

Observer data analysis report for the Indian Ocean tuna – longline (Thai Union) FIP

Introduction

This report outlines the results of the data analysis conducted using observer reports from the Indian Ocean tuna – longline (Thai Union) Fishery Improvement Project (FIP) vessels. The FIP is managed by Thai Union and the fishing vessels target bigeye (*Thunnus obesus*), and yellowfin (*Thunnus albacares*) and bigeye (*Thunnus alalunga*) tuna in the Indian Ocean. All vessels within the FIP are longline vessels flagged to Malaysia and Taiwan.

The aim of this report is to demonstrate the current catch composition associated with the FIP vessels, particularly regarding incidental catch of non-target and endangered, threatened and protected (ETP) species. All information is critical for the FIP's progression towards certification by the Marine Stewardship Council (MSC).

The following report will outline the catch composition from the vessels within the FIP fleet, with analysis regarding retained and discarded individuals and ETP species.

Data analysis

The observer data, covering fishing activity from March 2019 to February 2022, was originally received by the FIP as PDF reports and the data sets in excel spreadsheets. These PDFs and excel spreadsheets were collected into the observer analysis template by a member of the KT team ready for analysis. The first analysis completed was regarding fate and the data set was divided into 'retained' and 'discarded' sets. The condition on release was recorded for 87.1% of the discarded individuals with the remaining 12.9% recorded as unknown condition on release. Weight was not recorded for discarded or retained species meaning that all analysis was conducted on number of individuals. The analysis was able to demonstrate the catch composition of the fishery and to categorise each species to an MSC designation: Target, Primary, Secondary and ETP (Table 1).

The greatest proportion of the total catch (59.16%) was from the target species, albacore tuna (55.74%), bigeye tuna (1.70%) and yellowfin tuna (1.72%). Primary species observed included skipjack tuna (0.64%), swordfish (1.24%), indo-pacific sailfish (0.14%), tunas nei (1.78%) and blue marlin (0.02%) and made up <5% of the total catch, meaning they were listed as 'minor'. Secondary species accounted for a higher proportion of the total catch (34.74%) (Figure 1) than primary species observed. The greatest proportion of secondary species recorded was from blue shark (7.59%) and opah (6.5%).

Table 1: MSC designation of species based on their composition to the total catch number

Component	Common Name	Scientific Name	Percentage	Likely Designation	Reason
Target	Albacore	<i>Thunnus alalunga</i>	55.74%	P1	Target species
Target	Bigeye	<i>Thunnus obesus</i>	1.70%	P1	Target species
Target	Yellowfin	<i>Thunnus albacares</i>	1.72%	P1	Target species
Primary	Blue marlin	<i>Makaira nigricans</i>	0.02%	Minor	<5% of total catch and with management tools or measures in place or stock reference points available
Primary	Indo-Pacific sailfish	<i>Istiophorus platypterus</i>	0.14%	Minor	<5% of total catch and with management tools or measures in place or stock reference points available
Primary	Skipjack	<i>Katsuwonus pelamis</i>	0.64%	Minor	<5% of total catch and with management tools or measures in place or stock reference points available
Primary	Southern bluefin tuna Fish	<i>Thunnus maccoyii</i>	0.01%	Minor	<5% of total catch and with management tools or measures in place or stock reference points available
Primary	Swordfish	<i>Xiphias gladius</i>	1.24%	Minor	<5% of total catch and with management tools or measures in place or stock reference points available
Primary	Tunas nei	<i>Thunnini</i>	1.78%	Minor	<5% of total catch and with management tools or measures in place or stock reference points available
Secondary	Atlantic pomfret	<i>Brama brama</i>	1.09%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available

Secondary	Black marlin	<i>Makaira indica</i>	0.02%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Blue shark	<i>Prionace glauca</i>	7.59%	Main	>5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Boobies and gannets nei	<i>Sulidae</i>	0.02%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Brilliant rasbora	<i>Rasbora einthovenii</i>	0.04%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Cephalopods nei	<i>Cephalopoda</i>	0.01%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Common dolphinfish	<i>Coryphaena hippurus</i>	1.53%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Crocodile shark	<i>Pseudocarcharias kamoharai</i>	0.04%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Escolar	<i>Lepidocybium flavobrunneum</i>	4.69%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Great barracuda	<i>Sphyrna barracuda</i>	0.04%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available

Secondary	Lancetfishes nei	<i>Alepisaurus spp</i>	2.97%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Longtail tuna	<i>Thunnus tonggol</i>	0.02%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Marine fishes nei	<i>Osteichthyes</i>	1.83%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Marlins,sailfishes,etc. nei	<i>Istiophoridae</i>	0.08%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Ocean sunfish	<i>Mola mola</i>	0.08%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Oilfish	<i>Ruvettus pretiosus</i>	0.97%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Opah	<i>Lampris guttatus</i>	6.50%	Main	>5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Pelagic stingray	<i>Dasyatis violacea</i>	3.65%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Pomfrets, ocean breams nei	<i>Bramidae</i>	0.30%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available

Secondary	Rudderfish	<i>Centrolophus niger</i>	0.13%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Sharptail mola	<i>Masturus lanceolatus</i>	0.02%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Short snouted lancetfish	<i>Alepisaurus brevirostris</i>	0.02%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Shortbill spearfish	<i>Tetrapturus angustirostris</i>	0.41%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Shortraker rockfish	<i>Sebastes borealis</i>	0.03%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Sickle pomfret	<i>Taractichthys steindachneri</i>	0.10%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Snake mackerel	<i>Gempylus serpens</i>	0.10%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Snake mackerels, escolar's nei	<i>Gempylidae</i>	0.50%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Striped marlin	<i>Tetrapturus audax</i>	0.22%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available

Secondary	Unicornfish	<i>Lophotus capellei</i>	0.19%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Wahoo	<i>Acanthocybium solandri</i>	1.56%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
Secondary	Hairtails, scabbardfishes nei	<i>Trichiuridae</i>	0.01%	Minor	<5% of total catch and no management tools or measures in place or stock reference points available
ETP	Albatrosses nei	<i>Diomedidae</i>	0.11%	N/A	CMS Appendix II
ETP	Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	0.02%	N/A	IUCN Redlist (CR); CMS Appendix I
ETP	Petrels and shearwaters nei	<i>Procellariidae</i>	0.01%	N/A	CMS Appendix I
ETP	Requiem sharks nei	<i>Carcharhinidae</i>	0.06%	N/A	CMS Appendix II
ETP	Sepia stingray	<i>Urolophus aurantiacus</i>	0.01%	N/A	IUCN Redlist (VU)
ETP	Shortfin mako	<i>Isurus oxyrinchus</i>	0.63%	N/A	IUCN Redlist (EN); CMS Appendix II
ETP	Silky shark	<i>Carcharhinus falciformis</i>	0.03%	N/A	IUCN Redlist (VU); CMS Appendix II
ETP	Various sharks nei	<i>Selachimorpha (Pleurotremata)</i>	0.13%	Unknown	Unknown
Unknown	Unknown		1.28%	Unknown	Unknown

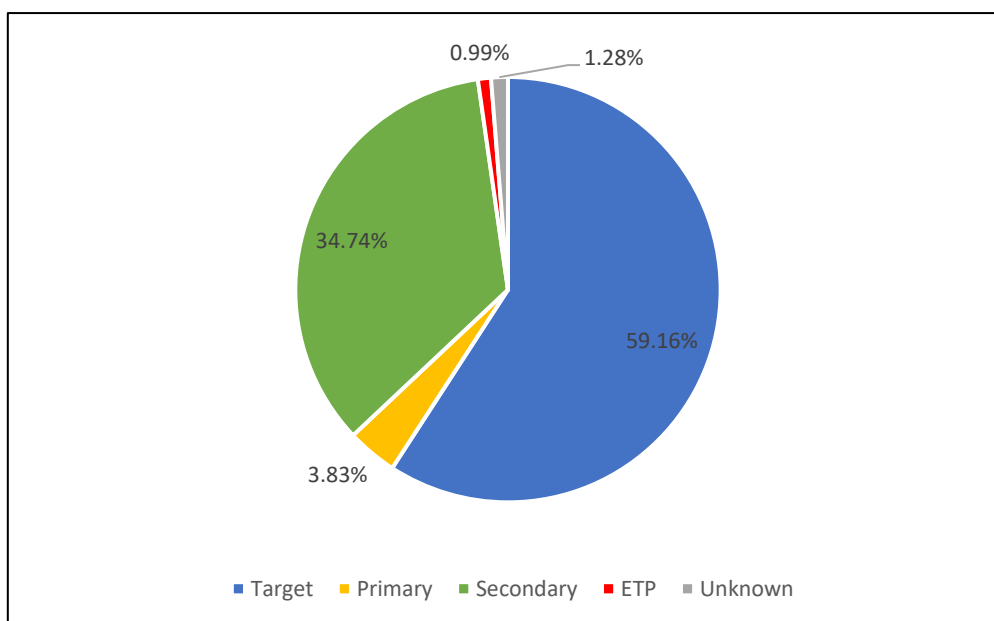


Figure 1: Percentage composition of each MSC designation to the total catch number

Species fates

Analysis of the retained and discarded species was then conducted. As stated above, the weight of both discarded and retained individuals was not recorded so the data was analysed by number of individuals only.

Retained species

The greatest proportion of retained species were target species, albacore tuna (67.91%), bigeye tuna (2.00%) and yellowfin tuna (2.07%). Secondary species accounted for the next largest proportion of retained species (23.69%). Primary species accounted for a smaller percentage of the retained catch (3.87%). A small amount of ETP species (0.46%) were retained and included shortfin mako shark (0.33%), requiem shark (0.05%), silky shark (0.03%), oceanic whitetip shark (0.01%) and sepia stingray (0.01%).

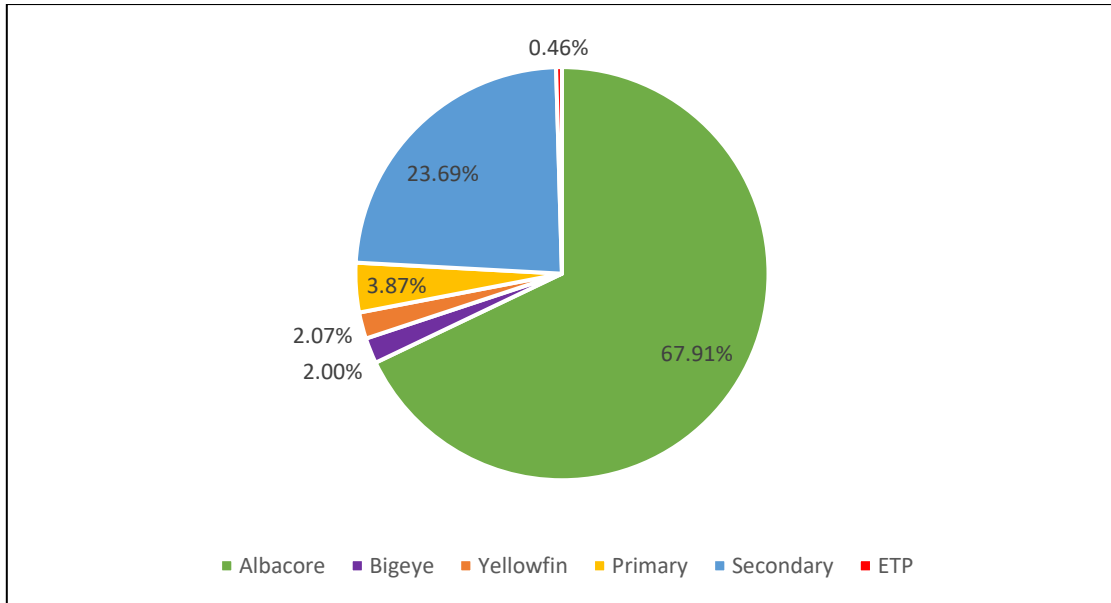


Figure 2: Percentage composition of the individual species that were retained on board the vessels

Discarded species

The largest proportion of discarded species was from secondary species (84.26%), then target species (1.70%) (**Error! Reference source not found.**). Unknown species accounted for 6.99% of total discards due to factors disrupting camera visibility such as poor conditions and the lens being dirty. Only 3.40% of the total discards were designated as ETP species.

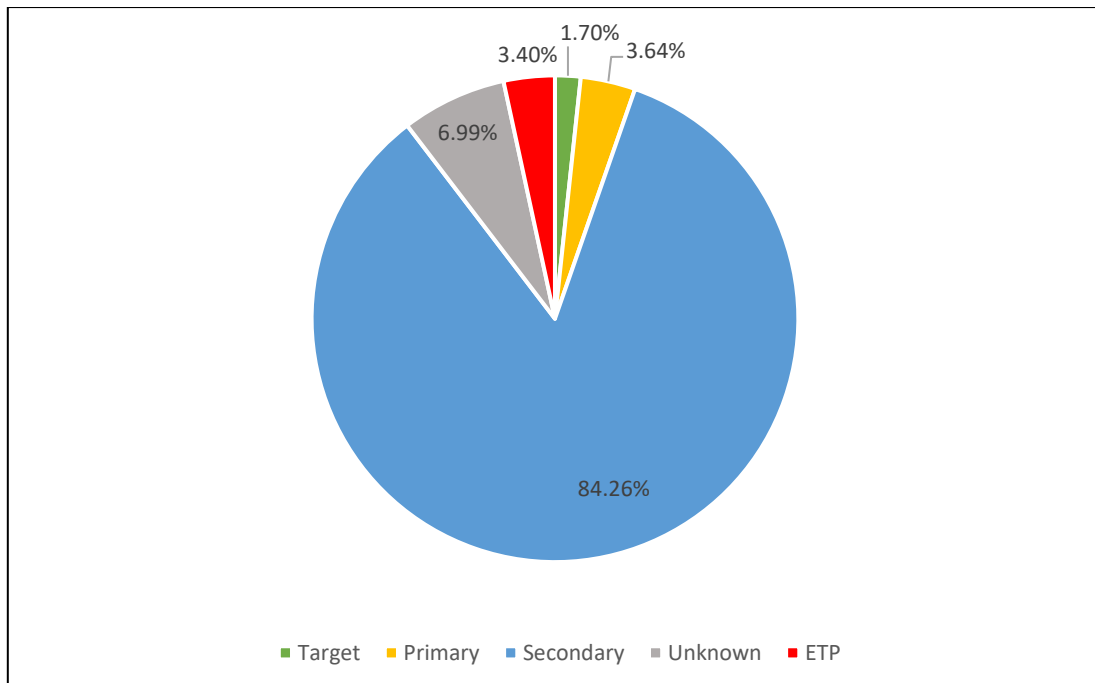


Figure 3: Percentage composition of the different MSC designation groups to the discard species catch composition

The majority of the discarded species were recorded as released either dead or alive (87.08%) however, 12.92% of the discarded catch was recorded as 'unknown' due to factors such as the camera lens becoming dirty and the crew being out of the view of the camera. Of the 70 ETP species

individuals discarded, 40.00% were released alive, 57.14% were discarded dead and 2.86% were discarded in an unknown condition.

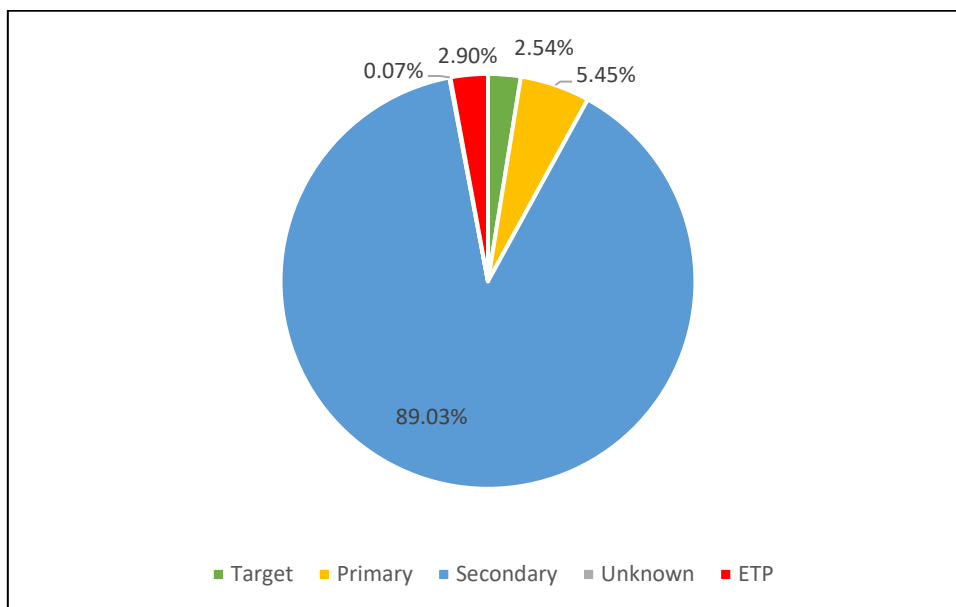


Figure 4: Percentage composition of the species that were discarded dead, grouped by their MSC designation

Secondary species accounted for 84.26% of the total discards (Figure 3), the main reasoning given being struck off before landing and discarded due to undesirable species.

Of the 416 individuals discarded alive, the main proportion of them were secondary species (93.27%) with ETP making up the other 6.73% of alive discards.

ETP species

Out of the total catch the occurrences of ETP species individuals recorded was low (0.99%), with shortfin mako sharks (63.39%), albatross (10.71%) and various sharks nei (13.39%) accounting for the largest proportions of ETP catch. The fates of the encountered ETP species were mostly

recorded, however due to dirty camera lenses 1.79% of ETP individuals were marked as unknown fate (Figure 5).

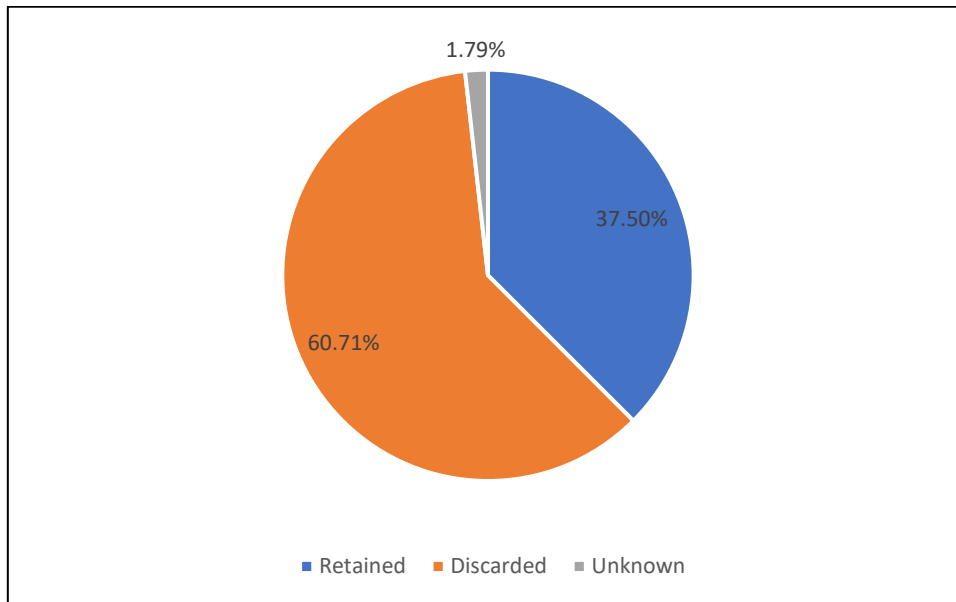


Figure 5: Percentage of recorded ETP species by fate

Regarding ETP species discarded alive, the highest proportion of alive release was recorded in shortfin mako shark, followed by various shark nei and requiem shark. Out of the 70 ETP species individuals discarded 40.00% were discarded alive, with 57.14% and 2.86% of discarded individuals discarded dead and in an unknown condition respectively.

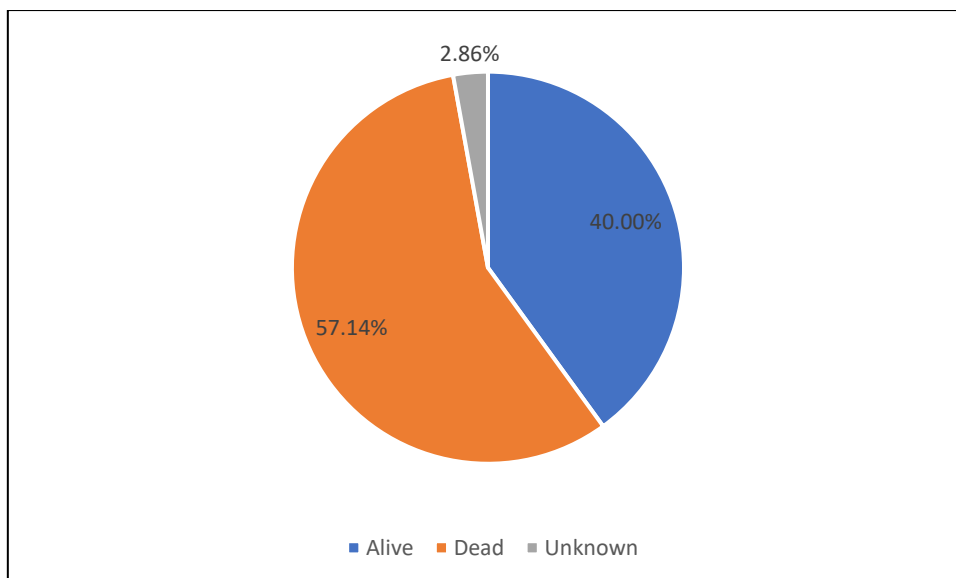


Figure 6: Percentage of discarded ETP species by discard fate

The retained ETP species recorded, 42 individuals, were comprised of shortfin mako shark (71.43%), sepia stingray (2.38%), requiem shark (11.90%), oceanic whitetip shark (2.38%), silky shark (7.14%) and various sharks nei (4.76%).