ISSF Technical Report 2020-11

RECOMMENDED BEST PRACTICES FOR TROPICAL TUNA PURSE SEINE FISHERIES IN TRANSITION TO MSC CERTIFICATION, with Emphasis on FADs

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Abstract

This document summarizes recommended best practices for tropical tuna purse seine fisheries with a FAD component (i.e., with a portion of its sets on schools of tuna associated with fish aggregating devices) that aim to participate in Fishery Improvement Programs (FIPs) with the objective of achieving MSC certification. The recommended practices are linked to MSC Fishery Certification Requirements with suggested examples for concrete actions.

March 2020

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1.INTRODUCTION

A Fishery Improvement Project (FIP) addresses challenges in a fishery with an aim to be certified by the Marine Stewardship Council's (MSC) standards at the end of the project.

Many tuna fisheries have started to enter FIPs to tackle some of the problems that would prevent them from currently achieving MSC certification. This includes tropical tuna purse seine fisheries that make sets on drifting floating objects (generally referred to as “FADs” in this document, although these sets also include natural logs and other flotsam) as well as free-swimming schools of tuna. To date, most MSC-certified tuna purse seine fisheries are ones focusing on the free-swimming school component, the anchored FAD component, and the dolphin-associated component; only one drifting FAD fishery has been certified. The purpose of this document is to identify best practices for purse seine fisheries, with an emphasis on FADs for each of MSC Fisheries Standard Principles, Performance Indicators and Scoring Issues, including suggested concrete actions, as examples, to address those principles. Many of these good practices also apply to free-swimming school sets.

The recommendations provided here are not to be confused with the FAD Management Plans that RFMOs have adopted and that have to be reported by member states that have purse seine fisheries. Rather, this document focuses strictly on the MSC scoring guidance, which does not always coincide with RFMO management decisions and objectives. Moreover, the suggested set of concrete actions should not be considered exhaustive but rather as mere examples to choose from, which can lead to higher scores for fisheries that use FADs.

This document replaces an earlier version of the report (ISSF 2018-05). It has been edited for clarity, to reflect useful suggestions from stakeholders, and to include concrete examples of actions.

2.METHODOLOGY

The MSC Fisheries Standard consists of three Principles: Sustainable Fish Stocks (P1), Minimizing Environmental Impact (P2), and Effective Management (P3). For each one of these Principles, there is a set of Performance Indicators (PIs) that covers different aspects of the Principle. In turn, for each PI, there are one or more Scoring Issues (SIs).

This document makes use of the MSC Fisheries Certification Requirements and Guidance (version 2.01), which provides requirements for fisheries to be scored at various levels. A score of 80 or higher is required for an individual PI to "pass" without requiring a Condition to address weaknesses. This document uses the SG80 (Scoring Guidance for a score of 80) for the various SIs in the default assessment tree. For some PIs, there is no particular action with regards to FAD use or FAD management by the fishery that will result in higher MSC scores. However, there are often actions that the fleet can support (e.g., at the national or RFMO level) that can lead to score improvements.

Appendix 1 lists all of the PIs and their SIs and identifies actions as suggested concrete examples that are expected to lead to scores of 80 or higher. The recommendations below are best practice and examples of actions as the authors understand them based on their knowledge of different fisheries, the MSC system, RFMOs, and interviews with skippers and also what the authors believe is reasonably implementable. By no means is this list intended to be exhaustive or exclusive. These are simply recommended actions that, in the authors' view, can lead to higher scores for fisheries that use FADs. The best practices are then summarized in **Section 3**. Links to relevant ISSF tools and reports are provided.

NOTES ON UoA AND PRIMARY SPECIES

Currently, the MSC system allows Clients and Assessment teams to decide which fishing practices and which species are the candidates for MSC certification. These constitute the "Unit of Assessment" (UoA). This process lets Clients seek certification for some of the species that are targeted by assessing them under P1, while excluding others that are also targeted by assessing them under P2. In this document, it is assumed that tropical tuna purse seine FIPs want all of their target tropical tuna species (yellowfin, skipjack and bigeye) to be candidates for certification, i.e., to be assessed under P1. Therefore, none of these target species is treated as "Main Primary" species under P2.

Currently, purse seine fisheries can seek certification of only the free-swimming school component, excluding the FAD component. This will no longer be the case in the future due to a decision of the MSC Board of Trustees in January 2018 that will require all catches of the target species in a single trip to be assessed against the MSC standard. In this document, it is assumed that the purse seine FIPs will work to have both set types certified. Although more focus is placed on FAD fisheries, many of the recommended practices below apply to the fishery as a whole, regardless of set type.

3.SUMMARY OF RECOMMENDED PRACTICES

3.1. P1 (Sustainable Fish Stocks)

Stock status of the target tuna stocks ultimately depends on the impacts of fishing by all gears and fleets. It is unlikely that a single purse seine fishery in a FIP will have sufficient leverage to affect stock status unless it accounts for a significant proportion of the total catches (probably higher than 50%). There are various activities that a fishery should support (with the flag states, coastal states in whose EEZs they are licensed to operate, and in the relevant RFMO) that, once adopted and implemented, will ensure healthy stock status (Hampton et al. 2017).

Promote the adoption of measures by the RFMOs:

- The adoption of management measures (e.g., reduce effort, or the catch of small individuals through time/area closures) that clearly identify the shares of the catch and/or effort that should go to all of the different major gear types (purse seine, longline, pole and line, etc.) so that all sources of fishing mortality are managed (ISSF 2011a, 2011b), ensuring that the stocks fluctuate around levels consistent with MSY (or the target reference point, if the RFMO has adopted one).
- The adoption of harvest strategies (including reference points, clearly defined harvest control rules and monitoring mechanisms) that are consistent with the MSC requirements (IO-Skipjack HCR infographic, ISSF 2013a)
- Promoting the adoption at RFMOs of science-based capacity limits for all fishing gears and modes of fishing, including limits on the number of FADs or FAD sets
- If a target stock is overfished, supporting the adoption of a rebuilding plan at RFMO level that is consistent with the MSC rebuilding timeframes

Research and capacity building:

- Supporting Management Strategy Evaluation for testing harvest strategies and to support RFMO management objectives in general
- Participating in research that can lead to more selective fishing (Restrepo *et al*. 2018)
- Supporting research into stock structure and productivity if it is not already available
- Ensuring that flag state authorities know the composition of the fishery in detail and support an equal level of monitoring for all other fisheries and gear types
- Supporting research towards the development of a purse seine CPUE index as a proxy biomass indicator (particularly important for skipjack stock assessments) and/or catch-independent abundance indices using FAD echosounder biomass acoustic signals
- Supporting training of regional observers, to ensure a consistent supply of high-quality observers for the fishery; where carrying observers on board is problematic, support implementation of electronic monitoring as an alternative or a complement (Koehler 2020a)

Evaluate and assist compliance with RFMO requirements:

- Complying with flag state and RFMO reporting requirements for fisheries statistics, including required information on FAD data reporting. This should include species composition of the catch, catch/effort, and catch at size by set type in order to feed the information into stock assessments, as well as data on support and tender vessels if relevant.
- In case data gaps from the purse seine fishery are identified as a source of uncertainty in the stock assessments, the fishery should facilitate the submission of such data to the flag state and RFMO (RFMO science body).
- Reporting of additional FAD fishery information for assessment purposes. To improve stock assessments, purse seine fisheries can contribute by making available operational fishery data (e.g., for CPUE standardization) and satellite buoy data (tracks, echosounder estimates of biomass, etc.) to RFMO scientific bodies or National Institutes. Scientists will have the most options available to them for analyses by having access to all of the data, which can be achieved by buoy/vessel owners granting permission (with appropriate confidentiality agreements and time lags). Such data are not necessarily required by RFMOs, but they are useful to scientifically analyze the impact of FAD fisheries, particularly in terms of FAD densities in a particular area and time of the year.

3.2. P2 (Minimizing Environmental Impact)

NOTE ON SPECIES CLASSIFICATIONS

Primary species are those that are not under P1, but which have management tools and measures in place for them. **Secondary** species are those that are not in P1, are not Primary, and are not Endangered, Threatened or Protected (ETP). **ETP** species are those that are protected by national legislation and specific international agreements. In terms of volume, **Main** are those species whose catch is 5% or more of the total catch of all P1 and P2 species, and **Minor** are <5%, unless the species is considered "less resilient" or "vulnerable" (e.g. based on the life history or stock status), in which case the cut-off between main and minor is reduced to 2%. There is no distinction between main and minor for ETP species. A species may also be considered main if the total catch is very large (despite being a low percentage – i.e., in very high volume fisheries) or at the discretion of the MSC assessment team.

- If bigeye, yellowfin and skipjack are in P1 (UoA), there will unlikely be any **main primary** species in the tropical tuna purse seine fishery.
- **Minor primary species** will include albacore tuna and swordfish, which are assessed and managed, and in some cases also bluefin tuna. In some RFMOs, minor primary species may also include some of the small tuna species, mahi-mahi (although they would typically be secondary), some shark species (although some sharks may be treated as ETP), and billfishes such as sailfish and marlins if they have management measures in place.
- No single species is likely to be classified as **Main secondary** because catches of any individual species will be <<5% of the P1 catches.
- There are likely 40 or more **Minor secondary** species in the fishery. These will include some sharks (those that are not treated as ETP), small tunas, other bony fishes and billfishes.
- In the tropical tuna purse seine fishery, **ETP** species will normally include turtles, rays, whale sharks and cetaceans (even if the interaction rates are low), and some shark species, which in some ocean regions may include silky and/or oceanic whitetip sharks.

UNOBSERVED MORTALITY

Unobserved mortality is especially relevant when defining and assessing P2 components in FAD fisheries. According to MSC, the total impact of the fishery on all components in P2 needs to include both observed and unobserved fishing mortality. Unobserved mortality due to entanglement has been documented in FAD fisheries, and thus all mortality by FAD entanglement should be considered part of the total catch. On that basis, species like silky sharks might be added to the P2 list of **Main** secondary species, even if not part of the catch.

GENERAL

For **Primary** and **Secondary** species, the fishery should have a policy on bycatch management that includes:

- Reporting all catches and discards of minor primary species and secondary species
- Implementing 100% observer coverage (human or electronic) to support management (ISSF 2012; Koehler 2020a; Ruiz *et al*. 2016; ISSF CM 4.3)
- Promoting retention and utilization, unless retention is prohibited by management (Lewis 2014, 2016; ISSF CM 3.3)
- Following best practices to release unwanted catch alive (e.g., as in the ISSF Skippers Guidebooks). This includes sorting practices and equipment that allow for quick, safe and effective live release after sorting, and providing regular training for skippers and crew in bycatch handling
- Promoting research to further develop best practices for handling and safe release
- Using only non-entangling FADs (ISSF guide for non-entangling FADs; Murua *et al*. 2017; ISSF CM 3.5)
- Supporting research on bycatch mitigation (Restrepo *et al*. 2018 ; ISSF CM 3.1-3.6 infographic) and to reduce the bycatch of minor primary and secondary species
- Prohibiting shark finning and demonstrate that it is not taking place (e.g., through observer data or remote onboard monitoring) (ISSF Conservation Measure (CM) 3.1.a, b, c)
- Promoting monitoring and research on primary and secondary species so that the contribution of each fishery to overall fishing mortality of each stock is estimated
- Promoting research that can lead to more selective fishing
- Avoiding areas of high bycatch rates of minor primary and secondary species
- Supporting any efforts (by the RFMO and at the national level) to assess and manage minor primary and secondary species so that they are maintained at healthy levels of abundance
- Demonstrating compliance with any such management measures. (ISSF CM 1.2, 2.2)

For **ETP** species:

- Prohibiting the use of entangling FADs (ISSF guide for non-entangling FADs; Murua *et al*. 2017; ISSF CM 3.5) and supporting the mandatory requirement for non-entangling FADs in the RFMOs where they are not binding
- Following best-practice of live release methods to minimize mortality and document their use. This applies to whale sharks and cetaceans inadvertently encircled in the net, as well as to rays, turtles and ETP sharks brought

onboard. The fishery should support mandatory adoption of these practices by the flag state and RFMO and provide regular training to skippers and crew (ISSF Skipper Guidebooks, Murua et al. 2020, ISSF CM 3.4)

- Promoting research to further develop best practices for handling and safe release
- Reporting interactions and fate of any releases (e.g. released alive; discarded dead, injuries), and collect any data requested by scientists (e.g., photographs)
- Avoiding areas of high bycatch rates of ETP species
- Supporting management measures such as prohibition on intentional setting on whales, whale shark and mobulids, or prohibition of retention of ETP species
- For ETP species whose catch in the purse seine fishery is not negligible compared to the total catch (e.g., silky sharks), implementing further mitigation efforts such as avoiding sets on FADs with small tuna aggregations and releasing sharks alive from the net (Restrepo *et al*. 2016; shark bycatch mitigation infographic)
- Facilitating research that addresses mitigation of ETP species bycatch, and voluntarily adopt best practices when these become known
- Implementing 100% observer coverage (human or electronic) (ISSF 2012; Koehler 2020a; Ruiz *et al*. 2016; ISSF CM 4.3)
- Collaborating with other UoA and fleets to estimate overall interaction of ETP species and research on mitigation measure to reduce the cumulative impacts
- Participating in research programs that reduce mortality of ETP species outside the fishery — for example, ISSF projects to protect turtle nesting beaches can greatly increase turtle survival

For **Habitats**:

The purse-seine nets do not make contact with the seabed or biogenic reefs. However, some FADs do sink to the bottom of the ocean, and FAD construction material (e.g., netting) could contribute to marine debris and pollution. Moreover, a proportion of the FADs used in all purse seine fisheries end up in coral reefs that can be considered VMEs (vulnerable marine ecosystems). The overall impact of this has not been quantified, but the fishery should have a policy on FAD management that includes:

- Supporting efforts to assess the impact of beaching events on coral reefs in the different ocean regions
- Promoting the use of biodegradable FADs and further research in their design and use (Moreno et al. 2016, 2017; 2019)
- Participating in collaborative research projects to test biodegradable FADs
- Setting up arrangements with governments and NGOs in coastal countries to alert them of FADs drifting in their direction and to recover stranded FADs
- Providing FAD tracking data to quantify their impacts on coastal environments/VMEs and develop models of risk seeding areas
- Simplifying FAD structure, as deep FAD structures may not be necessary in every area/season. Fleets should investigate using shallower, simpler FADs.
- Developing a policy to recover FADs before they drift out of the fishing area and to take FADs out of the water at the end of the fishing season

- Supporting limits on the overall number of FADs used by purse seine fisheries in each RFMO
- Supporting efforts to improve FAD fishing at the RFMO and national level (e.g., in testing of biodegradable FAD designs, FAD impact studies, etc.)
- Reporting any information necessary to monitor whether the risk to coral reefs will increase in the future (e.g., number of FADs being used, changes in FAD use strategy)
- Investigating the cumulative impacts on habitats between different UoAs, FIPs and other FAD fisheries

For **Ecosystems**, some management measures for tuna stocks adopted by RFMOs indirectly serve as a partial strategy to limit the impact of tuna fisheries on ecosystems (e.g., limit on vessel capacity, number of FADs, banning of entangling FADs, setting of TACs, time-area closures, etc.). The main issues that need further research are the potential of FADs to act as so-called "ecological traps," the actual level of impact of FAD fisheries on coral reefs, and the contribution to marine pollution and debris (see Habitats, above).

The fishery should promote these actions:

- Supporting the implementation of management measures that ensure the ecosystem is closely monitored. All of the risks are linked to fishing effort, so it is essential that the fishery provides the required information on fishing effort (both free-swimming school and FAD sets) to the flag state and the RFMO.
- Reporting any other data identified as relevant as a result of research of FADs as ecological traps and FAD impacts on coral reefs
- Contributing to the research of FADs' contribution to marine debris and pollution
- Promoting and supporting work in RFMOs to improve information about the management of FADs

In **general**, as most of the impacts are associated with FAD fisheries, the fishery should have a policy on FAD management that includes the high-level elements identified in ISSF Technical Report 2019-11, and elaborated with examples in **Appendix 1**. This policy should address different actions under the high-level summary to tackle Principles 1, 2 and 3 of the MSC Certification:

- Complying with flag state and RFMO reporting requirements for fisheries statistics by set type
- Voluntarily reporting additional FAD buoy data for use by RFMO science bodies
- Supporting science-based limits on the overall number of FADs used per vessel and/or FAD sets made
- Using only non-entangling FADs to reduce ghost fishing
- Mitigating other environmental impacts due to FAD loss, including through the use of biodegradable FADs and FAD recovery policies
- For silky sharks (the main bycatch issue in FAD sets), implementing further mitigation efforts

3.3. P3 (Effective Management)

The management system for the fishery needs to be viewed in three levels: The RFMO where it operates, the flag state(s), and the countries in whose EEZs it is licensed to fish.

GENERAL

As with P1, there are a number of actions that the fishery must broadly support that would ensure effective management for all fisheries targeting tropical tunas, such as:

- Supporting a transparent mechanism for the resolution of legal disputes
- Supporting the development of an accurate active list of authorized vessels for the RFMO (Koehler and Moreno 2020, Van der Geest 2020)
- Promoting the adoption by RFMOs of a mechanism to evaluate compliance with the management measures adopted (Koehler 2020b)
- Supporting the correct implementation of the relevant RFMO management measures, and promoting protocols to address and correct non-compliance, and sanctions mechanisms in case of non-compliance
- Supporting explicitly defined and well-understood enforcement functions, roles and responsibilities at both the national and RFMO levels. The flag state should be an active member of the relevant RFMO (ISSF 2013b; Koehler 2020b; ISSF CM 1.2).
- Supporting the adoption of strong MCS framework and mechanism (vessel licensing and registration, VMS, electronic logbooks and reporting, observer coverage and the monitoring of landings or in-port transshipments), including Port State measures, at the RFMO level
- Supporting management objectives for both P1 and P2 in terms of sustainable use, MSY (or other targets if appropriate), and the precautionary approach to become part of the flag state fisheries legislation
- Supporting timely decisions by the RFMO to demonstrate that it takes action when one or more of the target stocks are being overfished, or to address data gaps, etc.
- Supporting transparency and effectiveness in the decision-making process. Advocate that the national and RFMO management systems includes such a participatory consultation process (Koehler 2020b).
- Supporting efforts for periodic review of the flag state and RFMO management systems

SPECIFIC TO THE FISHERY

- The vessels must be flagged to a country that is effectively a member of the RFMO, which provides the basis for international cooperation. This is the intent of ISSF CM 1.2.
- If the fishery has faced legal challenges at the RFMO level, flag state level, or in countries in whose EEZ it is licensed to fish, it should demonstrate how it has worked to comply with judicial decisions.
- The MCS system should work for the flag state and the RFMO, and also ensure the laws of the countries where the fishery is licensed to operate are in line with RFMO and international requirements (e.g., Port State Measures Agreement), and, if that is the case, that they are respected. MCS tools include vessel licensing and registration, VMS, electronic logbooks, observer coverage and the monitoring of landings or in-port transshipments (Koehler 2020b; ISSF CM 4.1-4.4). Electronic Monitoring systems are a good tool to complement or augment MCS capabilities (Ruiz et al. 2016; ISSF CM 4.3).
- The fishery should instruct skippers about regulations at the RFMO and flag state in addition to countries in whose EEZ the vessels are licensed to fish. Some VMS and EMS can be programmed to warn the vessel and managers when approaching an area where the vessel cannot legally fish.

4.CONCLUSIONS WITH A FOCUS ON FADs

There are many actions that a purse seine fishery participating on a FIP should undertake in order to be MSC certified. This includes monitoring, reporting and compliance elements for the fishery as a whole, regardless of set type. But it also includes collaborating with other fisheries and the management bodies to ensure that all sources of mortality are sustainably managed in a way that achieves the desired objectives.

In terms of managing FADs/FAD use alone, the high-level elements identified in ISSF Technical Report 2019-11, and elaborated with examples here, should be incorporated in a FAD Policy by FIPs and fleets. A FAD policy template is included as **Appendix 2**. This FAD policy template should address different actions under the high-level summary to tackle Principles 1, 2 and 3 of the MSC Certification:

- Complying with flag state and RFMO reporting requirements for fisheries statistics by set type
- Voluntarily reporting additional FAD buoy data for use by RFMO science bodies
- Supporting science-based limits on the overall number of FADs used per vessel and/or FAD sets made
- Using only non-entangling FADs to reduce ghost fishing
- Mitigating other environmental impacts due to FAD loss including through the use of biodegradable FADs and FAD recovery policies
- For silky sharks (the main bycatch issue in FAD sets), implementing further mitigation efforts

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APPENDIX 1- MSC Performance Indicators (FCR 2.01), Scoring Issues, Scoring Guidelines 80, and best practices to support SG80.

Many of the concrete examples of "best practice" actions that are given in the following table are highly repetitive. This is because there are some actions that are related and have repercussions on multiple scoring issues (e.g., collecting and reporting accurate catch by species affects many SIs, observer information also addressed many SIs of P1 and P2).

<table>
<tr><th>Scoring Issues</th><th>SG80</th><th>Best practices</th></tr>
<tr><td colspan="3">Principle 1</td></tr>
<tr><td colspan="3">PI 1.1.1 (stock status)
The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing.</td></tr>
<tr><td>(a) Stock status relative to recruitment impairment.</td><td>It is highly likely that the stock is above the PRI.</td><td rowspan="2">Stock status of a target tuna stock ultimately depends on the impacts of fishing by all fishing gears and fleets. It is unlikely that the fishery in a single FIP can affect stock status unless it accounts for a significant proportion of the fishing mortality. The fishery should support (with the flag states, coastal states where they are licensed to operate, and in the relevant RFMO):
Support the adoption of management measures that clearly identify the shares of the catch and/or effort that should go to different gear types;
Setting of catch or effort limits for the purse seine fishery and other gear types that will allow the stock to fluctuate around a level consistent with MSY (or the target reference point, if one has been adopted);
Analyses that can lead to scientifically-sound or precautionary limits on the number of FADs or FAD sets;
Support science-based limits on the overall number of FADs used per vessel and/or FAD sets made;
Other analyses that support RFMO management objectives (e.g. reduce effort, or the catch of small individuals through time/area closures);
Participate in research that can lead to more selective fishing.</td></tr>
<tr><td>(b) Stock status in relation to achievement of Maximum Sustainable Yield (MSY).</td><td>The stock is at or fluctuating around a level consistent with MSY.</td></tr>
<tr><td colspan="3">PI 1.1.2 (stock rebuilding)
Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe.</td></tr>
</table>

Scoring Issues	SG80	Best practices
(a) Rebuilding timeframes	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 (No SG80 guidance, SG60 guidance instead).	Similar comments to PI 1.1.1 apply. If the stock is overfished, the fishery should support the adoption by the relevant RFMO of rebuilding plans that are consistent with the MSC requirements for rebuilding timeframes. To support rebuilding plans, as possible sample actions, the fishery should: • Implement management actions to rebuild the stock within the rebuilding timeframes, • Support of additional capacity/fishing limits for all fleets involved catching the rebuilding stock, • Set lower active FAD limits than tRFMO limit, • Limit the annual purchase of buoys and buoys in stock, • Promote FAD marking schemes and FAD ownership to rely less on appropriated FADs, • Support effective time/area closures or total FAD closures of all tropical tuna fisheries in tRFMO long enough to reduce fishing pressure on target stocks.
(b) Rebuilding evaluation	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.	
PI 1.2.1 (harvest strategy) There is a robust and precautionary harvest strategy in place.		
(a) Harvest strategy design	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.	Similar comments to PI 1.1.1 and P1.1.2 apply. The fishery should support the adoption by the relevant RFMO of harvest strategies (including reference points, HCR and monitoring mechanisms) that are consistent with the MSC requirements. To support harvest strategies FIPs/fleets could implement actions described above under PI 1.1.1 and PI 1.1.2.
(b) Harvest strategy evaluation	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	
(c) Harvest strategy monitoring	Monitoring is in place that is expected to determine whether the harvest strategy is working (No SG80-100 guidance, SG60 guidance instead).	
(d) Harvest strategy review	No SG80 guidance.	

Scoring Issues	SG80	Best practices
(e) Shark finning	It is highly likely that shark finning is not taking place.	This scoring issue only needs to be scored when one of the target species is a shark, which should not be the norm in tropical tuna purse seine fisheries.
(f) Review of alternative measures	There is a regular review of the potential effectiveness and practicality of alternative measures to minimize UoA- related mortality of unwanted catch of the target stock and they are implemented as appropriate.	Similar comments to SI(a). The discard rate of target tuna species (skipjack, yellowfin, and bigeye) in the FAD fishery is relatively low, which varies between Oceans (Justel-Rubio and Restrepo, 2017). Moreover, all tuna RFMOs has in place prohibition of discards of target tropical tunas (IOTC Res. 19/05; ICCAT Rec. 17/01; IATTC Res. C-04-05 (rev 3), WCPFC CMM 18-01) except in various cases such as not being unfit for human consumption and/or not having storage capacity in the final set of the trip. Therefore, this SI may not apply. However, as possible sample actions, the fishery could: • Estimate target species discard trends to evaluate unwanted target species catch trends. • Promote other analyses to review the effectiveness of the discard prohibition resolution • Support analysis of alternative measures to reduce the catch of small unwanted individuals through time/area closures and/or other measures. • Avoid areas with high catch rates of small unwanted individuals of target species as a more effective management measure, • Participate in research that can lead to more selective fishing.
PI 1.2.2 (Harvest control rules and tools) There are well defined and effective harvest control rules (HCRs) in place.		
(a) HCRs design and application	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.	Similar comments to PI 1.1.1 apply. For the implementation of HCR, the fishery should support the timely adoption by the relevant RFMO of harvest control rules under Management Procedure framework that are consistent with the MSC requirements. As possible sample actions, the fishery should:

Scoring Issues	SG80	Best practices
(b) HCRs robustness to uncertainty	The HCRs are likely to be robust to the main uncertainties.	• Coordinate and align with other stakeholders (FIPs and MSC certified fisheries) to advocate for the adoption of HCR and suitable harvest strategies in tuna RFMOs, • Support research on Management Strategy Evaluation (MSE) to test HCR and Management Procedures (MPs) in relation to major uncertainties • Support research studies to investigate Biological Reference Points for target species.
(c) HCRs evaluation	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	
PI 1.2.3 (Information and monitoring) Relevant information is collected to support the harvest strategy.		
(a) Range of information	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	Similar comments to PI 1.1.1 and PI 1.2.3(b) apply. As possible sample actions, the fishery should: • Support research into stock structure and productivity if it is not already available, • Ensure that flag state authorities know fleet composition in detail and support an equal level of monitoring for all other fisheries and gear types. • Promote the training of regional observers, to ensure a consistent supply of high-quality observers for the fishery. • Support research towards the development of a purse seine CPUE index, in particular for skipjack, as a proxy biomass indicator for use in stock assessment and/or fishery independent abundance indices using biomass acoustic signal provided by echosounders.
(b) Monitoring	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.	Similar comments to PI 1.1.1 apply. To support stock assessment to determine stock status, as possible sample actions, the fishery should: • Comply with flag state and RFMO catch and effort reporting obligations as well as FAD data reporting; • Provide FAD activity data (deployments, visits, lost…) through FAD logbooks and FAD numbers/density through analysis of FAD data. • Voluntary provision of FAD associated data to estimate catch-independent abundance/biomass indices.

Scoring Issues	SG80	Best practices
(c) Comprehensiveness of information	There is good information on all other fishery removals from the stock.	As possible sample actions, the fishery should: • Support an equal level of monitoring for all other fisheries and gear types. • Advocate tuna RFMOs to implement measures towards improved, collection and monitoring of fisheries without insufficient monitoring.
PI 1.2.4 (Assessment of stock status) There is an adequate assessment of the stock status.		
(a) Appropriateness of assessment to stock under consideration	The assessment is appropriate for the stock and for the harvest control rule.	Similar comments to PI 1.1.1 and PI 1.2.3 (b) apply. The fishery must comply with its reporting obligations, report voluntary additional data (e.g. FAD) and support equal levels of monitoring for all other fisheries so as to enable robust stock assessments. In case lack of certain data from the purse seine fishery are identified as a source of uncertainty in the assessment (FAD data, buoy biomass data, etc..), the fishery should facilitate such data to the flag state and RFMO (RFMO science body). Data reported with sufficient time lag so as to not be commercially sensitive can still be useful for assessment purposes. The fishery should also support research to reduce major biological/fishery data uncertainties in the stock assessment/population dynamic (e.g. growth and reproduction research or fishery independent abundance indices).
(b) Assessment approach	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
(c) Uncertainty in the assessment	The assessment takes uncertainty into account.	
(d) Evaluation of assessment	No SG80 guidance	
(e) Peer review of assessment	The assessment of stock status is subject to peer review.	
Principle 2		
PI 2.1.1 (Primary species outcome) 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.		
(a) Main primary species stock status	Main primary species are highly likely to be above the PRI OR	**Primary** species are those that are not under P1, but which have management tools and measures in place. **Main** are species whose catch is 5% or more of the total catch of all P1 and P2 species. If yellowfin, skipjack and bigeye are all in the UoA,

Scoring Issues	SG80	Best practices
	If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main, to ensure that they collectively do not hinder recovery and rebuilding.	there is no other individual species likely to be classified as 'main primary' (bycatch rates for **all species** combined in floating object sets range from 1% to 8.4% depending on ocean region -- see ISSF Technical Report 2017-01). Therefore, this SI should not apply.
(b) Minor primary species stock status	No SG80 guidance	**Minor** primary species are all other species for which there are (RFMO or national) management tools and measures in place, but whose catch is <5% of the total catch of all P1 and P2 species; unless the species is considered “less resilient” or “vulnerable” (e.g. based on the life history or stock status), in which case the cut-off between main and minor is reduced to 2%. In all RFMOs these will include albacore tuna and swordfish, which are assessed and managed, and in some cases bluefin tuna. In some RFMOs, minor primary species will also include some of the small tuna species, mahi-mahi, some shark species (although some sharks may be treated as ETP) and billfishes such as sailfish and marlins if are assessed and management measures are in place. The amount of catches of these species in the fishery should be negligible compared to other fisheries (gears) and unlikely to hinder recovery if any minor primary species is overfished. As possible sample actions, the fishery should support: • Monitoring of bycatch and discards rates of minor primary species (albacore, swordfish, etc…) and investigate means to reduce the catch of minor species, if needed, • Provide bycatch and discard rates to RFMO to be included in their stock assessment, • Support the analysis and assessment of these species through data poor stock assessment methods which will allow estimation of stock status, • Other analyses that support RFMO management objectives to reduce the catch of minor species, if needed; • Participate in research that can lead to more selective fishing.

Scoring Issues	SG80	Best practices
PI 2.1.2 (Primary species management strategy) 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.		
(a) Management strategy is in place	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.	If the catches by the fishery are negligible, measures and a partial strategy may not be necessary. Nevertheless, the fishery should support any efforts (by the RFMO and at the national level) to assess and manage primary species so that they are maintained at healthy levels of abundance. Thus, as possible sample actions, the fishery should: • Support the stock assessment of primary species including fishing impacts by fleet so as to estimate the overall impact of the fishery in the population, • Support any efforts (by the RFMO and at the national level) to manage the species so that they are maintained at healthy levels of abundance, • Promote retention and utilization, unless retention is prohibited by management.
(b) Management strategy evaluation	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.	The amount of catches of these primary species in the fishery should be negligible compared to other fisheries (gears) and it is likely that there would be an objective basis to determine if management of these impacts be important in terms of maintaining the stocks at healthy levels. As possible sample actions, the fishery should: • Demonstrate compliance with any such measures that affect it (e.g. catch limits, closed areas),
(c) Management strategy implementation	There is some evidence that the measures/ partial strategy is being implemented successfully.	See above
(d) Shark finning	It is highly likely that shark finning is not taking place.	This applies only if some shark species have been designed as primary in the FIP. If so, the fishery should: • Prohibit shark finning and demonstrate that it does not take place (e.g. through observer data or remote onboard monitoring),

Scoring Issues	SG80	Best practices
		• Implementing 100% observer coverage (human or electronic) to support management.
(e) Review of alternative measures	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.	It is unlikely that there will be main primary species (see PI 2.1.1 SIa). However, in this particular case the fishery should support monitoring on bycatch and discards rates of the fisheries and investigate means to reduce unwanted/discard rates as appropriate. Moreover, as possible sample actions, the fishery should: • Follow best practices for safe release of unwanted primary species, • Promote further development of those best practices • Promote other analyses that support RFMO management objectives to reduce the catch of primary species • Support analysis to identify areas of high bycatch rates (e.g. hotspots), • Participate in research that can lead to more selective fishing. In summary, for minor primary species (which is similarly applicable to secondary PI 2.2.2 and ETP species PI 2.3.2), the fishery should have a policy on bycatch management that includes: • Reporting of catches and discards, • Promoting retention and utilization, unless retention is prohibited by management, • Following best practices to release unwanted catch alive (e.g. as in the ISSF Skippers Guidebooks). This includes sorting practices and equipment that allow for quick and gentle release after sorting, and providing regular training for skippers and crew in bycatch handling, • 100 % observer coverage either human or electronic, • Using only non-entangling FADs, • Supporting research on bycatch mitigation.
PI 2.1.3 (Primary species information) Information on the nature and amount of primary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species.		
(a) Information adequacy for assessment of impact on main primary species	Some quantitative information is available and is adequate to assess the impact of the	It is unlikely that there will be main primary species (see PI 2.1.1 SIa).

Scoring Issues	SG80	Best practices
	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.	
(b) Information adequacy for assessment of impact on minor primary species	There is no SG80 guidance	Even if the catches by the fishery are negligible, the fishery should support any efforts (by the RFMO and at the national level) to assess primary minor species so that they are maintained at healthy levels of abundance. Thus, as sample actions, the fishery should: • Report all catches and discards of minor primary species so that they are included in the assessments. This would allow estimation of the impact of the UoA on minor primary species with respect to status. • Implement 100 % observer coverage either human or electronic to monitor primary minor species catches and discard estimation, • Submit to RFMOs catch and catch/effort and size information through logbooks of primary minor species to inform stock assessment, • Support the collection of biological material for growth, fecundity, maturity, etc, studies to inform stock assessment,
(c) Information adequacy for management strategy	Information is adequate to support a partial strategy to manage main primary species.	There are no main primary species. If the catches by the fishery are negligible, measures and a partial strategy may not be necessary. Nevertheless, the fishery should support any efforts (by the RFMO and at the national level) to manage primary species so that they are maintained at healthy levels of abundance. Thus, as possible sample actions, the fishery should: • Promote retention and utilization, unless retention is prohibited by management. • Support the adoption of management measures of primary species.

Scoring Issues	SG80	Best practices
		• The fishery must demonstrate compliance with any such measures that affect it (e.g. catch limits, closed areas).
PI 2.2.1 (Secondary species outcome) 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 biologically based limit.		
(a) Main secondary species stock status	Main secondary species are highly likely to be above biologically based limits. OR If below biologically based limits, there is either evidence of recovery or a demonstrably effective partial strategy in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	Secondary species are those that are not in P1, are not Primary (see PI 2.1.1 SIa) and are not ETP. No single species is likely to be classified as **Main secondary** because individual catches will be <<5% of the P1 catches. However, it may apply if there is concern over bycatch or FAD-related mortality for a species which is not protected but less resilient (i.e. not ETP) and, thus, potentially at risk – e.g. silky sharks in some oceans. For these main secondary, if any, the fishery should: • Support any efforts (by the RFMO and at the national level) to assess and manage the species so that they are maintained at healthy levels of abundance. • Promote other analyses that support RFMO management objectives to reduce the catch of main secondary species, • Demonstrate compliance with any such measures that affect it (e.g. catch limits of billfishes).
(b) Minor secondary species stock status	There is no SG80 guidance	There are likely 40 or more **minor secondary** species in the fishery. These will include some sharks (those that are not treated as ETP), billfishes, pelagic stingrays, etc. The majority of the catches will be of minor tuna species, and many small bony fish species, all of which are thought to be highly productive. The catch of any one of these species individually is likely well below 0.5% of the total catch of P1 species. If any one of these species were overfished, it is unlikely

Scoring Issues	SG80	Best practices
		that the catch by the fishery will hinder their recovery. The magnitude of the catches needs to be corroborated with observer data. The fishery should support actions detailed above PI 2.1.1(a), PI 2.1.1 (b), and PI 2.2.1 (a).
PI 2.2.2 (Secondary species management strategy) 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.		
(a) Management strategy in place	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 are likely no main secondary species, unless there is concern over bycatch or FAD-related mortality for a species which is not protected but less resilient (i.e. not ETP) and, thus, nevertheless potentially at risk – e.g. silky sharks in some oceans. For minor secondary species, if the catches by the fishery are negligible, measures and a partial strategy may not be necessary. Nevertheless, the fishery should support any efforts (by the RFMO and at the national level) to assess and manage secondary species so that they are maintained at healthy levels of abundance. The fishery must demonstrate compliance with any such measures that affect it (e.g. catch limits, no retention policy). The fishery should promote actions above in PI 2.1.2 (a)
(b) Management strategy evaluation	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.	The amount of catches of the minor secondary species in the fishery should be negligible compared to other fisheries (gears) and it is likely that there would be an objective basis to determine if management of these impacts will matter in maintaining the stocks at healthy levels. The fishery should promote actions above in PI 2.1.2 (b)
(c) Management strategy implementation	There is some evidence that the measures/ partial strategy is being implemented successfully.	See above.
(d) Shark finning	It is highly likely that shark finning is not taking place.	Some shark species such as bull and tiger sharks could be classified as minor secondary. The fishery should:

Scoring Issues	SG80	Best practices
		• Prohibit shark finning and demonstrate that it does not take place (e.g. through observer data or remote onboard monitoring), • Implement best practices of safe and live release of minor secondary shark species, • Implementing 100% observer coverage (human or electronic) to support management.
(e) Review of alternative measures to minimise mortality of unwanted catch	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.	Actions described in PI 2.1.2 (e) and the suggested bycatch policy apply.
PI 2.2.3 (Secondary species information) 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.		
(a) Information adequacy for assessment of impact on main secondary species	Some quantitative information is available and is adequate to assess 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: Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	It is unlikely that there will be main secondary species. However, it may apply if there is concern over bycatch or FAD-related mortality for a species which is not protected but less resilient (i.e. not ETP) and, thus, potentially at risk – e.g. silky sharks in some oceans. As possible sample actions, the fishery should: • Monitoring bycatch data to estimate bycatch trends that will allow to assess the impact of the fishery, • Support the analysis of observer data to produce abundance indicator proxies to assess the impact of the fishery and improve the stock assessment.
(b) Information adequacy for assessment of impact on minor secondary species	There is no SG80 guidance.	The fishery must report all catches of minor secondary species so that they are included in the assessments, if any. This would allow estimation of the impact of the UoA on minor secondary species with respect to status. See above.

Scoring Issues	SG80	Best practices
(c) Information adequacy for management strategy	Information is adequate to support a partial strategy to manage main secondary species.	For minor primary species, as possible sample actions, the fishery should: • Implement 100 % observer coverage either human or electronic to monitor secondary species catches and discard estimation
PI 2.3.1 (ETP species outcome) The UoA meets national and international requirements for protection of ETP species. The UoA does not hinder recovery of ETP species.		
(a) Effects of the UoA on population/ stocks within national or international limits, where applicable	Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population/stock are known and highly likely to be within these limits.	ETP (Endangered, threatened or protected) species are those that are recognized by national legislation and specific international agreements. In the tropical tuna purse seine fishery, this will normally include turtles, some sharks and rays, whale sharks and cetaceans. In addition, some assessments may include as ETP the two shark species with the highest bycatch rates: silky and oceanic whitetip sharks (depending on RFMO or national protection regulations). ISSF Technical Report 2018-20 offers some information relevant to these. **Silky and oceanic whitetip shark** bycatches in the fishery are likely less than 0.5% of the catch of P1 species. However, the impact of purse seine fisheries relative to other gears likely varies by region. For instance, in the eastern Pacific PS catch of silky shark is <5% of the total, while in the western Pacific it is about 38%. Furthermore, if purse seine fisheries use FADs that are entangling, there will be additional unobserved mortality and thus higher impacts on the stocks. Up to 20% of the sharks brought onboard can survive if best practice release practices are used (see ISSF Skippers' Guidebook). Most RFMOs prohibit the retention and sale of silky and oceanic whitetip sharks by purse seine fleets and thus it is in the interest of the fleets to reduce these catches. **Whale sharks** are sometimes encircled by purse seine nets. These interactions are very low and usually result in the live release of the animal, so they probably would not hinder recovery of stocks that are at low levels. Three tuna RFMOs prohibit deliberate setting on whale sharks. Manta and devil **rays** are incidentally caught by purse seiners. These catches are low compared with other fisheries, and most rays can be released alive if best

Scoring Issues	SG80	Best practices
		practices are followed (see ISSF Skippers' Guidebook). The resulting mortality rate after using best release practices probably would not hinder recovery of stocks that are at low levels. Two tuna RFMOs prohibit intentional setting on mobulid rays and three of them the retention of mobulid rays. Sea **turtles** are caught in very small numbers by purse seine fisheries and over 90% of them will survive if best release practices are used (ISSF Skippers Guidebook). However, if purse seine fisheries use FADs that are entangling, there will be additional unobserved mortality and thus higher impacts on the stocks. The resulting mortality rate after using best release practices and non-entangling FADs probably would not hinder recovery of stocks that are at low levels. **Cetaceans** such as fin whales and false killer whales can also be encircled incidentally but these are rare occurrences. Best release practices can be used to ensure that these interactions do not hinder recovery. To assess the impacts of purse seine in all ETP species, as possible sample actions, the fishery should: • Report interactions and fate of any releases (e.g. released alive, discarded dead, injuries) to tuna RFMOs, and collect any data requested by scientists (e.g. photographs); • Implement and apply best practices for safe and live release of all ETP species and document their use; • Develop further and regularly best practices for safe and life release of all ETP species; • Use only non-entangling FADs and recover a percentage of all encountered "high entanglement risk " FADs according to the ISSF Guide for Non-Entangling FADs; • Supporting research on bycatch mitigation; • Avoid areas of ETP hotspots with high interaction rates, • Participate in research that can lead to more selective fishing, • Provide regular training to skippers and crew. (ISSF Skipper Guidebooks, Murua et al. 2018, ISSF CM 3.4).

Scoring Issues	SG80	Best practices
(b) Direct effects	Direct effects of the UoA are highly likely to not hinder recovery of ETP species.	If safe and live best release practices (see ISSF Skippers' Guidebook) and non-entangling FADs are used for all ETP species, it is highly likely that the fishery will not hinder recovery of any such species, except perhaps for silky sharks. In some regions, catch of silky shark by purse seiners is as high as 38% of the total silky shark catch. And, even with best release practices, about 80% of those individuals caught will die. Therefore, FIPs in those regions will need to implement further mitigation efforts (see ISSF Technical Report 2018-20) (see above actions under PI 2.3.1 (a).
(c) Indirect effects	Indirect effects have been considered for the UoA and are thought to be highly likely to not create unacceptable impacts.	Possible indirect effects on ETP include competition for forage species and disturbance of ETP species habitat. These are unlikely in the purse seine fishery.
PI 2.3.2 (ETP species management strategy) The UoA has in place precautionary management strategies designed to: - meet national and international requirements; and - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.		
(a) Management strategy in place (national and international requirements)	There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	With the exception of silky sharks in some regions, the impact of the fishery on ETP species is low, or can be low if best release practices are used. These practices can be adopted voluntarily by the fishery. In order to ensure that the entire purse seine fisheries minimize their impacts on ETP species, the fishery should: • Collaborate with the RFMO to adopt mandatory handling and safe and live release best practices for ETP species; • Support management measures such as prohibition on intentional setting or prohibition of retention of ETP species; • Use only non-entangling FADs and support the mandatory requirement for non-entangling FADs in the RFMOs where they are not binding;
(b) Management strategy in place (alternative)	There is a strategy in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	See previous SI.

Scoring Issues	SG80	Best practices
(c) Management strategy evaluation	There is an objective basis for confidence that the partial strategy/ strategy will work, based on information directly about the UoA and/or the species involved.	The use of any best practices such as non-entangling FADs and live release need to be documented and reported so that any such measures can be evaluated. Fisheries that do not have 100% observer coverage (human or electronic) should implement it and fisheries should support the adoption of 100% observer coverage at tuna RFMO level. Moreover, the fishery should support analysis of the efficacy of the management measures adopted (e.g. prohibition of retention) to assess if the strategy is being met.
(d) Management strategy implementation	There is some evidence that the measures/strategy is being implemented successfully.	See previous SI.
(e) Review of alternative measures to minimise mortality of ETP species	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA- related mortality of ETP species and they are implemented as appropriate.	The fishery should support analysis of the efficacy of the management measures adopted (e.g. prohibition of retention) to assess if the strategy is being met. To investigate alternative measures to reduce UoA related ETP mortality, the fishery should: • Facilitate research that addresses mitigation of ETP species bycatch; • Promote regular research to improve best practices of handling and safe release practices; • Support skippers to participate in ISSF Skippers' Workshops and/or promote skippers' workshops for they fleet; • Collaborate with other UoA and fleets to estimate overall interaction of ETP species and research on mitigation measure to reduce the cumulative impacts; • Participate in research programs that reduce mortality of ETP species outside the fishery. For example, ISSF projects to protect turtle nesting beaches can greatly increase turtle survival.
2.3.3 (ETP species information) Relevant information is collected to support the management of UoA impacts on ETP species, including: - information for the development of the management strategy;		

Scoring Issues	SG80	Best practices
- information to assess the effectiveness of the management strategy; and - information to determine the outcome status of ETP species		
(a) Information adequacy for assessment of impacts	Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	The use of entangling FADs is problematic because they result in unobserved mortality of some ETP species like turtles and sharks. Most sharks that are entangled only remain entangled for less than two days before falling off, so these interactions are extremely unlikely to be detected. Entangling FADs must be prohibited by the fishery. Observer data are the main source of information for ETP species interactions. For very rare interactions (e.g. with cetaceans), 100% coverage is needed for adequacy. This percent coverage is already required for most purse seine vessels in the Pacific Ocean. Therefore, the fishery should: • Support the adoption by the RFMOs of 100% observer coverage (human or electronic). • Document the inventory and use of equipment for the handling and safe release techniques; • When possible, lift FAD out of the water for an appropriate data collection on the type of FAD used and interactions.
(b) Information adequacy for management strategy	Information is adequate to measure trends and support a strategy to manage impacts on ETP species	See SI above.
PI 2.4.1 (Habitats outcome) The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.		
(a) Commonly encountered habitat status	The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The purse seine fishery takes place in the epipelagic ecosystem. The purse seine nets do not make contact with the seabed or biogenic reefs. However, some FADs do sink to the bottom and FAD construction material (e.g. netting) could contribute to marine debris and pollution. While the structure and function of these habitats is unlikely to be harmed substantially, the FIP should support: • Research into biodegradable materials for FAD construction;

Scoring Issues	SG80	Best practices

		• Participation in research collaborative projects to test biodegradable FADs;
		• Test biodegradable FADs, using local materials if possible. For example:
		  ○ **Raft:** Rafts should be constructed using bamboo, balsa wood or other natural materials that degrade without producing pollution on the marine environment. For FAD flotation, the use of plastic buoys and containers should be reduced as much as possible (e.g., reducing the weight and volume of the FAD structure would require less flotation).
		  ○ **Tail**: Only natural and/or biodegradable materials (cotton ropes and canvas, manila hemp, sisal, coconut fiber, etc.) should be used, so that they degrade without causing impact on the ecosystem. Test biodegradable FADs, using local materials if possible.
		• Deploy a percentage of FADs with only biodegradable materials except for floatation components of the raft, for which the use of non-biodegradable material should be reduced as much as possible, with an aim to increase this to 100% in the future.
		• Support and collaboration with tuna RFMO Working Groups on FADs research (e.g. in improvement of biodegradable FAD designs, FAD impact studies).
		
		The fishery and FIPs should also investigate cumulative impacts on habitats. Also, some FADs drift away from the fishing area and end up beaching on coral reefs (see next SI).

(b) VME habitat status	The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	Currently, a proportion of the FADs used in all purse seine fisheries end up in coral reefs which can be considered VMEs (vulnerable marine ecosystems). Although the overall impact of this has not been quantified, the fishery should support efforts to assess the impact of these events on coral reefs in the different ocean regions. The fishery and FIPs should also investigate cumulative impacts on VME habitat status. Therefore, as sample possible actions, the fishery could: • Reduce the number of FADs to mitigate impacts from beaching;

Scoring Issues	SG80	Best practices

		• Simplify FAD structure as deep FAD structures may not be necessary in every area/season. Fleets should investigate using shallower, simpler FADs;
		• Provide FAD track data to quantify their impacts on coastal environments and develop models of risk seeding areas;
		• If there are known deployment areas that are identified having a high risk that the FADs will end up beaching, avoid those areas;
		• Develop a policy to recover a percentage of the FADs that are deployed before they are lost or drift out of the fishing zone. Initiatives could include:
		  ○ removing from the water a percentage of FADs encountered that are an entangling and non-biodegradable FAD or
		  ○ removing a given number of FADs towards the end of a trip or the end of the fishing season.
		• Recover stranded FADs from vulnerable habitats in collaboration with different stakeholders (e.g. NGOs). Provision of positional satellite buoy data on beached FADs would facilitate recovery;
		• Allow buoys to report at least once per day while they are in the water.

(c) Minor habitat status	There is no SG80 guidance.	Some FADs may come ashore on rocky, sandy or muddy shoreline, which are considered minor habitats, and it is not likely that this would cause serious or irreversible harm to these habitats. The actions above will also apply and reduce the impact on minor habitat of the FAD fishery.
PI 2.4.2 (Habitats management strategy) There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.		
(a) Management strategy in place	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	A management strategy is probably not necessary for managing impacts on the seabed and/or epipelagic system. However, the fleet should work towards the implementation of biodegradable FADs to reduce plastic related marine pollution and debris (see above). For coral reefs, a management strategy should be developed by the fishery. This could include the actions described above under PI 2.4.1 (a) and (b)
(b) Management strategy evaluation	There is some objective basis for confidence that the measures/ partial	Any strategy such as those listed on the above PI 2.4.1 and 2.4.2 (a) needs to be documented and quantified. For this, as sample actions, the fishery could:

Scoring Issues	SG80	Best practices
	strategy will work, based on information directly about the UoA and/or habitats involved.	• Provide FAD data on the position of FADs to quantify their impacts on coastal environments, to develop models of risk seeding areas, and to measure the efficiency of the initiatives taken to mitigate the loss and stranding events of FADs. • Participate in coordinated research projects that would allow tracking the lifetime of FADs and allow buoys to report at least once per day while they are in the water to know their fate and understand beaching mechanisms.
(c) Management strategy implementation	There is some quantitative evidence that the measures/ partial strategy is being implemented successfully.	See above
(d) Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs	There is some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/ non-MSC fisheries, where relevant.	Evidence of compliance with any strategy as in SIa needs to be available and documented. The fishery should: • Demonstrate compliance with any management measures to FAD fisheries (limits, provision of data, etc.). • Collaborate with other fisheries to (i) reduce cumulative effects and (ii) be informed of any other protection measures applied by particular fisheries to comply with.
PI 2.4.3 (Habitats information) Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.		
(a) Information quality	The nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and vulnerability of both the epipelagic ecosystem and the VME (coral reefs) are well known in all oceans.

Scoring Issues	SG80	Best practices
(b) Information adequacy for assessment of impacts	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	There is extensive information on the extension and status of coral reefs globally. The impact of derelict FADs on these habitats is known, but it is not well documented in most areas. Thus, the fishery should • Support research aimed to assess the level of impact of FAD fisheries on these habitats; • Provide FAD data on the position of FADs to quantify their impacts on coastal environments; • Participate in coordinated research projects that would allow tracking the lifetime of FADs and allow buoys to report at least once per day while they are in the water to know their fate and understand beaching mechanisms
(c) Monitoring	Adequate information continues to be collected to detect any increase in risk to the main habitats.	The fishery must continue reporting any information necessary to monitor whether the risk to coral reefs increases (i.e. FAD track). This would include any available information necessary to identify a potential increase in interaction between the fishery and these habitats (e.g. VMS positions, FAD tracks, number of FADs used).
PI 2.5.1 (Ecosystem outcome) The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.		
(a) Ecosystem status	The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	Tropical tuna purse seine fisheries probably do not cause significant changes in marine ecosystems. However, the potential of FADs to act as 'ecological traps', as well as the potential impact of derelict FADs on ecosystem components are still not well understood. Therefore, the fishery should support any research aimed at better understanding these two issues (see above for impact of derelict FAD on ecosystem/habitat components).
PI 2.5.2 (Ecosystem management strategy) There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.		
(a) Management strategy in place	There is a partial strategy in place, if necessary, which takes into account available information and is expected to restrain impacts of the UoA on the	General management measures for tuna stocks adopted by RFMOs indirectly serve as a partial strategy to limit the impact of tuna fisheries on ecosystems (e.g. limit on vessel capacity, number of FADs, banning of entangling FADs, setting of TACs, time-area closures etc.). The fishery should adopt FAD management measures and

Scoring Issues	SG80	Best practices
	ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	promote and support work in RFMOs to improve information about and management of FADs.
(b) Management strategy evaluation	There is some objective basis for confidence that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	The fishery should be engaged with the relevant RFMO to support that the implementation of management measures (described in the previous SI) is closely monitored. All the risks are linked to fishing effort, so it is essential that the fishery provides the required information on effort (both free swimming school and FAD sets) to the flag state and the RFMO.
(c) Management strategy implementation	There is some evidence that the measures/partial strategy is being implemented successfully.	Evidence that the measures are being implemented successfully are primarily at the level of the relevant RFMO. This includes fishing effort data, monitoring of the impacts of the fishery (e.g. through stock assessments) and compliance with existing management measures.
PI 2.5.3 (Ecosystem information) There is adequate knowledge of the impacts of the UoA on the ecosystem.		
(a) Information quality	Information is adequate to broadly understand the key elements of the ecosystem.	Information on the components of oceanic ecosystems worldwide is available from several international scientific institutions such as FAO, NOAA, RFMOs, etc.; as well as from local governments.
(b) Investigation of UoA impacts	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail.	See SI 2.5.1. (a)
(c) Understanding of component functions	The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are known.	The main issues that need further research are the potential of FADs to act as ecological traps, marine pollution/debris (see PI 2.4.1 (a)) and the actual level of impact of FAD fisheries on coral reefs (see PI 2.4.1 (b)). The fishery should support efforts in these two research areas.
(d) Information relevance	Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	See previous SI.
(e) Monitoring	Adequate data continue to be collected to detect any increase in risk level.	Data collected as part of existing RFMO tuna management measures are a source of data to assess potential impact to ecosystem components. Additionally, fisheries

Scoring Issues	SG80	Best practices
		must report any other data identified as relevant as a result of research of FADs as ecological traps and FAD impacts on coral reefs (i.e. FAD tracking data – see above).
Principle 3		
PI 3.1.1 (Legal and/or customary framework) The management system exists within an appropriate and effective legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s) - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework.		
(a) Compatibility of laws or standards with effective management	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	The management system for the fishery needs to be viewed in terms of the flag state(s), the RFMO where it operates, and the countries in whose EEZs it is licensed to fish. The vessels must be: • Flagged to a country that is effectively a member of the RFMO, which provides the basis for international cooperation. This is the intent of ISSF Conservation Measure 1.2. • Registered and authorized to fish by the CPC; • Listed in the active list of authorized vessels of the RFMO; • Registered and authorized to fish by the EEZ it is licensed to fish.
(b) Resolution of disputes	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.	The fishery must advocate for a transparent mechanism for the resolution of legal disputes at both the national and RFMO levels, if such mechanisms do not exist. Thus, the fishery should • Support a binding resolution at RFMO level with a protocol to dispute any legal matter, • Promote a National level management system or law for a transparent mechanism for the resolution of any legal dispute.

Scoring Issues	SG80	Best practices
(c) Respect for rights	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	All tuna RFMOs contemplate this aspect in their management systems to some degree (for example in quota allocations). Purse seine fisheries should advocate for the correct implementation of the relevant RFMO measures, if necessary.
PI 3.1.2 (Consultation, roles and responsibilities) The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.		
(a) Roles and responsibilities	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction	Generally, the RFMOs will have well understood Rules of Procedures with clear roles for monitoring, stock assessment and management. Enforcement will likely be at the national level. The fishery must advocate for explicitly defined Rules of Procedures at RFMO level and well understood functions, roles and responsibilities at both the national and RFMO levels, if necessary.
(b) Consultation processes	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained	At the RFMO level, the consultation processes differ. In most cases, local knowledge is provided by the RFMO member countries. And, relevant information from NGOs, industry and other stakeholders is usually considered (although not always accepted). The scoring of this SI may be more variable at the national level. The fishery should advocate that the national management system includes such a participatory consultation process.
(c) Participation	The consultation process provides opportunity for all interested and affected parties to be involved.	
PI 3.1.3 (Long-term objectives) The management policy has clear long-term objectives to guide decision- making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach.		
(a) Objectives	Clear long-term objectives that guide decision- making, consistent with MSC Fisheries Standard and the precautionary	Long-term general objectives tend to be clear in RFMOs in terms of sustainable use, MSY, and the precautionary approach. However, specific species long-term objectives are not always developed/agreed at RFMO level. Thus, the fishery

Scoring Issues	SG80	Best practices
	approach, are explicit within management policy.	should promote and support the development of species specific long-term management objectives to be articulated into the Harvest Strategies (see PI 1.2) At the national level this is not necessarily the case. If it is not, the fishery should advocate so that RFMO management objectives become part of the national fisheries legislation.
PI 3.2.1 (Fishery-specific objectives) The fishery- specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.		
(a) Objectives	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery- specific management system.	See P1 and P2 in general. The RFMO should have short and long-term objectives for bigeye, yellowfin and skipjack (the P1 species) as well as for P2 species. If this is not the case, the fishery should engage with its flag state to ensure management objectives are established at the fishery level in conjunction with the RFMO. The fishery should also promote the adoption of those fishery-specific objectives in National Fishery Management Plans. When doing so, the fishery should consider the cumulative impacts of other UoA/fisheries (particularly for P2)
PI 3.2.2 (Decision-making processes) The fishery- specific management system includes effective decision- making processes that result in measures and strategies to achieve the objectives and has an appropriate approach to actual disputes in the fishery.		
(a) Decision- making processes	There are established decision- making processes that result in measures and strategies to achieve the fishery-specific objectives	Scoring of these SIs will vary by RFMO. It is important that the RFMO demonstrates that it takes action when one or more of the target stocks are being overfished, to address data gaps, etc. The fishery should promote this adaptive decision-making and act proactively to build support for action (e.g. by lobbying their flag state, working with other FIP fisheries etc.). The fishery should adopt, implement and verify the compliance with any management measure adopted by the RFMO consistent with MSC Fisheries Standard and the precautionary approach. Moreover, the fishery should: • Support a strong RFMO Compliance Committee; • Support and promote resolutions on non-compliance by RFMOs, • Support and promote protocols to address and correct non-compliance, • Support RFMO Resolutions on precautionary approach and best available science, if lacking.
(b) Responsiveness of decision-making processes	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.	
(c) Use of precautionary approach	Decision- making processes use the precautionary approach and are based on best available information.	

Scoring Issues	SG80	Best practices
(d) Accountability and transparency of management system and decision-making process	Information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring evaluation and review activity.	Information on tropical tuna purse seine fisheries is generally available, although it is only improving in recent years with regards to FADs. However, it is not always clear how available information has been used or why it has not been used to inform monitoring and management actions. The fishery should support transparency in the decision-making process and in the implementation of any management measure by the fishery (e.g. quota control). The fishery should also contribute to its Country specific Compliance reports on the implementation and progress of fulfilment of different management regulations to be presented to the Compliance Report.
Approach to disputes	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	If the fishery has faced legal challenges at the RFMO level, flag state level, or in countries in whose EEZ it is licensed to fish, it should demonstrate how it has worked to comply with judicial decisions in a transparent manner. The fishery should demonstrate that vessels are listed in the active list of authorized vessels of the RFMO, registered and authorized to fish by the CPC, and authorized to fish by the EEZ it is licensed to fish.
PI 3.2.3 (Compliance and enforcement) Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.		
(a) MCS implementation	A monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	MCS tools include vessel licensing and registration, VMS, electronic logbooks, observer coverage and the monitoring of landings or in port transshipments. Electronic Monitoring systems are a good tool to complement or augment MCS capabilities. The MCS system should work for the flag state, the RFMO and also to ensure the laws of the countries where the fishery is licensed to operate are followed. The fishery should implement and promote the adoption of MCS best practices (VMS, electronic reporting, observer coverage), including Port-State measures, at RFMO level. The fishery should also develop a transparent mechanism to demonstrate compliance with any management measure adopted by the RFMO consistent with MSC Fisheries Standard and the precautionary approach.

Scoring Issues	SG80	Best practices
(b) Sanctions	Sanctions to deal with non- compliance exist, are consistently applied and thought to provide effective deterrence.	The scoring of this SI will depend on the RFMO, flag state and license countries and the fishery should be able to provide this evidence. However, the fishery should: • Advocate for a resolution on sanctions on case of non-compliance at RFMO level, • Support, at flag state and license country level, a fishery management system and protocol including sanctions for non-compliance; but also data as above for VMS, fishery data collection, logbooks, and observer data.
(c) Compliance	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	The fishery should make available this evidence. In addition, it would be good practice for the fleet manager to instruct skippers about regulations at the RFMO and flag state in addition to countries in whose EEZ the vessels are licensed to fish. Some VMS and EMS can be programmed to warn the vessel and managers when approaching an area where the vessel cannot legally fish. The fishery should support the adoption by RFMOs of a strong mechanism to evaluate compliance with the management measures adopted. The fishery should report to RFMO Compliance Committee, through its flag state, how they implement RFMO management measures.
(d) Systematic non-compliance	There is no evidence of systematic non-compliance.	
PI 3.2.4 (Monitoring and management performance evaluation) There is a system for monitoring and evaluating the performance of the fishery- specific management system against its objectives. There is effective and timely review of the fishery- specific management system.		
(a) Evaluation coverage	There are mechanisms in place to evaluate key parts of the fishery-specific management system.	Key parts of the fishery-specific management system will be at the RFMO and flag state level and it should be easy to demonstrate the mechanisms in place. The fishery should demonstrate the correct implementation of RFMO management resolutions (see above) in relation to fishery short- and long-term objectives for target/bycatch species and P1-2.

Scoring Issues	SG80	Best practices
(b) Internal and/or external review	The fishery- specific management system is subject to regular internal and occasional external review.	External reviews of all RFMOs have taken place. The fishery should support regular external reviews of RFMO and efforts to review the flag state management system if they are absent.

APPENDIX 2- FAD Policy Template

FOR ISSF CONSERVATION MEASURE 3.7
Transactions with Vessels or Companies with Vessel-based FAD Management Policies
EXAMPLE POLICY LANGUAGE

NOTE: *Fields in green to be filled out by the company with the relevant information.*

NOTE: *In each of the best practices categories, different commitments are identified. For each of the commitments more than one possible agreement/statement are provided. Include all the statements/agreements that apply in each commitment and delete the rest. If "none" of the agreement/statement apply to some of the commitment, delete all options of that particular commitment.*

[Company Logo]

Starting on _____, COMPANY/VESSEL NAME requires onboard its vessel(s) the use of the following best practices for FAD management, identified in ISSF Technical Report 2019-11 "*Recommended Best Practices for FAD management in Tropical Tuna Purse Seine Fisheries*":

a) Comply with flag state and RFMO reporting requirements for fisheries statistics by set type

We commit to:

- **Filling out completely and accurately the logbooks, including FAD logbook information, by set type required by [Flag State/tRFMO] and submitting them by electronic reporting to the required authority and/or RFMO; or**
- **Filling out completely and accurately the logbooks, including FAD logbook information, by set type required by [Flag State] and submitting them to the required authority and/or RFMO.**

We commit to:

- **Achieving 100% observer coverage on all fishing trips through the regional observer program operated by [tRFMO]], or**
- **Achieving 100% observer coverage, even if not required by the tRFMO, on all fishing trips through the use of human observers and/or a combination of voluntary Electronic Monitoring (EM). For EM, best-practice minimum standards developed by ISSF, or those developed by the tRFMO, will be followed; or**
- **Achieving the observer coverage required by [Flag State] and studying the feasibility of increasing observer coverage through Electronic Monitoring (EM).**

We also commit to:

- **Collecting data on the number of active FADs and FAD activity (deployments, visits, sets and loss) as required by [tRFMO] and submitting them to the required authority and tRFMO, or**
- **Authorizing satellite data buoy provider to provide to [Flag State] buoy daily position data to estimate the number of active FADs and voluntarily submitting them to the tRFMO.**

b) Voluntarily report additional FAD buoy data for use by RFMO science bodies

We commit to

- **participate in a scientific program by [Scientific Institution or RFMO] by providing daily positions and echo-sounder data for every company-owned FAD, with a time-lag as needed to ensure confidentiality, or**
- participate in a scientific program by [Scientific Institution or RFMO] by providing daily positions and echo-sounder data for [X %] of company-owned FAD, with a time-lag as needed to ensure confidentiality, or
- **provide daily position and echo-sounder data when required by [tRFMO].**

c) Support science-based limits on the overall number of FADs used per vessel and/or FAD sets made

We commit to:

- **Not having more than [# X] active FADs per vessel at any time, even though [tRFMO] allows for a higher number; or**
- **Abiding by the limit of active number of FADs adopted by [tRFMO].**

We commit to:

- **Deploying only FADs with satellite tracking buoys; and/or**
- **Not reactivating remotely buoys that were previously deactivated. They will only be reactivated when the buoys are back in port; and/or**
- **Providing information on the buoy position at least once per day while they are in the water.**

We also commit to:

- **Supporting a complete [Total] [FAD] closure of [all tropical tuna fisheries][the purse seine fishery] in [tRFMO] that is long enough to reduce fishing pressure on target stocks; or**
- **Abiding by the [FAD] time area closure established by [tRFMO].**

d) Use only non-entangling FADs to reduce ghost fishing

We commit to:

- **Deploying only FADs that are completely non-entangling (i.e., without any netting), even when it is not a requirement of the tRFMO, according to the ISSF Guide for Non-Entangling FADs, or**
- **Deploying at least [# X] of our FADs that are completely non-entangling (i.e., without any netting), even when it is not a requirement of the tRFMO, according to the ISSF Guide for Non-Entangling FADs.**

We also commit to:

- **Not deploying any "high entanglement risk" FAD according to the ISSF Guide for Non-Entangling FADs (i.e., those using large open netting either in the raft or in the underneath part of the FADs. (> 2.5 inches or 7 cm mesh); and/or**
- **Removing from the water and bringing back to port all encountered "high entanglement risk " FADs according to the ISSF Guide for Non-Entangling FADs (i.e., those using large open netting either in the raft or in the underneath part of the FADs. (> 2.5 inches or 7 cm mesh); or**
- **Removing from the water and bringing back to port [X %] of encountered "high entanglement risk" FADs according to the ISSF Guide for Non-Entangling FADs (i.e., those using large open netting either in the raft or in the underneath part of the FADs (> 2.5 inches or > 7 cm mesh).**

e) Mitigate other environmental impacts due to FAD loss including through the use of biodegradable FADs and FAD recovery policies

We commit to:

- **Deploying [X %] of our FADs with only biodegradable materials except for floatation components of the raft, for which the use of non-biodegradable material should be reduced as much as possible, with an aim to increase this to 100% by [year]; or**
- **Studying the feasibility of using FADs with only biodegradable material in their construction except the floatation structure of the raft; and/or**
- **Participating in tests of locally-sourced biodegradable materials in collaboration with [scientific institution].**

We commit to:

- **Not deploying FADs more than 50 m deep and testing simpler structure and smaller FADs to reduce their impact; or**
- **Studying the feasibility of deploying simpler and smaller FADs.**

We commit to:

- **Participating in research to determine FAD deployment areas that have high risk of stranding, by providing historical track data to [scientific institution]; and/or**
- **Participate in a project with [scientific institution or NGO] to alert them of FADs that are drifting in the direction of [country; sensitive area] to remove stranded FADs.**

We also commit to:

- **Removing from the water and bringing back to port [X %] of active FADs used by the vessels in each trip; and/or**
- **Removing from the water and bringing back to port all encountered FADs with non-biodegradable elements (e.g., plastic containers); or**
- **Removing from the water and bringing back to port [X %] of encountered FADs with non-biodegradable elements (e.g., plastic containers);**

f) For silky sharks (the main bycatch issue in FAD sets) implement further mitigation efforts

We commit to:

- **Applying Best Practices for safe handling and release of sharks and rays brought onboard; or**
- **Practicing best safe handling and release of sharks and rays brought onboard; and/or**
- **Reducing the annual number of sets made on small tuna aggregations (< 5 tons).**

This policy was adopted on _____

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