggests this does achieve 80 as the fishery is effectively being managed to the interim target reference point (Medley et al., 2022). <b>(SG60-80)</b></p> <p>1.2.1b) The harvest strategy is likely to work based on stock status indicators <b>(SG60-80)</b></p> <p>1.2.1c) Stock assessments take place every three years and therefore monitoring is in place to determine if the harvest strategy is working <b>(SG 60)</b></p> <p>1.2.1d) There is no formal harvest strategy that is periodically reviewed and updated (does not achieve SG100).</p>
	1.2.2	Harvest control rules and tools	60-79	<p>60-79</p> <p>[There is an ongoing objection within the PNA fishery that harvest control rules do not exist for big eye and this could score &lt;60]</p> <p>[Scored 60 in recent update of WPSTA Western and Central Skipjack and Yellowfin Purse Seine Fishery: extension to also cover Bigeye]</p>	<p><b>Western Central Pacific Ocean (WCPO) Bigeye tuna (<i>Thunnus obesus</i>)</b></p> <p>1.2.2a) A limit reference point (20% of spawning biomass) has been agreed in principle. Target Reference Points (TRP) have not yet been set although the current workplan requires management procedures by 2024 (the time limit has been extended many times). In the meantime, candidate approaches to setting TRPs for bigeye and yellowfin tuna have been discussed at annual WCPFC Scientific Committee meetings for example Steven Hare (SPC) presented an ‘Updated WCPO bigeye and yellowfin TRP evaluations’ at the 17<sup>th</sup> Scientific Committee meeting (SC17-MI-WP-01), WCPFC, 2021.</p> <p>Pending agreement on TRPs, the interim Conservation and Management Measures CMM 2021-01 states that the spawning biomass should be maintained at or above average 2012-2015. Harvest Control Rules are therefore available that are expected to reduce the exploitation rate as the point of PRI approaches (achieving <b>SG60</b>) but are not well defined or in place.</p> <p>1.2.2b. The harvest control rules have not been finalized, but the analysis on candidate target reference points provides some evidence of the main uncertainties. <b>(SG60-80)</b></p> <p>1.2.2c There is some analysis of candidate TRPs and the LRP that the available HCRs are appropriate in controlling exploitation (meeting SG 60). However, since harvest strategy has not yet been finalized or fully in place the tools cannot be measured against agreed target exploitation levels. <b>(SG60)</b></p> <p><b>WCPO Yellowfin tuna (<i>Thunnus albacares</i>)</b> The same rationale for bigeye tuna applies to yellowfin tuna.</p> <p><b>WCPO Skipjack Tuna (<i>Katsuwonus pelamis</i>)</b></p>
			60-79	60-79	
			60-79	60-79	

				<p>However, note that there is an objection ongoing with the PNA tuna fishery where it is argued that 1.2.2. may not reach <b>60</b></p>	<p>1.2.2a) A limit reference point (20% of spawning biomass) has been agreed in principle, and an interim reference point has been agreed of 50% of the spawning biomass in the absence of fishing (CMM 2015-06). At the 17<sup>th</sup> Scientific Committee meeting G. Pilling (SPC) presented 'Further updates to WCPO skipjack tuna projected stock status to inform consideration of an updated target reference point)' assessing the impact of setting the target reference point between 36% and 50% (WCPFC, 2021).</p> <p>1.2.2b. The harvest control rules have not been finalized, but the analysis of interim target reference points provides some evidence of the main uncertainties. <b>(SG60-80)</b></p> <p>1.2.2c There is some analysis of the interim TRPs and the LRP that the available HCRs are appropriate in controlling exploitation (meeting SG 60). However, since harvest strategy has not yet been finalized or fully in place the tools cannot be measured against agreed target exploitation levels. <b>(SG60)</b></p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>Continue to lobby WCPFC to agree and finalise harvest control rules including target reference points for bigeye, yellowfin and skipjack tuna as well as management procedures and strategy evaluation systems (MSE).</li> </ul>
	1.2.3	Information and monitoring	<b>&gt;80</b>	<b>&gt;80</b>	<p>1.2.3a There is sufficient information available on stock structure, stock productivity, fleet composition, stock abundance and UoA removals. There have been improvements in scientific data with catch and effort information from all CCMs and operational-level data from several major fleets. Purse seine fisheries have requirements for 100% observer coverage and work is underway to assist smaller countries with data collection. However, there are still some issues including a lack of longline observer data and limited data from some countries (ISSF, 2022) <b>(SG80)</b></p> <p>1.2.3b There is regular monitoring which allows for regular stock assessments and assessment against the interim and candidate reference points. <b>(SG80)</b></p> <p>1.2.3c There is information on the removals by other gear types e.g., longline and pole and line. <b>(SG80)</b></p>
	1.2.4	Assessment of stock status	<b>&gt;80</b>	<b>&gt;80</b>	<p>1.2.4a The stock assessment is appropriate for the stock and the interim and candidate reference points. <b>SG80</b></p> <p>1.2.4b The assessment estimates stock status relative to a range of reference points, including spawning biomass (SB) and exploitation (F) reference points. <b>SG80</b></p> <p>1.2.4c The assessment uses using the stock assessment framework MULTIFAN-CL and uncertainty is explored through a group of models that are run to</p>

					<p>explore the differences in biological assumptions, data inputs and data treatment. Stock status is therefore assessed in a probabilistic way. <b>SG100</b></p> <p>1.2.4d The assessment has been tested and shown to be robust to different model runs. <b>SG100</b></p> <p>1.2.4e Stock assessments are generally subject to peer review (including via internal scientific committee meetings); but no evidence was found of the latest assessments having yet been externally peer reviewed. <b>SG80</b></p>	
2	Primary species	2.1.1	Outcome	>80	>80	<p>Observer data for 6 vessels (2013-2018) and a separate 8 vessels (2012-2017) has been analyzed and illustrates that there are no main primary species other than discarded big eye, yellow fin and skipjack [if damaged beyond use]. Across all of the data sets these three species make up 99.6% of catches: Skipjack (82.4%); Yellowfin (13.5%); and Bigeye (3.7%).</p> <p>These species were evaluated in Principle 1 and all three are over the point of recruitment impairment (PRI) with a high degree of certainty.</p> <p>The minor primary species are: Blue marlin <i>Makaira mazara</i> (0.03% total catch over both data sets); Albacore <i>Thunnus alalunga</i> (&lt;0.001%); Swordfish (<i>Xiphias gladius</i>)(&lt;0.001%) and Striped Marlin <i>Kajikia audax</i> (&lt;0.0001%). These only have to be assessed to achieve 100 score.</p> <p>According to the most recent stock assessments: Pacific blue marlin biomass; northern and southern pacific Albacore and both North and South Pacific Swordfish populations are above PRI. The North Pacific Striped Marlin stock is overfished and experiencing overfishing but catches in this fishery make up a very small percentage of total catch. (Stock assessment information: <a href="https://www.wcpfc.int/folder/currenrt-stock-status-and-advice-key-documents">https://www.wcpfc.int/folder/currenrt-stock-status-and-advice-key-documents</a>).</p>
		2.1.2	Management strategy	>80	>80	<p>There are no main primary species. Of the minor primary species, there is no specific CMM for blue marlin but management advice given in 2016 (SC12) suggested keeping fishing mortality to current levels (2012-2014). CMM 2019-3 limits fishing effort for Northern Pacific Albacore, while CMM 2015-02 limits the number of vessels fishing for Southern Pacific Albacore. CMM 2009-3 limits the number of vessels and amount of fish caught for South-West Swordfish. In terms of shark-finning it is likely that shark finning is not taking place given that the fishing companies have shark finning policies in place which is independently audited through the ISSF Pro-active vessel register. Analysis of available observer has shown no evidence of shark finning, however up to date observer data across the entire fleet could confirm that there is a high degree of certainty that there is no shark finning.</p>
		2.1.3	Information	>80	>80	<p>There is quantitative information available through logbooks and independent observer coverage. For this review it was possible to access Observer data for 6</p>

					<p>vessels (2013-2018) and a separate 8 vessels (2012-2017). It would be useful to have more up to date data for the full assessment.</p> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>Access and analyze data across all 47 vessels (as there should be 100% observer coverage) and more up to date data (i.e. for years 2018-2022) to ensure it is fully representative.</li> </ul>
Secondary species	2.2.1	Outcome	>80	>80	<p>Observer data for 6 vessels (2013-2018) and a separate 8 vessels (2012-2017) has been analyzed and illustrates that there are no main secondary species. The most common minor secondary species (but none that make up more than 0.0001% of total catch )include: Rainbow Runner (<i>Elagatis bipinnulata</i>); Mackerel scad (<i>Decapturus macarellus</i>); Mahi mahi (<i>Coryphaena hippurus</i>); Trigger fish (<i>Canthidermis maculatus</i> and <i>Balistidae</i>); Black Marlin (<i>Makaira indica</i>); Wahoo (<i>Acanthocybium solandri</i>); and Frigate Tuna (<i>Auxis thazard</i>)</p> <p>These stocks are not assessed, but given the low catch values there is evidence that the UoA does not hinder recovery and rebuilding.</p>
	2.2.2	Management strategy	60-79	60-79	<p>It is expected that the low catches will not hinder rebuilding of secondary species stocks. It is likely that shark finning is not taking place given that the vessels are on the ISSF Pro-Active Register and observer reports have not indicated any shark finning. The fishery has also developed a ETP and no shark finning policy which includes best practice handling. However, further and up to date evidence would be needed in a full assessment to confirm that shark finning is not taking place.</p>
	2.2.3	Information	>80	>80	<p>Some quantitative information is available (catch records within observer reports) to assess the impact of the UoA on main secondary species and information is adequate, although more up to date observer records are needed.</p>
ETP species	2.3.1	Outcome	<60	<60	<p>ETP species will be affected as by-catch but also due to entanglement in FADs. There are an estimated 90,000-120,000 FADs released globally on an annual basis. While the fishery has signed up to the use of non-entanglement FADs and the trailing of biodegradable FADs (as well as recovering older entanglement FADs when they are encountered), there are still a large number of lost FADs that will continue ghost fishing.</p>

					<p>Yellowfin Purse Seine Fishery awarded this &gt;80, and Key Traceability, 2022 scores this as 60-79, but I would argue this does not score above &lt;60 until there is up to date and 100% observer data that records number of individuals and fate and the number of individuals caught or interacting with in use or lost FADs is still significant]</p>	<p>The observer data that is available (Observer data for 6 vessels (2013-2018) and a separate 8 vessels (2012-2017)) lists the following ETP species where there have been interactions:</p> <p><b>Sharks:</b>  Silky sharks  Whale shark  Oceanic whitetip shark  Blacktip shark  Bronze whaler shark  Scalloped hammerhead  Shortfin mako  Longfin mako shark  Great reef shark  Big eye thresher shark  Pelagic thresher shark  Blue shark  Silvertip shark  Tiger shark  Dusky shark</p> <p><b>Cetaceans:</b>  Rough toothed dolphin  Common dolphin  Bride's whale  Short finned pilot whale  Melon headed whale  Spotted dolphin  Indo-pacific bottle nosed dolphin  Risso's dolphin  Spinner dolphin  Long beaked common dolphin</p> <p><b>Turtles:</b> 90% reported released alive and well in the data set that recorded fates.  Green turtle  Leatherback turtle  Olive Ridley turtle  Loggerhead turtle  Hawksbill turtle</p>
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**Skates & rays:**

- Giant Manta ray
- Skate
- Pelagic sting ray

While the number of ETP species is not significant within this fishery compared to total catch, the overall tuna fisheries in the Western Central Pacific Ocean still account for a large number of individuals.

The following species are investigated in more detail as they are of particular concern account for over 3MT across the two data sets: silky sharks; whale shark; false killer whale, short-finned pilot whale; mobula sp. (rays), but it is assumed that a full assessment would need to consider all the species listed above.

**Sharks:**

**Silky Sharks (*Carcharhinus falciformis*)**

Silky sharks are listed as a CITES species and are susceptible to fishing pressure as they do not mature until they are over 12 years of age. Juveniles are often caught by purse seiners fishing around FADs.

The latest stock assessment for silky sharks (2018) found that the current biomass is not overfished, but that overfishing is occurring and there is a high probability that the biomass will fall below SBmsy in the next 5 years (WCPFC, 2019).

Observer data for 6 vessels (2013-2018) found that 7,552 individual silky sharks were caught over the period of 5 years (approx. 1,500 per year) with approximately 20% released 'alive and well'. Observer data for the 8 vessels (2012-2017) discarded 4,270 individuals over 5 years (approx. 800 individuals per year)., but also has three records of where silky sharks were retained in 2012, 2013 and 2014. Across both sets of observer data silky sharks only make up 0.0007% of total catches but if averaged out could account for around 5,000 silky sharks per year across all 47 vessels.

**Whale sharks (*Rhincodon typus*)**

Whale sharks are listed as a CITES species, and it is estimated that their population has reduced by 63% in the Indo-Pacific over the past 75 years. They have a very low population growth and are considered to be highly susceptible to fishing pressure. Global population has been estimated to be 100,000 to 250,000.

Observer data for 6 vessels (2013-2018) found that 54 individuals sharks were caught over the period of 5 years (approximately 10 a year across these six vessels). 36 of these were released alive and in good condition with 18 in an unknown condition. According to records 1 whale shark was retained in 2013. Observer data for the 8 vessels (2012-2017) found that there were 37 interactions with whale sharks over the 5 years, but observer records do not report their fate in this data set.

**False killer whale (*Pseudorca crassidens*)**

Observer data for 6 vessels (2013-2018) found that 104 individuals were caught over the period of 5 years (approximately 20 a year across these six vessels). >90% were alive and well when released. The population of false killer whales was estimated as 38,900 across all three major oceans (Wade and Gerrodette, 1993). If this was representative data, and there an estimated 1000 vessels operating across the Pacific Ocean this equates to interactions with 3,000 individuals in the Pacific Ocean alone. A recent compilation of available information on cetacean interactions in WCFPC purse seine fisheries recorded 655 interactions with False Killer Whales in 2019. (Williams et al., 2021)

**Mobula sp. (Rays)**

The Giant Manta ray (*Mantra birostris*) is listed within CITES and studies indicate that their populations are in decline and have reduced by globally more than 30% over the past 75 years.

Ray species that are mentioned in observer reports include the devil manta ray, giant manta ray, pelagic sting ray and non-specified ray species. The population of giant manta rays is difficult to assess but appears to be small ranging from 100 to 1,500 individuals (<https://www.fisheries.noaa.gov/species/giantmanta-ray>) . The observer data for this fishery suggests around 3mt of rays caught per vessel per year. There were some instances of retentions of mobula sp within the observer data in 2013, 2014 and 2016 before the conservation measure brought in 2019.

**Oceanic whitetip shark (*Carcharhinus longimanus*)**

The stock assessment in 2019 found that the stock is both overfished and overfishing has occurred, and that the population could go extinct in the long term if current levels of fishing pressure continue. There was an estimated 3.7mt of oceanic white tip caught across 14 vessels over 5 years within observer data for this fishery with three occurrences of retention in the fishery (two in 2013 and one is 2014).

					<p><b>Cetaceans:</b></p> <p><b>Short-finned pilot whale (<i>Globicephala macrorhynchus</i>)</b>  There was an estimated 7mt of short finned pilot whales caught across 14 vessels over 5 years. Across 6 vessels (2013-2018) this accounted for 63 individuals all recorded as released alive and well.</p> <p><b>Turtles:</b>  Six out of seven of marine sea turtles are threatened with extinction. Incidental catch of marine turtles occurs mainly when setting a purse seine around a FAD. It was estimated in 2018 that around 200 individuals are caught each year within the WCPFC area (Peatman et al., 2018). Within this observer data set (Observer data for 6 vessels (2013-2018) and a separate 8 vessels (2012-2017))there were interactions with 25 turtles in total. For the 6 vessels the fate was recorded and it was stated that 90% of turtles were released alive and well.</p> <p><b>Further comments:</b></p> <p>It is my opinion that observer data should be available that show the number of individuals for all ETP species across all vessels, and this should also be calculated across all MSC fisheries to illustrate cumulative impact. There is also a need for up to date observer data and clarity that shark species are no longer retained (with a small number of instances of retaining silky and oceanic white tip sharks found in the historical observer data), and improvements in identification of mobula sp (rays).</p> <p>In the new MSC standard it will be necessary to assess ETP species for favorable conservation status as well as assess the accuracy of the data that is available.</p>
	2.3.2	Management strategy	60-79	60-79	<p><b>1) Regional level</b>  There are various conservation and management measures in place at the level of the WCPFC:</p> <p><b>Sharks</b>  For sharks in general there is CMM 2019-04 which prohibits shark finning and requires certain mitigation measures as well as each individual shark to be tagged and numbered.</p>



**Whale sharks (*Rhincodon typus*)**

CMM 2012-04 covers the protection of whale shark and prohibits intentionally setting a purse seine if a whale shark is sighted. The WCPFC compliance report (WCPFC, 2021d) found that in 2020 there were 50 ongoing investigations related to CMM 2012-04 (Whale Sharks) and CMM 2011-03 (Cetaceans). There had been 279 investigations in 2019 resulting in 2 warnings and 3 sanctions. CMM 2019-04 provides guidelines for the safe release of an encircled whale shark.

**Silky Sharks *Carcharhinus falciformis***

CMM 2013-08 covers the management of silky sharks. This prohibits retaining silky sharks and requires observers to note the number of releases and their fate.

**Oceanic whitetip shark (*Carcharhinus longimanus*)**

CMM 2011-03 covers the management of oceanic white tip sharks and prohibits their retention as well as requiring observers to record specific data.

**Mobula sp:**

CMM 2019-05 covers the management of mobulid rays in the WCPFC area. Vessels cannot retain mobulid species, should not target them and must release them unharmed.

**Marine turtles:**

CMM 2008-03 covers the management of sea turtles which includes the use of mitigation techniques and best-practice on handling and release including the use of dip nets. It also prohibits encirclement if a sea turtle has been spotted.

**Cetaceans** e.g. short finned pilot whale and false killer whales).

CMM 2011-03 prohibits setting a net around a cetacean and to take all reasonable steps for its safe release.

**FAD management:**

Within CMM 2014-01 WCPFC requires countries to submit plans for use of FADs on the high seas. CMM 2021-01 sets a closed season for FADs for 3 months (July-Sept) and 2 additional months. All FAD must be a non-entangling design and vessels are encouraged to use biodegradable designs and make reasonable efforts to retrieve lost drifting FADs.

					<p><b>2) Fishery level</b></p> <p>In addition, at the fishery level, there is a ETP and no-shark finning policy (Key Traceability, 2021b) , which includes prohibition of shark finning , prohibits the retention of silky and oceanic white tip sharks and promotes the release and best-practice handling of all ETP species.</p> <p>The fishery also has a non-entangling and biodegradable fish aggregating devices public policy (Key Traceability, 2019) which requires all FADs to be non-entangling and to recover lost FADs where possible, and to engage in trials for full biodegradable FADs.</p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Ensure there is representative observer data which includes evidence that the relevant CMMs (for ETP species) are being adhered to e.g. use of dip nets for recovery and release of turtles.</li> </ul>
	2.3.3	Information	60-79	60-79	<p>There is generally good information available on ETP species although the observer reports available for this 3-year audit were historical (up to 2018) and did not include recent years' data. Furthermore, some of the data (for 6 vessels) was comprehensive and included information on the fate of individuals while the other data (covering 8 vessels) did not include information on fate. Most of the data was available to species level, but the quality of data on ray species did not appear to be as specific as needed.</p> <p>Information on logbook data was not provided for this audit so it was not possible to compare this data with observer records.</p> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>• It would be useful if observer records could confirm that the various CMMs that relate to ETP species (e.g. CMM 2019-04: safe release of an encircled whale shark) are being adhered to.</li> </ul>
Habitats	2.4.1	Outcome	>80	60-79 [due to the FAD element of the fishery]	<p>The pre-assessment determined that as the fishery takes place in deep water it would not have a negative impact on the benthos or commonly encountered habitats. It does not mention Vulnerable Marine Ecosystems (VME).</p> <p>Since the pre-assessment, however, there has been evidence presented in other MSC assessments e.g. SI WCPO skipjack and yellowfin purse seine fishery (SCS Global Services, 2022) whereby FADs impact on Coral Reef VMEs though the loss and beaching of FADs within this habitat. It is estimated that between 44,700 and 69,900 FADs are deployed within the WCPO (between 2017-2019),</p>

					<p>with between 8,534-12,391 interactions within coral reefs per year (Banks &amp; Zaharia, 2020).</p> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>Move towards biodegradable FADs as soon as possible and also develop a FAD recovery system.</li> </ul>
	2.4.2	Management strategy	>80	<p>60-79</p> <p>[Recently certified SI WCPO skipjack and yellowfin purse seine fishery scored this as 70.</p> <p>However, note that there is an objection ongoing with the PNA tuna fishery where it is argued that 2.4.2. may not reach 60]</p>	<p>The pre-assessment did not consider the impact of FADs on VMEs but the management of this now needs to be considered given its inclusion in other recent MSC assessments.</p> <p>There are various management measures in place related to the management of FADs (being the element with the most potential impact on the environment):</p> <ul style="list-style-type: none"> <li>CMM 2018-01 sets the limit of 350 active FADs per vessel, but recent research has shown that this does not limit the number of FADs deployed as this is the higher limit of FADs used. It also encourages the use of biodegradable FADs.</li> <li>CMM 2017-04 encourages the retrieval of lost FADS</li> <li>CMM 2021-01 sets a closed season for FADs for 3 months (July-Sept) and 2 additional sequential months.</li> <li>100% observer coverage gives confidence that management measures are being followed</li> </ul> <p>There has been a FAD Management Options Working Group set up by WCPFC which has put forward proposals for requirements to use biodegradable FADs.</p> <p>However, the recently certified SI WCPO skipjack and yellowfin purse seine fishery concluded that: <i>“There is not a truly cohesive arrangement of several measures intended to achieve an outcome as it relates to impact of FADs on coral reefs, thus the assessment team considers a partial strategy is not fully in place, thus the SG80 is not met.”</i> (SCS Global Services, 2022)</p> <p>Furthermore, within the ongoing objection related to the PNA tuna fishery that 2.4.2 should not reach 60 as there is a lack of clarity on whether CMM 2018-01 is being complied with.</p>
	2.4.3	Information	>80	60-79	<p>The pre-assessment did not consider information on the impact of FADs on VMEs now needs to be considered given its inclusion in other recent MSC assessments.</p>

				[Recently certified SI WCPO skipjack and yellowfin purse seine fishery scored this as 75.]	<p>The recently certified SI WCPO skipjack and yellowfin purse seine fishery (SCS Global Services, 2022) sets a condition for this PI as there is uncertainty the number of active FADs per vessel per month, the number of new FADs deployed per year, total number of FADs in the WCPO and locations of FADs that are lost and become beached. There is also a lack of fine resolution maps on the distribution of all habitats that might be impacted by the FAD fishery.</p> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>Ensure that all FADs are marked electronically and contribute to information on FADs in the region.</li> </ul>
Ecosystem	2.5.1	Outcome	60-79	60-79 [Note Key Traceability has rescored this as 80 and recent MSC assessments e.g. SI WCPO and WPSTA skipjack and yellowfin purse seine fisheries scored this as 80]	<p>The main potential detrimental impact of the fishery on the ecosystem is the FADs acting as an ‘Ecological Trap.’ (Key Traceability, 2020d). Due to the impact of FADs, this scores this element as 60-79.</p> <p>The Ecological Trap hypothesis describes where FADs lead fish to settle in potentially poor-quality habitats and this can alter the movement of species where populations following a drifting FAD are artificially transferred to less favorable parts of the ocean. Studies have observed that more juvenile fish are taken when fishing around FADs, and that the growth and plumpness of fish is greater in free school compared to those associated with FADs.</p> <p>The SI WCPO skipjack and yellowfin purse seine fishery assessment (SCS Global Services, 2022) did not consider the Ecological Trap Hypothesis but only looked at the following two elements of which the fishery was considered highly unlikely to disrupt:</p> <ul style="list-style-type: none"> <li>The Warm pool cold-tongue convergence zone – an oceanographic process</li> <li>The trophic structure – no evidence tuna fisheries are resulting in a trophic cascade.</li> </ul>
	2.5.2	Management strategy	60-79	60-79 [Recent MSC assessments e.g. SI WCPO and WPSTA skipjack and yellowfin purse seine fisheries scored this as >80]	<p>Additional management of FADs is needed, for example:</p> <ul style="list-style-type: none"> <li>Formalized FAD recovery scheme (Key Traceability, 2020d)</li> <li>Requiring all FADs to be biodegradable</li> </ul>
	2.5.3	Information	60-79	60-79	Additional information on FADs are required including:

					{Recent MSC assessments e.g. SI WCPO and WPSTA skipjack and yellowfin purse seine fisheries scored this as >80}	<ul style="list-style-type: none"> <li>Records of FADs by observers</li> <li>Logging the location of FADs by the fishery and reporting back to the commission</li> <li>Additional biological based studies to understand the ecological and biological differences between free school and FAD-associated tuna (Key Traceability, 2020d)</li> </ul>
3	Governance and Policy	3.1.1	Legal and customary framework	>80	>80	The WCPFC provides the regional framework which enables effective cooperation for the management of tuna and tuna-like species in the Western and Central Pacific Ocean.
		3.1.2	Consultation, roles and responsibilities	>80	>80	Roles and responsibilities within the WCPFC are explicitly defined and understood.
		3.1.3	Long term objectives	>80	>80	WCPFC sets long-term objectives within the articles of the convention.
	Fishery specific management system	3.2.1	Fishery specific objectives	>80	>80	WCPFC sets fisheries specific objectives through the Conservation and Management Measures (CMM).
		3.2.2	Decision making processes	>80	60-79	The SI WCPO skipjack and yellowfin purse seine fishery assessment (SCS Global Services, 2022) scored this element as 60-79 because WCPFC does not always respond to important issues in a timely manner (3.2.2b) <i>“Other important issues may not be responded to in a timely manner, as demonstrated by the inadequate control of fishing effort on bigeye tuna in response to stock status information. Another serious issue that the WCPFC has not yet fully addressed relates to transparency and limitations in the reporting of transshipment information (Seto et al. 2020).”</i>
		3.2.3	Compliance and enforcement	>80	60-79	The SI WCPO skipjack and yellowfin purse seine fishery assessment (SCS Global Services, 2022) scored this element as 60-79 as it draws on research on the level of IUU fishing in the region:” <i>(10.5% of estimated purse seine catch in the WCPO region) which was driven by reporting violations (largely due to under-reporting and misidentification of target species) and illegal fishing on FADs during closure periods (MRAG Asia Pacific 2016).”</i>
		3.2.4	Management performance evaluation	>80	>80	Review mechanisms exist for reviewing how CMMs have been implemented and how well they have performed.

## Environmental Workplan Results

Fill in the following table by reviewing the latest FIP's environmental workplan (see the FIP's Documents section on the Details tab on the FIP's FisheryProgress profile) and summarizing the results that have been achieved over the past three years (or since the last audit report was completed) by the FIP. A result is defined as:

- A regulatory policy change or regulatory action to improve the fishery (e.g., a new bycatch provision), or fishing practice change (e.g., a change in fishing gear developed voluntarily and implemented by the FIP) to improve the fishery
- A publicly verifiable positive change in the water (e.g., an increase in biomass of target stock, an increase in population of impacted protected species, a decrease in habitat or ecosystem impacted)
- An activity that led to an MSC performance indicator score change in the fishery

It is advised that auditors determine results through stakeholder consultation, however the FIP's Action Progress tab on FisheryProgress may also be a useful resource. For results to be valid, FIP participants must have directly worked on or contributed to the improvement through one or more actions/tasks in the FIP's environmental workplan. For each result:

1. Summarize the result in a short sentence
2. Identify the most closely related action(s), as they are listed on the FIP's Action Progress tab on the [FisheryProgress](#) profile
3. Identify the most closely related MSC performance indicator(s) impacted by the result
4. Provide an explanation of steps that the FIP participants took, or the how the FIP's work played a role in supporting and achieving the result

Result	Related Action on FisheryProgress	Related MSC Performance Indicator	Explanation
<b>Advocacy to WCPFC (direct and via flag states) to develop harvest strategies</b>	Develop Harvest Strategies for bigeye, yellowfin and skipjack tuna: Activities 1.1; 1.2	1.2.1; 1.2.2	<p>In January 2020 a review of the current harvest strategies for bigeye, yellowfin and skipjack tuna was completed (Key Traceability, 2020a). This review helped shape the advocacy letters (see below).</p> <p>The FIP has sent lobbying letters to WCPFC (and flag states) advocating for the development of harvest strategies:</p> <ul style="list-style-type: none"> <li>• A letter in January 2020 (Key Traceability, 2020b) requested for the timeframes for the development of harvest control rules and harvest strategies to be respected.</li> <li>• A Position paper in November 2020 (Key Traceability, 2020c) reiterated the request for harvest strategies to be developed and timelines to be respected.</li> <li>• Similarly, a position paper in November 2021 requested the development of target reference points for bigeye and yellowfin tuna and the development of management procedures for skipjack tuna.</li> </ul>

			<ul style="list-style-type: none"> <li>The Position paper in 2022 requests the adoption of a harvest strategy for skipjack and interim target reference points (TRPs) for yellowfin and bigeye.</li> </ul> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>Review outcome of bigeye stock assessment in 2023 as 2018 catch data indicates that overfishing may be occurring (although stock assessment based on 2014-17 data did not find evidence of overfishing).</li> <li>Continue to lobby WCPFC to agree and finalise harvest control rules including target reference points for bigeye, yellowfin and skipjack tuna as well as management procedures and strategy evaluation systems (MSE).</li> <li>Lobby WCPFC to respond to issues (e.g. adequate control of fishing effort of big-eye tuna, IUU fishing and transparency of transshipment information) in a timely manner (In relation to Performance Indicators 3.2.2. and 3.2.3)</li> </ul>
<b>FAD questionnaire for the fleet completed to understand status quo on FADs.</b>	Ecosystem impact of FADS: Activity 1.1; 1.2	2.5.3, 2.3.3	<p>A questionnaire on FADs was distributed to all vessels in February 2020 and the results of this analyzed to understand the status quo on FAD use:</p> <ul style="list-style-type: none"> <li>The questionnaire discovered that currently 25-100% of biodegradable material is used dependent on the vessel.</li> <li>This provides baseline data in order to measure improvements as the fishery moves towards using more biodegradable material across the fleet.</li> </ul>
<b>Paper summarizing current knowledge on the Ecosystem Trap Hypothesis of FADs</b>	Ecosystem impact of FADS: Activity 1.1; 1.2 FAD Management. Activity: 1.2	2.5.2, 2.5.3	A review has been undertaken on the Ecological Trap Hypothesis of FADs (Key Traceability, 2020d) which describes the situation where FADs lead fish to settle in potentially poor-quality habitats and this can alter the movement of species where populations following a drifting FAD are artificially transferred to less favorable parts of the ocean.
<b>Development of a FAD Policy</b>	Entangling FADs Activities: 1.1, 1.2 FAD Management. Activity 1.1,	2.5.1, 2.5.2, 2.3.1, 2.3.2	<p>The FIP has developed a FAD Policy (Key Traceability, 2019a) which commits the vessels to only deploy non-entangling FADs; comply with ISSF Best Practice for FAD management plans and ISSF Guide for non-entangling FADs; skippers to take part in training and for the fishery to engage in trials of biodegradable FADs; and for a FAD recovery strategy to be developed.</p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>Provide evidence that skippers have undertaken training on FADs</li> <li>Complete FAD strategy which includes a FAD recovery plan and requires all FADs to be biodegradable</li> <li>Provide verification evidence of the use of non-entangling and biodegradable FADs</li> </ul>
<b>All FADs in the fishery meet requirement by WCPFC as non-entangling FADs.</b>	Ecosystem impact of FADS: Activities: 1.1, 1.2 Entangling FADS: Activities 1.1, 1.2, 1.3	2.5.1, 2.5.2, 2.3.1, 2.3.2	The FIP has developed a FAD Policy (Key Traceability, 2019a) which commits vessels in deploying only non-entangling FADs. There is no current target for removal of lost FADs (which may be of the entangling type and can be of risk to sharks and turtles) but vessels remove FADs if they come across one of theirs (Tom Evans, Personal Communication, 26 <sup>th</sup> October, 2022).

	FAD management: Activity 1.1.		<p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>Formal FIP policy for marking and retrieving FADs</li> </ul>
<b>FIP has reviewed options for biodegradable FADs including 'jelly' FADs.</b>	Entangling FADs: Activity 1.3	2.5.1, 2.5.2, 2.3.1, 2.3.2	The FIP has undertaken a review of alternate designs for FADs (Key Traceability, 2019b). The FIP has also attended a presentation by ISSF on the potential use of jelly FADs (ISSF, 2021) and reviewed relevant literature (e.g. Moreno et al., 2021).
<b>Participation in a WCPFC /SPC and ISSF project to trial biodegradable FADs.</b>	Ecosystem impact of FADs; Activity 1.2;	2.5.1, 2.5.2, 2.3.1, 2.3.2	<p>Five vessels are participating in the WCPFC/SPC and ISSF BioFAD project which will be trailing jelly FADs. Each participating vessel will trial 20 Jelly FADs. This will therefore be a total of 100 biodegradable FADs compared to the average 170 deployed in this fishery per year.</p> <p>The FIP is also engaging with ISSF on how to incrementally increase proportion of biodegradable FADs to 100% (Tom Evans, Personal Communication, 26<sup>th</sup> October, 2022).</p> <p><b>Recommendations:</b></p> <p>Develop a FAD management plan which includes requirements to:</p> <ul style="list-style-type: none"> <li>Provide a timeline for moving to 100% biodegradable FADs as soon as possible and also develop a FAD recovery system.</li> <li>Ensure that all FADs are marked electronically and contribute to information on FADs in the region.</li> <li>Support additional biological based studies to understand the ecological and biological differences between free school and FAD-associated tuna</li> </ul>
The fishery has developed and is implementing an ETP and Shark Finning Management Policy	ETP Management Strategy & Information: Activity 1.1, 1.2, 1.3  Secondary species management strategies [shark-finning]: Activities: 1.1, 1.2, 1.3, 1.4	2.2.2	<p>The Fishery has developed an ETP and no-shark finning policy (Key Traceability, 2021b) , which includes prohibition of shark finning, prohibits the retention of silky and oceanic white tip sharks and promotes the release and best-practice handling of all ETP species.</p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>Verify implementation of ETP and shark finning policy through compiling evidence e.g. no shark finning recorded in observer reports, use of mitigation measures</li> </ul>
75% of skippers have been trained in best practice by-catch mitigation and handling techniques	ETP Management Strategy & Information: Activity 1.4  Secondary species management strategies [shark-finning]: Activities: 1.1, 1.2, 1.3, 1.4	2.3.1, 2.3.2  2.2.2	<p>75% of skippers have been trained in the fisheries ETP policy during a meeting in July 2022 . This follows the ISSF Skipper's Guidebook in which Chapter 3 covers Bycatch Mitigation and Handling (including sharks and rays) (ISSF, 2014).</p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>Complete skipper training on ETP policy and best practice bycatch handing and release.</li> </ul>



<p>Vessels have posted ETP identification guides and best practice policies on their vessels</p>	<p>ETP Management Strategy &amp; Information: 1.3</p> <p>Secondary species management strategies [shark-finning]: Activities: 1.1, 1.2, 1.3, 1.4</p>	<p>2.3.1, 2.3.2</p> <p>2.2.2</p>	<p>As part of the fisheries ETP policy, vessels have posted ETP identification guides on vessels.</p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Verify that the ETP policy is available on vessels and ETP identification guides have been posted in visible areas on the vessel.</li> </ul>
<p>All vessels are listed on the ISSF Proactive Vessel Register (PVR)</p>	<p>Entangling FADs Activity 1.1</p> <p>ETP Management Strategy &amp; Information (Activity 1.3)</p> <p>Secondary species management strategies [shark-finning]: Activities: 1.1, 1.2, 1.3, 1.4</p>	<p>2.3.1, 2.3.2</p> <p>2.2.2</p>	<p>All vessels are listed on the ISSF Proactive Vessel Register (PVR) (<a href="https://www.issf-foundation.org/vessel-and-company-commitments/proactive-vessel-register/proactive-vessel-register-pvr/">https://www.issf-foundation.org/vessel-and-company-commitments/proactive-vessel-register/proactive-vessel-register-pvr/</a>) which means that they sign up to the ISSF Conservation measures on best practice bycatch handling, no shark-finning, transparency and use of non-entangling FADS. This is then audited by an independent organization (MRAG Americas).</p>
<p>A selection of observer data has been acquired from flag states and catch/by-catch data analyzed</p>	<p>Secondary Species management Strategy: Activities 1.1</p> <p>ETP Management Strategy &amp; Information: 1.1</p> <p>Compliance and enforcement. Activity: 1.1</p>	<p>2.1.3, 2.2.3, 2.3.3,</p>	<p>A selection of observer data has been acquired from the flag states and has been analyzed to give information on the target and bycatch species caught and their fate, where this information was available.</p> <p>The two data sets include:</p> <ul style="list-style-type: none"> <li>• Raw Data 1: 6 vessels – 2012-2017 – this includes fate of bycatch</li> <li>• Raw Data 2: 8 vessels – 2013-2018 – this does not include fate of bycatch</li> </ul> <p>None of the observer data gives information on FAD use.</p> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>• Access and analyze data across all 47 vessels (as there should be 100% observer coverage) and more up to date data (i.e. for years 2018-2022) to ensure it is fully representative.</li> <li>• Ensure there is representative observer data which includes evidence that the relevant CMMs (for ETP species) are being adhered to e.g. use of dip nets for recovery and release of turtles.</li> <li>• Lobby WCPFC to improve observer records of type of FADs used, and bycatch mitigation methods</li> </ul>

## Supporting References

*Provide a list of references that are referred to within this document.*

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