STATUS OF IOTC DATABASES FOR NERITIC TUNAS

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Abstract

This document reviews the status of the information available on neritic tunas in the databases at the IOTC Secretariat as of November 2009. It covers data on nominal catches, catch-and-effort, and size-frequency data.

1. OVERVIEW

This document summarises the standing of a range of information received for neritic tunas, in accordance with IOTC Resolution 08/01[3] *Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's).*

The document describes the progress achieved in relation to the collection and verification of data, identifies problem areas and proposes actions that could be undertaken to improve them.

A list of recommendations for the improvement in the standing of the data on neritic tunas currently available at the secretariat is made for the consideration of the Working Party (next page).

The report covers the following areas:

- Overview
- Actions proposed to improve the data available on neritic tunas
- Overview of neritic tuna fisheries in the Indian Ocean, by species:
    - Fisheries and catch trends[4]
    - Status of fisheries statistics for neritic tuna species

Major data categories covered by the report

Nominal catches which are highly aggregated statistics for each species estimated per fleet, gear and year for a large area. If these data are not reported the Secretariat estimates a total catch from a range of sources (including: partial catch and effort data; data in the FAO FishStat database; catches estimated by the IOTC from data collected through port sampling; data published through web pages or other means; and data reported by other parties on the activity of vessels (IOTC Resolution 07/04; IOTC Resolution 05/03).

Catch and effort data which refer to the fine-scale data – usually from logbooks, and reported per fleet, year, gear, type of school, month, grid and species. Information on the use of fish aggregating devices (FADs) and supply vessels is also collected.

Length frequency data: individual body lengths of IOTC species per fleet, year, gear, type of school, month and 5 degrees square areas.

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[3] This Resolution has superseded IOTC Resolution 01/05

[4] The text in this section comes from the Executive Summaries on the status of each neritic tuna species as adopted by the IOTC Scientific Committee in 2008. The Secretariat updated the texts to account for the new information available in 2009.

Neritic tuna species and main fisheries in the Indian Ocean

Table 1 below shows the six species of tunas and seerfish under IOTC management.

Table 1: Neritic tuna species under IOTC management

IOTC code	English name	Scientific name
LOT	Longtail tuna	*Thunnus tonggol*
FRI	Frigate tuna	*Auxis thazard*
BLT	Bullet tuna	*Auxis rochei*
KAW	Kawakawa	*Euthynnus affinis*
COM	Narrow-barred Spanish mackerel	*Scomberomorus commerson*
GUT	Indo-Pacific king mackerel	*Scomberomorus guttatus*

Neritic tunas are mainly caught under drifting gillnets and purse seines operated in coastal waters although some species are also caught under industrial purse seines, hand lines, troll lines or other gears both in coastal waters and on the high seas. Although neritic tunas are the target of several fisheries they are also caught as a by-catch of fisheries targeting small pelagic species, large tunas or other non-tuna species.

The situation per species is reviewed in Table 2 below.

Table 2: Main fisheries, fishing areas and catches status of neritic tuna species under IOTC management

Species	Known fisheries	Area	Status	Main Fleet/s	Importance Catches
Longtail tuna	Industrial purse seine	Arabian Sea	Target: in association with YFT	Iran	Low-Medium
	Coastal purse seine	Andaman Sea	Target: along with KAW, FRZ	Thailand, Malaysia, Indonesia	Medium (?)
	Gillnet	Persian Gulf Arabian Sea	Target - Bycatch	Indonesia, Iran, Pakistan, Oman	High
	Longline, line, sport and other gears	Various	By-catch	Yemen, India	Low-Medium (?)
Frigate tuna	Industrial purse seine	Western Indian Ocean	By-catch: tuna schools associated under fish aggregating devices (FAD)	EC, Iran, Seychelles, Thailand	Low-Medium
	Coastal purse seine	Andaman Sea	Target: along with KAW, LOT	Thailand	Low
		India	Bycatch (?)	India	Low
	Ring net	Sri Lanka	Target	Sri Lanka	Medium
		Indonesia	Target (?)	Indonesia	High (?)
	Pole and line	Maldives	By-catch	Maldives	Medium
	Gillnet	India, Indonesia, Sri Lanka, Iran	By-catch	India, Indonesia, Sri Lanka, Iran	High
	Longline, line and other gears	India and other areas	By-catch	India	High (?)

Species	Known fisheries	Area	Status	Main Fleet/s	Importance Catches
Bullet tuna	Coastal purse seine	India and other (?)	By-catch (?)	India	Medium (?)
	Gillnet	India, Sri Lanka, Indonesia and other (?)	By-catch	India, Sri Lanka, Indonesia, Other	High (?)
	Hand line and troll line	India and other (?)	By-catch (?)	India, other (?)	High (?)
Kawakawa	Industrial purse seine	Western Indian Ocean	By-catch: tuna schools associated under fish aggregating devices (FAD) in coastal waters	EC, Iran, Seychelles, Thailand	Low
	Coastal purse seine	Andaman Sea	Target: along with FRZ, LOT	Thailand, Malaysia, Indonesia, India	Medium-High
		Indonesia	Target: along with FRZ, LOT (?)		
		India	Bycatch (?)		
	Gillnet	Arabian Sea, India	By-catch	India, Iran, Yemen, Pakistan, Oman	High
	Hand line and troll line	India and other (?)	By-catch (?)	India, other (?)	Low (?)
	Other gears	Maldives and other	By-catch	Maldives and other (?)	Low (?)
Narrow-barred Spanish mackerel	Gillnet	India, Indonesia, Arabian Sea and Persian Gulf	Target	India, Indonesia, Pakistan, Iran, UAE, Sri Lanka and other	High
	Hand line and troll line	Madagascar, India and other	Target (?)	Madagascar, India, other (?)	Medium (?)
	Other gears (trawl)	Andaman Sea, India	By-catch	Thailand, India	Medium (?)
Indo-Pacific king mackerel	Gillnet	India, Indonesia	By-catch	India, Indonesia	High
	Hand line and troll line	Indonesia and other (?)	By-catch	Indonesia, other (?)	Medium (?)
	Other gears (trawl)	India and other (?)	By-catch	India, other (?)	Medium (?)

2. ACTIONS PROPOSED TO IMPROVE THE DATA AVAILABLE TO IOTC

The following list is provided by the Secretariat for the consideration of the WPDCS. The list includes actions which the Secretariat considers would lead to a marked improvement in the standing of the data currently available at the Secretariat. In general, these recommendations are made over and above the existing obligations and technical specifications relating to the reporting of data.

1. Improve the certainty of catch and effort data from artisanal fisheries, by:

- Yemen and Madagascar implementing fisheries statistical collection and reporting systems.
- Mozambique and Myanmar providing complete series of catches and effort for fisheries catching neritic tuna species.
- Sri Lanka, Indonesia, India, Oman, Thailand and Malaysia strengthening their data collection systems to improving species and gear breakdown.
- India, Indonesia, Iran and Pakistan providing catch-and-effort data for its artisanal fleets.
- Countries, in particular India and Indonesia, to increase sampling coverage to obtain acceptable levels of precision (CV to be initially set at less than 20%) in their catch-and-effort statistics and to report this information to the Secretariat, routinely.

2. Improve the certainty of catch and effort data from industrial fisheries by:

- Countries having industrial purse seiners, notably Seychelles, Iran, Japan and Thailand, increasing sampling coverage, through observers and/or other means, to obtain acceptable levels of precision in their catch-and-effort statistics (CV to be initially set at less than 20%), including estimates of the amounts of neritic tunas discarded.
- Pakistan, Iran and Sri Lanka to provide catch-and-effort data for their oceanic gillnet fisheries.

3. Increase the amount of size data available to the Secretariat by:

- India providing their size data available for neritic tunas.
- Pakistan, Indonesia, Thailand, Malaysia, Oman and Yemen to collect and provide size data for neritic tunas taken by artisanal fisheries, especially coastal purse seine, gillnet, handline and troll line fisheries.
- Maldives and Sri Lanka to provide size frequency data by gear.
- Countries having industrial purse seiners, notably the EC, Seychelles, Iran, Japan and Thailand, to collect, through observers and/or other means, and provide the Secretariat with size data for neritic tunas taken by their fisheries, including the sizes of neritic tunas discarded and precision of these estimates.
- Countries reporting size data to the Secretariat to include information about data source (e.g. data from port sampling, observer programme, etc.), type of measurement, actual sample sizes, sampling coverage and precision of the estimates by fishery and species, routinely.

4. Reduce uncertainty in the following biological parameters important for the assessment of stock status of neritic tuna species by:

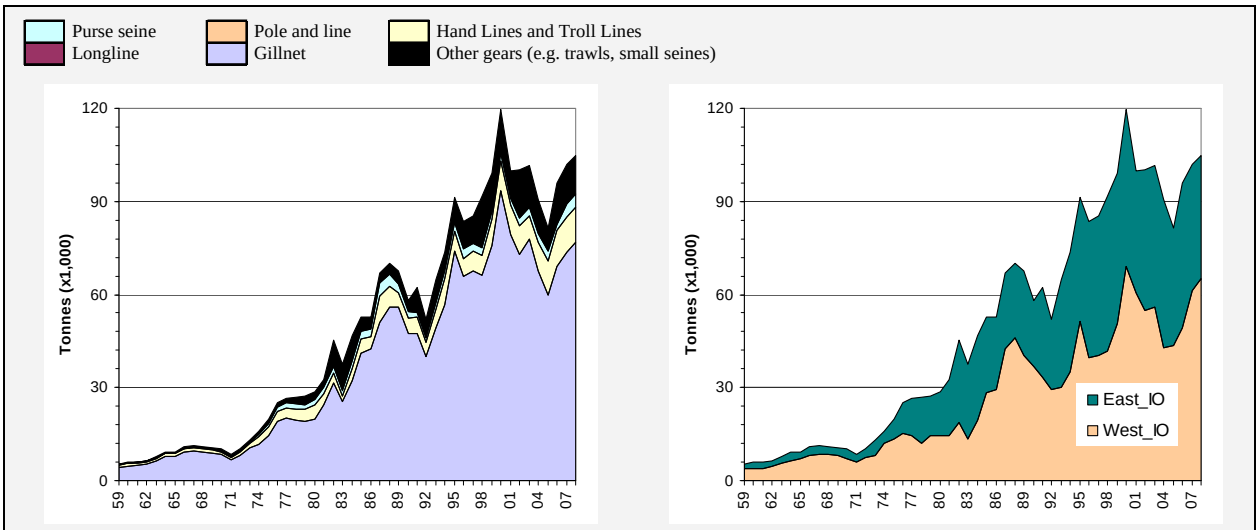
- Conversion relationships: Countries catching significant amounts of neritic tunas providing the basic data that would be used to establish length-weight keys, non-standard measurements-fork length keys and processed weight-live weight keys for these species.

3. STATUS OF FISHERIES STATISTICS FOR NERITIC TUNAS

Longtail tuna (LOT)

- **Fisheries and catch trends**

Longtail tuna is caught mainly by using gillnets and, in a lesser extent, *industrial* purse seines (Figure 1). *Longtail tunas are caught in the western and eastern Indian Ocean areas alike* (Figure 2). The catch estimates for longtail tuna were derived from small amounts of information and are therefore uncertain[5] (Figure 4).



Figures 1-2: Catches of longtail tuna by gear (left) and IOTC area (right) by year recorded in the IOTC Database (1958-2007) (black pattern refers to gears other than those specified in the above key)

The catches provided in Appendix I, Table 1 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. Estimated catches of longtail tuna increased steadily from the mid 1950's, reaching around 20,000 t in the mid-1970's and over 50,000 t by the mid-1980's, peaking at 120,000 t in 2000. The average annual catch estimated for the period 2004 to 2008 is 95,000 t. In recent years, the countries attributed with the highest catches of longtail tuna are Indonesia and Iran and, to a lesser extent, Yemen, Pakistan and Oman (Table 1, Figure 3).

The size of longtail tunas taken by the Indian Ocean fisheries typically ranges between 15 cm and 120 cm depending on the type of gear used, season and location (Figure 9). The fisheries operating in the Andaman Sea (coastal purse seines and troll lines) tend to catch longtail tuna of small size (15cm-55cm) while the gillnet fisheries operating in the Arabian Sea catch larger specimens (40cm-100cm) .

[5] The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated.

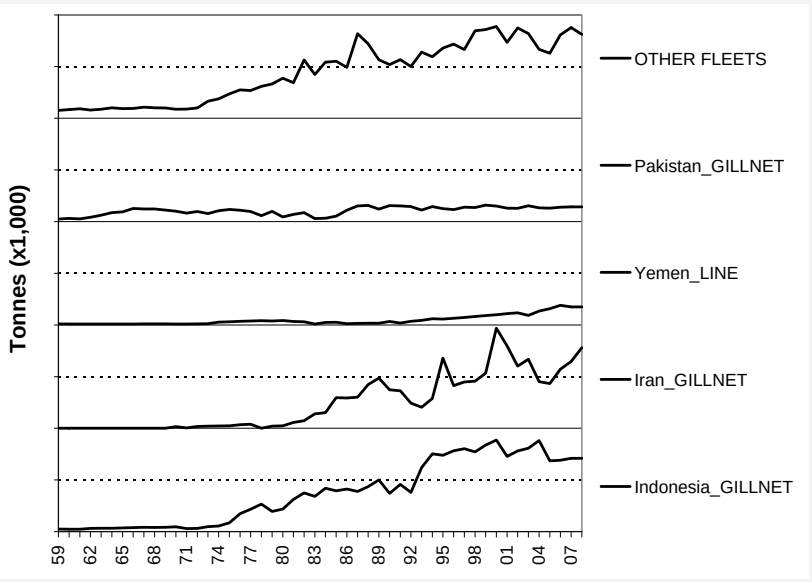


Figure 3: Catches of longtail tuna recorded in the IOTC Database for main fishing fleets (1959-2008)

(broken lines representing 20,000 t each)

- **Status of Fisheries Statistics at the IOTC**

Retained catches are uncertain (Figure 4), notably for the following fisheries:

- Artisanal fisheries of Indonesia: Indonesia did not report catches of longtail tuna by species or by gear for 1950-2004; catches of longtail tuna, kawakawa and other species were reported aggregated for this period. The Secretariat used the catches reported since 2005 to break the aggregates for 1950-2004 by gear and species. The catches estimated for the longtail tuna represent more than 30% of the total catches of this species in the Indian Ocean in recent years.
- Artisanal fisheries of India and Oman: Although these countries report catches of longtail tuna, until recently the catches have not been reported by gear. The Secretariat has been assigning the catches of longtail tuna reported by gear using the information existing. The catches of longtail tuna that had to be allocated by gear represented 13% of the total catches of this species in recent years.
- Artisanal fisheries of Mozambique, Myanmar (and Somalia): None of these countries have ever reported catches to the Secretariat. Catch levels are unknown.
- Other artisanal fisheries: The Secretariat had to estimate catches of longtail tuna for the artisanal fisheries of Yemen (no data reported to the Secretariat) and Malaysia (catches not reported by species). The catches estimated for the longtail tuna represent more than 8% of the total catches of this species in recent years.

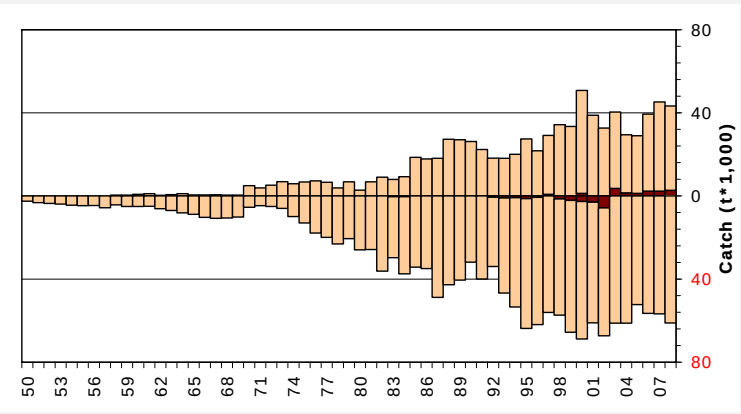


Figure 4. Uncertainty of annual catch estimates for longtail tuna.

The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets.

Discard levels are believed to be low although they are unknown for most fisheries.

Changes to the catch series: There have not been significant changes to the catches of longtail tuna since the SC in 2008 (Figure 5).

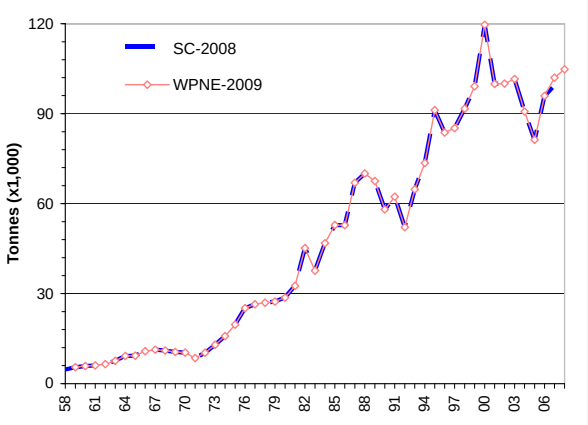


Figure 5: Longtail tuna: Catches used by the SC in 2008 *versus* those estimated for the WPDCS in 2009 (1958-2008)

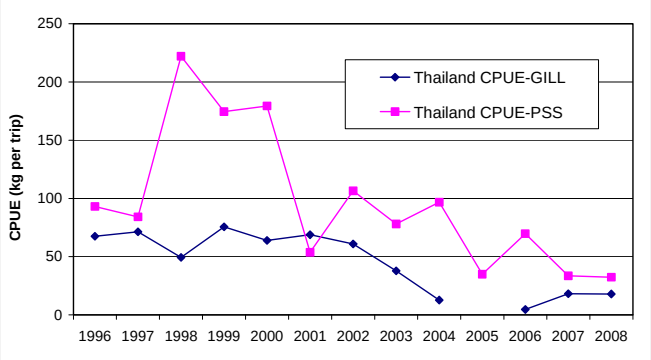


Figure 6: Longtail tuna: Nominal CPUE series for the gillnet (GILL) and coastal purse seine (PSS) fisheries of Thailand derived from the available catches and effort data (1996-2008)

CPUE Series: Catch-and-effort series are available from some fisheries but they are considered highly incomplete (Figure 7). In most cases catch-and-effort data are only available for short periods. Reasonably long catches and effort series (extending for more than 10 years) are only available for Thailand small purse seines and gillnets (Figure 6).

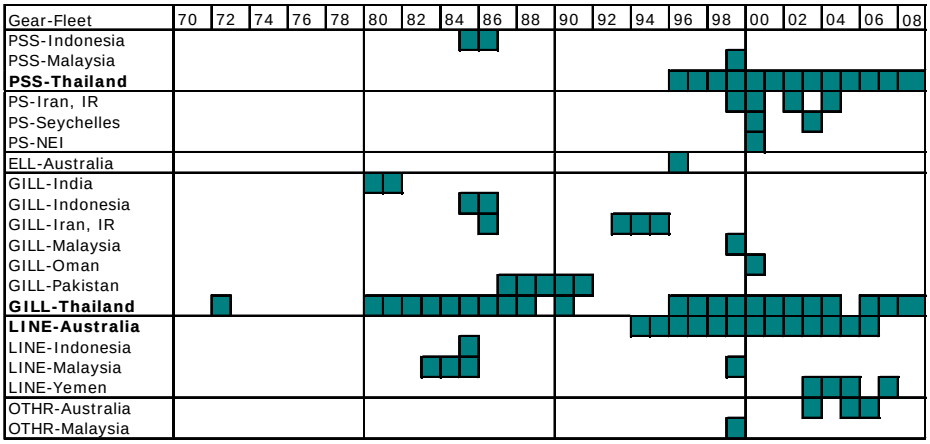


Figure 7: Longtail tuna: Availability of catches and effort series, by fishery and year (1970-2008)[6]

(Note that no catches and effort are available at all for 1950-1971)

Trends in average weight can only be assessed for Iranian gillnets but the amount of specimens measured has been very low in recent years (Figure 8). The length frequency data available from the mid-eighties to the early nineties was obtained with the support of the IPTP (Indo-Pacific Tuna Programme). Unfortunately, data collection did not continue after the end of the IPTP activities.

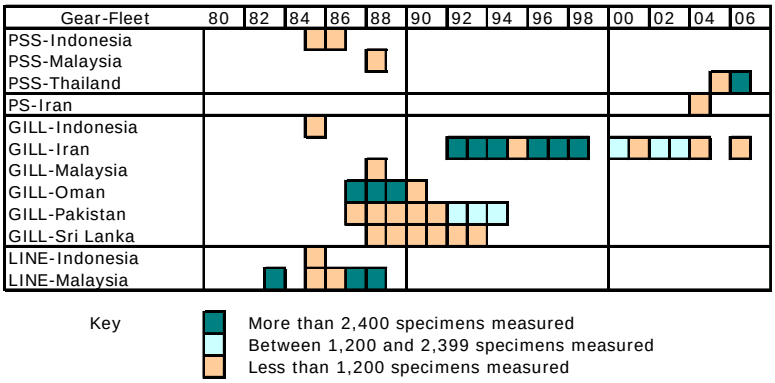


Figure 8: Longtail tuna: Availability of length frequency data, by fishery and year (1980-2008)[7]

(Note that no length frequency data are available at all for 1950-1982)

Catch-at-Size(Age) table: Catches-at-Size are not available for the longtail tuna due to the paucity of size data available from most fleets (Figure 8) and the uncertain status of the catches for this species (Figure 4). Length distributions derived from the data available for some selected fisheries are shown in Figure 9.

[6] Note that the above list is not exhaustive, showing only the fisheries for which catches and effort are available in the IOTC database. Furthermore, when available catches and effort may not be available throughout the year existing only for short periods

[7] Note that the above list is not exhaustive, showing only the fisheries for which size data are available in the IOTC database. Furthermore, when available size data may not be available throughout the year existing only for short periods

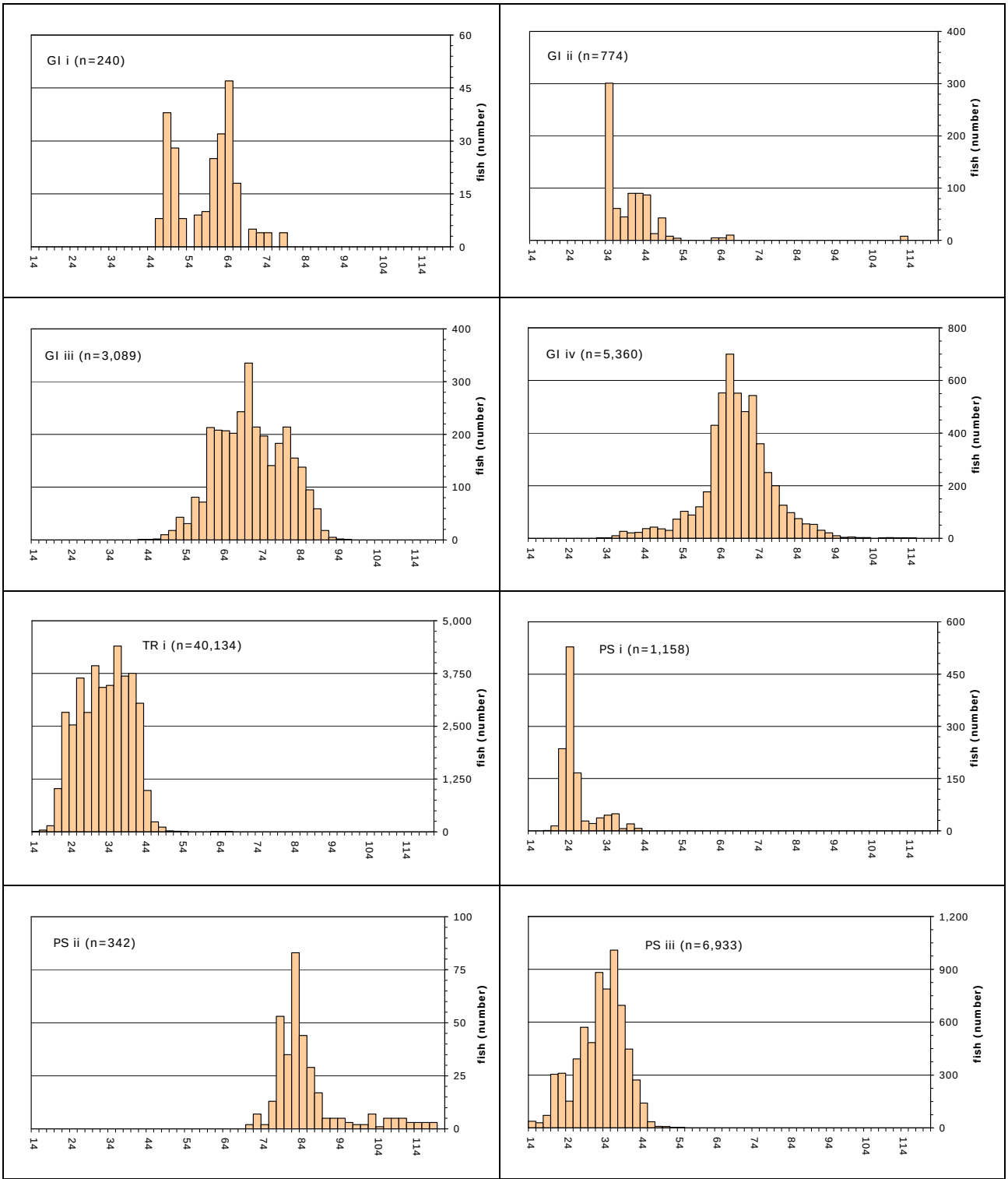


Figure 9: Longtail tuna: Length frequency distributions (total amount of fish measured by 2cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

GI: Gillnet fisheries: i. Sri Lanka 1980-89, ii. Sri Lanka 1990-99, iii. Pakistan 1990-99, iv. Iran 2000-06

TR: Troll line fisheries: i. Malaysia 1980-89

PS: Coastal purse seine fisheries: i. Malaysia 1980-89, ii. Iran 2000-06, iii. Thailand 2000-06

Frigate tuna (FRI)

- **Fisheries and catch trends**

Frigate tuna is taken from across the Indian Ocean area using gillnets, bait boats and lines (Figure 10). This species is also an important bycatch for industrial purse seiners and is the target of some ring net fisheries. The catch estimates for frigate tuna were derived from very small amounts of information and are therefore highly uncertain8 (Figure 13).

The catches provided in Appendix I, Table 2 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. Estimated catches have increased steadily since the late 1970's, reaching around 10,000 t in the early 1980's and over 30,000 t by the mid-1990's. The average annual catch estimated for the period 2004 to 2008 is 32,500 t with highest catches for the species recorded in 2006, amounting to 38,500 t. In recent years, catches of frigate tuna have been higher in the East, amounting to around 60% of the total catches of the species (Figure 11).

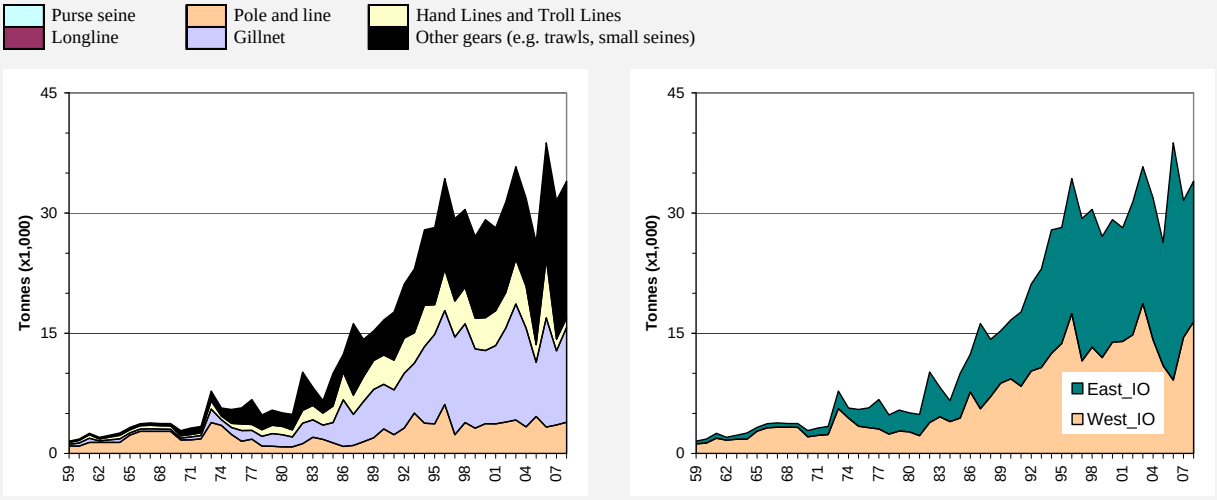


Figure 10-11: Catches of frigate tuna by gear (left) and IOTC area (right) by year recorded in the IOTC Database (1959-2008)

In recent years, the countries attributed with the highest catches are India, Indonesia, Maldives, Iran and Sri Lanka (Table 2, Figure 12). The dramatic changes in the catches of frigate tuna reported by India in recent years, with extremely low catches reported for 2005, 2006 and 2008 compared to the catches reported in 2004 and 2007, are not fully understood.

The size of frigate tunas taken by the Indian Ocean fisheries typically ranges between 20 cm and 50 cm depending on the type of gear used, season and location (Figure 18). The fisheries operating in the Andaman Sea (coastal purse seines and troll lines) tend to catch frigate tuna of small to medium size (15cm-40cm) while the gillnet, baitboat and other fisheries operating in the Indian Ocean catch usually larger specimens (25cm-50cm).

[8] The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated.

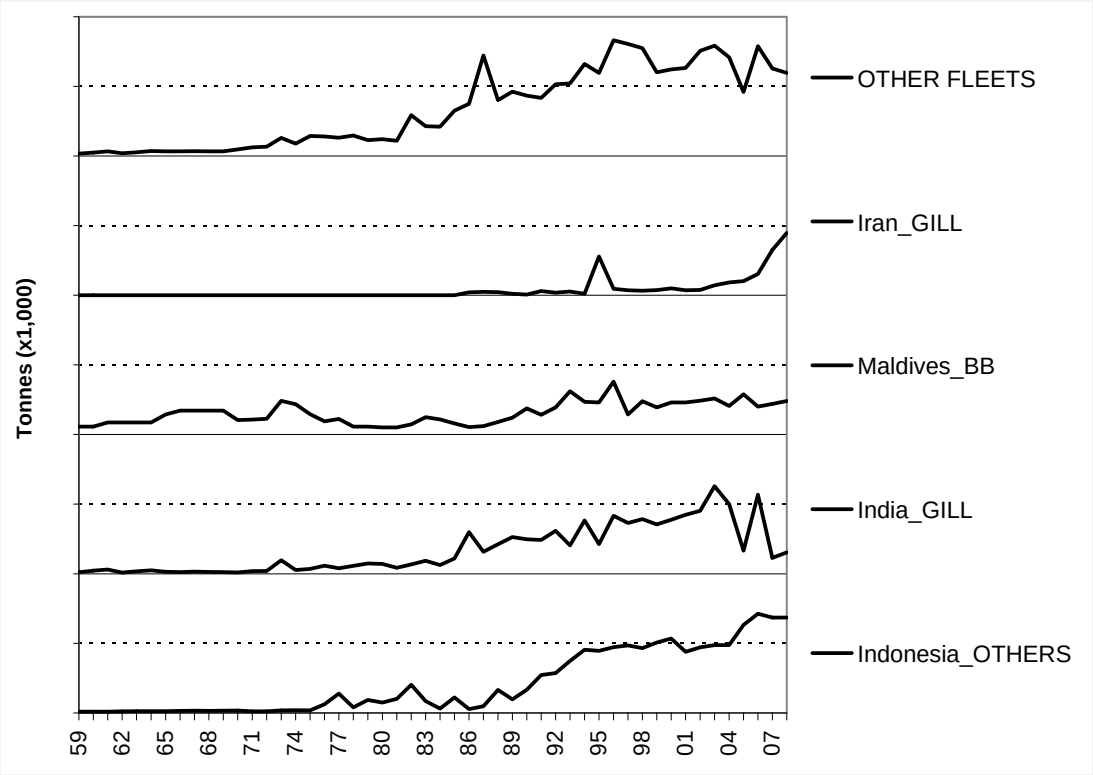


Figure 12: Catches of frigate tuna recorded in the IOTC Database for main fishing fleets (1959-2008) (broken lines representing 8,000 t each)

- **Status of Fisheries Statistics at the IOTC**

Retained catches are highly uncertain (Figure 13) notably for the following fisheries:

- Artisanal fisheries of India: Although India reports catches of frigate tuna they are not always reported by gear. The Secretariat has allocated the catches of frigate tuna by gear for years in which this information was not available. In recent years, the catches of frigate tuna in India have represented 34% of the total catches of this species in the Indian Ocean. Furthermore, the amounts of frigate tuna reported by India in recent years are considered uncertain (2004-08 catches).
- Artisanal fisheries of Indonesia: Indonesia did not report catches of frigate tuna by species or by gear for 1950-2004; catches of frigate tuna, bullet tuna and other species were reported aggregated for this period. The Secretariat used the catches reported since 2005 to break the aggregates for 1950-2004 by gear and species. The catches estimated for the frigate tuna represent more than 27% of the total catches of this species in the Indian Ocean in recent years.
- Artisanal fisheries of Mozambique, Myanmar (and Somalia): None of these countries have ever reported catches to the Secretariat. Catch levels are unknown.
- Other artisanal fisheries: The catches of frigate tuna and bullet tuna are seldom reported by species and, when reported by species, they usually refer to both species (due to mislabelling, with all catches assigned to the frigate tuna).
- Industrial fisheries: The catches of frigate tuna recorded for industrial purse seiners are thought to be a fraction of those retained on board. Due to this species being a bycatch, its catches are seldom recorded in the logbooks, nor are they monitored in port. The EC recently reported catch levels of frigate tuna for its purse seine fleet, for 2003-08,

estimated using observer data. The Secretariat will use this data to estimate retained catches for other purse seine fleets during the same period.

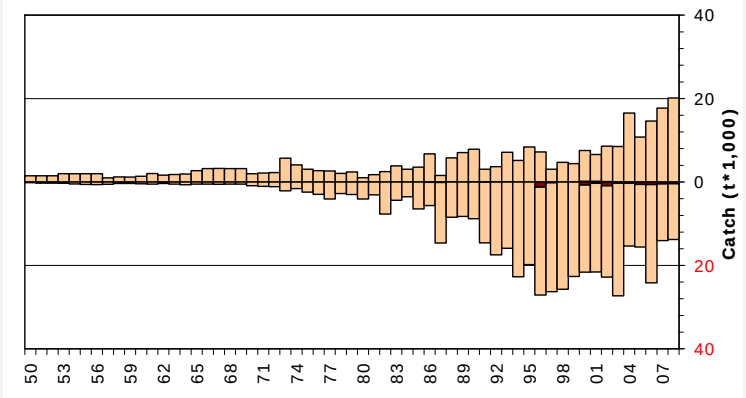


Figure 13. Uncertainty of annual catch estimates for frigate tuna.

The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets.

Discard levels are moderate for industrial purse seine fisheries. The EC recently reported discard levels of frigate tuna for its purse seine fleet, for 2003-08, estimated using observer data. The Secretariat will use this data to estimate discards for other purse seine fleets during the same period.

Changes to the catch series: Overall, there have not been significant changes to the catches of frigate tuna since the SC in 2008 (Figure 14). However, the catches reported by India for 2007 are significantly lower than those previously estimated.

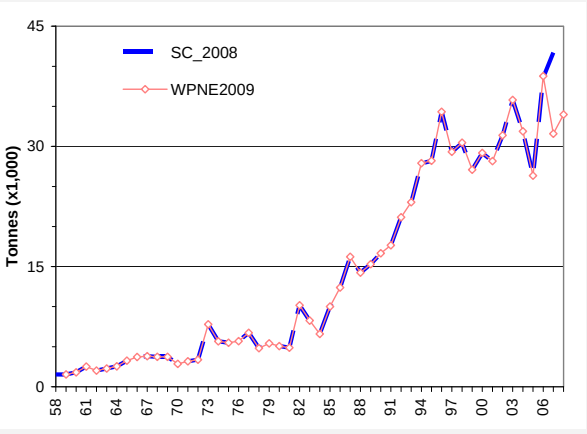


Figure 14: Frigate tuna: Catches used by the SC in 2008 *versus* those estimated for the WPDCS in 2009 (1958-2008)

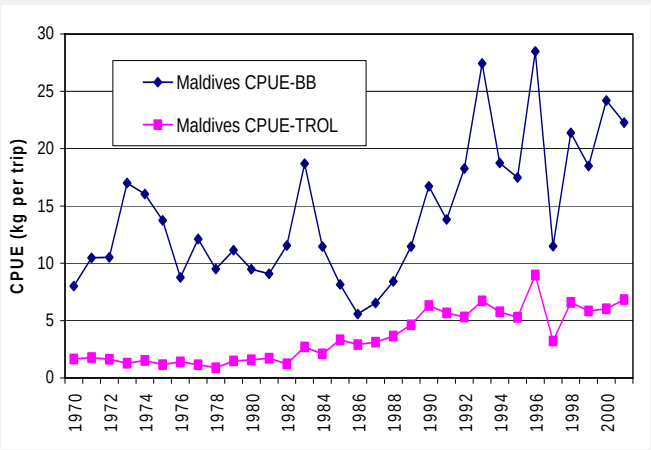


Figure 15: Frigate tuna: Nominal CPUE series for the baitboat (BB) and line (LINE) fisheries of Maldives derived from the available catches and effort data (1970-2001)

CPUE Series: Catch-and-effort series are available from some fisheries but they are considered highly incomplete (Figure 16). In most cases catch-and-effort data are only available for short periods. Reasonably long catch-and-effort series (extending for more than 10 years) are only available for Maldives baitboats and troll lines (Figure 15) and Sri Lanka

gillnets. The catches and effort recorded for Sri Lankan gillnets are, however, thought to be inaccurate due to the dramatic changes in CPUE recorded between consecutive years.

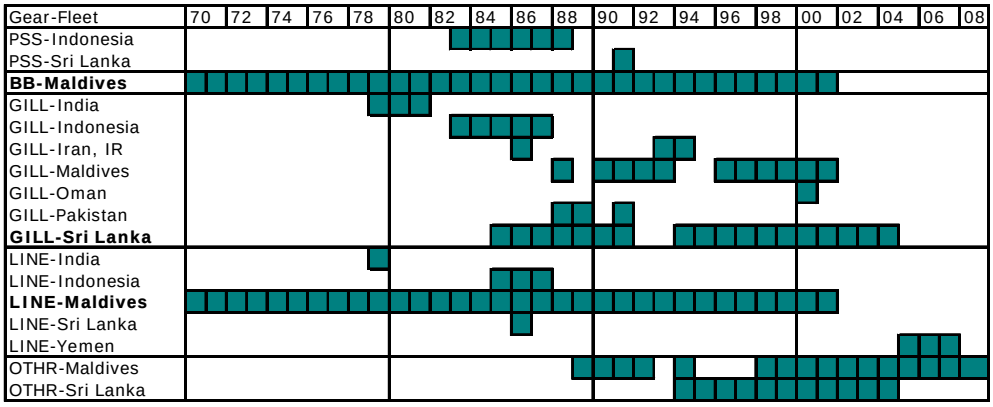


Figure 16: Frigate tuna: Availability of catches and effort series, by fishery and year (1970-2008)[9]

(Note that no catches and effort are available at all for 1950-1969)

Trends in average weight can only be assessed for Sri Lankan gillnets and Maldivian pole and lines but the amount of specimens measured has been very low in recent years (Figure 17). The length frequency data available from the mid-eighties to the early nineties was obtained with the support of the IPTP (Indo-Pacific Tuna Programme). Unfortunately, data collection did not continue after the end of the IPTP activities.

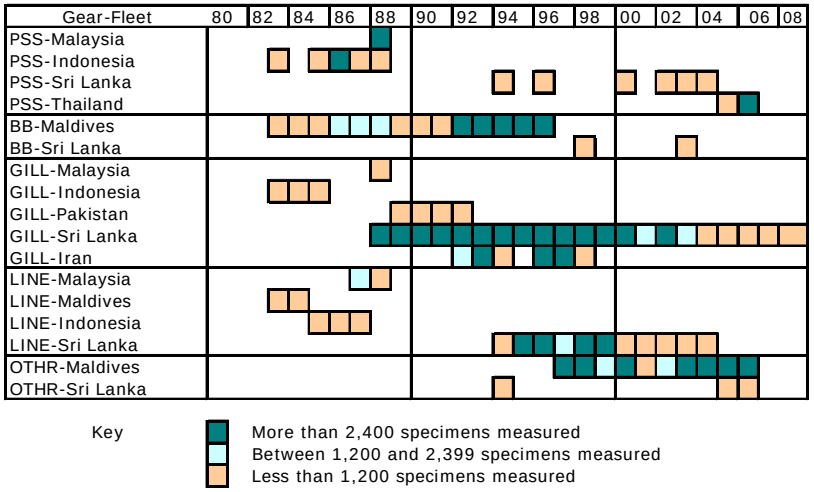


Figure 17: Frigate tuna: Availability of length frequency data, by fishery and year (1980-2008)[10]

(Note that no length frequency data are available at all for 1950-1982)

Catch-at-Size(Age) table: Catch-at-Size data are not available for the frigate tuna due to the paucity of size data available from most fleets (Figure 17) and the uncertain status of the

[9] Note that the above list is not exhaustive, showing only the fisheries for which catches and effort are available in the IOTC database. Furthermore, when available catches and effort may not be available throughout the year existing only for short periods

[10] Note that the above list is not exhaustive, showing only the fisheries for which size data are available in the IOTC database. Furthermore, when available size data may not be available throughout the year existing only for short periods

catches for this species (Figure 13). Length distributions derived from the data available for some selected fisheries are shown in Figure 18.

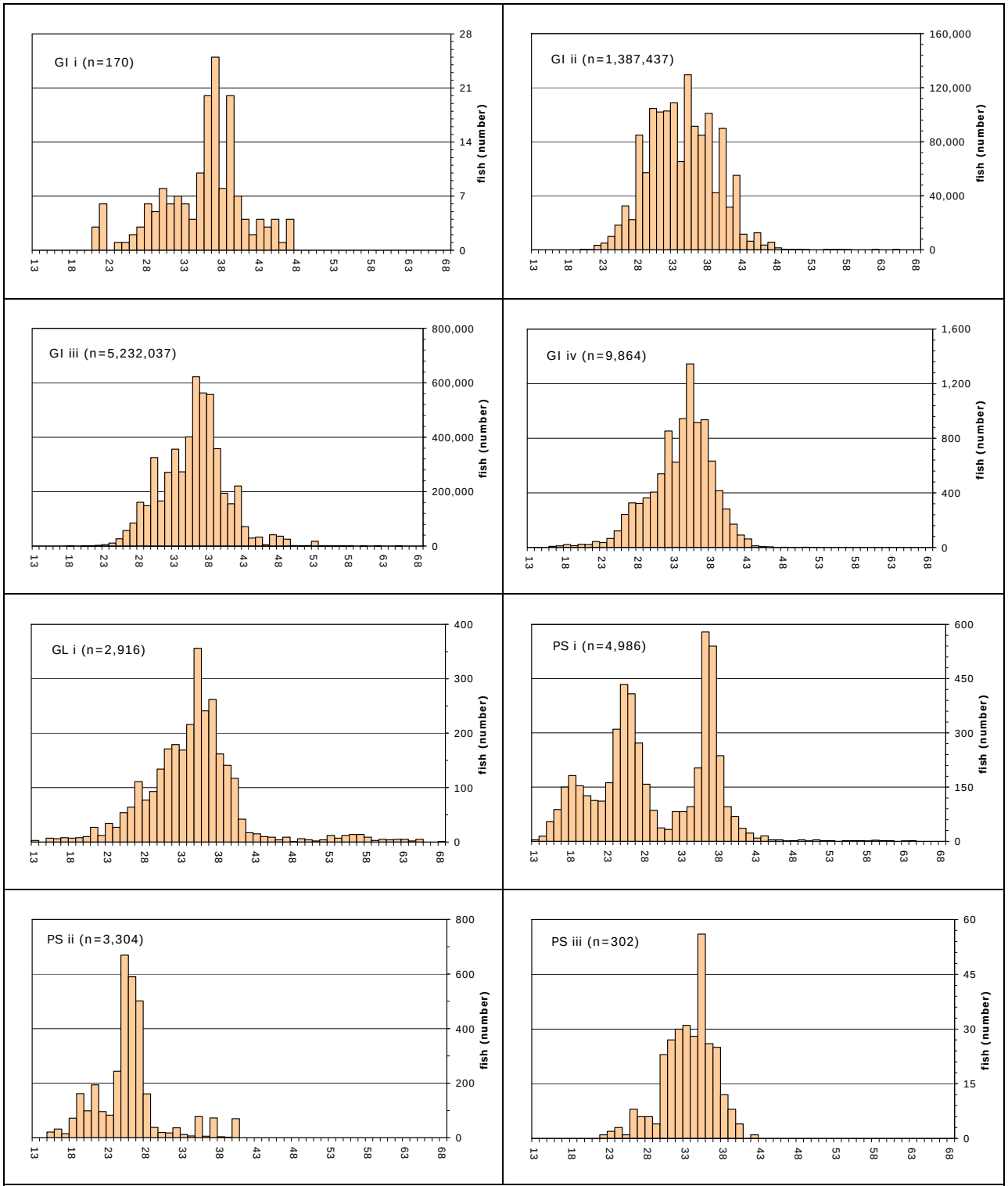


Figure 18: Frigate tuna: Length frequency distributions (total amount of fish measured by 1 cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

GI: Gillnet fisheries: i. Indonesia 1980-89, ii. Sri Lanka 1980-89, iii. Sri Lanka 2000-06, iv. Sri Lanka 2000-06

GL: Gillnet and longline combination: i. Sri Lanka 2000-06

PS: Coastal purse seine fisheries: i. Indonesia 1980-89, ii. Malaysia 1980-89, iii. Sri Lanka 2000-06 (ring net)

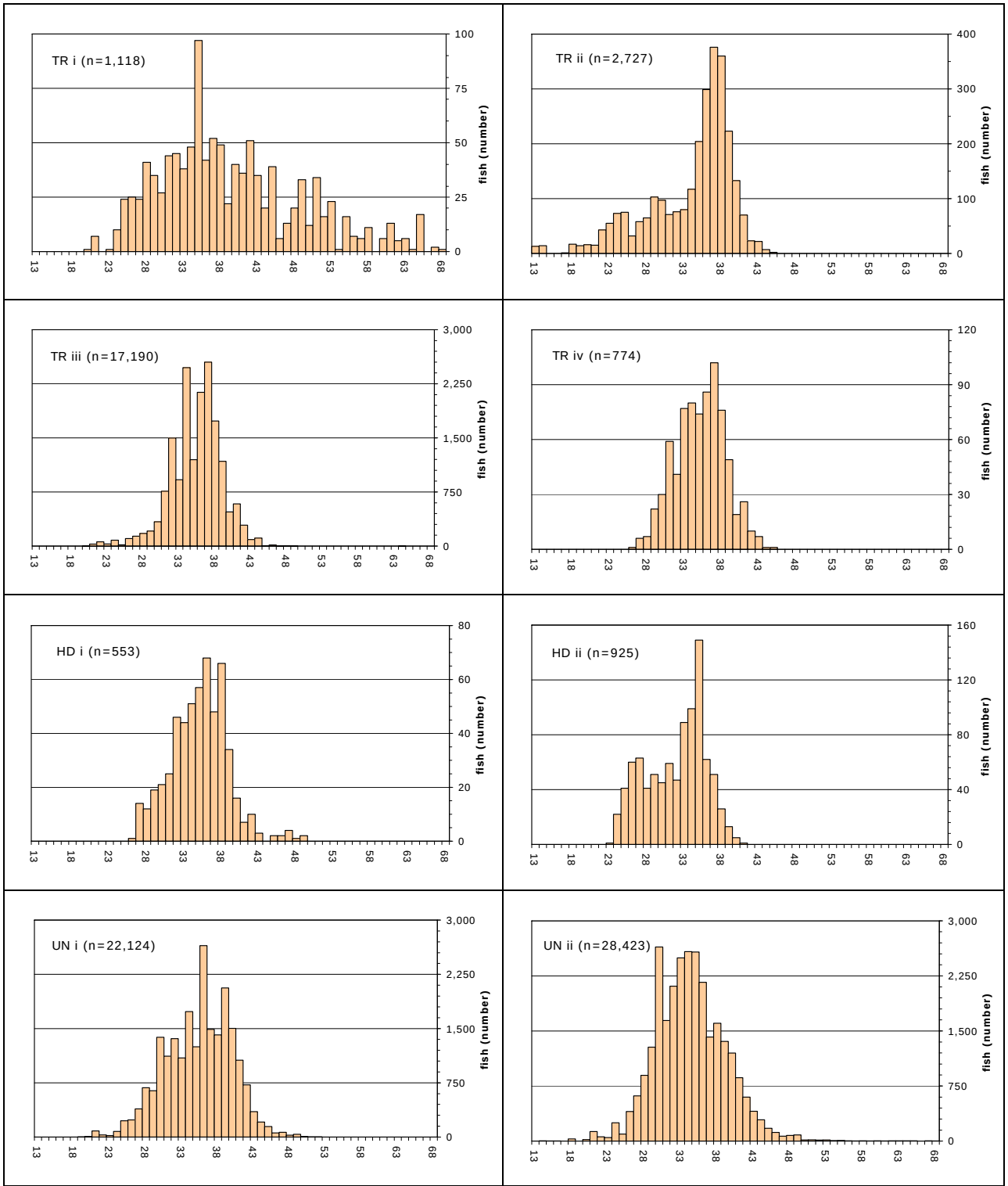


Figure 18 (cont): Frigate tuna: Length frequency distributions (total amount of fish measured by 1cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

TR: Troll line fisheries: i. Indonesia 1980-89, ii. Malaysia 1980-89, iii. Sri Lanka 1990-99, iv. Sri Lanka 2000-06

HD: Hand line fisheries: i. Sri Lanka 1990-99, ii. Sri Lanka 2000-06

UN: Unclassified fisheries (mainly pole and line): i. Maldives 1990-99, ii. Maldives 2000-06

Bullet tuna (BLT)

- **Fisheries and catch trends**

Bullet tuna is caught mainly by gillnet and line across the broader Indian Ocean area (Figure 19). This species is also an important catch for artisanal purse seiners. The catch estimates for bullet tuna were derived from very small amounts of information and are therefore highly uncertain[11] (Figure 22).

The catches provided in Appendix I, Table 3 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. Estimated catches of bullet tuna reached around 1,000 t in the early 1990's and have been increasing since then up to the 3,500 t recorded in 2007, the highest catches ever recorded for this species. The average annual catch estimated for the period 2004 to 2008 is 3,500 t. Bullet tunas have been caught predominantly in the West, although current catches are higher in the East (Figure 20). However, the ever increasing trend shown by the catches of bullet tuna is thought to be unrealistic, partially due to some countries reporting current catches of frigate tuna and bullet tuna by species that were not doing so in the past.

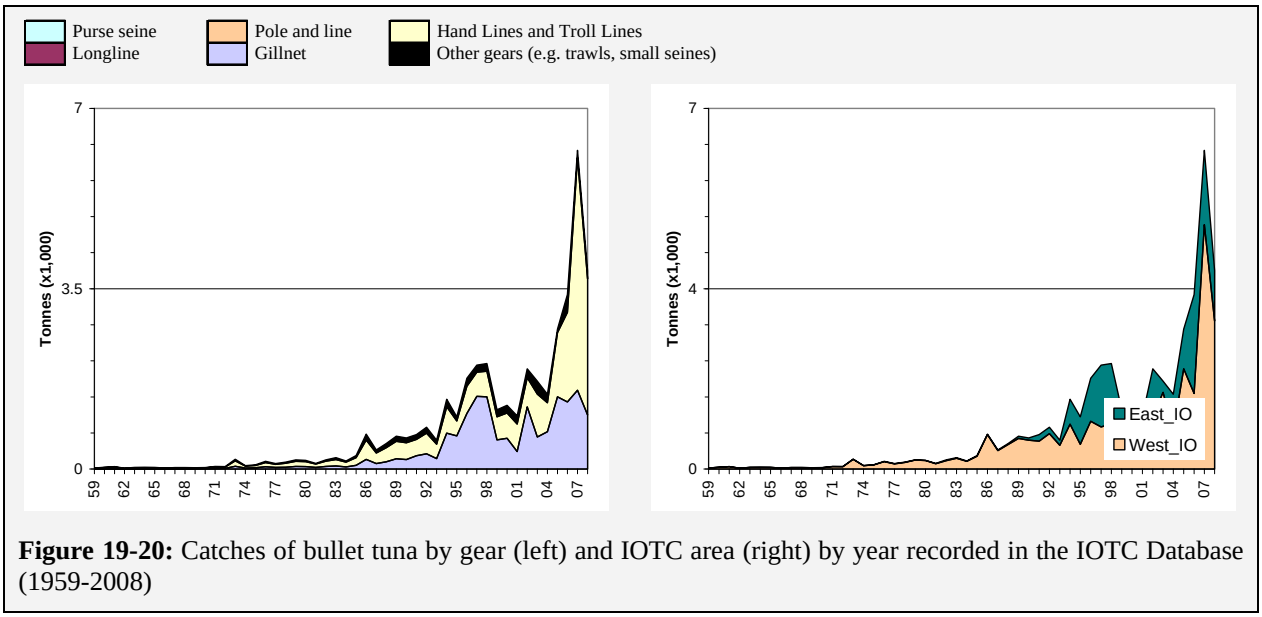


Figure 19-20: Catches of bullet tuna by gear (left) and IOTC area (right) by year recorded in the IOTC Database (1959-2008)

In recent years, the countries attributed with the highest catches of bullet tuna are India and Sri Lanka (Table 3, Figure 21).

Length frequency data for the bullet tuna is only available for some Sri Lanka fisheries and periods. These fisheries catch bullet tuna ranging between 15 and 35 cm. (Figure 27).

[11] The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated.

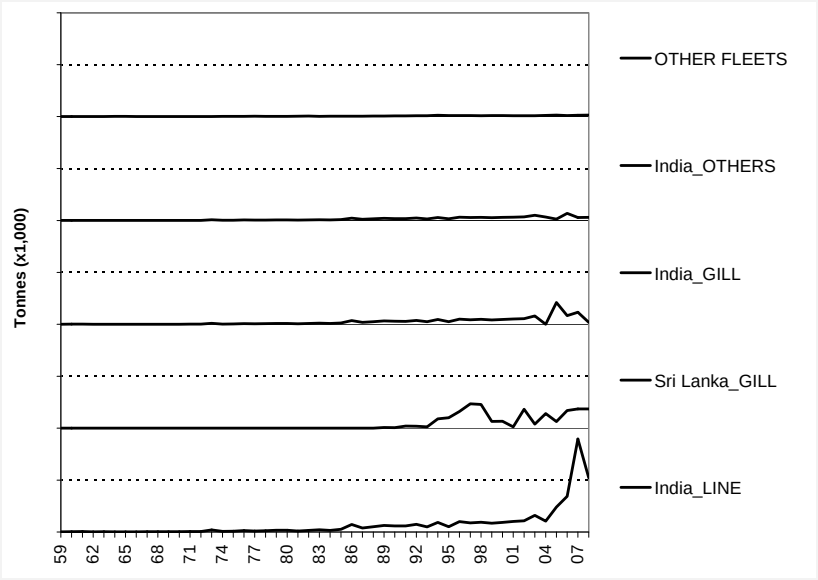


Figure 21: Catches of bullet tuna recorded in the IOTC Database for main fishing fleets (1959-2008)

(broken lines representing 2,000 t each)

- **Status of Fisheries Statistics at the IOTC**

Retained catches are highly uncertain for all fisheries (Figure 22) due to:

- Aggregation: Bullet tunas are usually not reported by species being aggregated with frigate tunas or, less frequently, other small tuna species.
- Mislabelling: Bullet tunas are usually mislabelled as frigate tuna, their catches reported under the latter species.
- Underreporting: the catches of bullet tuna by industrial purse seiners are rarely, if ever, reported.

It is for the above reasons that the catches of bullet tunas in the IOTC database are thought to represent only a small fraction of the total catches of this species in the Indian Ocean.

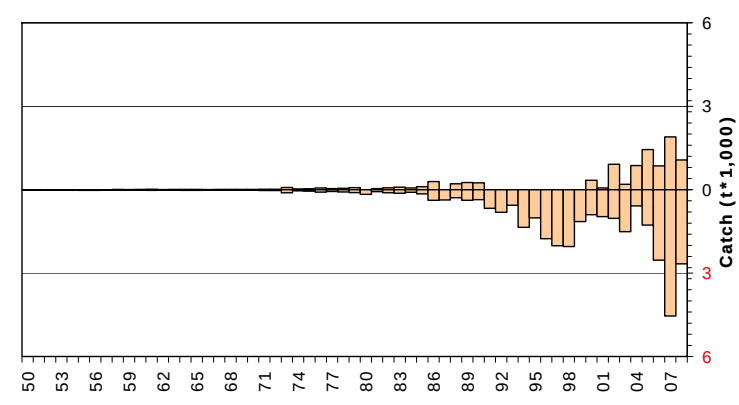


Figure 22. Uncertainty of annual catch estimates for bullet tuna.

The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets.

Discard levels are moderate for industrial purse seine fisheries. The EC recently reported discard levels of bullet tuna for its purse seine fleet, for 2003-08, estimated using observer data. The Secretariat will use this data to estimate discards for other purse seine fleets during the same period.

Changes to the catch series: Overall, there have not been significant changes to the catches of bullet tuna since the SC in 2008 (Figure 23). However, the catches reported by India for 2007 are significantly higher than those previously estimated.

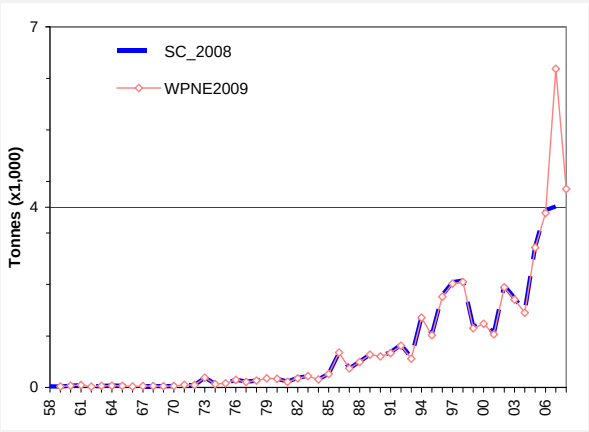


Figure 23: Bullet tuna: Catches used by the SC in 2008 *versus* those estimated for the WPDCS in 2009 (1959-2008)

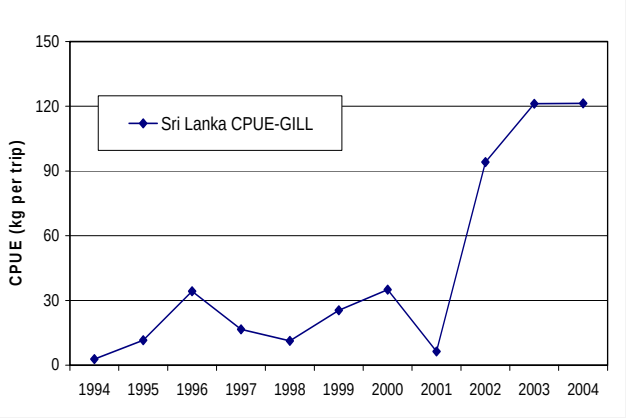


Figure 24: Bullet tuna: Nominal CPUE series for the gillnet fishery of Sri Lanka derived from the available catches and effort data (1994-2004)

CPUE Series: Catch-and-effort series are not available for most fisheries (Figure 25) and, when available, they are usually considered to be of poor quality for the fisheries having reasonably long catch-and-effort data series, as it is the case with the gillnet fisheries of Sri Lanka (Figure 24).

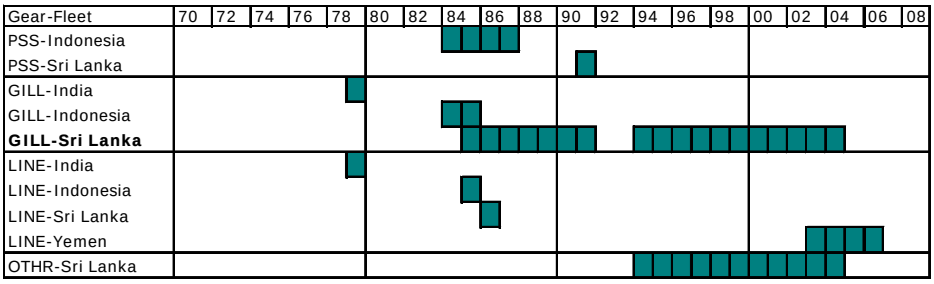


Figure 25: Bullet tuna: Availability of catches and effort series, by fishery and year (1970-2008)[12]

(Note that no catches and effort are available at all for 1950-1978)

Trends in average weight cannot be assessed for most fisheries. Reasonable long series of length frequency data are only available for Sri Lankan gillnets and lines but the amount of specimens measured has been very low in recent years (Figure 25).

[12] Note that the above list is not exhaustive, showing only the fisheries for which catches and effort are available in the IOTC database. Furthermore, when available catches and effort may not be available throughout the year existing only for short periods

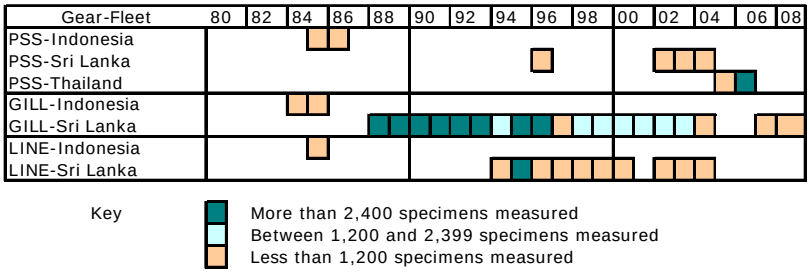


Figure 26: Bullet tuna: Availability of length frequency data, by fishery and year (1980-2008)[13]

(Note that no length frequency data are available at all for 1950-1983)

Catch-at-Size(Age) table: Catch-at-Size data are not available for the bullet tuna due to the paucity of size data available from most fleets (Figure 26) and the uncertain status of the catches for this species (Figure 22). Length distributions derived from the data available for some selected fisheries are shown in Figure 27.

[13] Note that the above list is not exhaustive, showing only the fisheries for which size data are available in the IOTC database. Furthermore, when available size data may not be available throughout the year existing only for short periods

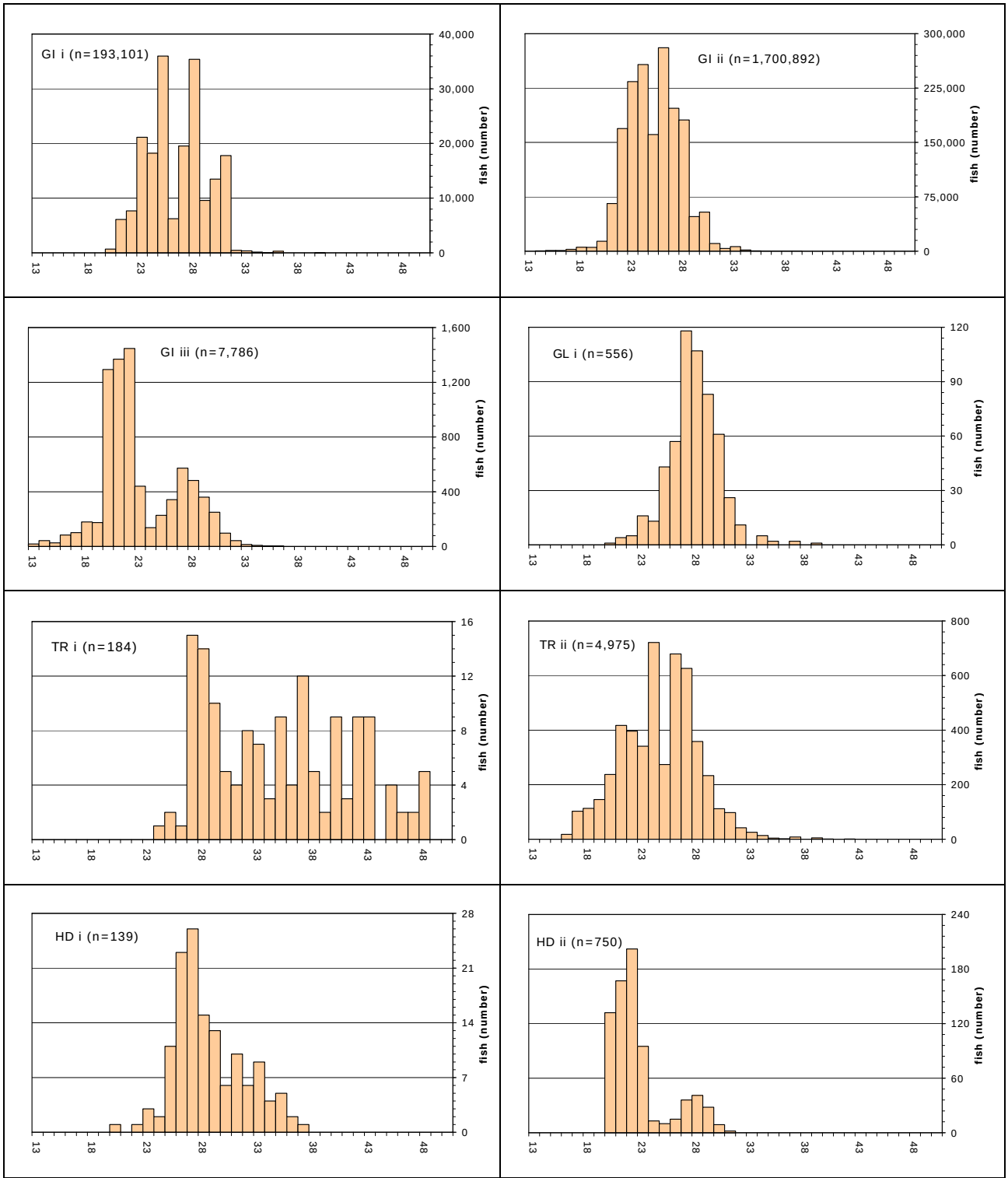


Figure 27: Bullet tuna: Length frequency distributions (total amount of fish measured by 1cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

GI: Gillnet fisheries: i. Sri Lanka 1980-89, ii. Sri Lanka 1990-99, iii. Sri Lanka 2000-06

GL: Gillnet and longline combination: i. Sri Lanka 2000-06

TR: Troll line fisheries: i. Sri Lanka 1980-89, ii. Sri Lanka 1990-99

HD: Hand line fisheries: i. Sri Lanka 1990-99, ii. Sri Lanka 2000-06

Kawakawa (KAW)

- **Fisheries and catch trends**

Kawakawa is caught mainly by gillnets and purse seines (Appendix I, Table 4 and Figure 28) and may be an important by-catch of the industrial purse seiners. The catch estimates for kawakawa were derived from very small amounts of information and are therefore highly uncertain[14] (Figure 31).

The catches provided in Table 4 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. Annual estimates of catches for the kawakawa increased markedly from around 10,000 t in the mid-1970's to reach the 50,000 t mark in the mid-1980's and 126,100 t in 2007, the highest catches ever recorded for this species. Since 1997, catches have been around 100,000 t. The average annual catch estimated for the period 2004 to 2008 is 113,100 t. The majority of the catches of kawakawa are taken in the East Indian Ocean, representing around 70% of the total catches in recent years (Figure 29).

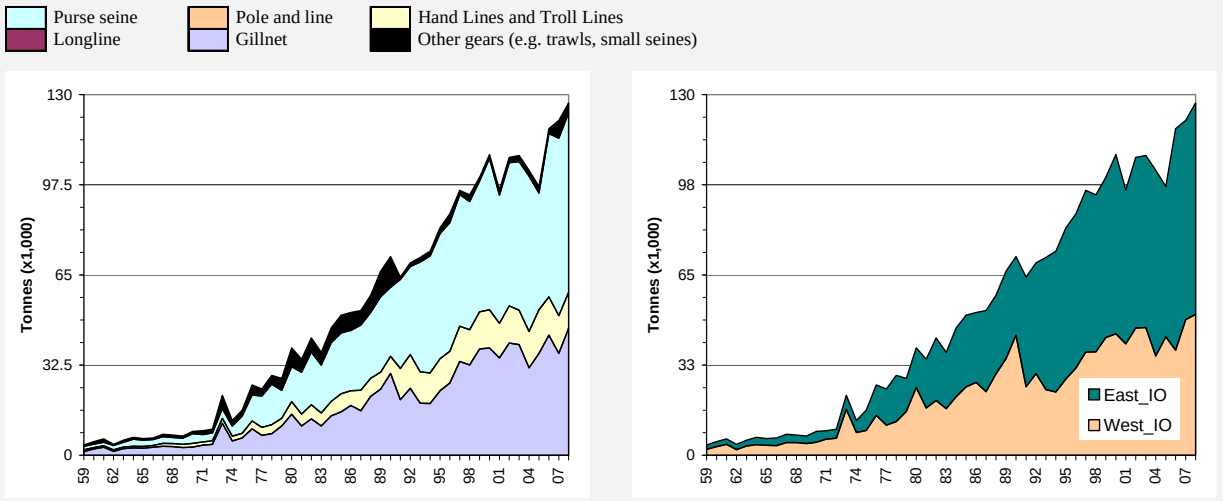


Figure 28-29: Catches of kawakawa by gear (left) and IOTC area (right) by year recorded in the IOTC Database (1959-2008)

In recent years, the countries attributed with the highest catches are Indonesia, India, Iran and Malaysia (Table 4, Figure 30).

The size of kawakawas taken by the Indian Ocean fisheries typically ranges between 20 cm and 60 cm depending on the type of gear used, season and location (Figure 36). The coastal purse seine fisheries operating in the Andaman Sea tend to catch kawakawa of small size (15cm-30cm) while the gillnet, baitboat and other fisheries operating in the Indian Ocean catch usually larger specimens (25cm-55cm).

[14] The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated.

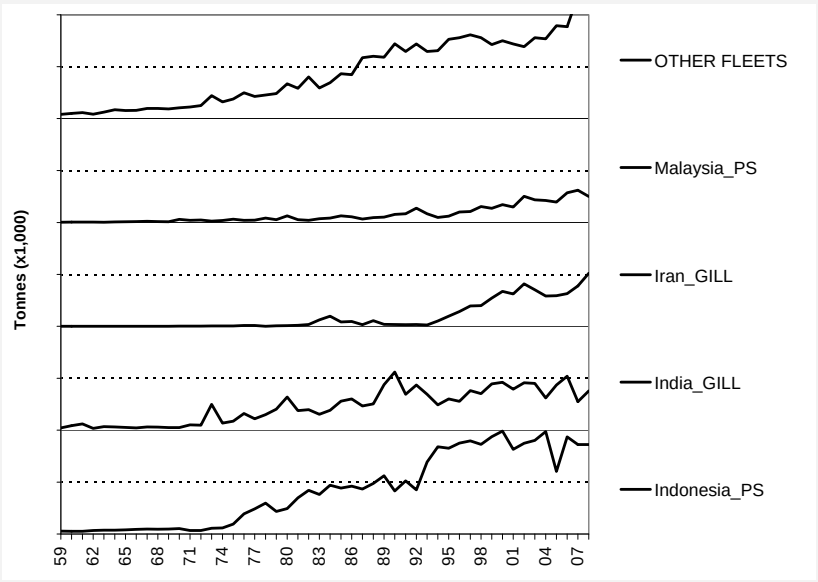


Figure 30: Catches of kawakawa recorded in the IOTC Database for main fishing fleets (1959-2008)

(broken lines representing 20,000 t each)

- **Status of Fisheries Statistics at the IOTC**

Retained catches are uncertain (Figure 31) notably for the following fisheries:

- Artisanal fisheries of Indonesia: Indonesia did not report catches of kawakawa by species or by gear for 1950-2004; catches of kawakawa, longtail tuna and, to a lesser extent, other species were reported aggregated for this period. The Secretariat used the catches reported since 2005 to break the aggregates for 1950-2004 by gear and species. The catches of kawakawa estimated for this component represent more than 39% of the total catches of this species in recent years.
- Artisanal fisheries of India: Although India reports catches of kawakawa they are not always reported by gear. The Secretariat has allocated the catches of kawakawa by gear for years in which this information was not available. The catches of kawakawa have represented 20% of the total catches of this species in the Indian Ocean in recent years.
- Artisanal fisheries of Mozambique, Myanmar (and Somalia): None of these countries have ever reported catches to the Secretariat. Catch levels are unknown.
- Other artisanal fisheries: The catches of kawakawa are usually not reported by species, being combined with catches of other small tuna species like skipjack tuna and frigate tuna (coastal purse seiners of Malaysia and Thailand).
- Industrial fisheries: The catches of kawakawa recorded for industrial purse seiners are thought to be a fraction of those retained on board. Due to this species being a bycatch, its catches are seldom recorded in the logbooks, nor are they monitored in port. The EC recently reported catch levels of frigate tuna for its purse seine fleet, for 2003-08, estimated using observer data. The Secretariat will use this data to estimate retained catches for other purse seine fleets during the same period.

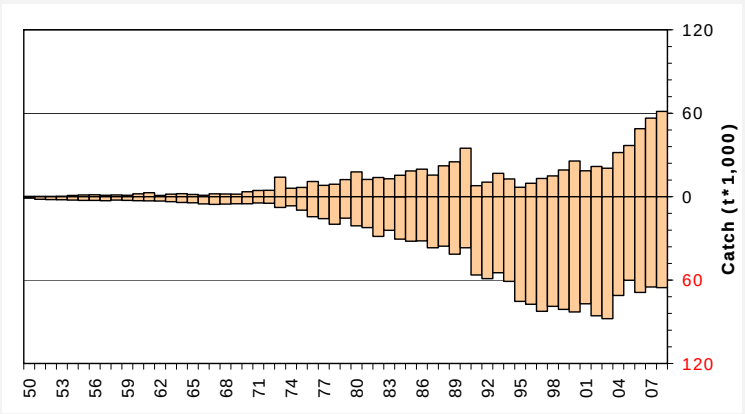


Figure 31. Uncertainty of annual catch estimates for kawakawa.

The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets.

Discard levels are moderate for industrial purse seine fisheries. The EC recently reported discard levels of frigate tuna for its purse seine fleet, for 2003-08, estimated using observer data. The Secretariat will use this data to estimate discards for other purse seine fleets during the same period.

Changes to the catch series: There have not been significant changes to the catches of kawakawa since the SC in 2008 (Figure 32).

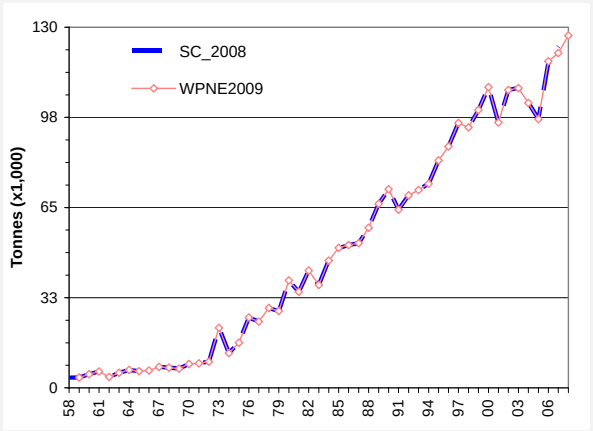


Figure 32: Kawakawa: Catches used by the SC in 2008 *versus* those estimated for the WPDCS in 2009 (1959-2008)

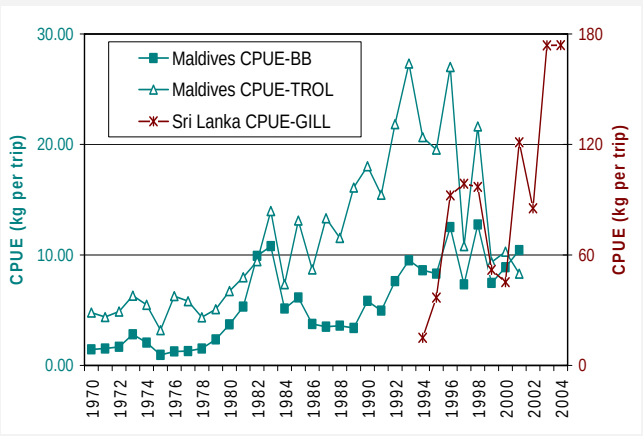


Figure 33: Kawakawa: Nominal CPUE series for the baitboat (BB) and troll line (TROL) fisheries of Maldives (left axis; 1970-2001) and the gillnet fishery of Sri Lanka (right axis; 1994-2004) derived from the available catches and effort data

CPUE Series: Catch-and-effort series are available from some fisheries but they are considered highly incomplete (Figure 34). In most cases catch-and-effort data are only available for short periods. Reasonably long catch-and-effort data series (extending for more than 10 years) are only available for Maldives baitboats and troll lines and Sri Lanka gillnets (Figure 33). The catch-and-effort data recorded for Sri Lankan gillnets are, however, thought to be inaccurate due to the dramatic changes in CPUE recorded between consecutive years.

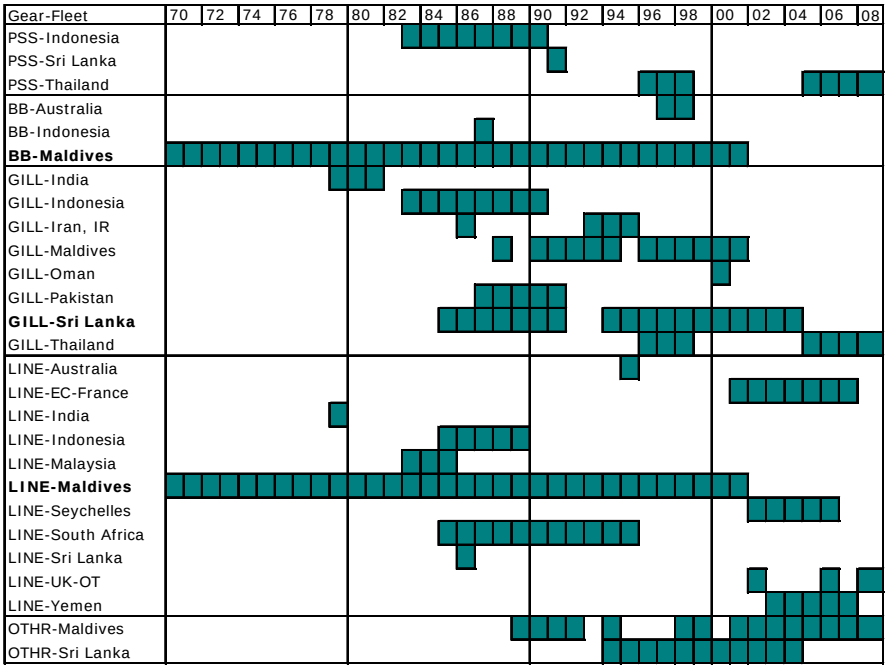
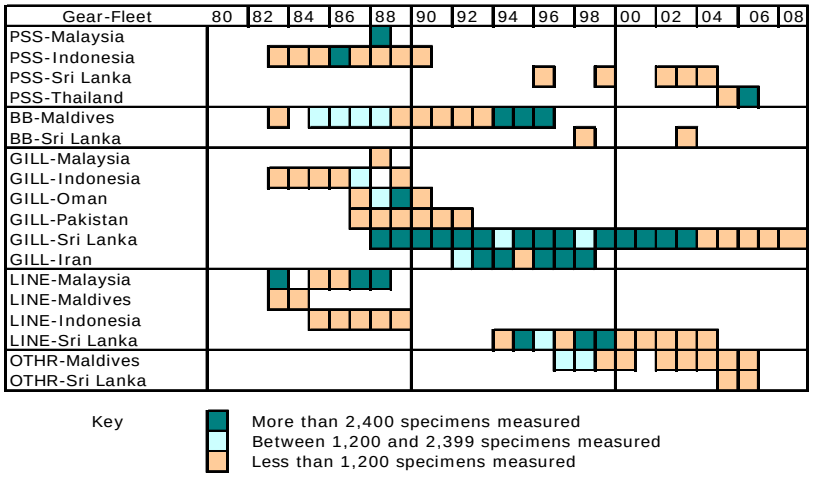


Figure 34: Kawakawa: Availability of catches and effort series, by fishery and year (1970-2008)[15]

(Note that no catches and effort are available at all for 1950-1969)

Trends in average weight can only be assessed for Sri Lankan gillnets but the amount of specimens measured has been very low in recent years (Figure 35). The length frequency data available from the mid-eighties to the early nineties was obtained with the support of the IPTP (Indo-Pacific Tuna Programme). Unfortunately, data collection did not continue after the end of the IPTP activities.



[15] Note that the above list is not exhaustive, showing only the fisheries for which catches and effort are available in the IOTC database. Furthermore, when available catches and effort may not be available throughout the year existing only for short periods

Figure 35: Kawakawa: Availability of length frequency data, by fishery and year (1980-2008)[16]

(Note that no length frequency data are available at all for 1950-1982)

Catch-at-Size(Age) table: Catch-at-Size data are not available for the kawakawa due to the paucity of size data available from most fleets (Figure 35) and the uncertain status of the catches for this species (Figure 31). Length distributions derived from the data available for some selected fisheries are shown in Figure 36.

[16] Note that the above list is not exhaustive, showing only the fisheries for which size data are available in the IOTC database. Furthermore, when available size data may not be available throughout the year existing only for short periods

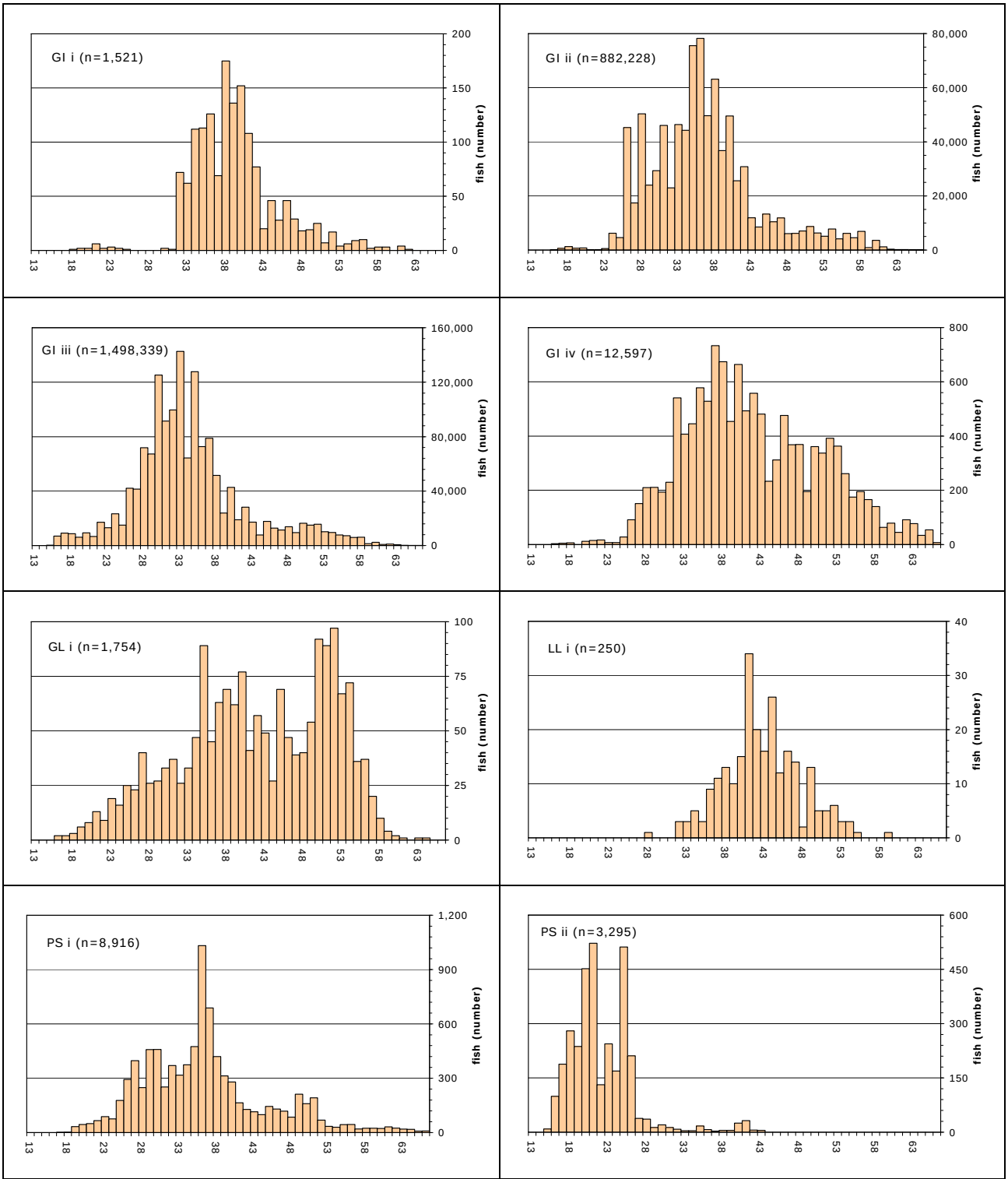


Figure 36: Kawakawa: Length frequency distributions (total amount of fish measured by 1cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

GI: Gillnet fisheries: i. Indonesia 1980-89, ii. Sri Lanka 1980-89, iii. Sri Lanka 1990-99, iv. Sri Lanka 2000-06

GL: Gillnet and longline combination: i. Sri Lanka 2000-06

LL: Coastal longline fisheries: i. Sri Lanka 1990-99

PS: Coastal purse seine fisheries: i. Indonesia 1980-89, ii. Malaysia 1980-89

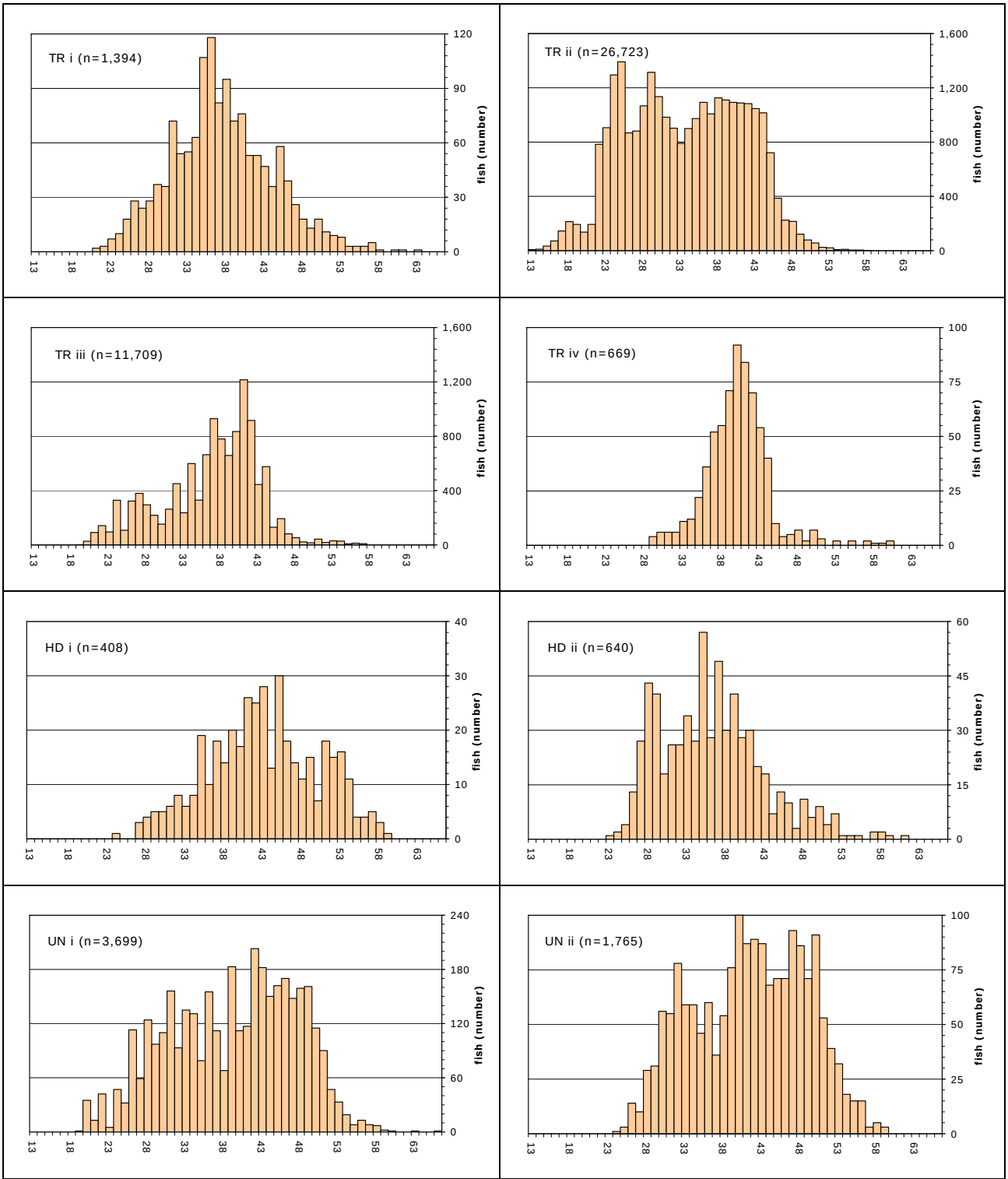


Figure 36 (cont): Kawakawa: Length frequency distributions (total amount of fish measured by 1cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

TR: Troll line fisheries: i. Indonesia 1980-89, ii. Malaysia 1980-89, iii. Sri Lanka 1990-99, iv. Sri Lanka 2000-06

HD: Hand line fisheries: i. Sri Lanka 1990-99, ii. Sri Lanka 2000-06

UN: Unclassified fisheries (mainly pole and line): i. Maldives 1990-99, ii. Maldives 2000-06

Narrow-barred Spanish mackerel (COM)

- **Fisheries and catch trends**

Narrow-barred Spanish mackerel[17] is targeted throughout the Indian Ocean by artisanal and recreational fishers. The main method of capture is gill net, but significant numbers of are also caught using trolling lines (Figure 37).

The catch estimates for Spanish mackerel were derived from very small amounts of information and are therefore highly uncertain[18] (Figure 40). The catches provided in Appendix I, Table 5 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. The catches of Spanish mackerel increased from around 50,000 t the mid-1970's to over 100,000 t by the mid-1990's. The highest catches of Spanish mackerel were recorded in 2007, amounting to 124,000 t. The current average annual catch is around 116,800 t (for the period 2004 to 2008), with most of the catch obtained taken from the West Indian Ocean area. (Figure 38).

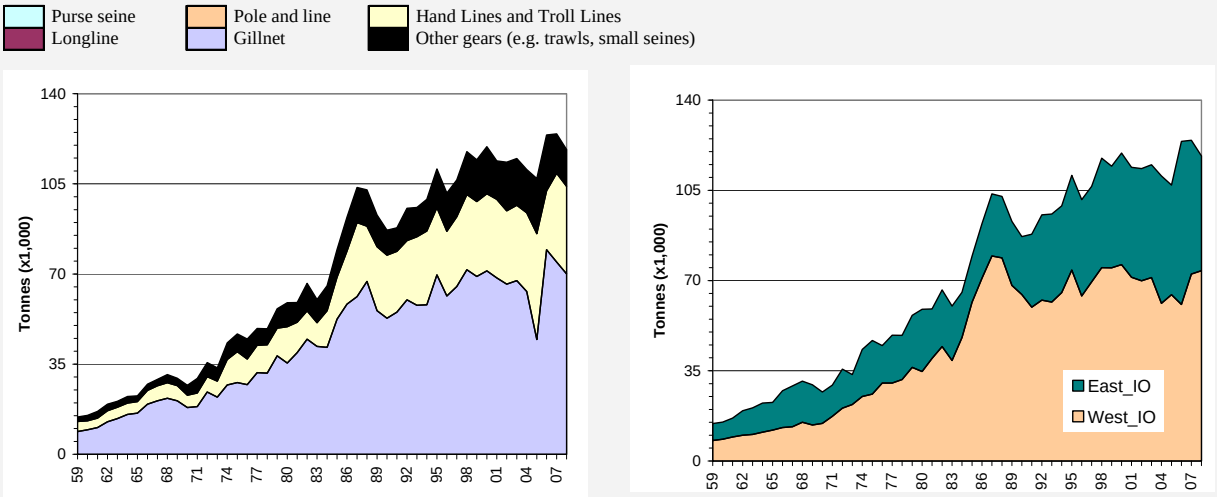


Figure 37-38: Catches of narrow-barred Spanish mackerel by gear (left) and IOTC area (right) by year recorded in the IOTC Database (1959-2008)

In recent years, the countries attributed with the highest catches of Spanish mackerel are India, Indonesia, Madagascar, Pakistan, Iran, United Arab Emirates and Saudi Arabia (Figure 39).

The size of Spanish mackerels taken by the Indian Ocean fisheries typically ranges between 30 cm and 140 cm depending on the type of gear used, season and location (Figure 45). The size of Spanish mackerel taken varies by location with 32-119 cm fish taken in the Eastern Peninsular Malaysia area, 17-139 cm fish taken in the East Malaysia area and 50-90 cm fish taken in the Gulf of Thailand. Similarly, Spanish mackerel caught in the Oman Sea are typically larger than those caught in the Persian Gulf.[19]

[17] Hereinafter referred to as Spanish mackerel

[18] The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated

[19] The Secretariat did not find any data in support of this statement.

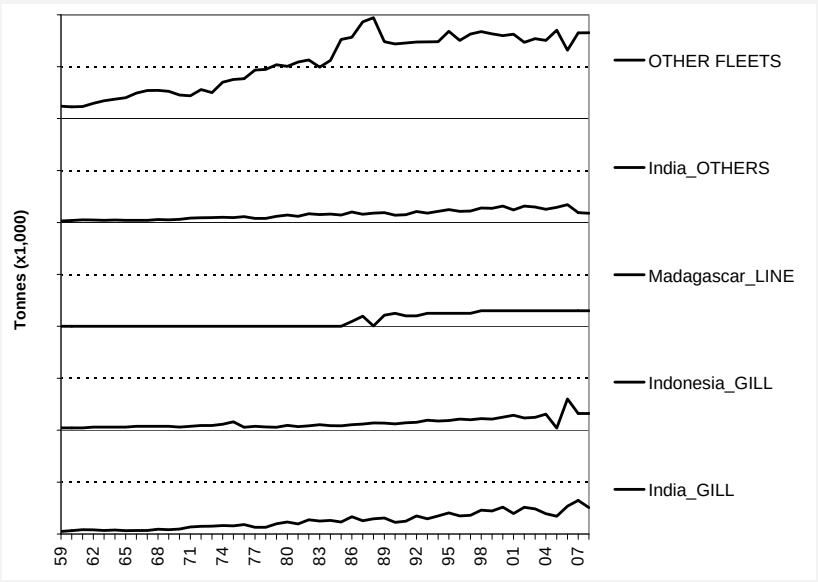


Figure 39: Catches of narrow-barred Spanish mackerel recorded in the IOTC Database for main fishing fleets (1959-2008)

(broken lines representing 40,000 t each)

- **Status of Fisheries Statistics at the IOTC**

Retained catches are uncertain (Figure 40) notably for the following fisheries:

- Artisanal fisheries of India and Indonesia: India and Indonesia have only recently reported catches of Spanish mackerel by gear, including catches by gear for the years 2005-08 and 2007-08, respectively. In both cases, the Secretariat used the catches reported by gear to break previous catches of this species by gear. The catches of Spanish mackerel estimated for this component represent more than 22% of the total catches of this species in recent years.
- Artisanal fisheries of Madagascar: Madagascar has never reported catches of Spanish mackerel to the IOTC. The Secretariat has been using the catches in the FAO FishStat database for this country. These catches are, however, thought highly uncertain as Madagascar has not been collecting statistics from its artisanal fisheries in recent years.
- Artisanal fisheries of Mozambique, Myanmar (and Somalia): None of these countries have ever reported catches to the Secretariat. Catch levels are unknown.
- Other artisanal fisheries: Oman and the UAE do not report catches of Spanish mackerel by gear. Although most of the catches are believed to be taken by gillnets, some Spanish mackerel may be also caught by using small surrounding nets, lines or other artisanal gears. Thailand and Malaysia report catches of Spanish mackerel and Indo-Pacific king mackerel aggregated.
- All fisheries: In some cases the catches of seerfish species are mislabelled, the catches of Indo-Pacific king mackerel and, to a lesser extent, other seerfish species, labelled as Spanish mackerel. Similarly, the catches of wahoo in some longline fisheries are thought to be mislabelled as Spanish mackerel. This mislabelling is thought to have little impact in the case of the Spanish mackerel but may be important for other seerfish species.

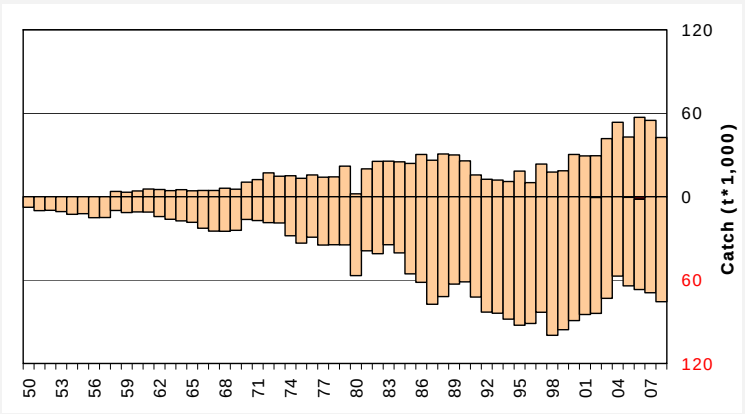


Figure 40. Uncertainty of annual catch estimates for narrow-barred Spanish mackerel.

The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets.

Discard levels are believed to be low although they are unknown for most fisheries.

Changes to the catch series: There have not been significant changes to the catches of Spanish mackerel since the SC in 2008 (Figure 41).

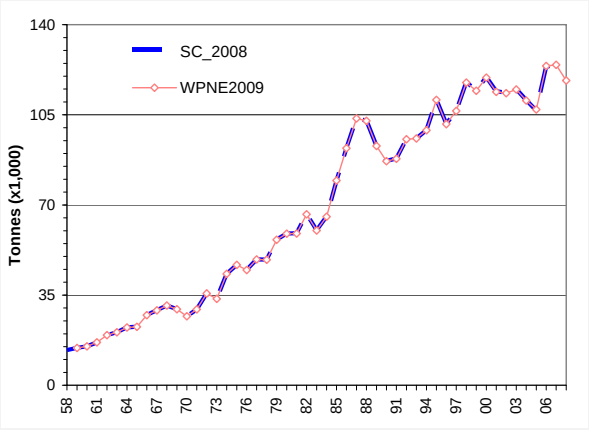


Figure 41: Narrow-barred Spanish mackerel: Catches used by the SC in 2008 *versus* those estimated for the WPDCS in 2009 (1958-2008)

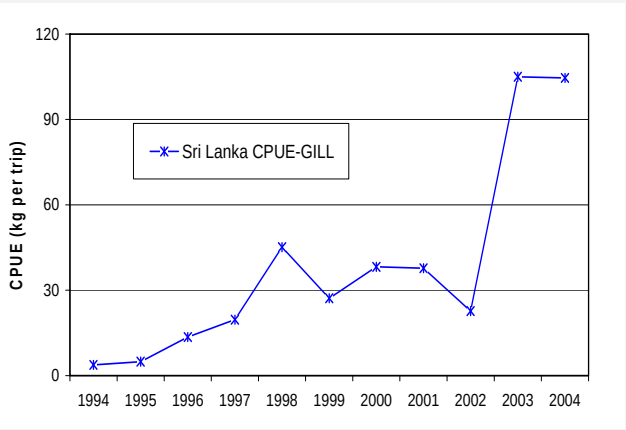


Figure 42: Narrow-barred Spanish mackerel: Nominal CPUE series for the gillnet fishery of Sri Lanka derived from the available catches and effort data (1994-2004)

CPUE Series: Catch-and-effort series are available from some fisheries but they are considered highly incomplete (Figure 43). In most cases catch-and-effort data are only available for short periods. Reasonably long catch-and-effort data series (extending for more than 10 years) are only available for Sri Lanka gillnets (Figure 42). The catches and effort recorded are, however, thought to be unrealistic due to the dramatic changes in CPUE recorded in 2003 and 2004.

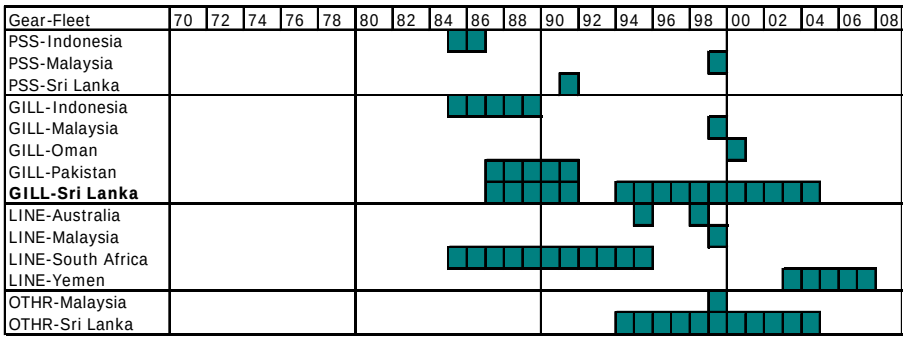


Figure 43: Narrow-barred Spanish mackerel: Availability of catches and effort series, by fishery and year (1970-2008)[20]

(Note that no catches and effort are available at all for 1950-1984)

Trends in average weight can only be assessed for Sri Lankan gillnets (Figure 45) but the amount of specimens measured has been very low in recent years (Figure 44). The length frequency data available from the mid-eighties to the early nineties was obtained with the support of the IPTP (Indo-Pacific Tuna Programme). Unfortunately, data collection did not continue after the IPTP activities came to an end.

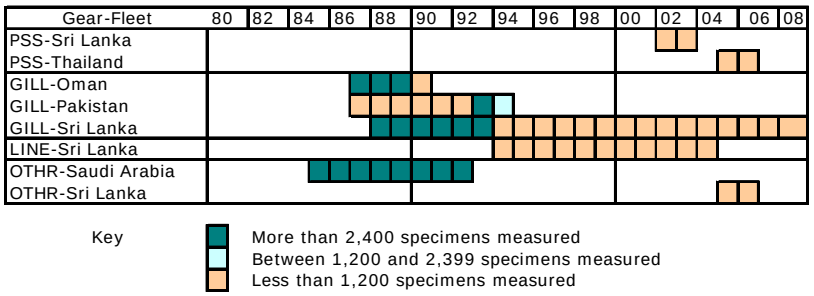


Figure 44: Narrow-barred Spanish mackerel: Availability of length frequency data, by fishery and year (1980-2008)[21]

(Note that no length frequency data are available at all for 1950-1984)

Catch-at-Size(Age) table: Catch-at-Size data are not available for the Spanish mackerel due to the paucity of size data available from most fleets (Figure 44) and the uncertain status of the catches for this species (Figure 40). Length distributions derived from the data available for some selected fisheries are shown in Figure 45.

[20] Note that the above list is not exhaustive, showing only the fisheries for which catches and effort are available in the IOTC database. Furthermore, when available catches and effort may not be available throughout the year existing only for short periods

[21] Note that the above list is not exhaustive, showing only the fisheries for which size data are available in the IOTC database. Furthermore, when available size data may not be available throughout the year existing only for short periods

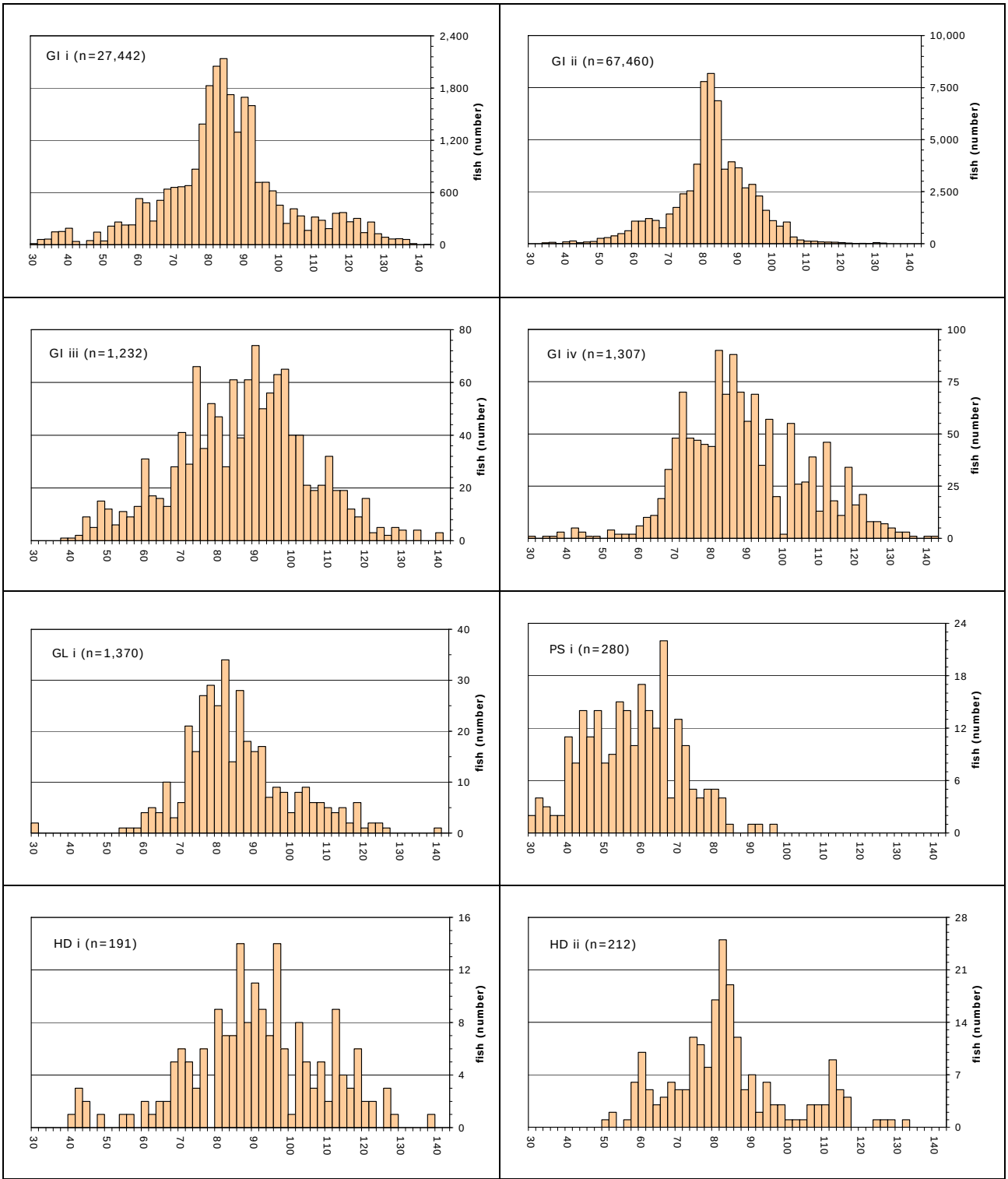


Figure 45: Narrow-barred Spanish mackerel: Length frequency distributions (total amount of fish measured by 2cm length class by decade) derived from the data available at the IOTC Secretariat for selected fisheries and periods

GI: Gillnet fisheries: i. Sri Lanka 1980-89, ii. Sri Lanka 1990-99, iii. Pakistan 1990-99, iv. Sri Lanka 2000-06

GL: Gillnet and longline combination: i. Sri Lanka 2000-06

PS: Coastal purse seine fisheries: i. Thailand 2000-06

HD: Hand line fisheries: i. Sri Lanka 1990-99, ii. Sri Lanka 2000-06

Indo-Pacific king mackerel (GUT)

- **Fisheries and catch trends**

The Indo-Pacific king mackerel[22] is mostly caught by gillnet fisheries in the Indian Ocean but significant numbers of are also caught using trolling lines (Figure 46). The catch estimates for Indo-Pacific king mackerel were derived from very small amounts of information and are therefore highly uncertain[23] (Figure 49).

The catches provided in Appendix I, Table 6 are based on the information available at the Secretariat and the following observations on the catches cannot currently be verified. Estimated catches have increased steadily since the mid 1960's, reaching around 10,000 t in the early 1970's and over 30,000 t since the mid-1980's. Catches increased steadily since then until 1998, the year in which the highest catches for this species were recorded, at around 43,000 t. The catches of Indo-Pacific king mackerel between 1999 and 2006 were more or less stable, estimated at around 35,000 t. Current catches have been high, close to record values (or 43,000 t). The average annual catch estimated for the period 2004 to 2008 is 36,200 t.

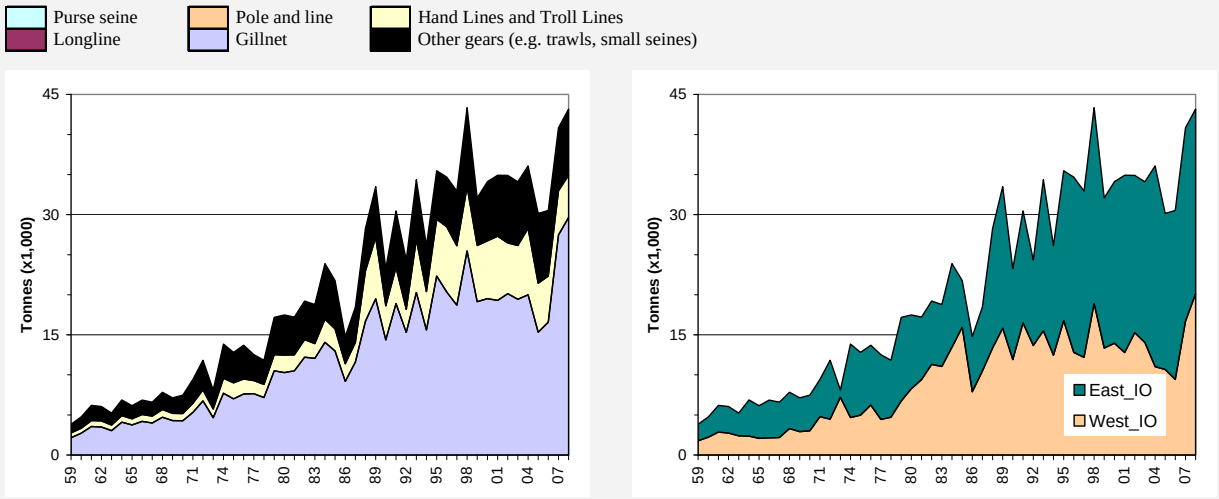


Figure 46-47: Catches of Indo-Pacific king mackerel by gear (left) and IOTC area (right) by year recorded in the IOTC Database (1958-2007)

In recent years, the countries attributed with the highest catches are Indonesia, India and Iran (Table 6, Figure 48).

[22] Hereinafter referred to as King mackerel

[23] The uncertainty in the catch estimates has been assessed by the Secretariat and is based on the amount of processing required to account for the presence of conflicting catch reports, the level of aggregation of the catches by species and or gear, and the occurrence of unreporting fisheries for which catches had to be estimated.

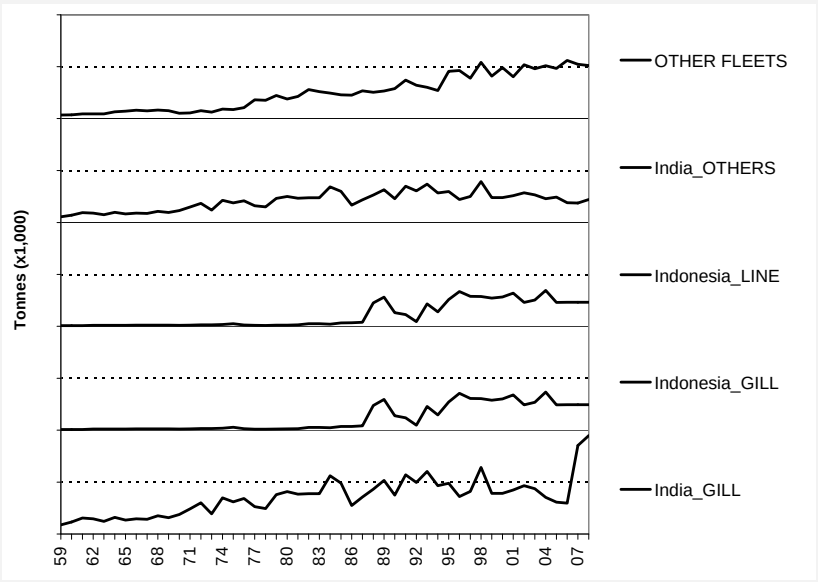


Figure 48: Catches of Indo-Pacific king mackerel recorded in the IOTC Database for main fishing fleets (1959-2008)

(broken lines representing 10,000 t each)

- **Status of Fisheries Statistics at the IOTC**

Retained catches are highly uncertain for all fisheries (Figure 49) due to:

- Aggregation: King mackerels are usually not reported by species being aggregated with Spanish mackerels or, less frequently, other small tuna species.
- Mislabelling: King mackerels are usually mislabelled as Spanish mackerel, their catches reported under the latter species.
- Underreporting: the catches of King mackerel may be not reported for some fisheries catching them as a bycatch.

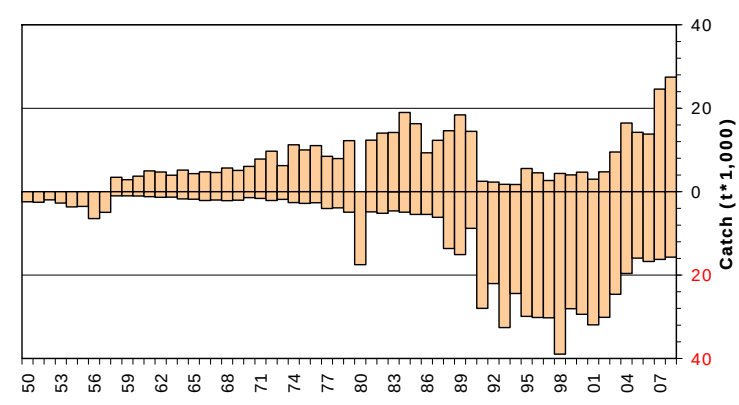


Figure 49. Uncertainty of annual catch estimates for Indo-Pacific king mackerel.

The amount of the catch below the zero-line has been categorised as uncertain according to the criteria given in the text. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets.

It is for the above reasons that the catches of king mackerel in the IOTC database are thought to represent only a small fraction of the total catches of this species in the Indian Ocean.

Discard levels are believed to be low although they are unknown for most fisheries.

Changes to the catch series: There have not been significant changes to the catches of king mackerel since the SC in 2008 (Figure 5).

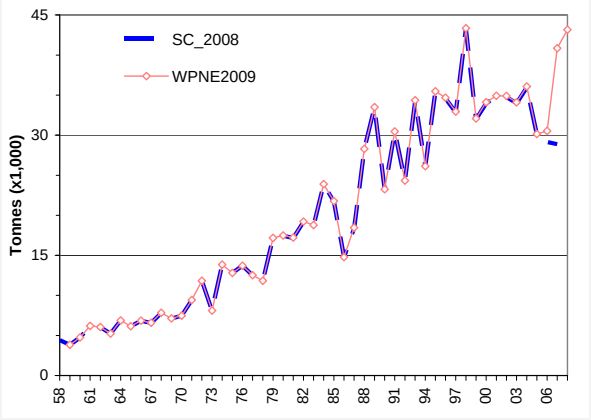


Figure 50: Indo-Pacific king mackerel: Catches used by the SC in 2008 *versus* those estimated for the WPNT09 (1958-2008)

CPUE Series: Catch-and-effort series are not available for most fisheries and, when available, they refer to very short periods (Figure 51). This makes it impossible to derive any meaningful CPUE from the existing data.

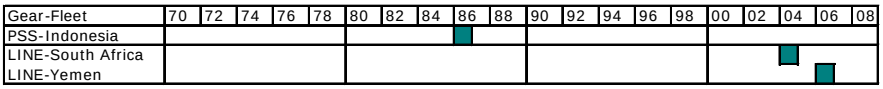


Figure 51: Indo-Pacific king mackerel: Availability of catches and effort series, by fishery and year (1970-2008)[24]

(Note that no catches and effort are available at all for 1950-1985)

Trends in average weight can not be assessed for most fisheries. Samples of king mackerel are only available for the coastal purse seiners of Thailand and gillnets of Sri Lanka but they refer to very short periods and the numbers sampled are very small (Figure 52).

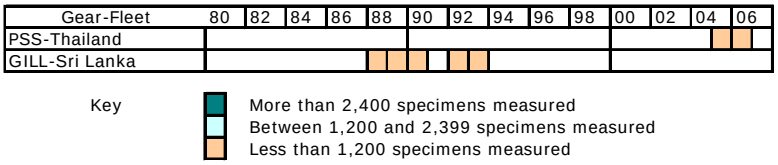


Figure 52: Indo-Pacific king mackerel: Availability of length frequency data, by fishery and year (1980-2008)[25]

(Note that no length frequency data are available at all for 1950-1982)

[24] Note that the above list is not exhaustive, showing only the fisheries for which catches and effort are available in the IOTC database. Furthermore, when available catches and effort may not be available throughout the year existing only for short periods

[25] Note that the above list is not exhaustive, showing only the fisheries for which size data are available in the IOTC database. Furthermore, when available size data may not be available throughout the year existing only for short periods

Catch-at-Size(Age) table: Catch-at-Size data are not available for the king mackerel due to the paucity of size data available from most fleets (Figure 52) and the uncertain status of the catches for this species (Figure 49).

APPENDIX I: Catch Tables

***Table 1**. Best scientific estimates of the catches of Longtail tuna (LOT) by gear and main fleets for the period 1959-2009 (in thousands of tonnes)*

Gear	Fleet	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Purse seine	Malaysia	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.2	0.6	0.4	0.5	0.3	0.4	0.7	0.4	0.5	0.9	0.6	1.3	0.6	0.4	0.8	0.9	1.4
	Indonesia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.7	0.8	0.6	0.7	1.0	1.2	1.1	1.3	1.2
	Thailand												0.0	0.2	0.2	0.3	0.2	0.5	0.3	0.3	0.4	1.8	0.6	1.1	6.9	6.8	5.9	2.2
	Other Fleets					0.0	0.0	0.0					0.0		0.0		0.0	0.0					0.0	0.0	0.0	0.0	0.0	0.0
	Total	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*	*0.5*	*0.4*	*0.4*	*0.8*	*0.7*	*0.8*	*0.7*	*0.8*	*1.4*	*1.3*	*1.4*	*2.1*	*3.0*	*2.6*	*2.6*	*8.5*	*8.6*	*8.1*	*4.9*
Gillnet	Indonesia	1.0	1.0	1.0	1.2	1.3	1.3	1.4	1.6	1.7	1.6	1.7	1.9	1.2	1.2	2.0	2.1	3.4	6.9	8.7	10.7	7.8	8.8	12.4	15.0	13.6	16.8	15.8
	Iran, Islamic R.												0.6	0.1	0.7	0.9	0.9	0.9	1.4	1.6		0.8	1.0	2.2	2.9	5.6	6.1	11.8
	Pakistan	1.0	1.2	1.1	1.7	2.5	3.5	3.8	5.0	4.9	4.9	4.4	4.0	3.3	3.9	3.1	4.2	4.7	4.4	3.9	2.3	3.9	1.8	2.8	3.5	1.2	1.3	2.1
	India	0.4	0.8	1.1	0.3	0.6	1.1	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.6	3.0	0.8	1.0	1.5	1.0	1.6	2.0	2.9	1.7	2.6	1.2	1.8	4.5
	Oman	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	2.0	2.4	2.7	2.9	3.1	2.9	3.6	3.4	2.5	1.1	3.3	3.6
	UAE	1.3	1.3	1.3	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9	1.5	1.5	1.4	1.4	1.4	1.4	1.4	0.4	4.0	2.6	2.6	2.4
	Other Fleets	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.2	0.4	0.1	0.3	0.5	0.8	0.6	0.3	0.4	0.6	1.4	1.0	0.4	0.5	0.7
	Total	*4.2*	*4.7*	*4.8*	*5.2*	*6.4*	*7.8*	*7.8*	*9.2*	*9.5*	*9.3*	*8.9*	*8.5*	*6.7*	*8.3*	*10.5*	*11.8*	*14.4*	*19.2*	*20.1*	*19.3*	*19.3*	*20.0*	*24.3*	*31.5*	*25.7*	*32.3*	*41.0*
Line	Yemen	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.5	1.1	1.3	1.4	1.5	1.6	1.5	1.7	1.3	1.2	0.3	1.0	1.0
	Oman	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.1	1.3	1.4	1.5	1.6	1.5	1.9	1.8	1.3	0.6	1.7	1.9
	India	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.2	0.4	0.3	0.3	0.5	0.7	0.4	0.6	0.3	0.4	1.2
	Other Fleets	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.7	0.7
	Total	*0.9*	*0.8*	*0.9*	*0.8*	*0.9*	*0.8*	*0.9*	*0.9*	*1.0*	*1.0*	*1.0*	*0.7*	*0.8*	*0.9*	*1.3*	*2.4*	*2.8*	*3.3*	*3.3*	*3.7*	*3.6*	*4.3*	*3.7*	*3.3*	*1.7*	*3.8*	*4.7*
Other gears	Indonesia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.6	0.7	0.5	0.6	0.9	1.1	1.0	1.2	1.1
	Oman	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.8	0.9	1.0	1.0	1.0	1.2	1.1	0.8	0.4	1.1	1.2
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0
	Total	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.8*	*1.0*	*1.4*	*1.6*	*1.8*	*1.5*	*1.8*	*2.0*	*1.9*	*1.6*	*2.6*	*2.3*
All	*Total*	*5.5*	*5.8*	*6.1*	*6.5*	*7.6*	*9.2*	*9.3*	*10.8*	*11.3*	*11.0*	*10.6*	*10.3*	*8.5*	*10.3*	*12.9*	*15.8*	*19.7*	*25.1*	*26.4*	*27.0*	*27.4*	*28.7*	*32.6*	*45.2*	*37.7*	*46.8*	*52.8*

Gear	Fleet	Av04/08	Av59/08	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
Purse seine	Malaysia	4.3	1.4	1.2	0.8	0.8	1.1	1.3	1.5	2.4	1.5	0.8	1.0	1.7	1.8	2.6	2.3	3.0	2.6	4.3	3.7	3.6	3.4	4.9	5.3	4.3
	Indonesia	2.3	1.2	1.3	1.2	1.4	1.6	1.2	1.4	1.2	1.9	2.4	2.3	2.5	2.5	2.4	2.6	2.8	2.3	2.5	2.5	2.8	0.8	3.5	2.2	2.2
	Thailand	2.2	1.9	1.5	1.4	1.2	1.4	1.0	5.3	2.0	3.2	2.0	3.4	4.0	3.7	9.9	5.1	4.4	1.0	2.7	3.2	2.8	1.8	2.6	1.9	1.8
	Iran, Islamic R.	2.0	0.7							0.6	1.0	0.8	1.3	0.7	0.8	1.5	2.1	2.7	3.0	5.8	3.6	1.5	1.2	2.3	2.3	2.7
	Other Fleets	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.3	0.1	0.1	0.1	1.2	1.3
	Total	*11.4*	*5.2*	*4.0*	*3.4*	*3.4*	*4.1*	*3.5*	*8.2*	*6.2*	*7.6*	*6.0*	*8.1*	*8.9*	*8.8*	*16.5*	*12.2*	*14.0*	*8.9*	*15.4*	*13.3*	*10.9*	*7.3*	*13.4*	*13.0*	*12.4*
Gillnet	Indonesia	29.4	15.0	16.5	15.5	17.4	20.0	14.8	18.3	15.2	24.8	30.1	29.5	31.3	32.1	30.9	33.5	35.4	29.1	31.2	32.2	35.3	27.3	27.7	28.4	28.4
	Iran, Islamic R.	23.1	9.9	11.7	12.1	16.9	19.4	14.9	14.6	9.8	8.2	11.5	27.2	16.5	17.9	18.2	21.3	38.7	31.9	24.1	26.7	18.0	17.3	22.8	25.9	31.2
	Pakistan	5.5	4.2	4.4	6.0	6.3	4.9	6.2	6.1	5.8	4.5	5.8	5.0	4.6	5.6	5.5	6.3	6.0	5.2	5.1	6.1	5.3	5.2	5.6	5.7	5.7
	India	4.5	2.4	1.6	3.3	2.4	2.8	3.6	2.9	1.9	2.9	3.0	4.2	3.1	3.3	3.7	6.6	7.3	6.5	4.6	3.0	1.4	3.4	6.1	6.7	4.8
	Oman	4.3	2.7	4.0	9.3	8.5	4.7	3.8	1.4	3.2	4.2	1.8	2.2	3.4	3.6	3.2	3.2	3.4	4.0	4.6	5.8	5.1	4.1	4.3	4.2	4.0
	UAE	2.0	2.2	3.4	3.1	3.4	3.4	3.4	3.3	3.4	3.4	3.8	4.9	5.0	3.2	3.2	3.2	1.5	1.5	1.9	2.9	2.0	2.0	1.9	1.9	1.9
	Other Fleets	0.5	0.6	0.9	1.5	1.2	0.7	0.6	0.8	0.7	1.0	0.7	0.8	1.9	1.8	1.4	1.4	1.2	1.0	1.3	1.1	0.4	0.5	0.5	0.6	0.6
	Total	*69.3*	*37.1*	*42.5*	*50.9*	*56.1*	*55.8*	*47.3*	*47.3*	*40.0*	*49.0*	*56.8*	*73.9*	*65.8*	*67.5*	*66.1*	*75.6*	*93.5*	*79.2*	*72.9*	*77.9*	*67.5*	*59.8*	*68.9*	*73.4*	*76.6*
Line	Yemen	6.6	1.9	0.5	0.6	0.7	0.6	1.3	0.7	1.4	1.8	2.4	2.3	2.6	2.9	3.3	3.6	4.0	4.3	4.7	3.7	5.4	6.3	7.6	7.0	7.0
	Oman	3.1	1.5	2.1	4.9	4.5	2.5	2.0	2.8	1.8	2.5	3.4	1.2	0.8	1.3	0.8	1.5	1.9	1.9	2.1	1.6	2.6	3.2	3.3	3.3	3.2
	India	0.4	0.7	0.4	0.8	0.7	0.7	0.9	1.2	0.8	1.2	1.2	1.7	1.3	1.3	1.5	2.7	3.0	2.6	1.9	1.3	0.5	1.1	0.0	0.0	0.2
	Other Fleets	0.8	0.5	0.8	2.2	0.7	0.7	0.7	0.7	0.7	0.7	1.4	1.2	1.1	0.9	0.9	0.9	0.6	0.6	0.7	0.8	0.7	0.4	0.8	1.0	0.9
	Total	*10.9*	*4.6*	*3.8*	*8.5*	*6.5*	*4.6*	*4.9*	*5.4*	*4.6*	*6.2*	*8.4*	*6.4*	*5.7*	*6.5*	*6.6*	*8.7*	*9.4*	*9.5*	*9.4*	*7.3*	*9.2*	*11.1*	*11.8*	*11.4*	*11.2*
Other gears	Indonesia	2.1	1.0	1.2	1.1	1.2	1.4	1.0	1.3	1.1	1.7	2.1	2.1	2.2	2.2	2.2	2.3	2.5	2.0	2.2	2.3	2.5	2.6	1.2	2.0	2.0
	Oman	0.4	0.6	1.3	3.1	2.8	1.6	1.3	0.1	0.2	0.2	0.3	0.7	1.2	0.2	0.3	0.1	0.1	0.2	0.2	0.6	0.5	0.4	0.4	0.4	0.4
	Other Fleets	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	1.9	1.8
	Total	*3.3*	*1.8*	*2.5*	*4.2*	*4.0*	*3.0*	*2.3*	*1.5*	*1.3*	*1.9*	*2.4*	*2.7*	*3.4*	*2.4*	*2.5*	*2.5*	*2.7*	*2.3*	*2.4*	*3.0*	*3.0*	*3.1*	*1.8*	*4.2*	*4.2*
All	*Total*	*94.8*	*48.7*	*52.8*	*66.9*	*70.1*	*67.5*	*58.1*	*62.3*	*52.2*	*64.8*	*73.6*	*91.1*	*83.7*	*85.2*	*91.6*	*99.1*	*119.6*	*99.9*	*100.0*	*101.5*	*90.6*	*81.3*	*95.9*	*102.0*	*104.4*

***Table 2**. Best scientific estimates of the catches of Frigate tuna (FRI) by gear and main fleets for the period 1959-2008 (in thousands of tonnes)*

Gear	Fleet	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Baitboat	Maldives	0.9	0.9	1.4	1.4	1.4	1.4	2.3	2.8	2.8	2.8	2.8	1.7	1.7	1.8	3.9	3.5	2.3	1.5	1.8	0.9	0.9	0.8	0.8	1.2	2.0	1.7	1.3
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
	Total	*0.9*	*0.9*	*1.4*	*1.4*	*1.4*	*1.4*	*2.3*	*2.8*	*2.8*	*2.8*	*2.8*	*1.7*	*1.7*	*1.8*	*3.9*	*3.5*	*2.4*	*1.5*	*1.8*	*0.9*	*0.9*	*0.8*	*0.8*	*1.2*	*2.0*	*1.8*	*1.3*
Gillnet	India	0.2	0.3	0.5	0.1	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.6	0.4	0.6	0.9	0.6	0.9	1.2	1.1	0.7	1.1	1.5	1.0	1.7
	Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.1
	UAE																0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0	0.4	0.4	0.4
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.3	0.3
	Total	*0.2*	*0.4*	*0.5*	*0.2*	*0.3*	*0.4*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.2*	*0.4*	*0.4*	*1.7*	*0.7*	*0.9*	*1.3*	*1.1*	*1.2*	*1.6*	*1.5*	*1.2*	*2.6*	*2.2*	*1.8*	*2.5*
Line	India	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.9	0.2	0.3	0.5	0.3	0.5	0.6	0.6	0.3	0.5	0.8	0.5	0.9
	Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1
	Maldives	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.3
	Sri Lanka	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.7	0.7	0.5	0.6
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
	Total	*0.2*	*0.3*	*0.4*	*0.2*	*0.3*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.3*	*0.3*	*0.3*	*1.0*	*0.5*	*0.5*	*0.8*	*0.7*	*0.8*	*1.0*	*1.0*	*0.9*	*1.6*	*1.8*	*1.5*	*2.1*
Other gears	Indonesia	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	1.0	2.2	0.7	1.5	1.2	1.6	3.2	1.4	0.5	1.8
	India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2
	Thailand												0.2	0.5	0.4	0.7	0.5	1.2	0.8	0.7	0.9	0.1	0.0	0.1	1.3	0.5	0.6	1.7
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.4
	Total	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.7*	*0.8*	*0.8*	*1.2*	*1.0*	*1.7*	*2.0*	*3.1*	*1.9*	*1.9*	*1.7*	*1.9*	*4.8*	*2.3*	*1.6*	*4.1*
All	*Total*	*1.5*	*1.8*	*2.5*	*2.0*	*2.3*	*2.5*	*3.3*	*3.7*	*3.8*	*3.7*	*3.7*	*2.9*	*3.2*	*3.4*	*7.8*	*5.7*	*5.5*	*5.7*	*6.7*	*4.8*	*5.4*	*5.1*	*4.9*	*10.2*	*8.3*	*6.6*	*10.0*

Gear	Fleet	Av04/08	Av59/08	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
Baitboat	Maldives	3.7	2.5	0.8	1.0	1.4	1.9	3.0	2.3	3.1	5.0	3.8	3.7	6.1	2.3	3.8	3.1	3.7	3.7	3.9	4.1	3.3	4.6	3.2	3.5	3.8
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
	Total	*3.7*	*2.5*	*0.9*	*1.0*	*1.5*	*2.0*	*3.1*	*2.3*	*3.2*	*5.1*	*3.8*	*3.7*	*6.1*	*2.3*	*3.9*	*3.1*	*3.7*	*3.7*	*3.9*	*4.2*	*3.3*	*4.6*	*3.3*	*3.6*	*3.9*
Gillnet	India	4.8	2.7	4.8	2.5	3.4	4.2	4.0	3.9	4.9	3.3	6.1	3.4	6.6	5.8	6.3	5.7	6.2	6.8	7.2	10.1	8.0	2.7	9.1	1.8	2.5
	Iran, Islamic R.	3.6	0.6	0.3	0.4	0.3	0.2	0.1	0.5	0.3	0.4	0.2	4.4	0.7	0.6	0.5	0.6	0.8	0.6	0.6	1.1	1.5	1.6	2.4	5.2	7.2
	Sri Lanka	1.0	0.6	0.0	0.0	0.0	0.3	0.3	0.2	0.4	1.2	1.7	1.7	2.7	3.9	3.8	1.8	0.6	0.9	2.7	2.1	1.7	1.0	0.7	1.0	0.7
	Indonesia	0.8	0.3	0.0	0.1	0.2	0.1	0.2	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.6	0.6	0.9	0.8	0.8	0.8
	UAE	0.2	0.3	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
	Other Fleets	0.4	0.3	0.2	0.4	0.5	0.7	0.5	0.2	0.3	0.3	0.3	0.6	0.6	0.8	0.6	0.6	0.5	0.6	0.3	0.3	0.4	0.4	0.4	0.4	0.4
	Total	*10.8*	*4.7*	*5.8*	*3.9*	*5.0*	*6.0*	*5.6*	*5.6*	*6.8*	*6.2*	*9.5*	*11.2*	*11.7*	*12.2*	*12.3*	*9.9*	*9.1*	*9.8*	*11.7*	*14.5*	*12.3*	*6.8*	*13.6*	*9.5*	*11.7*
Line	India	2.6	1.4	2.4	1.3	1.7	2.1	2.0	2.0	2.5	1.7	3.1	1.7	3.4	3.0	3.2	2.9	3.1	3.4	3.7	4.9	4.4	0.8	6.9	0.5	0.3
	Indonesia	0.4	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.8	0.1	0.5	0.5
	Maldives	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.3	0.3	0.4	0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.2
	Sri Lanka	0.0	0.3	0.6	0.7	0.7	0.8	0.9	1.0	1.2	1.1	1.1	1.0	0.8	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Other Fleets	0.2	0.1	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.4	0.4	0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2
	Total	*3.5*	*2.2*	*3.5*	*2.4*	*3.1*	*3.6*	*3.7*	*3.7*	*4.4*	*3.8*	*5.2*	*3.7*	*5.1*	*4.5*	*4.6*	*3.8*	*4.1*	*4.4*	*4.4*	*5.6*	*5.2*	*2.2*	*7.4*	*1.5*	*1.2*
Other gears	Indonesia	10.3	3.4	0.4	0.8	2.7	1.6	2.7	4.4	4.6	6.0	7.3	7.1	7.6	7.8	7.5	8.1	8.6	7.0	7.6	7.8	7.8	10.1	11.4	11.0	11.0
	India	1.6	0.4	0.6	0.3	0.4	0.5	0.5	0.5	0.6	0.4	0.7	0.4	0.8	0.7	0.8	0.7	0.8	0.8	0.9	1.3	0.8	0.1	0.2	3.6	3.5
	Thailand	1.5	0.8	0.8	7.5	1.4	1.1	0.9	0.9	1.2	1.2	0.9	1.4	0.9	0.9	0.6	0.4	1.0	1.0	0.8	1.1	1.1	1.6	1.5	1.6	1.5
	Sri Lanka	0.7	0.3		0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.6	0.6	0.7	0.8	1.0	1.0	0.9	1.0	0.9	0.9	0.4	0.7	0.8	0.9
	Other Fleets	0.4	0.2	0.4	0.4	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.1	1.4	0.2	0.0	0.0	0.9	0.5	1.1	0.4	0.4	0.7	0.7	0.2	0.2
	Total	*14.5*	*5.2*	*2.2*	*8.9*	*4.7*	*3.7*	*4.4*	*6.0*	*6.8*	*7.9*	*9.4*	*9.6*	*11.3*	*10.3*	*9.7*	*10.2*	*12.2*	*10.3*	*11.3*	*11.5*	*11.0*	*12.8*	*14.4*	*17.3*	*17.2*
All	*Total*	*32.5*	*14.6*	*12.4*	*16.2*	*14.2*	*15.3*	*16.7*	*17.7*	*21.1*	*23.0*	*27.9*	*28.2*	*34.3*	*29.3*	*30.5*	*27.1*	*29.2*	*28.2*	*31.4*	*35.8*	*31.9*	*26.3*	*38.8*	*31.8*	*33.9*

***Table 3**. Best scientific estimates of the catches of Bullet tuna (BLT) by gear and main fleets for the period 1959-2008 (in thousands of tonnes)*

Gear	Fleet	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Gillnet	India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	*0.1*
Line	India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Other gears	India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Other Fleets					0.0	0.0	0.0					0.0		0.0		0.0	0.0										
	Total	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
All	*Total*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.1*	*0.2*	*0.2*	*0.2*	*0.3*

Gear	Fleet	Av04/08	Av59/08	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
Gillnet	Sri Lanka	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.5	0.5	0.8	1.2	1.1	0.3	0.3	0.1	0.9	0.2	0.7	0.3	0.9	1.2	0.8
	India	0.4	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.4		1.1	0.4	0.6	0.1
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	*1.2*	*0.3*	*0.2*	*0.1*	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*0.7*	*0.6*	*1.1*	*1.4*	*1.4*	*0.6*	*0.6*	*0.3*	*1.2*	*0.6*	*0.7*	*1.4*	*1.3*	*1.8*	*0.9*
Line	India	2.1	0.4	0.4	0.2	0.3	0.3	0.3	0.3	0.4	0.2	0.5	0.3	0.5	0.4	0.5	0.4	0.5	0.5	0.5	0.8	0.5	1.2	1.7	4.5	2.6
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	*2.1*	*0.4*	*0.4*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.4*	*0.3*	*0.5*	*0.3*	*0.5*	*0.5*	*0.5*	*0.4*	*0.5*	*0.5*	*0.6*	*0.8*	*0.6*	*1.2*	*1.7*	*4.5*	*2.6*
Other gears	India	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.3	0.1	0.2
	Other Fleets		0.0											0.0		0.0	0.0	0.0	0.0							
All	*Total*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.3*	*0.2*	*0.1*	*0.3*	*0.1*	*0.2*

***Table 4**. Best scientific estimates of the catches of Kawakawa (KAW) by gear and main fleets for the period 1959-2008 (in thousands of tonnes)*

	Fleet	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Purse seine	Indonesia	1.1	1.1	1.1	1.4	1.4	1.5	1.6	1.8	1.9	1.8	1.9	2.1	1.4	1.4	2.2	2.4	3.8	7.8	9.7	11.9	8.7	9.8	13.9	16.8	15.2	18.8	17.7
	Malaysia	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.4	0.3	1.2	0.8	1.0	0.5	0.8	1.3	0.8	0.9	1.7	1.1	2.5	1.1	0.9	1.5	1.7	2.6
	Thailand												0.1	0.4	0.4	0.6	0.5	1.1	0.7	0.6	0.8	0.1	0.0	0.0	1.2	0.4	0.6	1.5
	India	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	1.1	0.3	0.4	0.8	0.5	0.7	0.9	1.6	0.9	0.9	0.7	0.9	1.3
	Other Fleets					0.2	0.8	0.3					0.0		0.0		0.0	0.0						0.0	0.0	0.0	0.0	0.0
	Total	*1.3*	*1.4*	*1.5*	*1.6*	*1.9*	*2.6*	*2.3*	*2.2*	*2.5*	*2.3*	*2.3*	*3.6*	*2.9*	*3.0*	*4.4*	*3.9*	*6.6*	*10.0*	*11.8*	*15.1*	*10.8*	*13.9*	*16.0*	*19.7*	*17.9*	*22.0*	*23.0*
Gillnet	India	1.0	1.9	2.6	0.8	1.5	1.4	1.2	1.0	1.4	1.4	1.2	1.2	2.4	2.2	10.4	3.1	3.9	7.1	4.9	6.6	8.9	14.1	8.6	8.8	6.9	8.6	12.1
	Iran, Islamic												0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3		0.2	0.2	0.4	0.7	2.5	3.9	1.7
	Pakistan	0.4	0.4	0.4	0.6	0.9	1.3	1.4	1.8	1.8	1.8	1.6	1.5	1.2	1.4	1.1	1.5	1.7	1.6	1.4	0.8	1.4	0.7	1.0	1.3	0.4	0.5	0.8
	Oman	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.6	0.5	0.2	0.6	0.5
	United Arab												0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.0	0.9	0.9	0.8
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.7	0.4	0.3	0.3	0.4	0.8	0.8	0.4	0.7	0.6
	Total	*1.5*	*2.4*	*3.1*	*1.5*	*2.5*	*2.8*	*2.7*	*3.0*	*3.4*	*3.3*	*2.9*	*3.1*	*3.9*	*4.2*	*12.1*	*5.5*	*6.7*	*10.3*	*7.6*	*8.4*	*11.4*	*16.2*	*11.6*	*14.0*	*11.4*	*15.2*	*16.5*
Line	India	0.3	0.5	0.8	0.2	0.4	0.5	0.3	0.3	0.4	0.4	0.3	0.3	0.6	0.6	2.8	0.8	1.1	1.9	1.3	1.7	2.3	3.5	2.1	2.4	1.8	2.3	3.2
	Indonesia	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.4	0.8	1.0	1.3	0.9	1.0	1.5	1.8	1.6	2.0	1.9
	Yemen	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.6	0.7	0.6	1.8	0.9	0.9	0.8	1.1	2.1
	Maldives									0.3	0.3	0.4	0.4	0.3	0.4	0.6	0.5	0.3	0.9	0.9	0.7	0.6	0.9	1.0	1.2	1.3	0.7	1.4
	Other Fleets	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.4	0.6	0.5	0.5	0.4	0.6	0.6	0.9	0.9	1.3	1.1	1.4	1.2
	Total	*0.9*	*1.1*	*1.3*	*0.8*	*1.0*	*1.1*	*1.0*	*1.0*	*1.5*	*1.4*	*1.5*	*1.7*	*1.8*	*1.9*	*4.5*	*2.6*	*2.8*	*4.6*	*4.2*	*5.0*	*5.1*	*8.1*	*6.4*	*7.5*	*6.5*	*7.5*	*9.8*
Other gears	Maldives									0.2	0.2	0.2	0.3	0.2	0.3	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.5	1.0	1.1	0.8	1.0
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2
	Total	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.3*	*0.7*	*0.6*	*0.3*	*0.4*	*0.4*	*0.3*	*0.4*	*0.6*	*0.7*	*1.1*	*1.3*	*1.2*	*1.1*
All	*Total*	*3.7*	*4.9*	*5.9*	*4.0*	*5.5*	*6.5*	*6.0*	*6.2*	*7.6*	*7.3*	*7.0*	*8.6*	*8.9*	*9.5*	*21.7*	*12.6*	*16.3*	*25.3*	*23.9*	*28.8*	*27.7*	*38.7*	*34.7*	*42.4*	*37.1*	*45.9*	*50.5*

Gear	Fleet	Av04/08	Av59/08	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
Purse seine	Indonesia	34.0	16.9	18.4	17.4	19.5	22.4	16.6	20.5	17.0	27.8	33.6	33.0	35.0	35.9	34.5	37.5	39.6	32.6	35.0	36.1	39.5	24.1	37.4	34.4	34.4
	Malaysia	10.0	3.0	2.2	1.4	1.9	2.1	3.1	3.4	5.5	3.4	1.9	2.4	4.0	4.2	6.1	5.4	6.9	6.0	10.1	8.7	8.5	7.8	11.4	12.4	10.0
	Thailand	8.5	2.9	0.7	4.5	2.2	2.2	4.5	7.0	7.7	7.2	5.7	8.6	6.4	5.9	4.3	2.6	6.3	6.2	4.9	7.0	7.0	9.7	9.0	8.5	8.4
	India	4.5	1.2	1.4	1.0	1.2	2.1	2.6	1.2	1.5	1.2	0.9	1.1	1.0	1.3	1.2	1.6	1.6	1.4	1.6	1.7	1.0	0.4	1.0	8.5	11.8
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	Total	*57.1*	*24.1*	*22.8*	*24.3*	*24.7*	*28.8*	*26.8*	*32.1*	*31.7*	*39.6*	*42.2*	*45.2*	*46.4*	*47.4*	*46.2*	*47.1*	*54.5*	*46.2*	*51.6*	*53.6*	*56.0*	*42.1*	*58.9*	*64.0*	*64.7*
Gillnet	India	15.3	9.5	13.3	10.1	11.1	19.3	24.0	13.8	17.4	13.8	9.7	12.1	11.1	15.3	14.1	17.8	18.5	15.8	18.3	18.0	12.4	17.4	20.8	11.0	15.1
	Iran, Islamic R.	14.4	3.7	1.9	0.6	2.2	0.8	0.7	0.7	0.7	0.5	2.1	3.9	5.7	7.8	7.9	10.9	13.5	12.5	16.4	14.1	11.6	11.8	12.6	15.6	20.4
	Pakistan	3.0	1.7	1.6	2.0	4.1	1.4	2.1	1.9	1.5	1.5	1.7	1.4	3.0	2.9	3.0	3.6	3.1	2.3	2.0	2.2	2.4	2.9	3.2	3.2	3.2
	Sri Lanka	2.0	0.5	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.1	1.1	1.2	1.5	2.2	2.2	1.4	0.4	1.2	0.8	0.6	1.3	1.6	2.2	3.0	2.0
	Oman	1.3	0.7	0.6	1.4	1.9	1.1	1.2	0.4	1.0	0.6	0.5	1.2	1.5	1.8	1.3	1.0	1.1	1.3	1.0	2.1	1.6	1.2	1.4	1.3	1.2
	UAE	0.6	0.8	1.2	1.8	1.9	2.0	2.1	2.0	2.1	1.2	2.3	2.1	2.1	2.2	2.2	2.2	0.7	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.6
	Other Fleets	2.2	0.8	0.6	0.7	1.0	0.8	1.0	1.2	1.3	1.1	1.2	1.4	1.2	1.7	2.0	1.4	1.4	1.1	1.3	2.2	1.6	1.2	2.6	2.7	2.7
	Total	*38.9*	*17.7*	*19.2*	*16.8*	*22.2*	*25.6*	*31.2*	*20.0*	*24.1*	*18.8*	*18.7*	*23.3*	*26.1*	*33.8*	*32.6*	*38.4*	*38.7*	*35.1*	*40.5*	*39.9*	*31.5*	*36.7*	*43.3*	*37.4*	*45.4*
Line	India	5.2	2.8	3.5	2.8	3.0	4.9	6.1	4.3	5.5	4.3	3.0	3.8	3.5	4.8	4.4	5.6	5.8	4.9	5.7	5.4	4.2	4.5	8.8	4.4	4.3
	Indonesia	3.6	1.8	1.9	1.8	2.0	2.4	1.7	2.2	1.8	2.9	3.5	3.5	3.7	3.8	3.6	3.9	4.2	3.4	3.7	3.8	4.1	6.2	0.3	3.6	3.6
	Yemen	2.8	1.2	1.4	1.3	1.7	1.3	1.6	1.7	1.7	0.6	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.6	1.5	3.0	2.9	2.5	2.8	2.8
	Maldives	0.5	0.6	0.7	0.9	0.6	0.8	1.0	0.8	1.2	1.9	0.9	1.0	1.2	0.6	1.4	0.5	0.5	0.4	0.4	0.5	0.5	0.6	0.3	0.9	0.4
	Other Fleets	1.8	1.1	1.3	3.3	2.2	1.7	1.8	2.3	2.1	1.6	2.3	2.0	1.6	2.0	1.4	1.4	1.1	1.3	1.0	1.3	1.4	1.7	1.9	1.9	1.9
	Total	*13.9*	*7.5*	*8.8*	*10.2*	*9.5*	*11.1*	*12.3*	*11.2*	*12.2*	*11.3*	*11.0*	*11.5*	*11.4*	*12.8*	*12.7*	*13.4*	*13.8*	*12.5*	*13.4*	*12.5*	*13.2*	*15.8*	*13.8*	*13.7*	*13.0*
Other gears	Maldives	1.8	0.8	0.6	0.5	0.6	0.6	1.0	0.8	1.3	1.7	1.7	1.7	2.6	1.5	2.2	1.2	1.4	1.7	1.8	1.9	1.8	2.1	1.3	1.8	1.7
	Other Fleets	1.5	0.3	0.2	0.5	0.6	0.3	0.4	0.0	0.1	0.1	0.1	0.3	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.4	4.6	1.9
	Total	*3.2*	*1.1*	*0.8*	*1.0*	*1.2*	*0.9*	*1.3*	*0.9*	*1.4*	*1.7*	*1.8*	*2.1*	*3.1*	*1.6*	*2.4*	*1.3*	*1.5*	*1.8*	*1.9*	*2.2*	*2.1*	*2.4*	*1.7*	*6.4*	*3.6*
All	*Total*	*113.1*	*50.4*	*51.5*	*52.2*	*57.7*	*66.4*	*71.6*	*64.3*	*69.4*	*71.4*	*73.7*	*82.0*	*87.0*	*95.5*	*93.9*	*100.2*	*108.5*	*95.7*	*107.4*	*108.2*	*102.8*	*97.0*	*117.8*	*121.4*	*126.7*

***Table 5**. Best scientific estimates of the catches of Narrow-barred Spanish mackerel (COM) by gear and main fleets for the period 1959-2008 (in thousands of tonnes)*

	Fleet	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Gillnet	India	2.0	2.6	3.4	3.2	2.7	3.1	2.6	2.8	2.7	3.8	3.3	3.8	5.5	6.0	6.1	6.6	6.3	7.3	5.3	5.1	7.9	9.3	7.8	11.0	10.0	10.6	9.3
	Indonesia	1.8	1.8	1.8	2.4	2.4	2.4	2.4	3.0	3.0	3.0	3.0	2.4	3.0	3.6	3.6	4.6	6.5	2.2	3.0	2.6	2.3	3.7	2.7	3.4	4.2	3.5	3.4
	Iran, Islamic R.																								0.1	1.4	0.6	0.7
	Pakistan	1.1	1.3	1.2	1.8	2.7	3.7	4.0	5.4	5.3	5.3	4.8	4.3	3.4	7.5	4.8	4.4	3.1	3.7	5.4	5.8	9.1	1.9	7.2	7.3	7.9	6.8	7.3
	UAE	1.6	1.6	1.6	1.8	1.8	1.8	2.0	2.0	2.1	2.1	2.1	2.2	2.4	2.4	2.4	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.5	6.5	5.4	5.4	4.2
	Sri Lanka	1.2	1.2	1.3	2.1	3.0	2.6	2.2	3.8	5.4	5.3	5.2	3.9	2.6	2.9	3.3	3.2	3.1	3.9	3.8	3.8	4.4	6.1	5.0	4.4	4.0	3.7	3.8
	Saudi Arabia																							0.6	0.5	0.7	0.8	7.1
	Qatar																								0.2	0.2	0.3	0.3
	Oman	0.9	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.1	3.6	4.2	4.8	5.1	5.5	5.1	6.3	6.0	4.4	2.0	5.8	10.9
	Malaysia	0.4	0.4	0.5	0.5	0.5	1.1	1.4	1.6	1.3	1.4	1.4								3.0	3.2	3.5	2.9	3.4	4.0	3.5	2.2	2.7
	Other Fleets	0.0				0.0	0.0	0.5	0.2	0.1	0.0	0.0	0.7	0.7	0.8	0.9	0.8	1.0	1.7	2.8	1.9	2.3	1.8	3.3	2.8	2.7	1.8	2.6
	Total	*8.9*	*9.5*	*10.4*	*12.6*	*13.8*	*15.5*	*16.0*	*19.5*	*20.8*	*21.8*	*20.7*	*18.2*	*18.6*	*24.2*	*22.2*	*26.9*	*27.9*	*27.1*	*31.8*	*31.6*	*38.3*	*35.5*	*39.5*	*44.7*	*41.9*	*41.5*	*52.4*
Line	Indonesia	1.3	1.3	1.3	1.8	1.8	1.8	1.8	2.2	2.2	2.2	2.2	1.8	2.2	2.7	2.7	3.4	4.8	1.6	2.2	1.9	1.7	2.7	2.0	2.5	3.1	2.6	2.5
	India	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.8	0.9	0.9	1.0	0.9	1.1	0.8	0.7	1.1	1.4	1.1	1.6	1.5	1.5	1.4
	Saudi Arabia																							0.2	0.2	0.3	0.4	1.2
	Yemen	1.0	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0	0.8	0.9	1.0	1.1	2.6	3.1	3.5	3.7	4.0	3.7	4.1	3.3	2.9	0.9	4.5	3.5
	Oman	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.6	1.9	2.2	2.5	2.7	2.9	2.7	3.3	3.1	2.3	1.0	3.0	5.7
	Other Fleets	0.8	0.6	0.6	0.8	1.1	1.0	1.0	1.4	1.7	1.8	1.7	1.1	0.9	0.9	1.0	1.0	1.1	1.3	1.4	1.4	1.5	2.6	2.0	1.5	2.4	2.2	2.0
	Total	*3.9*	*3.5*	*3.6*	*4.3*	*4.5*	*4.4*	*4.5*	*5.3*	*5.8*	*6.0*	*5.9*	*4.7*	*5.3*	*5.9*	*6.2*	*9.9*	*12.0*	*9.9*	*10.6*	*11.0*	*10.7*	*14.1*	*11.8*	*11.0*	*9.2*	*14.2*	*16.3*
Other gears	India	1.2	1.6	2.1	2.0	1.7	1.9	1.6	1.7	1.7	2.3	2.0	2.3	3.4	3.6	3.7	4.0	3.8	4.5	3.2	3.1	4.8	5.7	4.8	6.7	6.1	6.5	5.7
	Thailand												0.1	0.5	0.3	0.1	0.0	0.1	0.7	0.2	0.1	0.1	0.5	0.4	1.3	1.4	0.7	0.9
	Indonesia	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.8	1.1	0.4	0.5	0.4	0.4	0.6	0.4	0.6	0.7	0.6	0.6
	Oman	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1.2	1.4	1.6	1.7	1.8	1.7	2.1	2.0	1.5	0.6	1.9	3.6
	Other Fleets	0.0				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.9	0.6	0.3	0.5	0.4	0.6	0.8	0.7	0.6	0.4	0.0	0.6	0.1	0.1	0.0
	Total	*1.8*	*2.1*	*2.6*	*2.6*	*2.3*	*2.5*	*2.3*	*2.5*	*2.5*	*3.1*	*2.9*	*3.9*	*5.6*	*5.5*	*5.1*	*6.5*	*6.8*	*7.8*	*6.4*	*6.2*	*7.5*	*9.2*	*7.7*	*10.7*	*9.0*	*9.7*	*10.8*
All	*Total*	*14.5*	*15.1*	*16.6*	*19.5*	*20.6*	*22.5*	*22.7*	*27.2*	*29.1*	*30.9*	*29.5*	*26.8*	*29.4*	*35.7*	*33.5*	*43.3*	*46.7*	*44.8*	*48.8*	*48.7*	*56.5*	*58.8*	*58.9*	*66.4*	*60.1*	*65.5*	*79.5*

Gear	Fleet	Av04/08	Av59/08	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
Gillnet	India	19.4	10.2	13.3	10.3	11.7	12.3	9.1	9.8	13.9	11.8	14.0	16.3	14.0	14.5	18.3	17.7	20.8	15.7	20.6	19.4	15.7	13.7	21.4	25.9	20.3
	Indonesia	12.7	5.6	4.2	4.7	5.6	5.4	4.9	5.7	6.1	7.7	7.1	7.4	8.6	8.0	8.9	8.5	10.0	11.5	9.4	9.9	12.4	1.6	24.1	12.8	12.8
	Iran, Islamic R.	8.0	2.4	0.7	1.1	1.0	2.5	3.4	3.7	3.3	2.9	3.1	11.1	3.6	3.9	4.0	4.6	7.1	6.1	8.6	8.1	7.1	5.9	8.3	8.9	9.9
	Pakistan	7.6	6.6	7.5	7.7	10.1	6.8	6.2	10.0	8.4	8.4	7.2	8.6	10.1	12.5	12.7	13.1	10.6	9.3	7.9	8.5	8.8	7.2	7.0	7.4	7.4
	UAE	4.1	4.4	6.7	5.7	6.1	6.4	6.3	6.0	6.2	6.2	6.9	6.8	7.1	8.3	8.6	9.0	8.2	9.0	3.3	4.9	4.4	4.0	4.0	4.0	4.0
	Sri Lanka	3.7	3.8	3.9	4.1	4.2	4.3	4.3	4.1	4.1	4.1	4.1	4.7	3.9	4.1	4.6	4.9	4.9	4.7	4.8	4.6	4.2	1.9	3.8	4.2	4.6
	Saudi Arabia	3.0	2.6	7.7	7.0	7.1	6.7	7.6	7.8	7.9	8.3	8.5	6.0	5.0	3.6	4.7	3.7	3.5	4.8	4.0	3.1	2.9	3.0	2.9	3.1	3.1
	Qatar	1.8	0.4	0.1	0.1	0.1	0.2	0.6	0.7	0.8	0.6	0.4	0.3	0.3	0.4	0.6	0.5	0.8	1.0	1.0	1.9	1.5	1.9	2.0	1.8	1.8
	Oman	1.7	3.2	7.7	13.6	15.0	6.0	4.2	1.1	2.2	1.9	1.3	3.3	3.3	4.2	2.3	2.2	1.6	1.8	1.4	2.0	2.0	1.8	1.6	1.7	1.6
	Malaysia	1.1	1.8	3.6	3.9	3.3	2.5	2.8	2.9	3.6	2.9	2.8	2.0	2.2	2.4	3.1	0.7	0.9	1.0	1.8	1.6	1.5	0.8	1.1	1.0	1.0
	Other Fleets	3.1	2.0	2.8	2.9	2.7	2.6	3.4	3.1	3.5	3.1	2.7	3.3	3.5	3.3	3.7	4.0	2.8	3.4	3.4	3.3	2.8	2.7	3.2	3.5	3.5
	Total	*66.3*	*43.2*	*58.3*	*61.2*	*67.1*	*55.8*	*52.8*	*55.2*	*59.9*	*57.9*	*58.0*	*69.7*	*61.5*	*65.1*	*71.6*	*69.0*	*71.2*	*68.5*	*66.1*	*67.4*	*63.2*	*44.5*	*79.4*	*74.2*	*70.0*
Line	Madagascar	12.0	4.6	3.8	7.9	0.4	8.5	10.0	8.0	8.0	10.0	10.0	10.0	10.0	10.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
	Indonesia	9.4	4.1	3.1	3.5	4.1	4.0	3.6	4.2	4.5	5.7	5.2	5.5	6.3	5.9	6.6	6.3	7.3	8.5	6.9	7.3	9.1	18.8	0.1	9.4	9.4
	India	3.7	1.6	1.9	1.5	1.7	1.8	1.3	1.4	2.0	1.7	2.0	2.4	2.0	2.1	2.7	2.6	3.0	2.3	3.0	2.8	2.3	2.8	3.2	5.3	4.7
	Saudi Arabia	2.3	1.0	1.4	2.0	2.3	2.5	1.3	1.4	2.2	2.6	2.9	0.9	1.0	2.3	2.4	2.7	2.4	2.3	2.3	2.7	2.2	2.3	2.2	2.4	2.4
	Yemen	1.7	2.2	3.8	3.3	2.6	2.3	3.1	3.2	2.6	3.1	3.3	3.0	2.4	2.3	2.2	2.2	2.1	2.0	1.9	1.8	1.8	1.8	1.7	1.5	1.5
	Oman	1.3	1.7	4.1	7.2	7.9	3.1	2.2	2.4	1.2	1.1	2.4	1.8	0.7	1.6	0.6	1.1	0.9	0.9	0.6	0.5	1.0	1.4	1.2	1.3	1.3
	Other Fleets	2.3	1.9	2.4	3.5	2.5	2.6	3.0	3.0	2.5	2.4	2.8	2.4	2.5	2.9	2.8	2.3	2.2	2.6	1.7	2.1	2.1	2.0	2.4	2.5	2.5
	Total	*32.6*	*17.1*	*20.6*	*28.8*	*21.5*	*24.8*	*24.5*	*23.6*	*23.0*	*26.6*	*28.6*	*26.1*	*25.1*	*27.0*	*29.2*	*29.1*	*30.0*	*30.6*	*28.5*	*29.3*	*30.6*	*41.1*	*22.9*	*34.5*	*33.9*
Other gears	India	10.1	6.1	8.1	6.3	7.2	7.5	5.5	6.0	8.5	7.2	8.6	9.9	8.6	8.9	11.2	10.8	12.7	9.6	12.6	11.9	10.2	11.7	13.7	7.6	7.1
	Thailand	3.9	1.3	1.4	1.4	0.7	1.6	1.8	1.8	2.4	2.3	1.8	2.8	3.5	3.4	3.1	2.2	2.1	2.1	2.9	2.9	3.3	3.8	4.4	4.1	3.8
	Indonesia	2.1	0.9	0.7	0.8	0.9	0.9	0.8	1.0	1.0	1.3	1.2	1.2	1.4	1.3	1.5	1.4	1.7	1.9	1.6	1.6	2.1	4.1	0.2	2.1	2.1
	Oman	0.2	0.9	2.5	4.5	5.0	2.0	1.4	0.1	0.2	0.1	0.2	1.0	1.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1
	Other Fleets	1.7	0.6	0.4	0.6	0.3	0.4	0.1	0.3	0.4	0.4	0.5	0.2	0.2	0.5	0.6	1.7	1.8	1.2	1.8	1.5	1.1	1.7	3.3	1.3	1.2
	Total	*17.9*	*9.8*	*13.2*	*13.6*	*14.1*	*12.3*	*9.7*	*9.2*	*12.6*	*11.3*	*12.3*	*15.1*	*14.8*	*14.3*	*16.6*	*16.2*	*18.3*	*14.9*	*18.9*	*18.1*	*16.8*	*21.4*	*21.6*	*15.3*	*14.3*
All	*Total*	*116.8*	*70.1*	*92.1*	*103.6*	*102.6*	*92.9*	*87.0*	*87.9*	*95.5*	*95.8*	*99.0*	*110.8*	*101.4*	*106.5*	*117.5*	*114.3*	*119.4*	*113.9*	*113.5*	*114.9*	*110.6*	*107.1*	*124.0*	*124.0*	*118.2*

***Table 6**. Best scientific estimates of the catches of Indo-Pacific king mackerel (GUT) by gear and main fleets for the period 1958-2007 (in thousands of tonnes)*

	Fleet	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Gillnet	India	1.8	2.3	3.1	2.9	2.4	3.2	2.7	2.9	2.9	3.5	3.2	3.8	4.8	6.0	3.9	7.0	6.2	6.9	5.3	4.9	7.6	8.2	7.7	7.8	7.8	11.2	9.8
	Indonesia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.6	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.5	0.5	0.7
	Iran, Islamic R.																								1.4	1.6	0.9	0.5
	Saudi Arabia																							0.0	0.0	0.0	0.0	0.0
	Malaysia	0.2	0.2	0.2	0.2	0.2	0.5	0.6	0.7	0.6	0.6	0.6								1.3	1.4	1.6	1.3	1.5	1.8	1.5	1.0	1.2
	Thailand												0.0		0.0	0.2	0.1	0.1	0.2	0.6	0.4	0.6	0.5	0.6	0.2	0.1	0.2	0.3
	Pakistan	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.5	0.1	0.4	0.4	0.4	0.4	0.4
	Other Fleets												0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
	Total	*2.2*	*2.7*	*3.6*	*3.5*	*3.0*	*4.1*	*3.8*	*4.2*	*4.0*	*4.7*	*4.3*	*4.3*	*5.3*	*6.8*	*4.7*	*7.7*	*7.0*	*7.6*	*7.7*	*7.2*	*10.5*	*10.3*	*10.5*	*12.2*	*12.1*	*14.1*	*13.0*
Line	Indonesia	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.5	0.4	0.7
	India	0.3	0.3	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.7	0.9	0.6	1.0	0.9	1.0	0.8	0.7	1.1	1.2	1.1	1.1	1.1	1.6	1.4
	Yemen	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.6	0.5	0.1	0.8	0.6
	Other Fleets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	*0.6*	*0.6*	*0.7*	*0.8*	*0.7*	*0.8*	*0.8*	*0.8*	*0.9*	*1.0*	*0.9*	*0.9*	*1.1*	*1.4*	*1.1*	*1.9*	*2.0*	*1.9*	*1.6*	*1.6*	*2.0*	*2.2*	*2.0*	*2.2*	*1.8*	*2.9*	*2.8*
Other gears	India	1.1	1.4	1.9	1.8	1.5	2.0	1.6	1.8	1.7	2.2	1.9	2.3	3.0	3.7	2.4	4.3	3.8	4.2	3.2	3.0	4.6	5.0	4.7	4.8	4.8	6.9	6.0
	Thailand												0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Malaysia																				0.0	0.0	0.0		0.0	0.0	0.0	
	Other Fleets	0.0				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
	Total	*1.1*	*1.4*	*1.9*	*1.8*	*1.5*	*2.0*	*1.6*	*1.8*	*1.7*	*2.2*	*1.9*	*2.3*	*3.0*	*3.7*	*2.4*	*4.3*	*3.8*	*4.2*	*3.2*	*3.0*	*4.7*	*5.0*	*4.7*	*4.8*	*4.9*	*6.9*	*6.0*
All	*Total*	*3.8*	*4.8*	*6.2*	*6.1*	*5.2*	*6.9*	*6.2*	*6.8*	*6.6*	*7.8*	*7.1*	*7.5*	*9.4*	*11.8*	*8.1*	*13.9*	*12.8*	*13.7*	*12.5*	*11.8*	*17.2*	*17.5*	*17.2*	*19.2*	*18.8*	*23.9*	*21.8*

Gear	Fleet	Av04/08	Av59/08	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
Gillnet	India	11.0	7.1	5.5	7.1	8.6	10.3	7.5	11.4	9.9	12.1	9.3	9.8	7.2	8.2	12.8	7.9	7.8	8.5	9.3	8.7	7.0	6.1	5.9	17.1	19.0
	Indonesia	5.4	2.3	0.7	0.8	4.8	5.9	2.8	2.4	1.0	4.6	2.9	5.5	7.1	6.1	6.1	5.8	6.0	6.8	4.9	5.4	7.3	4.9	4.9	4.9	4.9
	Iran, Islamic R.	3.8	1.4	0.5	0.7	0.7	1.7	2.3	2.5	2.2	1.6	1.6	5.4	4.3	2.3	3.9	3.5	4.1	2.5	4.0	3.7	4.3	3.1	4.0	3.7	4.0
	Saudi Arabia	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.6	1.0	1.1	1.1
	Malaysia	0.5	0.8	1.6	1.7	1.5	1.1	1.2	1.3	1.6	1.3	1.3	0.9	1.0	1.0	1.4	0.3	0.4	0.5	0.8	0.7	0.6	0.4	0.5	0.4	0.4
	Thailand	0.1	0.3	0.2	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.6	0.5	0.5	0.6	0.8	0.2	0.4	0.5	0.5	0.2	0.1	0.1	0.2	0.1
	Pakistan		0.2	0.6	0.6	0.7	0.0	0.1	0.9	0.0					0.1	0.1	0.4	0.3	0.2							
	Other Fleets	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1
	Total	*21.8*	*12.3*	*9.2*	*11.6*	*16.7*	*19.5*	*14.4*	*18.9*	*15.3*	*20.3*	*15.6*	*22.3*	*20.3*	*18.7*	*25.5*	*19.1*	*19.5*	*19.3*	*20.1*	*19.5*	*20.0*	*15.3*	*16.6*	*27.5*	*29.6*
Line	Indonesia	5.1	2.2	0.7	0.8	4.5	5.6	2.6	2.3	0.9	4.3	2.8	5.1	6.7	5.8	5.7	5.4	5.7	6.4	4.6	5.1	6.9	4.6	4.6	4.6	4.6
	India	0.8	1.0	0.8	1.0	1.3	1.5	1.1	1.7	1.4	1.8	1.4	1.4	1.1	1.2	1.9	1.1	1.1	1.2	1.4	1.3	1.0	1.2	0.9	0.6	0.4
	Yemen	0.2	0.4	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.1
	Other Fleets	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1
	Total	*6.2*	*3.5*	*2.2*	*2.4*	*6.3*	*7.6*	*4.3*	*4.5*	*2.9*	*6.6*	*4.8*	*7.1*	*8.2*	*7.4*	*8.0*	*7.0*	*7.2*	*8.0*	*6.3*	*6.7*	*8.3*	*6.1*	*5.7*	*5.5*	*5.3*
Other gears	India	4.3	4.1	3.4	4.4	5.3	6.3	4.6	7.0	6.1	7.4	5.7	6.0	4.4	5.0	7.9	4.8	4.8	5.2	5.7	5.3	4.6	4.9	3.8	3.7	4.4
	Thailand	3.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	1.8	1.8	2.0	0.1	1.3	1.6	1.9	1.9	2.5	3.0	3.4	3.1	2.9
	Malaysia	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.2	0.8	0.7	0.7	0.6	0.6	0.7	0.7	0.6
	Other Fleets	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.3
	Total	*8.2*	*4.9*	*3.4*	*4.4*	*5.3*	*6.4*	*4.6*	*7.1*	*6.1*	*7.4*	*5.7*	*6.0*	*6.2*	*6.8*	*9.8*	*5.9*	*7.4*	*7.6*	*8.4*	*7.9*	*7.8*	*8.7*	*8.2*	*7.9*	*8.2*
All	*Total*	*36.2*	*20.7*	*14.8*	*18.4*	*28.3*	*33.5*	*23.3*	*30.5*	*24.3*	*34.3*	*26.1*	*35.5*	*34.7*	*32.9*	*43.3*	*32.1*	*34.1*	*34.9*	*34.9*	*34.1*	*36.1*	*30.1*	*30.5*	*40.8*	*43.2*