

# Eastern Atlantic purse seine tuna FIP ETP Management Strategy for the Ghana Tuna Association (GTA)

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## 1 Introduction

The fishery being assessed is the Eastern Atlantic Ocean tuna purse seine fishery. The fishery targets bigeye tuna (*Thunnus obesus*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*T. albacares*) using pelagic purse seine gear. The purse seine sets are made on both Fish Aggregation Devices (FADs) and free-school (non-FAD associated) sets. The purse seine vessels are flagged to Spain and France and fish in the EEZs of Ghana, Gabon, Equatorial Guinea, Cameroon, and Côte d'Ivoire and on the high seas in FAO fishing areas 34 and 47. The companies managing the fishing vessels are all members of Producer Organisations such as the Ghana Tuna Association (GTA), ANABAC-OPTUC, and Orthongel. The fishery is managed regionally by the International Commission for the Conservation of Atlantic Tunas (ICCAT).

For Principle 2, overall, the Principle received less than the necessary 80 aggregate score. Primary species information, habitats outcome, management, and information all scored well. No individual PI scored <60 and no critical IPGs allocations were identified.

The MSC definition of an ETP species is:

- Any species that are recognized by national ETP legislation.
- Species listed in the binding international agreements given below:
  - Appendix 1 of the Convention on International Trade in Endangered Species (CITES), unless it can be shown that the particular stock of the CITES listed species impacts by the UoA under assessment is not endangered.
  - Binding agreements concluded under the Convention on Migratory Species (CMS), including:
    - Annex 1 of the Agreement on Conservation of Albatross and Petrels (ACAP);
    - Table 1 Column A of the African-Eurasian Migratory Waterbird Agreement (AEWA);
    - Agreement on the Conservation of Small Cetaceans of the Baltic and North Sea (ASCOBANS);
    - Annex 1, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea, and Contiguous Atlantic Area (ACCOBAMS);
    - Wadden Sea Seals Agreement;
    - Any other binding agreements that list relevant ETP species concluded under this Convention.
- Species classified as 'out of scope' (amphibians, reptiles, birds, and mammals) that are listed in the IUCN Redlist as vulnerable (VU), endangered (EN), or critically endangered (CE).

The use of purse seine fishing gears in the Eastern Atlantic FIP can have negative impacts on non-target species as a result of bycatch. The large, encompassing net can engulf several important ETP species as well. Between 2010-2016 (Gondra, et al., 2017), catch data of non-target species was recorded and demonstrated that from both free school and FAD purse seine fisheries:

- 2,387 t of shark (unidentified);
- 114 t of ray (unidentified);
- 78 t of turtle (loggerhead (*Caretta caretta*), green (*Chelonia mydas*), (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), olive ridley (*Lepidochelys olivacea*), Kemp's ridley sea turtle (*Lepidochelys kempii*) and unidentified turtles).

- 172 t of cetacea (*Delphinidae, Mysticeti*)

The silky shark is listed as a vulnerable species by the International Union for the Conservation of Nature (IUCN) and some species of hammerheads and thresher sharks are also ETP species. The reporting of any shark encounter on the Eastern Atlantic purse seine fleet is mandatory.

Each Eastern Atlantic purse seine vessel is listed on the ISSF PVR. As a minimum, vessels have been confirmed by the PVR auditors to use low risk entangling FADs. Entangling FADs are a particular threat to a range of marine species and habitats because anything can become trapped in the floating net portion of the FAD and risk suffocating or drowning. Entangling FADs also pose a large threat to ETP species like many shark species and turtles. If there is inconsistent use of non-entangling FADs across the fleet, then the risk to ETP species from entangling FADs is high. Visits to vessels made by Key Traceability have confirmed the use of bio-degradable FADs, but as not all vessels have been visited, a statement cannot be made to say the entire fleet deploys full non-entangling and/or biodegradable FADs.

## 1.1 Scope

This strategy has been created because the susceptibility of critical ETP species to overfishing warrants further documented conservative action. We endeavour to encourage and implement best practice policies to reduce the impacts that the FIP is having on ETP species. This document will act as a guide for skippers on the actions required of them to reduce all ETP species interactions and how to manage those that inevitably occur.

This document will be approved by participating companies with an obligation for skippers to sign and accept the terms of best practice. A hard copy will be required on all vessels and will be always available.

This document aims to improve the Principle 2 Performance Indicator (PI) scores, with explicit mention of PIs 2.3.1, 2.3.2, and 2.3.3 for ETP species, to achieve a total score of SG80. Achieving SG80 will eventually lead to the submission to the Marine Stewardship Council (MSC) for full certification.

## 2 ETP species

Purse seine fishing vessels have low selectivity due to the large, encircling net that traps animals within. This fishery also uses FADs to attract schools of tuna and make purse seining more efficient. However, it is the same attraction, which entices tunas to the FAD, that also attracts a range of different marine animals, including sharks, dolphins, turtles, and birds. Predominantly ETP species, these animals are at risk of becoming bycatch in purse seine gears and can often be killed as a result of drowning and suffocation.

### 2.1 Elasmobranchs

Sharks and rays are vulnerable to the global fishing effort because of their life-history traits, including slow growth, late maturation, low fecundity, and long lifespan, which make their populations vulnerable to overfishing and at risk of collapse (Molina & Cooke, 2012).

Minimal incidents of shark and ray catch can still be detrimental to fragile ETP stocks. Any efforts in place to reduce the catch of these species and therefore their mortality will be beneficial for their longevity and conservation.

In the Eastern Atlantic Ocean, there are several ETP sharks and rays that could be at risk from the Eastern Atlantic purse seine fishery (Table 1).

**Table 1 – ETP elasmobranch species that the fishery is known to or predicted to interact with using previous catch data and research from other fisheries.**

Common name	Scientific name	UoAs to which applicable	Justification
Silky shark	<i>Carcharhinus falciformis</i>	All three Atlantic Ocean UoAs	CMS Appendix II; CITES Appendix II.
Hammerhead shark	<i>Sphyrna</i> spp.	All three Atlantic Ocean UoAs	ICCAT Rec (10-08); CMS Appendix II; CITES Appendix II
Great hammerhead	<i>Sphyrna mokarran</i>	All three Atlantic Ocean UoAs	ICCAT Rec (10-08); CMS Appendix II; CITES Appendix II
Scalloped hammerhead	<i>Sphyrna lewini</i>	All three Atlantic Ocean UoAs	ICCAT Rec (10-08); CMS Appendix II; CITES Appendix II
Manta ray	<i>Mobula birostris</i>	All three Atlantic Ocean UoAs	CMS Appendix II; CITES Appendix II

#### 2.1.1 Issue

##### *Observed catch*

Using observer data collected in 2018 and 2019, there were 992 silky sharks (*Carcharhinus falciformis*), 536 brown sharks (sandbar sharks) (*Carcharhinus plubeus*), six hammerheads (*Sphyrna* spp., *Sphyrna lewini*, *Sphyrna makarran*), and four mantas (*Manta birostris*). The report also recorded 2830 unidentified sharks caught by the fishery. Of these sharks, 308 were dead when released. Of the sharks

mentioned above, 138 silky sharks, and 97 brown/sandbar sharks were dead when they were released. The report also failed to highlight the size and weight of each shark individual.

### *Unobserved mortality due to entanglement*

Currently, there is ambiguity around the use of entangling FADs across the fishing vessels in the FIP's fleet. ETP species interactions with FADs are not systematically recorded, if at all. It is therefore unknown whether there are incidents of shark entanglement and mortality, outside of direct fishing efforts. Likewise, the mesh size of the nets potentially used underneath the entangling FADs is currently unknown. Some smaller mesh sizes reduce the likelihood of large pelagic animals like sharks and dolphins becoming entangled and have previously been suggested as a mitigation tactic (Morena, et al., 2018) (Zudaire, et al., 2018).

Drifting FADs (dFADs) are also at risk of becoming lost and not retrieved from the FIP for a variety of reasons. As a result, the netting beneath the FAD may continue to catch a range of marine species without ever being utilised, also known as ghost fishing (Stelfox, et al., 2016). One of the main concerns with ghost fishing is that there is no quantifiable way of estimating the number of individuals from a species or stock that are impacted/caught by the nets.

### *Shark finning*

Shark finning is the removal of shark fins from the body of a shark and discarding the carcass back into the sea. The fins are retained on board until they can be sold upon landing the vessel. The practice is against the FAO Code of Conduct for Responsible Fisheries and the International Plan of Action for the Conservation and Management of Sharks. Similarly, in 2018, ICCAT recommended that the "(Contracting Parties, Cooperating non-Contracting Parties, Entities or Fishing Entities (CPCs)) shall prohibit the removal of shark fins at sea and require that all sharks be landed with their fins naturally attached".

The act of shark finning is barbaric, wasteful, and contributes greatly to the global rise in shark mortality and population decline. Efforts to mitigate this act are essential to global shark conservation. There are 30 incidents of shark capture, in the observer catch report, that do not disclose the fate of the shark (whether it was retained or discarded).

## **2.1.2 Mitigation**

### *Observed catch*

**Live release** – Following best practices on board purse seine vessels to release live sharks from the nets can reduce mortality.

### *Unobserved mortality due to entanglement*

All efforts should be made to reduce the entangling potential across the fishery, this includes using non-entangling FADs or reducing the number of FADs used collectively. Non-entangling FADs are those that have no netting on their structure. This would mean replacing the net below the FAD raft with a piece of material that has no mesh. Previous mitigation techniques included the use of ropes to wrap the nets up into long sausage-like structures beneath the FAD raft.

All fishing vessels within this FIP use non-entangling FADs

### *Shark finning*

Ghana, Gabon, and Cote d'Ivoire comply with ensuring that caught sharks are released alive as seen in the 2021 report from ICCAT (see Appendix I)

As all vessels are full participants of the ISSF PVR scheme, all vessels have been confirmed to have shark finning policies to remind the crew and skippers about the appropriate procedures when handling a caught shark.

## 2.2 Turtles

Turtles are long-lived species with a life history that makes them extremely susceptible to global fishing efforts. As a result, all marine turtles are protected by national and international regulations. Purse seine fishing gears pose a significant threat to marine turtles because of their low selectivity. Likewise, the use of FADs will also increase the risk of interaction with turtles, because turtles will often use the floating raft of FADs as a respite in the open ocean. Efforts to reduce and avoid fishing mortality, as well as utilizing the ISSF best practice bycatch release report, will be beneficial for their global conservation.

**Table 2 – ETP turtle species that the fishery is known to or predicted to interact with, using fishery catch data and research from other fisheries.**

Common name	Scientific name	UoAs to which applicable	Justification
Green turtle	<i>Chelonia mydas</i>	All three Atlantic Ocean UoAs	ICCAT Rec. (13-11) CITES Appendix I; CMS Appendix I
Leatherback turtle	<i>Dermochelys coriacea</i>	All three Atlantic Ocean UoAs	ICCAT Rec. (13-11) CITES Appendix I; CMS Appendix I
Loggerhead turtle	<i>Caretta caretta</i>	All three Atlantic Ocean UoAs	ICCAT Rec. (13-11) CITES Appendix I; CMS Appendix I
Hawksbill turtle	<i>Eretmochelys imbricata</i>	All three Atlantic Ocean UoAs	ICCAT Rec. (13-11) CITES Appendix I; CMS Appendix I
Olive Ridley turtle	<i>Lepidochelys olivacea</i>	All three Atlantic Ocean UoAs	ICCAT Rec. (13-11) CITES Appendix I; CMS Appendix I

### 2.2.1 Issue

The systematic use of FADs across the vessels in the Eastern Atlantic FIP means that there is the potential for turtles to become entangled in the netting attached. Despite the FIP using non-entangling FADs, most FAD rafts have a layer of the net that covers the floating portion of the device. Turtles notoriously use flotsam in the ocean as a respite (Casazza & Ross, 2010) and may use the raft of a FAD to take a break from swimming. Once on the raft, turtles have been seen entangled in the net, from

which there is minimal chance of escape. Likewise, unless there is aid provided to cut the turtle from the net, it will most likely die (Duncan, et al., 2017).

In the observer catch report from 2018 and 2019, there were 195 unidentified turtles caught, 70 green turtles (*Chelonia mydas*), nine olive ridley turtles (*Lepidochelys olivacea*), five loggerhead turtles (*Caretta caretta*), and three hawksbill turtles (*Eretmochelys imbricata*). Of these incidents, seven turtles in total (6 unidentified and one green turtle) were released dead.

### 2.2.2 Mitigation

Removing all netting from the FAD raft and ensuring that the drifting net portion underneath the raft is non-entangling. If the raft requires being covered, the material used should be non-entangling, and mitigation efforts to deter the turtles from climbing on top of the raft should be implemented. Deterrents include lining the edges of the raft with cylindrical barriers, which would make it difficult for the turtle to access.

Fishers can also inspect the FAD to identify any entangled species, dead or alive, and attempt to free any animal that is entangled. Fishers can also study and adhere to the best practice release handling protocols to ensure that minimal damage is inflicted on the animal when being released, to ensure its survival.

## 2.3 Juvenile tunas

The Eastern Atlantic purse seine tuna fishery targets skipjack tuna (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), and bigeye tuna (*Thunnus obesus*). The mixed-species fishery increases the risk of catching small and juvenile individuals from the stock. Juvenile fish catch contributes to the global overexploitation of tunas.

### 2.3.1 Issue

Juvenile skipjack, yellowfin, and bigeye tuna are at risk of being caught by purse seine fisheries because they are also seen attracted to FADs, like adult individuals. Bigeye tuna has slower growth rates and becomes sexually mature later than the other two species, therefore making its populations more vulnerable to fishing pressure.

Catching too many adults and juveniles is particularly detrimental for a slow-growing population of animals. Removing juveniles from a population ensures that they have not yet been able to reproduce and replace themselves in the population. Likewise, removing too many adults will also be detrimental to the continuation and longevity of a stock. Catching fish of different sizes leads to changes in potential yield. From a theoretical point of view, there is an optimum size at which the maximum sustainable yield (MSY) would be highest if all the fish were caught at that size, depending on the life history of the species (growth, maturity, natural mortality, and spawner-recruit relationship). This optimum can never be achieved exactly because it is not possible to design a fishing gear that will catch all the tuna at the same size. But there are fisheries whose size selectivity will be close to this optimum size and, if those fisheries are the main source of fishing for the stock, then MSY will be close to the theoretical optimum. In contrast, if the main source of fishing is from fisheries that catch fish



of sizes away from the optimum (either too small or too large), then MSY will be less than the optimum (Restrepo, et al., 2017).

### 2.3.2 Mitigation

Reducing the use of FADs will help to prevent aggregation of both adult and juvenile tuna species in a fishing area and therefore reduce the catch rate from different sizes of tuna. Reducing the number of FADs or shifting to free school fishing and locating tuna schools via fish tracking and telemetry systems, will reduce the aggregation of juveniles around a floating object.

Setting catch size limits will ensure that fishers return undersized/juvenile tunas into the ocean, rather than retaining them as part of the vessel catch. A study of the management of tuna and billfish stocks by RFMOs found that implementing and enforcing total allowable catches (TACs) had the strongest positive influence on rebuilding overfished stocks (Pons, et al., 2017).

## 2.4 Cetaceans

Several cetaceans are declared ETP species, primarily due to their vulnerability to global fisheries. In purse seine fisheries, cetacean bycatch is frequently witnessed due to the low selectivity of their method and unless efficiently handled, the risk of the animal drowning is severe. Likewise, with the other ETP species discussed, the use of FADs can have detrimental implications for cetaceans because they are attracted to the school of tuna and other pelagic fish species that aggregate around them.

**Table 3 - ETP cetacean species that the fishery is known to or predicted to interact with, using fisheries observers catch data.**

Common name	Scientific name	UoAs to which applicable	Justification
Dolphin	Delphinidae	All three Atlantic Ocean UoAs	ICCAT Rec. (18-11); CITES Appendix I; CMS Appendix II
Orca	<i>Orcinus orca</i>	All three Atlantic Ocean UoAs	ICCAT Rec. (18-11); CMS Appendix II

### 2.4.1 Issues

The 2018-2019 observer catch data showed that 16 unidentified dolphins (Delphinidae) and 2 orcas (*Orcinus orca*) were caught in the net during hauling. Two of the dolphins died because of being captured, yet the remaining individuals, including the orcas, survived when released. However, cetaceans are sentient beings that develop close familial bonds with the other members of their pod and losing any from the pod can be detrimental to the remaining members.

Their long-life history traits, including slow growth, late sexual maturity age, and low fecundity mean that even low numbers of bycatch can have significant implications for a population. Likewise,

removing an individual that has not reached sexual maturity means that they haven't yet been able to reproduce and contribute to the population.

Dolphins often migrate with tuna schools and follow them when hunting so there is a risk that a dolphin may become entangled in a FAD net after being attracted by the aggregation of tuna around it.

#### **2.4.2 Mitigation**

Fishers should be trained in the best practice release handling methods of cetaceans to prevent further injury or damage inflicted on the animal and ensure its survival post-release. Avoiding schools of dolphins when setting the net is also a way that fishers can prevent future bycatch incidents.

Reducing the use of entangling FADs is another method to reduce the number of cetacean bycatch incidents.

Reporting all incidents of cetacean catch and interactions to record the species' identity. Knowing the species identity is important in understanding the health of a population and therefore influences conservation efforts.

### **2.5 Birds**

Using data from the observer catch records, it was evident that although a bird was encountered during the 2018 fishing efforts, the observer was not able to identify the species.

Some bird species, including several boobies, gulls, and albatross are ETP due to their life history traits. Albatross and petrels can live for over 60 years, reproducing only once every year or two (Lewison & Crowder, 2003). Many albatross species also mate for life and bycatch incidents with even a small number of individuals is severely detrimental for global populations. There are 22 species of albatross; 17 are threatened with extinction.

#### **2.5.1 Issues**

Being large migratory birds, these animals often encounter operating fisheries and are particularly at risk from purse seine and longline vessels (Lewison & Crowder, 2003). Incidents of birds catch are also high when the use of FADs is implemented into a fishery because this creates an optimal feeding ground for migrating birds who can feed on the schooling fish surrounding the raft.

#### **2.5.2 Mitigation**

Crew and skipper training on how to safely a caught bird without inflicting more injury is an important mortality mitigation effort that should be required on each vessel.

Reporting any incidental catches down to the size, weight, and species will help to assess the population sizes of the species.

### **2.6 Non-species specific**

In addition to the species-specific strategies mentioned above, the fishery shall:

- Avoid all known ETP hotspots and communicate effectively between vessels to tell other fishers where these are.
- Comply with both the shark finning and ETP policies in Appendix B
- Keep abreast of new science and promote research to further develop best practices for handling and safe release
- Improve the low human observer coverage
- All skippers shall attend and engage in the Skipper Training program being run through the FIP work plan
- Vessels should accurately record all ETP interactions including reporting interactions and the fate of any releases (e.g. released alive; discarded dead, injuries), and collecting any data requested by scientists (e.g., photographs). Including documenting the inventory and use of equipment for the handling and safe release techniques.
- Collaborate with the RFMO to adopt mandatory handling and safe and live release best practices for ETP species.
- Facilitating research that addresses mitigation of ETP species bycatch, and voluntarily adopt best practices when these become known including participating in research programs that reduce mortality of ETP species outside the fishery — for example, ISSF projects
- Collaborating with other fleets to estimate the overall interaction of ETP species and research on mitigation measures to reduce the cumulative impacts.
- Follow best practices of live release methods to minimize mortality and document their use of all ETP species and support mandatory adoption of these practices by the flag state and RFMO.
- Estimate, monitor and manage potential sources of unobserved mortality (post-release, entanglement, etc).

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### 3 Appendix I

2021 SCRS REPORT, ONLINE

#### **Ghana**

Tuna industry in Ghana exploits Skipjack (*Katsuwonus pelamis*), Yellowfin (*Thunnus albacares*) and Bigeye tuna (*Thunnus obesus*). There are 18 Baitboats, and 17 Purse-seiners authorized to operate within the EEZ of Ghanaian coastal waters and beyond exploit these tuna species amongst other minor tuna-like species such as the Black skipjack (*Euthynnus alletaratus*). A total of 90,253.50mt of tuna was landed in 2020. Purse seine and Baitboat fleet accounted for 88% and 12% of total catch respectively. Skipjack was the most dominant (66%) followed by Yellowfin (28%) and Bigeye (3%). Other tuna-like species amounted to (3%) of the total catch. More than 90% fishing of both fleets were on FADs. Moratorium on fishing on FADs was observed during the months of January and February. Sampling of fish at the ports of Tema and Takoradi has improved in addition to more information from logbooks of all fleets. All these data are incorporated in the 2020 AVDTH database. Beach sampling of the Billfishes continued off the western coastline of Ghana from artisanal drift gill net operators with catches of Sailfish decreased while Blue marlin slightly increased compared to 2019 landings. There were no White marlin and Swordfish were landed in 2020. Sharks when caught in purse seiners during observer missions were released live; estimates of sharks from the artisanal fishery were obtained from the western shelf of Ghana. Drift nets are also used in capturing sharks which are consumed locally with no bycatch and discards in the fishery.

2019, partly due to the COVID-19 pandemic. The EU and UK fishing patterns remained consistent compared to previous years, with 47% of the 2019 catches corresponding to tropical tunas (yellowfin, bigeye and skipjack), 17% to sharks, and 14% to albacore. SKJ, YFT, BSH, ALB, BFT, BET and SWO continued to be the most important resources exploited by the EU and UK fishing fleets. The EU continues to engage significant financial resources for the funding of studies and research activities in the context of the RFMOs to which it is a member. Research activities related to ICCAT fisheries are also carried out at national level by the EU Member States and United Kingdom.

#### **Gabon**

Les thonidés sont capturés de façon accessoire par la pêche nationale. Par ailleurs, dans le but de tirer profit de cette ressource, l'administration des pêches a octroyé au cours de l'année 2020, des licences à des senneurs étrangers. Ces senneurs ont ciblé essentiellement l'albacore (*Thunnus albacores*), le thon obèse (*Thunnus obesus*) et le listao (*Katsuwonus pelamis*). Au cours de cette année, l'administration a poursuivi la collecte des données historique de pêche nationale. De plus, la saison de pêche a été impactée par la pandémie de la COVID-19, limitant ainsi l'action de l'administration et des activités de pêche.

2021 SCRS REPORT, ONLINE

***Côte d'Ivoire***

Dans la ZEE ivoirienne et dans les eaux internationales, deux unités de pêches exercent régulièrement leurs activités. Il s'agit des unités de pêche industrielle et des unités de pêche artisanale.

En 2020, une quantité totale de 1 030 118,9 Kg de poisson géré par la commission a été débarquée par les navires battant pavillon ivoirien et pirogues en activité dans l'Atlantique. Cette quantité est nettement inférieure à celle obtenues en 2019.

Les prises sont composées de 95 % de thonidés et 5 % de requins et d'istiophoridés.

L'analyse des données sur les thonidés majeurs, montre que l'albacore est majoritaire avec 445 951,4 kg suivi de 989 692 kg de listao.

La production de germon et le patudo sont très faibles dans les captures et aucun dépassement de quota n'a été observé.

Au niveau des thonidés mineurs, la LTA a été dominante (181 516,4 kg) suivi de BON (175 673,2 kg).

La production de FRI qui habituellement avoisinait la LTA a considérablement diminuée (178 166 kg).