



TECHNICAL AND COMPLIANCE COMMITTEE
Sixteenth Regular Session
Electronic Meeting
23 – 29 September 2020

AVAILABILITY OF CATCH ESTIMATES
FROM THE OTHER COMMERCIAL FISHERIES
IN INDONESIA

WCPFC-TCC16-2020-DP03¹
6 August 2020

Paper by Indonesia

¹ This paper was posted for SC16 as SC16-MI-IP-18 Availability of catch estimates from the other commercial fisheries in Indonesia (27July) - Rev.01



**SCIENTIFIC COMMITTEE
SIXTEENTH REGULAR SESSION**

Online Meeting
11 –20 August 2020

**AVAILABILITY OF CATCH ESTIMATES
FROM THE OTHER COMMERCIAL FISHERIES
IN INDONESIA**

WCPFC-SC16-2020/MI IP-18

Ministry of Marine Affairs and Fisheries
Indonesia

Oceanic Fisheries Programme (OFP)
Pacific Community (SPC) ⁴⁾

Abstract:

This paper provides some comments on whether the Indonesia domestic fisheries are applicable under the Other Commercial fisheries category of the WCPFC tropical tuna measure. SC16 is requested to consider the following:

1. The Indonesia domestic (small-fish) surface handline, drift gillnet, troll, small-scale pole-and-line (*funai*), and other small-scale fisheries within FMA 716-717 comprise small craft/boat (< 10 GT) with mostly 1-4 GT. They convey a one day traditional fishing for their livelihood at their subsistence level. The fisheries are mostly a one day fishing with some multi-days up to two weeks for fresh products. Under fisheries act no 31/2004 as amended by fisheries act no45/2009 allow the small fishers to fished in all Indonesia's fisheries management areas (Internal waters, Archipelagic, Territorial, and EEZ). Also, these fisheries are protected for their operational fishing guarantee in particular for small fishers (*nelayan kecil*) under national law no 07/2016 *concerning the protection and empowerment of fishers (nelayan), fish farmer (pembudidaya ikan) and salt producer (petambak garam)*. As such, the Other Commercial fisheries category of the WCPFC tropical tuna measure should not apply or be applicable to these fisheries/gears, noting that these fisheries will continue to be covered under the Indonesia national tuna management plan (ministerial regulation no 107/2015) and other national regulations that apply on these fisheries (ministerial regulation no 71/2016 concerning on fishing lane and gear placement).
2. Historical annual catch estimates for the Indonesian pole-and-line fishery are available for the specific area relevant to the tropical tuna measure (the Indonesia EEZ – FMAs 716 and 717, which is outside the Indonesia AWs). So, the SPC (as WCPFC SSP) uses these estimates to include in the table of Other Commercial Fisheries for the evaluation of compliance with the tropical tuna measure in the future (see Table A 5). However, it is essential to include a note to indicate that some of the catches were in the Indonesia AWs and TS waters of FMAs 716 and 717 (Figures 1 and 2), which would typically be excluded if it was possible to differentiate. In terms of Large pole and line (>10 GT) catches from EEZ 716- 717 can be distinguished, the Other Commercial fisheries category of the WCPFC tropical tuna measure may apply or be applicable to the fishery. Also noting that the Indonesian government manages the domestic pole-and-line fishery through national regulations (Ministerial decree No. 107/2015, No. 30/2012, and No. 71/2016). However, it should be noted that the Indonesian pole-and-line fishery includes very small vessels (*funai*), which should not be included in the 'commercial' category. Unfortunately, it is not possible to distinguish the composition of the catch of these small pole-and-line vessels in the total pole-and-line catch at this stage.
3. The large-fish Handline known as deep handline fishery, mostly operates in the archipelagic waters/territorial seas of Indonesia. However, some catches from such fishery are taken beyond these areas in the outer EEZ waters. It should also note that the national law is protecting all handline vessels (fiber and wooden made) with size up to 10 GT. Meanwhile, fishing vessels with size from 10 to 30 GT is considered as small scale fisheries and only authorized to fish until 12 nm. Therefore, the large-fish handline fishery should not be categorized as Other Commercial Fisheries within the WCPFC tropical tuna measure, except for vessels above 30 GT. In addition, there are still some issues for HL data collection to indicate the level of catch of large-fish handline beyond the archipelagic waters and territorial seas of Indonesia for the tropical tuna measure's baseline years (2001-2004) nor recent years. It is identified

that the large-fish handlines/deep handlines have five different types of fishing methods.

1. Introduction

WCPFC16 tasked the SPC, in collaboration with Indonesia, to develop a paper containing all information on the 'other commercial fisheries' of Indonesia to be presented to SC16 for review. The WCPFC16 tasking emanated from discussions at TCC15, which were summarised in the TCC15 report as follows:

59. TCC15 acknowledged ongoing difficulties in evaluating compliance with limits related to the other commercial fisheries for bigeye, yellowfin, and skipjack tuna (paragraph 51 of CMM 2017-01, subsequently replaced by CMM 2018-01). TCC15 noted that the fisheries are complex and available data for these fisheries are limited which has led to uncertainties and difficulties in determining appropriate limits, including in determining which fisheries should be included. TCC15 recognised that significant work is underway under the continuation of the West Pacific East Asia (WPEA) project and acknowledges the generous support of New Zealand to facilitate this work through WPEA-ITM.

60. TCC15 tasked the Scientific Services Provider to develop a working paper in conjunction with Indonesia and the Philippines to assist WCPFC16 to interpret (and if necessary clarify) paragraph 50 and 51 of the tropical tuna measure (CMM 2018-01) in a way that makes it possible to evaluate compliance with the purpose of paragraph 51, which is: to ensure that in other commercial fisheries, the total catch of a CCM's bigeye, skipjack, and yellowfin catch does not exceed either the average level for the period of 2001-2004 or the level of 2004.

Relevant excerpts from WCPFC Conservation and Management Measure (CMM) 2018-01 are provided below:

PRINCIPLES FOR APPLICATION OF THE MEASURE

Area of Application

4. Coastal states are encouraged to take measures in archipelagic waters and territorial seas which are consistent with the objectives of this Measure and to inform the Commission Secretariat of the relevant measures that they will apply in these waters.

7. In giving effect to this CMM, the Commission shall pay attention to:

...

(c) the need to avoid adverse impacts on subsistence, small-scale and artisanal fishers.

OTHER COMMERCIAL FISHERIES

50. To assist the Commission in the further development of provisions to manage the catch of bigeye, yellowfin, and skipjack tunas, the Scientific and Technical and Compliance Committees during their meeting in 2019 will provide advice to the Commission on which fisheries should be included in this effort and what information is needed to develop appropriate management measures for those fisheries.

51. CCMs shall take necessary measures to ensure that the total catch of their respective other commercial tuna fisheries for bigeye, yellowfin or skipjack tuna, but excluding those fisheries taking less than 2,000 tonnes of bigeye, yellowfin and skipjack, shall not exceed either the average level for the period 2001-2004 or the level of 2004.

This paper attempts to cover the following areas:

- explain the current issues in the application of CMM 2018–01 “Other Commercial Fisheries” to the Indonesia tuna fisheries;
- provide a brief description of the domestic Indonesia tuna fisheries (in the context of “Other Commercial fisheries” in the tropical tuna measure);
- explain, with justification, of the Indonesia tuna fisheries, which should be considered under the tropical tuna measure’s “Other commercial fisheries”, and those fisheries that should be considered under the Indonesia national tuna management plan.

It is anticipated that advice from SC16 on the review of this paper will be provided to the TCC16 and WCPFC17 to review paragraph 51 in CMM 2018-01 to ensure appropriate limits can be determined, measured, and assessed in the Compliance Monitoring Scheme (Paragraph 376, WCPFC16 Summary Report).

2. Issues in the application of CMM 2018-01 Other commercial fisheries to Indonesia

Small scale tuna fisheries are complex and involving millions of small fishers. Several national laws related to the small scale fishers are as follows:

- Law No. 9 of 1985 concerning Fisheries: small fishers are fishermen and small fish farmers or other individuals whose nature of business of livelihood is to meet the daily needs of life and is not subject to the obligation to have a fishery business permit as referred to in paragraph (1);
- Law No. 31 of 2004 concerning Fisheries: Small fishers are people whose their livelihoods is to meet the needs of everyday life;
- Law No. 45 of 2009 concerning Amendment of Law No. 31 of 2004 concerning Fisheries: Small Fishermen are people whose their livelihood of fishing is to meet daily living needs and using fishing vessels with the largest size of 5 (five) gross ton (GT);
- Law No. 23 of 2014 concerning Local Government: Small fishermen are traditional Indonesian fishermen who use traditional fishing materials and tools, and are not subject to a business license and are free of tax, and are free to fish in all fisheries management within the territory of the Republic of Indonesia;
- Law No. 7 of 2016 concerning Protection and Empowerment of Fishers, Fish Farmers, and Salt Farmers: Small fishers are fishermen who catch fish to fulfill their daily needs, both for those who do not use fishing vessels or those who use fishing vessels with a maximum size of 10 (ten) gross tons (GT);
- Ministerial Decree No 36/2015 concerning criteria and classification of small scale, medium scale, and large scale for fisheries levies (small scale: >30-60 GT; medium scale: > 60 -200 GT; large scale: > 200 GT).

These national laws have direct implications and consequences in terms of the applicability of any CMMs and Resolutions of tRFMOS.

Reliable historical annual catch estimates from Indonesian longline and purse seine fleets operating in the WCPFC area have ensured that reliable baselines (based on catch and effort in years back to 2001) could be established to evaluate compliance and the effectiveness of the iterations of the tropical tuna measure (CMM 2018-01 is the current version relevant for 2019 activities).

Most of the Indonesia domestic tuna fisheries comprise artisanal, small-scale vessels which fish using a number of different artisanal gears and are a critically important sector contributing to the livelihoods and food security of the Indonesia population. The Directorate General of Capture Fisheries was responsible for compiling annual catch estimates. As a reorganization occurred, the Center of Data, Statistics, and Information has the responsibility of collecting such data since 2017.

The annual catch estimates for tuna fisheries in Indonesia are estimated at the Fisheries Management Area level (FMA). However, official estimates published in the National Fisheries Statistic for years, before the WPEA¹ supported the Annual Catch Estimates Workshops, were only available at the species level and separately as total catches by gear. Historical Indonesia's catches outside of its EEZ comprised small catches by the purse seine fleet (in the 1980s), and until 2014, up to seven longline vessels were operating in the Kiribati EEZ and adjacent high seas waters of the eastern tropical WCPO.

Since 2015, Indonesia tuna fisheries have been restricted to Indonesian EEZ and archipelagic waters with no fishing by Indonesian flagged vessels elsewhere in the WCPFC Area. Logbook data have been collected for some gears in their domestic fisheries, but the coverage is estimated to be, at best, <5% for the purse seine and longline gears in recent years and no logbook data are collected from the small-scale artisanal fisheries, a pilot project for small scale tuna fisheries logbook has been started in mid of 2019. Through the support of the WPEA project, landings data are collected from some key ports (e.g., Bitung and Kendari). However, the coverage is low, and these data do not provide specific spatial information of each fishing operation (as is the case with logbooks from the longline and purse seine fisheries).

Acknowledging the uncertainty in the estimates from the Indonesia domestic fisheries, DGCF and CFR in conjunction with the WCPFC Secretariat and the Pacific Community (SPC) conducted the first annual tuna catch estimates workshop in March 2010, and these workshops have been held every year since then. The first few years of these workshops attempted to outline the specific WCPFC requirements and a process to enhance and review the estimates, acknowledging the paucity of data available and proposing recommendations to improve data collection. Catch Estimates of the Purse seine, Longline, and Pole-and-Line fisheries were the priority in the early years of the workshops since there was more information available, and so presumably, more reliable estimates.

It was acknowledged that the catch estimates for the Indonesia domestic fisheries, which are relevant for the tropical tuna measure baseline years (2001–2004), are uncertain compared to estimates produced in more recent years through the annual catch estimates workshops.

One particular issue has been the difficulty in separating the tropical tuna catch (by species) or the small-scale artisanal gears. The problem is due to the challenge in monitoring the landed catch of tens of thousands of small vessels with multi-gears and spread out over a wide area of the Indonesian archipelago. The annual catch estimates workshops have only recently (since 2013) produced distinct annual catch estimates for the troll and gillnet gears, which were previously included in the “others – unclassified” gear group. Further, the

SPC are responsible for producing tables of catch estimates to evaluate compliance with the tropical tuna measure's “Other Commercial Fisheries” (the latest version is available as Table 6 in [WCPFC16-2019-IP05-rev1](#)). A recent review by the relevant Indonesia agencies (DGCF

¹ WCPFC-administered West-Pacific, East-Asia (WPEA) project, and its predecessor, the Indonesia/Philippines Data Collection Project (IPDCP) have been running continually since 2009.

and CFR) and SPC of the information compiled, estimated, and presented in this table for the Indonesia domestic fisheries has identified the following issues:

- Indonesia considers that only purse seine and longline vessels larger than 30 GT and operate in Indonesia's EEZ FMAs 716 - 717 and high seas of WCPO should be considered in the category of 'commercial' vessels.
- Annual catch estimates by gear type and by species are not available (or highly uncertain) for most small-scale fisheries for the baseline years (2001-2004) of the tropical tuna measure. Therefore, the consideration of combining all catches from small-scale vessels into a category of "others unclassified small-scale gears combined" may be the only option for future evaluation under the "other commercial fisheries" section of the tropical tuna measure assessment;
- The estimation of catch by gear representing the Other Commercial fisheries of Indonesia has only taken into account the catches in Indonesia's Fisheries Management Areas (FMAs) 716 and 717 which is acknowledged to represent the EEZ (outside territorial waters and Archipelagic waters), and which is compiled by Indonesia annually. However, Figures 1 and 2 show that some of the areas in FMAs 716 and 717 are archipelagic waters and territorial seas. Therefore some catches in FMAs 716 and 717 shall be excluded from the consideration under the tropical tuna measure;
- Since EFFORT data from these fisheries are either limited or unavailable, it is any estimates of effort are considered to be highly uncertain. Therefore such data should not be used.

3. Indonesia domestic tuna fisheries

3.1. A brief overview of Indonesia domestic tuna fisheries

Several documents provide detailed descriptions of the various gears used in the Indonesia domestic fisheries as regulated in the ministerial decree no 06/2010 concerning fishing gear in the Indonesia FMAs. Indonesia has regularly submitted annual catch estimates for the main gears to the WCFPC, and more recently logbook and port-based size data. However, coverage of these data is very low. Annual workshops supported by the WCPFC-administered West-Pacific, East-Asia (WPEA) project have been conducted in Indonesia for ten years to improve the data collected from their domestic fisheries, particularly the reliability of annual catch estimates by gear and species.

The Indonesia EEZ includes established archipelagic waters and territorial seas (see Figure 1) and Fisheries Management Areas (FMAs – see Figure 2). Figure 3 shows a map of shared fishing area (Sulawesi Sea/Celebes Sea) between Indonesia and Philippines.

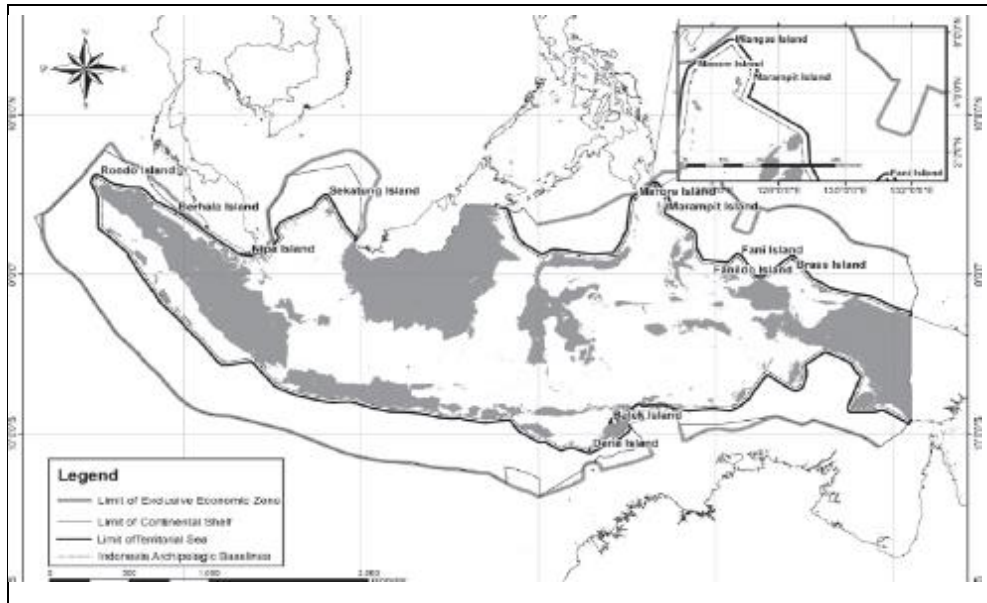


Figure 1. Map of Indonesia, including archipelagic waters, territorial seas and EEZ areas. The Outermost Small Islands of the Indonesian Archipelago: A Legal Analysis. In: The International Journal of Marine and Coastal Law. Author: Dikdik Mohamad Sodik; Online Publication Date: 13 Nov 2018

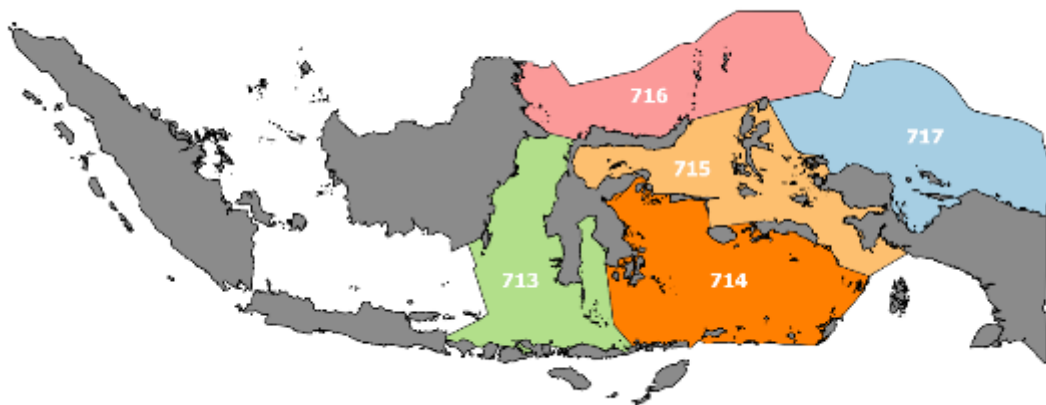


Figure 2. Map of the Indonesia, showing the established Fisheries Management Areas (FMAs) (the FMAs relevant to the WCPFC Convention Area are FMAs 713 – 717)



Figure 3. Map of shared fishing area (Sulawesi Sea/Celebes Sea) between Indonesia and Philippines (from: Indonesia & Philippines Settle Maritime Boundaries, Look To Increase Trade February 26, 2014 Posted by ASEAN Briefing)

Concerning CMM 2018-01, the management and compliance for the Indonesia purse seine and longline gears are covered under the sections for “PURSE SEINE FISHERY” and “LONGLINE FISHERY”, respectively. A breakdown of the Indonesia domestic gears is provided in Table A 1.

The other gears from the Indonesia domestic fisheries that could be considered under the “OTHER COMMERCIAL FISHERIES” are:

- Pole-and-Line
- Handline (Small-fish and large-fish target gear)
- Large-fish Handline
- Gillnet
- Troll
- Other small-scale gears - unclassified

The following sections deal with the applicability for the inclusion of each of these other gears (i.e. excluding purse seine and longline) to the CMM 2018-01 OTHER COMMERCIAL FISHERIES.

3.2. Pole-and-Line

Indonesia's coastal pole-and-line and handline (collectively termed 'one-by-one') tuna fisheries are traditional, low-impact catching methods, which use one hook and one line to catch tuna, one at a time. These fishing methods have been practiced for hundreds of years and are generally regarded as environmentally and socially responsible ways to target tuna. They are highly selective with little to no bycatch, non-damaging to benthic habitats, and they employ large numbers of people and support local communities. Due to such attributes, there is an increasing demand for products from pole-and-line, and handline tuna fisheries globally, with many retailers and brands making commitments to one-by-one caught and third-party sustainably certified fish. An example of an Indonesia vessel using the pole-and-line gear is provided in Figure 4.

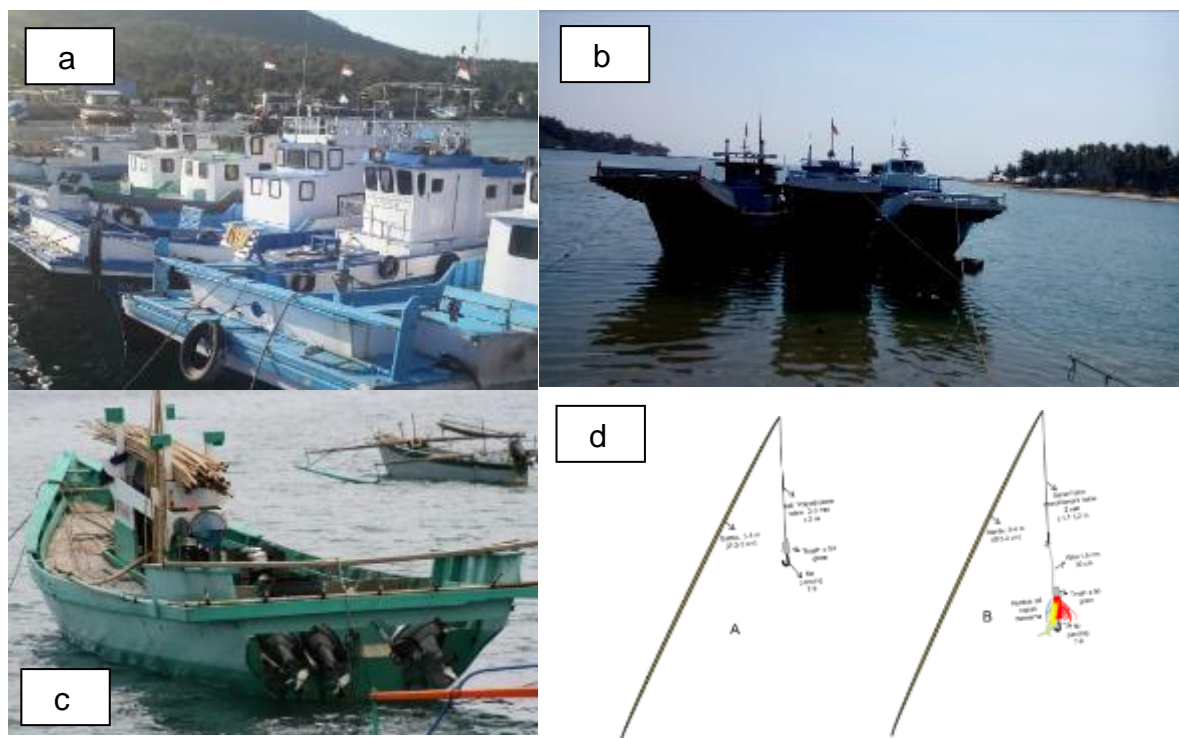


Figure 4. An example of an Indonesia vessel using the pole-and-line gear. Note: (a) & (b) Small PL (non Funae) based at Larantuka and Sikka 10-20 GT (Anung Widodo, 2017); (c) Small PL (Funae) based in Belang (North Sulawesi) 10-20 GT (Craig Proctor, 2015); (d) pole and line construction.

The annual catch estimates for this fishery (

Table A 2 in ANNEXES) have fluctuated between 80,000 tons and 160,000 tons over the past ten years. The annual catch estimates of the pole-and-line fishery are generally considered to be reliable. With a breakdown distinguishing catches outside the AWs/TS, it is possible to evaluate this **large-scale pole-and-line** fishery under the tropical tuna measure's "Other Commercial Fisheries". The Indonesian pole-and-line fishery includes very small vessels (funai) which should probably not be included in the 'commercial' category. Unfortunately, it is not possible to distinguish the composition of the catch of these small pole-and-line vessels in the total pole-and-line catch at this stage.

3.3. Handline (small-fish and large-fish target)

The small-fish hook-and-line fishery comprises small craft that, due to their size and concerns on safety, are mostly to fish in the archipelagic waters and territorial seas of Indonesia (Figure 5; Figure 6). The catches of these vessels are categorized as small-scale in the Indonesia national data collection systems. The method of fishing is to target small tunas using one or multiple (small) hooks at the surface during daylight hours. However, a variety of fishing methods exist under this category (e.g., kite fishing). These catches are typically for subsistence or sold at local markets.



Figure 5. An example of an Indonesia vessel using the hook-and-line gear (source: RIMF)

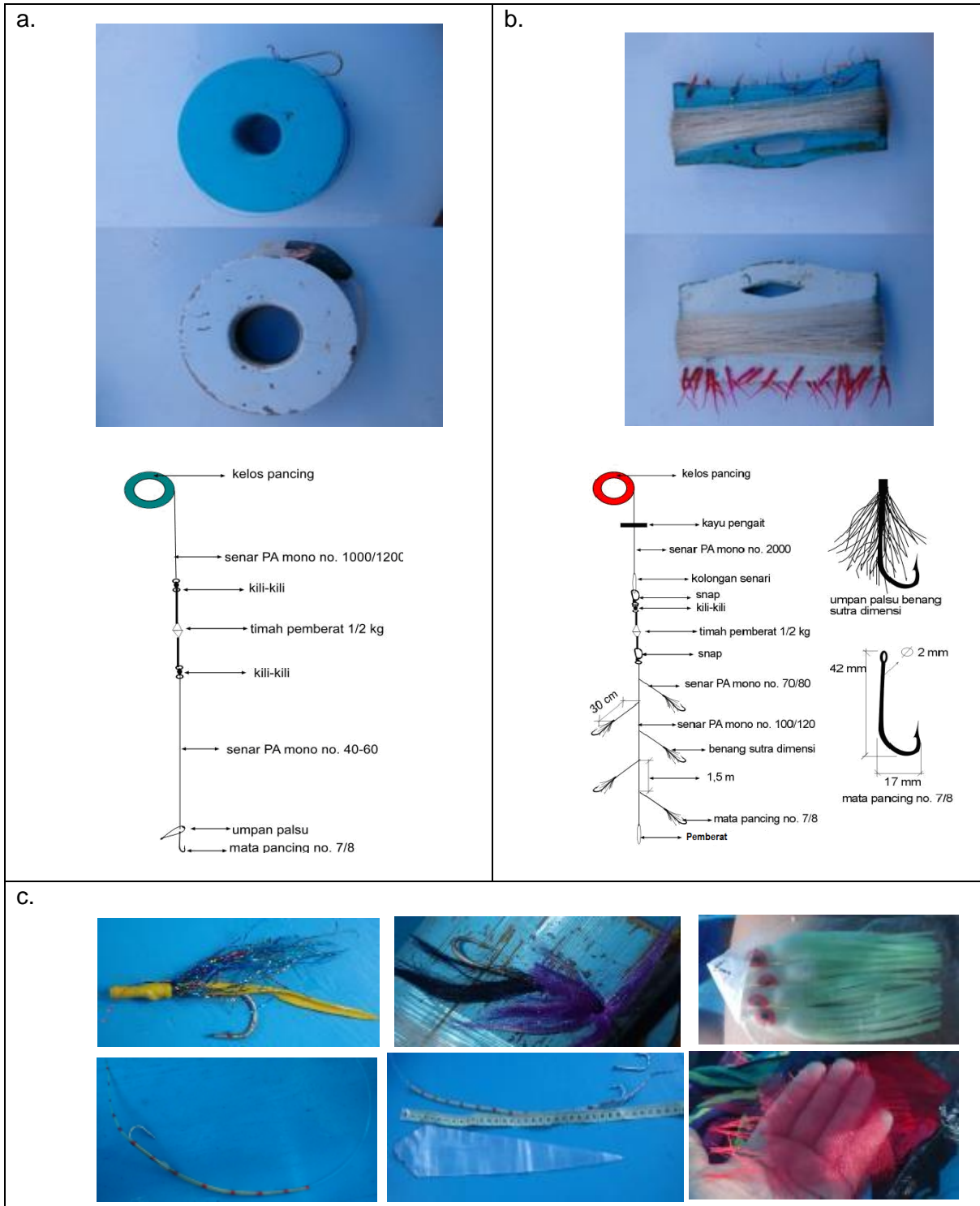


Figure 6. An example of the Indonesia hook-and-line gear (Source: RIMF). Note: a. Construction Indonesian hook and line targeted large fish > 10 kgs; b. Construction Indonesian hook and line targeted small fish < 10 kgs; c. various type of artificial bait for hook and line fishery.

The large-fish Handline fishery comprises both small craft and larger vessels (Figure 7), mostly based at several key ports (e.g. Bitung and Gorontalo). The general characteristics that distinguish the vessels targeting small-fish hook-and-line and those targeting large yellowfin tuna are shown in Table 1. However, this distinction is not always clear; for example, there are instances when small craft can target both large yellowfin at night and small tunas in the day within one trip.

Large yellowfin tuna dominate the catch from this gear type (large-fish Handline: typically $\geq 95\%$ of the total catch), and the catches are either landed at the main ports or directly at company processing plants, where the catch is processed and available for export or the high-end local markets.



Figure 7. Photos of a large-fish handline vessel and the gear used (source: MDPI)

Unfortunately, estimates of separate large-fish Handline and small-fish hook-and-line catches were not available before 2013 and were combined in one “HANDLINE” catch category. Estimates of separate large-fish Handline and small-fish hook-and-line catches were not available after 2016. However, the large-fish Handline catch estimate for 2016 has been carried over and the small-fish hook-and-line catch estimated to be the difference from the combined HANDLINE catch estimate for years 2017-2019 (see

Table A 2 in the ANNEXES).

The annual catch estimates for large-fish HANDLINE fishery is acknowledged to be in the order of 20,000-30,000 tons, which is consistent with the same fishery in the Philippines. Since the product from such fishery has more value than the small-fish hook-and-line fishery, the estimates for the large-fish handline fishery, when generated (2013-2016), are deemed more confident.

Unlike the small-fish hook-and-line vessels, which are restricted to archipelagic waters and territorial seas, some larger handline vessels targeting large yellowfin tuna are sailing far from port and fish outside of archipelagic waters. There is still low coverage of the logbook programme implemented for this fishery. However, available landings data have the potential to provide an approximate proportion of the catch within and beyond the AWs/TS.

The distribution of the large-fish handline vessels will be dependent on available markets and processing plants and also related to the availability of large-fish fish close to landing sites, access to specific fishing grounds, sea/weather conditions, and other determinants.

Indonesia considers that smaller vessels (<30GT) that are included in their large-fish handline fishery should not be included in the tropical tuna measure's Other Commercial Fisheries category but acknowledge that separating the catch of this component is not feasible in the historical data, but may be possible in the future. However, it is understood that the smaller vessels would usually be restricted to the AWs/TS areas. So this catch component would be excluded from consideration under the tropical tuna measure's Other Commercial Fisheries. Indonesia will nonetheless continue also to have the large-fish Handline fishery covered under their national tuna management plan, which requires responsible fishing practices to ensure the effectiveness of conservation and management measures implementation. Some management actions are implemented in the tuna fisheries by considering the characteristic of fisheries and the need of stakeholders in the region, such as controlling the number of fishing vessels, catch level, the use of FADs, and number of days

There is some uncertainty in the available catch estimates for the small-fish hook-and-line fishery for which estimates have fluctuated over time, mostly due to a bulk of this catch included in the "Other – unclassified" category prior to 2013, and the general uncertainty of the catch of this fishery (see

Table A 2 in the ANNEXES).

Indonesia considers its small hook-and-line fishery should not be included in the tropical tuna measure's Other Commercial Fisheries category. However, it will continue to be covered under their national tuna management plan which requires responsible fishing practices to ensure effectiveness of conservation and management measures implementation. Some management actions are implemented in the tuna fisheries by considering the characteristic of fisheries and the need of stakeholders in the region, such as controlling the number of fishing vessels, catch level, the use of FADs, and number of days

In regards to the annual evaluation of the tropical tuna measure's Other Commercial Fisheries, if landings data cannot be used to identify the proportion of large-fish Handline catch beyond the AWs/TS, then the only option available is to consider an arbitrary proportion of what might be expected to be the catch beyond AWs/TS in the combined small-scale historical catch estimates (and this information is presented in Table A 5 in the ANNEXES).

Table 1. Characteristics of large-fish HANDLINE and small-fish HOOK-and-LINE targeting in the Indonesia domestic fisheries.

Attribute	When to assign GEAR as either ...		
	Deep Handline		Surface Handline
	large-fish HANDLINE (H) (using Larger Vessels)	large-fish HANDLINE (H) (using Smaller Vessels)	small-fish HOOK-and-LINE (K)
Size of YFT catch	Most of the catch are large YFT > 70 cms	Most of the catch are large YFT > 70 cms	Most of the catch are small TUNA (SKJ, YFT) < 70 cm
Hook size	LARGE hooks Usually single hook	LARGE hooks Usually single hook	SMALL hooks Number of hooks >=10
Species composition	Large YFT comprise most of the catch (generally > 80%)	Large YFT comprise most of the catch (generally > 80%)	Most of the catch is small tuna (SKJ, YFT). There may be some large YFT, but most of catch is small tuna.
Primary fishing period and depth	Fishing occurs mostly at day and night at a depth of more than 50 metres.	Fishing occurs mostly at day and night at a depth of more than 50 metres.	Fishing occurs mainly during the day, at the surface
Fishing operation	Drifting by a buoys or floating material, one hook large by natural bait. (DriftOneLargeNatural) / Floating line Drifting with buoy and ballast, big multi gears and artificial attractor (DriftMultipleLargeArtificial) Drop handline with ballast, one big hook and artificial attractor (DropOneLargeArtificial)/Deep Hand Line Drop handline with ballast, One big hook and natural bait (DropOneLargeNatural)/Deep Hand Line On the surface one big hook and live bait (SurfaceOneLargeLive)/Deep Hand Line		Drop line with ballast, one small hook and artificial attractor (DropOneSmallArtificial)/Jigging Drop line with ballast, one small hook and natural bait (DropOneSmallNatural)/Deep Hand Line Drop line with ballast, small multi gears and artificial attractor (DropMultipleSmallArtificial)/jigging Dropline with ballast, small multi gears and natural dead bait (DropMultipleSmallNatural)

Attribute	When to assign GEAR as either ...		
	Deep Handline		Surface Handline
	large-fish HANDLINE (H) <i>(using Larger Vessels)</i>	large-fish HANDLINE (H) <i>(using Smaller Vessels)</i>	small-fish HOOK-and-LINE (K)

3.4. Troll

The troll fishery comprises small craft that, due to their size and concerns on safety, are restricted to fish in the archipelagic waters and territorial seas of Indonesia (Figure 8). The catches of these vessels are categorized as “small-scale” in the Indonesia national data collection systems. This fishery is similar to the hook-and-line fishery. However, catch estimates from this gear have only been separated from the “Other – unclassified” gear category since 2013, when the distinction of estimates for the troll fishery catch was first attempted (See

Table A 2 in ANNEXES). The total tuna catch from the troll fishery has ranged from around 3,000 t. to 133,000 t. over the past seven years, indicating the difficulties in separating a reliable troll catch estimate from the catch estimate of the “Other – unclassified” gear category.



Figure 8. Troll line boat and gears

Catches from this fishery are acknowledged to be confined to archipelagic waters and territorial seas based on the fishing ground information collected for each landing (i.e. the percentage of catch outside of the AWs/TS is typically < 1%).

Indonesia considers its troll fishery should not be included in the tropical tuna measure’s Other Commercial Fisheries category. However, it will continue to be covered under their national tuna management plan, which requires responsible fishing practices to ensure the effectiveness of conservation and management measures implementation. Some management actions are implemented in the tuna fisheries by considering the characteristic of fisheries and the need of stakeholders in the region, such as controlling the number of fishing vessels, catch level, the use of FADs, and number of days

3.5. Gillnet

The gillnet fishery comprises small craft that, due to their size and concerns on safety, is restricted to fish in the archipelagic waters and territorial seas of Indonesia (Figure 9). The catches of these vessels are categorized as “small-scale” in the Indonesia national data collection systems. Catches from this fishery were included in the “other gears” estimates for years prior to 2013, when the distinction of estimates for this fisher was first attempted (See

Table A 2 in ANNEXES). The total tuna catch from the gillnet fishery has ranged from less than 5,000 t. to 26,000 t over the past seven years.



Figure 9. Drifting Gillnet wooden vessel/boat

All fishing with this gear is acknowledged to be confined to archipelagic waters and territorial seas, based on the fishing ground information collected for landing data (i.e. the percentage of catch outside of the AWs/TS is < 1%).

Indonesia, therefore, considers that its gillnet fishery should not be included in the tropical tuna measure's Other Commercial Fisheries category. However, it will continue to be covered under their national tuna management plan, which requires responsible fishing practices to ensure the effectiveness of conservation and management measures implementation. Some management actions are implemented in the tuna fisheries by considering the characteristic of fisheries and the need of stakeholders in the region, such as controlling the number of fishing vessels, catch level, the use of FADs, and number of days.

3.6. "Other – unclassified" gears

The catches of these vessels are categorized as "small-scale" in the Indonesia national data collection systems. Catches from this fishery are generally less reliable due to the significant number of small vessels, the diverse gears and the extent of spatial distribution throughout the Indonesian archipelago, which makes monitoring catches and vessel activity a significant challenge. Estimates for this fishery are available in Table A 3 in ANNEXES.

All fishing with these gears is acknowledged to be confined to archipelagic waters and territorial seas, based on the fishing ground information collected from landing data (i.e. the percentage of catch outside of the AWs/TS is < 1%).

Indonesia, therefore, considers their "other – unclassified" gear fishery should not be included in the tropical tuna measure's Other Commercial Fisheries category. However, it will continue to be covered under their national tuna management plan responsible fishing practices to ensure the effectiveness of conservation and management measures implementation. Some management actions are implemented in the tuna fisheries by considering the characteristic of fisheries and the need of stakeholders in the region, such as controlling the number of fishing vessels, catch level, the use of FADs, and the number of days and other national regulations that apply on these fisheries.

4. Summary of points for WCPFC consideration

This paper provides a brief description of the gear types in the Indonesia domestic fisheries to consider whether they should be applicable under the Other Commercial fisheries category of the WCPFC tropical tuna measure. Based on the information provided, WCPFC is requested to consider and agree on the following outcomes:

1. Small scale tuna fisheries are complex and involving millions of small fishers. Several national laws related to the small scale fishers such as:
 - Law No. 9 of 1985 concerning Fisheries (Fishermen and small fish farmers or other individuals whose nature of business is a livelihood to meet the daily needs of life and is not subject to the obligation to have a fishery business permit as referred to in paragraph (1));
 - Law No. 31 of 2004 concerning Fisheries (Small fishermen are people whose livelihoods is to fish in order to meet the needs of everyday life);
 - Law No. 45 of 2009 concerning Amendment of Law No. 31 of 2004 concerning Fisheries (Small Fishermen are people whose livelihood fishing to meet daily living needs that use fishing vessels with the largest size of 5 (five) gross ton (GT));
 - Law No. 23 of 2014 concerning Local Government (Small fishermen are traditional Indonesian fishermen who use traditional fishing materials and tools, and are not subject to a business license and are free of tax, and are free to fish in all fisheries management within the territory of the Republic of Indonesia.);
 - Law No. 7 of 2016 concerning Protection and Empowerment of Fishers, Fish Farmers, and Salt Farmers (Small fishermen are fishermen who catch fish to fulfill their daily needs, both for those who do not use fishing vessels or those who use fishing vessels with a maximum size of 10 (ten) gross tons (GT));
 - Ministerial decree No 36/2015 concerning on criteria and classification of small scale, medium scale, and large scale for fisheries levies (small scale : >30-60 GT; medium scale : > 60 -200 GT; large scale : > 200 GT).
2. The Indonesia domestic (small-fish) surface handline, drift gillnet, troll, small-scale pole-and-line (*funa*) and other small-scale gears within FMA 716-717 comprise small craft/boat (< 10 GT) with mostly 1-4 GT. They convey a one day traditional fishing for their livelihood at their subsistence level. The fisheries are mostly a one day fishing with some multi-days up to two weeks for fresh products. Under fisheries act no 31/2004 as amended by Fisheries Act No. 45/2009 allows the small fishers to fished in all Indonesia's fisheries management areas (Internal waters, Archipelagic, Territorial, and EEZ). In addition, these fisheries are protected for their operational fishing guarantee in particular for small fishers (*nelayan kecil*) under national law no 07/2016 concerning the protection and empowerment for fishers (nelayan), fish farmer (pembudidaya ikan) and salt producer (petambak garam). As such, these fisheries/gears should not be applicable with respect to the Other Commercial fisheries category of the WCPFC tropical tuna measure, noting that these fisheries will continue to be covered under the Indonesia national tuna management plan (Ministerial Regulation No. 107/2015) and other national regulations that apply on these fisheries (Ministerial Regulation No 71/2016 concerning on fishing lane and gear placement in Indonesia Fisheries Management Areas).
3. Historical annual catch estimates for the Indonesian pole-and-line fishery are available for the specific area relevant to the tropical tuna measure (the Indonesia EEZ – FMAs 716 and 717 which is outside the Indonesia territorial water and Archipelagic Waters), and so the SPC (as WCPFC SSP) is directed to use these estimates to include in the table of Other Commercial fisheries for the evaluation of compliance with the tropical tuna measure in the future (see Table A 5). However, it is essential to include a note

to indicate that some of the catches were in the Indonesia AWs and TS waters of FMAs 716 and 717 (Figures 1 and 2), which would generally be excluded if it was possible to differentiate. Also noting that Indonesia manages the domestic pole-and-line fishery. However, it should be noted that the Indonesian pole-and-line fishery includes very small vessels (funai), which should probably not be included in the 'commercial' category. Unfortunately, it is not possible to distinguish the composition of the catch of these small pole-and-line vessels in the total pole-and-line catch at this stage.

4. The large-fish Handline known as well as deep handline fishery operates in the archipelagic waters/territorial seas of Indonesia, but some catches are taken beyond these areas in the outer EEZ waters. However, taking into account that all handline vessels (fiber and wooden made) are small size (<10GT) are protected under the National Law. Therefore, it shall not be categorized as Other Commercial fisheries within the WCPFC tropical tuna measure, unless the vessel is > 30 GT. In addition, there are still some issues for HL data collection to indicate the level of catch of large-fish handline beyond the archipelagic waters and territorial seas of Indonesia for the tropical tuna measure's baseline years (2001-2004) nor recent years. It is identified that the large-fish handlines/deep handlines have 5 different types of fishing methods. One potential approach is to consider that the component representing the catch of large-fish Handline gear is a constant proportion of the combined "other gear – unclassified" annual catch estimates for the EEZ (FMAs 716 and 717, excl AWs and TS). This approach could also be considered for evaluating compliance under the tropical tuna measure's Other Commercial Fisheries until better estimates from this fishery are available. Considering that an arbitrary 90% of the catch represents the other small-scale gears activities in AWs/TS, Table A 5 below uses an arbitrarily assigned 10% as the proportion of large-fish Handline catch in the combined "other gear – unclassified" annual catch estimates for the EEZ (FMAs 716 and 717, excluding AWs and TS). Also noting that the Indonesia government manages the domestic large-fish handline fishery through national regulations as mandated in the national tuna management plan. There is a tentative plan under the WPEA project for a specific study to focus on a system for producing separate estimates for the large-fish Handline fishery in the coming years.
5. Another option is to examine the available WPEA Landings data for recent years to look at the distribution of landed catch from the large-fish Handline gear by fishing ground/area to determine the proportion of catch by this gear that lies outside of AWs and TS, although this would assume that the WPEA landings data are representative. This proportion (by year) should apply to the total catch estimate to determine the level of catch applicable to the evaluation of the tropical tuna measure's "Other Commercial Fisheries".

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Appendices

Table A 1. Indonesia domestic fisheries

No	Fishing Gears	Engine type	Range GT (National Fisheries Statistic)	Range GT (based on sampling)	Range GT (National vessel registration)	Trip duration	Target Species
A Commercial Fisheries							
1	Large Pelagic Purse Seine	Motorised outboard	10 -30 GT	12 - 14 GT	4 - 30 GT	7 - 12 days	tuna
2	Large Pelagic Purse Seine	Motorised inboard	> 30 GT	29 -54 GT 98 -162 GT	32 - 198 GT	3 - 15 days	tuna
3	Tuna Longline	Motorised inboard	10 -30 GT		4 - 30 GT		tuna
4	Tuna Longline	Motorised inboard	> 30 GT		74 GT		tuna
B Other Commercial Fisheries							
B1 Applicable to CMM 2018-01							
1	Handline tuna	Motorised inboard	> 30 GT		33 - 45 GT		tuna
2	Pole and line	Motorised inboard	10 -30 GT	6 -20 GT	6-29 GT	1 - 2 days	tuna
3	Pole and line	Motorised inboard	> 30 GT		47 - 89 GT		tuna
4	Troll line	Motorised inboard	10 -30 GT		13 - 29 GT		tuna
5	Troll line	Motorised inboard	> 30 GT				tuna
6	Gill Net	Motorised inboard	10 -30 GT		1 - 30 GT		tuna
7	Gill Net	Motorised inboard	> 30 GT				tuna
B2 Not Applicable to CMM 2018-01							
1	Small Pelagic Purse Seine	Motorised inboard	10 -30 GT				non tuna
2	Small Pelagic Purse Seine	Motorised inboard	> 30 GT				non tuna
3	Handline tuna	Motorised inboard and outboard	10 -30 GT		1 -30 GT		tuna
C Non Commercial Fisheries							
1	Small Pelagic Purse Seine	Motorised outboard	≤ 10 GT				small pelagic
2	Tuna Longline	Motorised outboard	≤ 10 GT				tuna
3	Handline	Non motorised	≤ 10 GT				tuna

4	Handline	Motorised outboard	≤ 10 GT	1 - 4 GT 3 - 10 GT		One days Multi days (3-4 days) 1 -2 days 5 - 10 days	tuna
5	Pole and line (funai)	Motorised inboard	≤ 10 GT	6 -20 GT		1 - 2 days	tuna
6	Troll line	Motorised outboard	≤ 10 GT				neritic/tuna
7	Gill Net	Motorised outboard	≤ 10 GT				tuna
8	Beach Seine	Motorised outboard	≤ 10 GT				non tuna
9	Lift Net	Motorised inboard	≤ 10 GT				non tuna

Table A 2. Annual catch estimates of tropical tuna (SKJ/YFT/BET) for the Indonesia domestic fisheries by gear.

YEAR	Indonesia tropical tuna (SKJ+YFT+BET) catch estimate for WCPFC Area (Including Aws)							
	Longline	Purse seine	Pole and Line	Handline (Large fish)	Small-fish hook-and-line	Gillnet	Troll	Other-unclassified
2000	25,009	63,626	140,517	10,613				102,438
2001	23,013	58,546	129,301	9,765				94,263
2002	22,119	56,272	124,280	9,387				90,601
2003	22,563	57,401	126,772	9,575				92,420
2004	29,706	75,577	166,912	12,606				121,682
2005	19,017	54,057	104,413	4,237				65,790
2006	21,127	55,903	125,498	4,335				78,981
2007	22,689	56,375	146,389	3,743				92,694
2008	26,098	53,534	151,108	3,611				100,234
2009	31,779	72,900	158,996	15,500				109,460
2010	26,625	67,929	154,824	10,910				97,966
2011	31,320	61,494	159,016	11,182				134,430
2012	24,234	96,753	133,305	15,500				173,524
2013	23,720	215,581	106,705	11,780	13,642	20,989	74,617	59,295
2014	35,617	144,954	102,093	25,236	16,824	26,610	89,563	42,020
2015	23,171	56,362	116,179	32,503	75,512	6,879	85,458	36,014
2016	23,611	126,964	108,327	22,536	78,611	11,142	133,879	20,563
2017	3,839	208,895	81,938	22,536	54,980	5,106	2,987	88,167
2018	25,544	108,734	128,851	21,650	87,494	20,225	43,879	90,259
2019	16,053	139,127	96,319	117,723		10,703	64,212	90,968

Notes

- 1 Estimates of tropical tuna species catches for Gillnet and Troll gears were not available/compiled prior to 2013.
- 2 Estimates of separate large-fish Handline and small-fish hook-and-line catches were not available prior to 2013 and were combined in one "HANDLINE" catch category. Estimates of separate large-fish Handline and small-fish hook-and-line catches were not available after 2016. However, the large-fish Handline catch estimate for 2016 has been carried over, and the small-fish hook-and-line catch estimated to be the difference from the combined HANDLINE catch estimate for years 2017-2019.
- 3 The 2019 catch estimates are provisional.

Table A 3. Annual catch estimates of tropical tuna (SKJ/YFT/BET) for the Indonesia domestic fisheries by gear (with small-scale vessel gears combined).

YEAR	Indonesia tropical tuna (SKJ+YFT+BET) catch estimate for WCPFC Area (Including Aws)			
	Longline	Purse seine	Pole and Line	Small-scale GEARS combined
2000	25,009	63,626	140,517	113,051
2001	23,013	58,546	129,301	104,028
2002	22,119	56,272	124,280	99,988
2003	22,563	57,401	126,772	101,995
2004	29,706	75,577	166,912	134,288
2005	19,017	54,057	104,413	70,027
2006	21,127	55,903	125,498	83,316
2007	22,689	56,375	146,389	96,437
2008	26,098	53,534	151,108	103,845
2009	31,779	72,900	158,996	124,960
2010	26,625	67,929	154,824	108,876
2011	31,320	61,494	159,016	145,612
2012	24,234	96,753	133,305	189,024
2013	23,720	215,581	106,705	180,323
2014	35,617	144,954	102,093	200,253
2015	23,171	56,362	116,179	236,366
2016	23,611	126,964	108,327	266,731
2017	3,839	208,895	81,938	173,776
2018	25,544	108,734	128,851	263,507
2019	16,053	139,127	96,319	283,606

Table A 4. Annual catch estimates of tropical tuna (SKJ+YFT/BET) for the Indonesia domestic fisheries by gear, for FMAs 716 and 717 (for EEZ waters only). Excludes the FMAs that are classified as wholly in the archipelagic waters (AWs) – caught from FMAs 712–715 are excluded.

YEAR	Indonesia tropical tuna (SKJ+YFT+BET) catch estimate, for waters in the outer EEZ (FMAs 716 and 717)			
	Longline	Purse seine	Pole and Line	Small-scale GEARS combined
2000	5,002	12,725	28,103	22,610
2001	4,603	9,621	31,782	24,462
2002	4,424	9,246	30,547	23,512
2003	4,513	9,432	31,159	23,985
2004	5,941	12,420	41,025	31,580
2005	12,964	19,120	30,396	23,336
2006	12,493	16,801	35,224	25,028
2007	12,364	12,875	34,646	23,890
2008	16,268	8,067	36,893	23,487
2009	22,221	9,680	31,899	42,033
2010	15,262	6,351	33,813	30,627
2011	15,449	11,824	32,968	31,111
2012	15,337	33,596	38,308	52,744
2013	11,130	65,339	21,486	30,947
2014	16,733	43,373	10,729	51,154
2015	22,210	34,604	11,867	89,016
2016	5,640	61,317	11,503	92,495
2017	189	68,935	11,470	24,707
2018	8,962	22,043	39,214	22,852
2019	7,067	32,419	1,500	23,985

Table A 5. Annual catch estimates of tropical tuna (SKJ/YFT/BET) for the Indonesia domestic fisheries by gear, for EEZ waters (FMAs 716 and 717) excluding archipelagic waters (AWs) and territorial seas (TS) includes evaluation of recent years catches under the Other Commercial Fisheries category of the tropical tuna measure.

YEAR	Indonesia tropical tuna (SKJ+YFT+BET) catch estimate, for FMAs 716 and 717 outside Archipelagic Waters (Aws) and Teritorial seas (TS)	
	Pole and Line	Small-scale GEARs combined <i>(arbitrary 10%)</i>
2000	28,103	2,261
2001	31,782	2,446
2002	30,547	2,351
2003	31,159	2,399
2004	41,025	3,158
2005	30,396	2,334
2006	35,224	2,503
2007	34,646	2,389
2008	36,893	2,349
2009	31,899	4,203
2010	33,813	3,063
2011	32,968	3,111
2012	38,308	5,274
2013	21,486	3,095
2014	10,729	5,115
2015	11,867	8,902
2016	11,503	9,250
2017	11,470	2,471
2018	39,214	2,285
2019	1,500	2,398

CMM 2017-01 Limit	2018	41,025	3,158
CMM 2018-01 Limit	2019	41,025	3,158
	2018 evaluation	<i>Under limit</i>	<i>Under Limit</i>
	2019 evaluation	<i>Under limit</i>	<i>Under Limit</i>