

## Sub-Committee on Data Collection and Statistics

Second Session, Victoria, Seychelles 7 November 2005

### Progress Report of the Secretariat

#### DATA COLLECTION: AVAILABILITY OF IOTC STATISTICS FOR 2004

Table 2 lists the fleets of countries to which the Secretariat sent data requests during the year 2005. The countries are sorted by their most recent catches and the status regarding the availability of catches, effort, size frequency and craft statistics indicated through different colours. Timeliness of reporting and data source are also shown in each case.

**Timeliness of reporting:** Nineteen countries (10 in 2004) submitted statistics to IOTC before the deadline of June 30. Partial statistics were submitted in most cases. Requests were sent to **58 countries**<sup>1</sup> in April-May 2005. Second and third requests were needed in most cases. The amount of data available before the deadline was considerably higher than that recorded in 2003.

Table 1 below shows the catches for 2004 available in the IOTC Nominal Catches (NC) database by the deadline for data submission and by 20th October 2005. The 40% of the catch was still not available by the deadline, with only the 63% of the catches available before October 20<sup>th</sup>, 2005.

Late reports also compromise the validation and verification of data, especially when data are submitted close to or during Working Party meetings.

**Table 1.** Proportion of the NC, CE and SF statistics available at the IOTC Secretariat compared to the total catches estimated for 2004 (20th October 2005) and proportion of catches reported by official sources (SO) *versus* total catches so far available.

2005	NC	CE	SF	SO
Total Catch Estimated	1,525	1,525	1,525	1,243
Available 30/06/2005	934	676	846	
% Available 30/6/2005	61	44	55	
Available 20/10/2005	961	703	855	1,115
% Available 20/10/2005	<b>63</b>	<b>46</b>	<b>56</b>	90
% Available 11/2004	66	41	12	100

**Completeness of statistics:** Table 1 above summarizes the availability of statistics to IOTC as of June 30<sup>th</sup> and October 20<sup>th</sup>, 2005. The proportion of statistics available for 2003 is shown for comparison. Levels of reporting therefore improved in 2005, especially regarding catch and effort and size data.

Complete sets of data (NC, CE, SF) for 2004 are only available for the European Community, Sri Lanka, and Seychelles<sup>2</sup>. More details about the amount of data available regarding the different types of data gathered by the IOTC Secretariat can be found below:

- **Nominal Catches:** The amount of Nominal Catch data available at the Secretariat for 2004 is slightly lower than that for 2003. Either partial or complete sets of NC are available for 26 out of the 55 fleets<sup>3</sup> that operated in the Indian Ocean during 2004.

<sup>1</sup> Note that specific requests were sent to EC countries having vessels known to operate in the IOTC Area (Spain, France, Portugal and Italy)

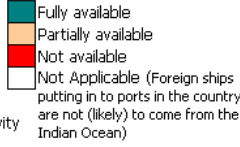
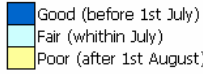

<sup>2</sup> This refers to fleets whose catches amounted to more than 10,000 tonnes in 2004.

<sup>3</sup> Considering all EC vessels as a single fleet

**Table 2: Availability of IOTC statistics for the year 2004**

FLEET	Catch	NC	CE	SF	DI	FC	FT	VR	TI	SO
EUROPEAN COMMUNITY	280.7									
INDONESIA	221.7									
IRAN, ISLAMIC REPUBLIC	178.4									
MALDIVES	138.2									
CHINA	9.1									
TAIWAN, CHINA	121.7									
SRI LANKA	121.2									
SEYCHELLES	89.5									
INDIA	86.0									
YEMEN	42.2									
JAPAN	40.1									
PAKISTAN	24.7									
OMAN	23.0									
THAILAND	17.8									
MALAYSIA	16.2									
MADAGASCAR	12.1									
COMOROS	10.2									
UNITED ARAB EMIRATES	8.5									
KOREA, REPUBLIC OF	7.7									
AUSTRALIA	6.9									
SAUDI ARABIA	6.5									
NETHERLANDS ANTILLES	3.7									
PHILIPPINES	3.2									
TANZANIA	2.0									
BELIZE	1.9									
MAURITIUS	1.8									
KENYA	1.7									
SOUTH AFRICA	1.4									
ST. VINCENT AND THE GRENADINES	1.3									
EQUATORIAL GUINEA	1.3									
TOGO	1.3									
GEORGIA	1.0									
EGYPT	1.0									
QATAR	1.0									
PANAMA	0.9									
FRANCE OT	0.8									
CAMBODIA	0.7									
GUINEA	0.6									
NAMIBIA	0.3									
ICELAND	0.3									
BOLIVIA	0.3									
UKRAINE	0.3									
URUGUAY	0.3									
ERITREA	0.2									
KUWAIT	0.2									
SENEGAL	0.1									
JORDAN	0.1									
BAHRAIN	0.1									
DJIBOUTI	0.1									
BANGLADESH	0.1									
PAPUA NEW GUINEA	0.0									
SUDAN	0.0									
UNITED KINGDOM (BIOT)	0.0									
EAST TIMOR	0.0									
SINGAPORE	nil									
NEI (PS)	34.7									
NEI (LL)	0.1									

**Key Table 2**

<b>Catch</b>	Recent catches amounting to (thousands of tonnes) (accounting only for IOTC species)	
<b>NC</b> <b>CE</b> <b>SF</b> <b>DI</b> <b>FC</b> <b>FT</b> <b>VR</b>	Nominal Catch Catch and Effort Size Frequency Discards Fishing Craft Foreign Tuna Vessels Activity List of Active Vessels	
<b>TI</b> (refers to first dataset available)	Timeliness	
<b>SD</b> (refers to nominal catch data)	Data Source	

The statistics recorded for several fleets are thought better quality than those available before. This is the case with Indonesia and Yemen.

To date, no data or only partial nominal catch statistics have been received from several member or cooperating non member parties, namely Oman, Madagascar, Comoros, Kenya, South Africa, France OT, Guinea, Eritrea and Sudan. Furthermore, 2003 nominal catches needed to be estimated for Madagascar, Comoros, Kenya, Sudan and Eritrea.

Other important fishing parties with NC statistics not or only partially available are Maldives, Yemen, Saudi Arabia, Tanzania and Belize. The catches of non-reporting longline fleets operating under several flags (Bolivia, Namibia, Papua New Guinea, Cambodia, Georgia, Togo, Ukraine, Uruguay, Equatorial Guinea, Panama, etc.) usually recorded under NEI are mostly unreported for 2004.

- **Catch and effort and size-frequency statistics:** Catch and effort statistics are available for 14 fleets (12 from IOTC members or CNMP) and size-frequency data from 11 fleets (9 from IOTC members or CNMP). The statistics available for Iran (industrial purse seiners), Seychelles (deep-freezing longliners), and the European Community (EC) (longline fleets and supply vessels) are incomplete.
- **Discards:** Discards are only available for Australia, Sri Lanka and the EC in 2004, despite the fact that discard rates are presumed high, especially from longliners and in purse seiners setting on logs.
- **Fishing craft statistics:** Fishing craft statistics are usually available for fleets whose catches are available. Craft statistics are not available, incomplete or inaccurate for many artisanal fleets. The number of non-reporting vessels operating in the Indian Ocean for the period 1992-2004 was re-estimated this year from new information collected through the IOTC Sampling Programs and new vessel records.
- **List of Active Vessels and Foreign Tuna Vessel Activity:** New data were received at the Secretariat during the year 2005, regarding both domestic and foreign fleets. Belize, UK, South Africa and Sri Lanka submitted lists of ships operating in the Indian Ocean for the year 2004. Nevertheless, the number of ships operating under several flags, including Taiwan, China (fresh-tuna longliners), Equatorial Guinea, Panama, Bolivia, Togo, Namibia, Uruguay, Ukraine and Cambodia, is still uncertain.
- **Data source:** The statistics available come usually from the flag country. However, the statistics of some purse seine fleets operating under some non-EC flags are usually reported by the scientists covering the EC fleet.

## STATUS OF THE IOTC NOMINAL CATCHES (NC), CATCH AND EFFORT (CE) AND SIZE FREQUENCY (SF) DATABASES

### ❖ Main Progress Achieved during 2005

The main progress achieved in the collection and verification of the data in the IOTC NC, CE and SF databases are summarized in Table 3 below (more information is provided in Annex in the Boxes referred to in FLAG):

**Table 3: Status of the IOTC NC, CE and SF tables: Main Progress Achieved during 2004**

DB	FLAG/S	PERIOD	SPECIES	DETAILS OF ACTIVITY	SOURCES	CHANGES IN DATA
NC	ALL ( BOX 1 )	1950-2004	ALL	Disaggregation of catches recorded under gear and/or species aggregates in the IOTC database	Nominal Catches tables in the IOTC Database (WPTT-04-06)	No changes in the IOTC Database; the decomposition of the catches was conducted for the WPTT
	Indonesia ( BOX 4 )	2002-2004	BET, YFT, SWO	New catches available for longline fleets	DGCF/RIMF/CSIRO/IOTC OFCF Sampling in Bena, Jakarta and Cilacap	New estimates of catches of longline vessels unloaded in Bena (Jakarta and Cilacap catches currently under estimation)
	Non-reporting fresh tuna longliners operating under several flags ( BOX 2 A )	2003-2004	YFT, BET, SWO	Re-estimation of the catches of non-reporting fresh tuna longliners thanks to the new information available (IOTC/OFCF Program)	AFRDEC Sampling FRI Sampling NARA Sampling MFA Maldives SFA background information	Increase in current catch levels
	Non-reporting deep-freezing longliners ( BOX 2 B )	2000-2004	YFT, BET, ALB, SBF	New review of the series of catches from data collected recently	IOTC Vessel Records IOTC Activity Records	Change in recent year catches
	Non-reporting industrial purse seiners ( BOX 2 C )	2003-2004	SKJ, YFT, BET	New review of catches	EC Japan IOTC Vessel Records IOTC Activity Records	Catches estimated according to average catches per vessel in previous years. Slight changes in total catches and species composition
	Yemen ( BOX 3 )	1950-2004	YFT	New review of catches	World Bank reports Private (consultants)	Dramatic Increase in catches of yellowfin tuna
CE	Sri Lanka	1994-2002	YFT, BET, ALB, SBF, SWO	Detailed Catch and effort data extracted from NARA Database	NARA Pelagos Database	New catch and effort data input for 1994-02 (data need further verification)
	Taiwan,China	1991-1993 2003-2004	YFT, BET	New catches and effort data available	Data downloaded from the Internet	New Catches and effort input
SF	China, Taiwan,China, Indonesia Other fresh-tuna longliners ( BOX 4 )	1998-2004	YFT, BET, SWO	Validation and verification of size frequency records (fresh tuna longliners) for data input Estimation of CAS for fresh-tuna longliners	IOTC Sampling Programmes Ship operators (processing plants)	Size data input to the IOTC database
	Sri Lanka	1994-2004	YFT, SKJ, SWO, MARL, SKH	New Size Frequency Data available	NARA Pelagos Database	New data input (need further verification)
	Taiwan,China	1980-2003	YFT, BET, SWO, ALB	New data from DWF longliners from Taiwan,China	Data downloaded from the internet	New data input
	ALL	1950-2004	YFT, BET	Building of Catch-At-Size and Catch-At-Age matrices	IOTC Database Background information	Information prepared for the WPTT and SC; no new data input

### ❖ Problem Areas Identified

Despite the progress achieved regarding the statistics in the IOTC NC, CE and SF databases in recent years, there are still several problems regarding the completeness and quality of the data which should be addressed. The

main areas of concern regarding the statistics in these databases are summarized in Table 4 below. Additional documentation about each case is provided in the different Boxes referred to in **PROBLEM**, found in the pages following the Table.

**Table 4: Status of the IOTC NC, CE and SF databases: Problem Areas Identified**

DB	PROBLEM	SPECIES	FLAG/S	PERIOD	REASON/S	PROPOSED ACTION/S
NC	Statistics not available from the flag country <b>( BOX 5 )</b>	YFT, BET, ALB, SBF, SWO, BIL	TWN (fresh-tuna longliners), PAN, HND, GNQ, BOL, KHM, NAM, TGO, UKR	1980 to Date	Fisheries not monitored by the flag countries	Continue collecting data through the IOTC sampling schemes (fresh-tuna longliners) Identify the fleets for which important tuna catches have been unreported over the years (through retrieval of vessel and, especially, activity records)
		Mainly tropical and neritic tunas	YEM, COM MDG, SOM, MOZ, MMR, KEN, TZA	Various	Statistical system unable to produce reliable estimates of catches (as regards IOTC species)	Identify the deficiencies in data collection and processing in the countries concerned
		All	ARE	Various	Statistics probably available at the country level but not reported	Identify the reasons why the catches are not reported by the flag countries
	Species and/or gear aggregation <b>( BOX 6 )</b>	Neritic Tunas Billfish	IDN, IND, THA, LKA, PAK, NEI-SUN	1950 to date	Statistical systems unable to produce detailed estimates of catches	Identify the deficiencies in data collection and processing in the countries concerned
	Poor quality <b>( BOX 7 )</b>	All	Non-reporting DWFNs, BLZ, PAK, LKA, THA, IND, IDN	Various	The catches available are thought unreliable or inaccurate due to inconsistencies found during the verification processes or to the many assumptions made to produce the final catches	Continue the collection of past and recent data through the IOTC sampling programmes in ports of call of fresh-tuna longliners. Continue with the collection of activity records of non reporting fleets Identify the reasons why the catches provided by several countries are of poor quality
DI	Statistics not available from the flag country or highly aggregated <b>( BOX 9 )</b>	Undersized or spoiled tunas (YFT, BET, SKJ), Sharks, low-value or spoiled billfishes (SSP, SFA) and other species	All, especially industrial fleets	1952 to date	Most of the discards are unreported and when reported they are usually incomplete and highly aggregated	Collect data on industrial fisheries through observer programs
CE & SF	Statistics not available from the flag country <b>( BOX 8 )</b>	All, especially Neritic tunas and Billfish	Many artisanal, PHL (SF), SYC (SF), Industrial PS (Effort supply vessels and FADs) and non-reporting DWFNs	1950 to date	Catch and effort (size frequency) statistics not collected by the flag country	Assess the availability of records from other sources, especially in fleets which the retrieval of catch and effort (size frequency) records is considered important
					Statistical systems unable to produce reliable catch and effort (size frequency) estimates	Identify the deficiencies in data collection and processing in the countries concerned
					Catch and effort (size frequency) statistics collected by the flag country but no or incompletely reported to the IOTC	Identify the reasons why the catch and effort (size frequency) records are not reported by the flag countries
	Poor Quality	Tropical Tunas Billfish	KOR (CE/SF), TWN (CE), PHL (CE), JPN (SF)	Various	Inconsistencies found during the validation and verification of catch and effort (size frequency) records or communicated by the sources reporting the data	Identify the reasons why the data are inconsistent and the ways in which these inconsistencies might be reduced (this would require a perfect knowledge about the way the catch and effort statistics are collected and processed in the country reporting the data)
					Low coverage	Identify the reasons why the fleets concerned are poorly covered and the ways in which the fleets might be better monitored Assess the availability of records from other sources, especially in fleets which the retrieval of catch and effort (size frequency) records is considered important

## STATUS OF THE IOTC FISHING CRAFT STATISTICS (FC), FOREIGN TUNA VESSEL ACTIVITY (FTVA) AND VESSEL RECORD (VR) DATABASES

### ❖ Data Availability

Data from artisanal fisheries are scarce and inconsistent in many cases. On the contrary, the statistics of industrial fleets are thought fairly complete:

**Purse seine fleets:** The number of purse seiners fishing for tropical tunas on the high seas (usually referred to as “industrial”) is well known. This fleet is flagged mainly from the European Community, Seychelles, Iran, Japan and Thailand.

**Longline fleets:** There are many more longline fleets fishing tuna in the Indian Ocean, mainly under the flags of China, Taiwan, China, Indonesia, Japan, the Republic of Korea, Philippines, the EC, Seychelles, Equatorial Guinea, Honduras, South Africa, Australia, Vanuatu, Belize, Cambodia, Namibia, Senegal, Togo, Ukraine, Bolivia, Uruguay and Panama. The total number of non-reporting longliners has been estimated for 2003-04.

### ❖ Main Progress Achieved during 2005

The progress achieved in the collection and verification of the data in the IOTC FC, FTVA and VR databases is summarized in the Table 5 below.

Table 5: Status of the IOTC FC, VR and FTVA databases: main progress achieved

DB	FLAG/S	SOURCES	PERIOD	DETAILS	MAIN RESULTS
FC	Non reporting DWFNs	IOTC Vessel Record IOTC Activity Record	2000-04	Review to complete the craft statistics	Number of non-reporting deep-freezing longliners better known: Around 40 in recent years
	Non-reporting Fresh-tuna longliners	IOTC Sampling Programmes WASKI Indonesia DGCF Indonesia CSIRO Australia RIMF Indonesia	2000-04	Review to complete the number of fresh tuna longliners operating in the Indian Ocean	Number of Taiwanese and Indonesian fresh tuna longliners input: Around 2,000 boats in all in recent years.
VR & FTVA	All Industrial	AVA Singapore NARA Sri Lanka MAF Oman AFDEC Thailand (IOTC) USTA & CSP Madagascar DGCF Indonesia EC/Japan (list of IUU vessels)	2000-04	Reporting of foreign tuna fleets putting in to ports or licensed to operating within the EEZ of these countries	New vessel and activity records input
	Belize	INMARBE Belize	2003-04	Submission of names and characteristics of ships fishing for tunas in the Indian Ocean	Number of vessels operating better known

### ❖ Problem Areas Identified

The main area problems identified in the IOTC database concerning the tuna fleets operating in the Indian Ocean are summarized in the Table 6 below. Several alternative actions to undertake to reduce these uncertainties are proposed in the right column.

**Table 6: Status of the IOTC FC, VR and FTVA databases: problem areas identified**

DB	PROBLEM	FLAG/S	PERIOD	REASON/S	PROPOSED ACTION/S
FC	Series incomplete for important longline fleets	TWN (fresh-tuna), IDN, BLZ, PAN, HND, GNQ, BOL, VCT	1980 to date	Lack of information, especially regarding the first years of operation	Continue collecting data through the IOTC sampling schemes (fresh-tuna longliners) Identify the fleets for which important tuna catches have been unreported over the years (through retrieval of vessel and, especially, activity records)
	No data or data inconsistent regarding many artisanal fleets	Many artisanal	1950 to date	Statistics not reported	Identify the reasons why the statistics are not reported by the flag countries
				Statistical systems unable to produce reliable fishing craft statistics	Identify the deficiencies in data collection and processing in the countries concerned
Lack of detailed information	All	1950 to date	Incomplete reporting (vessels not reported according to their size, mechanization, etc.)	Identify the reasons why the statistics reported are not complete	
FTVA & VR	Data not reported	ZAF (foreign fleets) TWN (fresh-tuna), HND, EQG	1998-04	Fleets not monitored by the flag countries Statistics not reported by the flag countries	Continue the collection of information through the IOTC sampling programmes Continue collecting information on foreign fleets from third sources
	Information incomplete or inconsistent	All industrial, especially non-reporting flags	1995-04	Ship names, identification or characteristics mistakenly recorded Ship characteristics inconsistent between reports Lack of information about ship activity in the Indian Ocean (vessels bearing licenses to operate but not actually operating)	

## OTHER IOTC DATA HOLDINGS: BIOLOGICAL DATA

Table 7 shows other datasets available at the IOTC Secretariat:

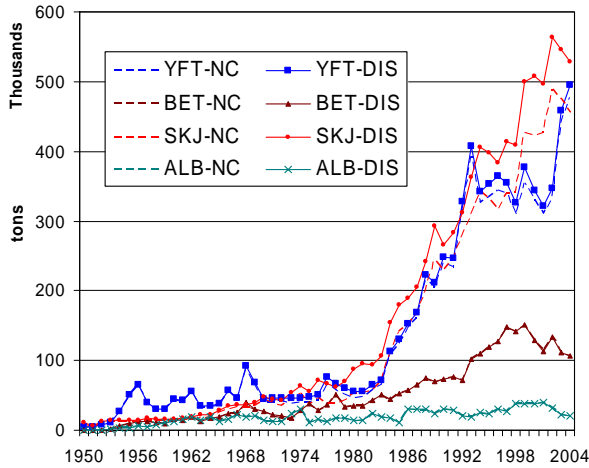
**Table 7: Biological data available at IOTC**

TYPE OF DATA	RAW DATA	PERIOD	SOURCE
Length-length-weight data of tuna and billfish caught by fresh tuna longliners in the Indian Ocean ( <b>BOX 2</b> )	Available	2000-04	AFDEC Thailand (IOTC Sampling Programmes) NARA Sri Lanka (IOTC Sampling Programs) RIMF Indonesia (IOTC Sampling Programs) FRI Malaysia (IOTC Sampling Programs) IFREMER Reunion-France (PPR Programme) BRS (Pelagic Observer Program)
Length-length-weight-sex-maturity of tuna and tuna-like species caught by longliners and purse seiners within the EEZ of Chagos	Available	1996-02	MRAG United Kingdom (observer data)
Length-weight-sex data of tuna species caught by longliners from the republic of Korea	Available	2001-03	
Biological data available from <u>Atlantic</u> : -Length-length-weight data of tuna and billfish	Not available Available	1992-04	ICCAT, Literature NMFS Pelagic Observer Program
-Relationships between straight and curved body measurements	Available	1992-04	NMFS Pelagic Observer Program
-Length-length-weight data of sharks	Not available	-	Literature
Biological data available from <u>Pacific</u> : -Length-length-weight data of billfish	Not available	2004	SPC, Literature

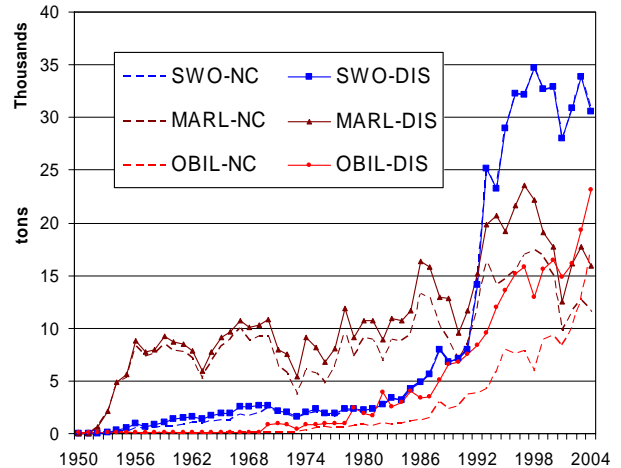
The Secretariat presented a document to the latest Working Party on Tropical Tunas on the status of data holdings regarding the biological information available on tuna and billfish species (WPTT-05-05).

## BOX 1: DISAGGREGATION OF CATCHES RECORDED UNDER GEAR/SPECIES AGGREGATES

**Figure 1: Catches of tropical tuna species and albacore recorded in the IOTC database (NC) and obtained through disaggregation (DIS)**



**Figure 2: Catches of billfish species recorded in the IOTC database (NC) and obtained through disaggregation (DIS)**



Nominal catches data are not always recorded under individual gears or species. This is due to catch statistics not always available per species in the countries where they are collected.

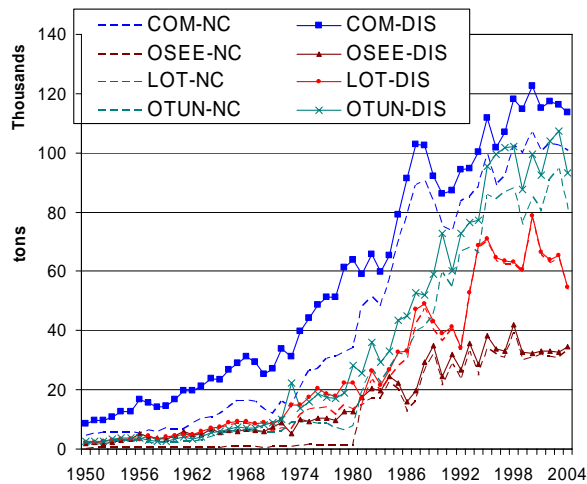
The decomposition of catches recorded under species and/or gear aggregates is in some cases possible, especially when the Secretariat has access to alternate sources of information as publications, fishery bulletins or other where these data are available.

Species and gear aggregates are kept when no alternative sources are found or the information available is not enough to allow the decomposition of these catches. Data recorded in the IOTC Nominal Catches database follows the above rule.

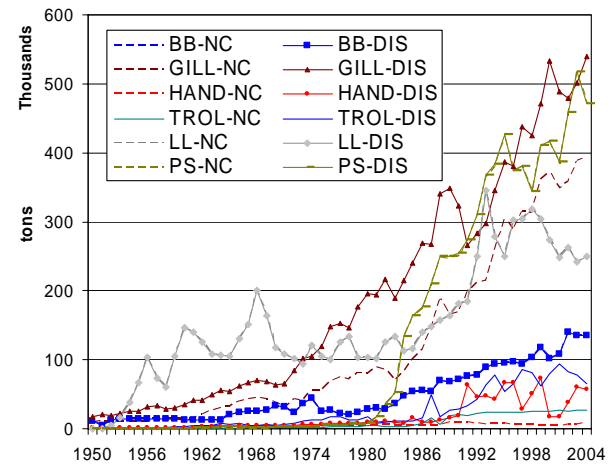
The Working Parties recommended during 2002 that the Secretariat do every possible effort to provide nominal catches broken by gear and species for stock assessment. The Secretariat created during 2004 a database to allow the decomposition of catches and has been providing the WPs with catches fully broken per gear and species since then.

Figures 1 to 4 show the difference between the catches in the IOTC database and those obtained after assigning catch aggregates to individual gears and species. The disaggregation led to dramatic increases in the catches under some gears and/or species; the reliability of the new catches is difficult to assess taking into account the scarce information available for the disaggregation.

**Figure 3: Catches of neritic tuna species recorded in the IOTC database (NC) and obtained through disaggregation (DIS)**



**Figure 4: Catches of tuna and tuna-like species per gear type recorded in the IOTC database (NC) and obtained through disaggregation (DIS)**

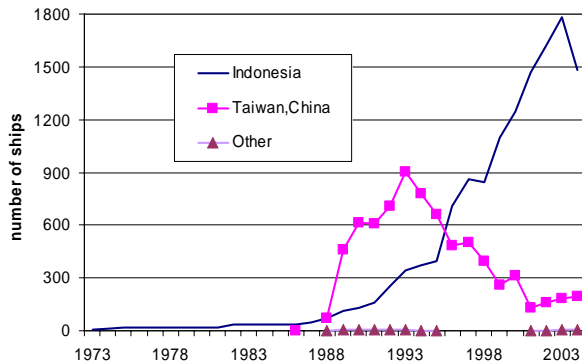




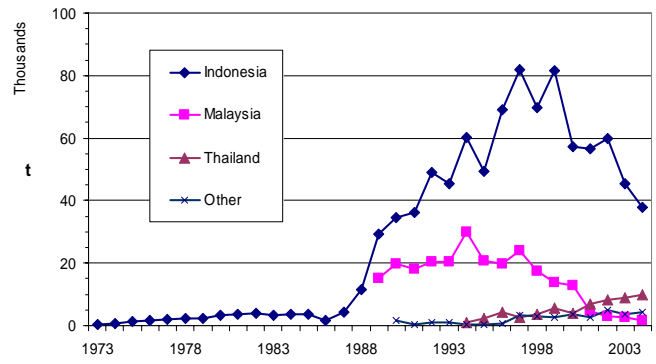
## BOX 2: ESTIMATION OF CATCHES OF NON-REPORTING FLEETS

### A/ NON REPORTING FRESH TUNA LONGLINE FLEETS

**Figure 5: Number of non-reporting fresh-tuna longliners operating in the Indian Ocean from 1973-2002**



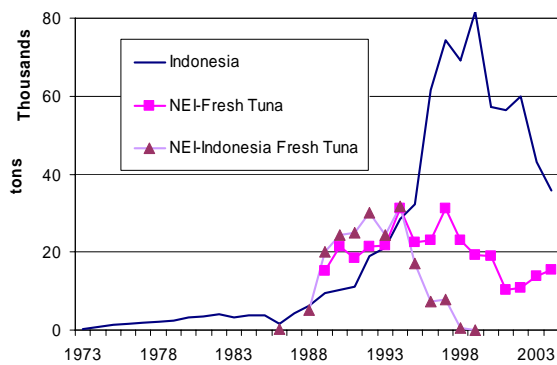
**Figure 6: Catches of non-reporting fresh-tuna longliners per country of landing**



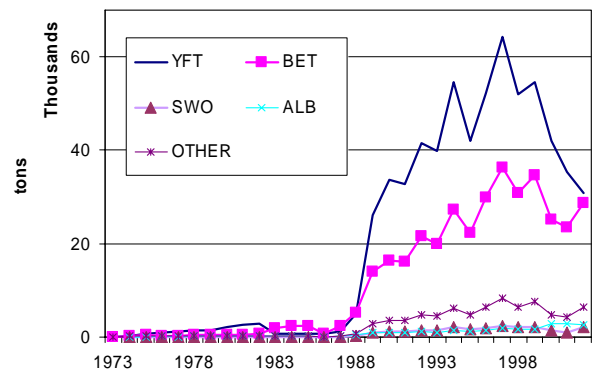
The number of non-reporting fresh tuna longliners operating in the Indian Ocean sharply increased since the mid-eighties, topping at about 2,000 vessels in 2003. Almost all longliners operate under the Indonesian flag in recent years, with some still under the Taiwan,China flag. Catches for the latter flag have never been made available to the IOTC, as opposed to the deep-freezing fleet. The drop in the number of Taiwanese vessels and catches observed since 1993 is due to re-flagging of many vessels to Indonesia.

The estimation of number of vessels and catches has been improving over time, mainly thanks to the information collected through the Sampling Programs implemented by the IOTC in key ports of landing of these vessels in the Indian Ocean. The amount of historical and current information so far collected through these cooperation schemes has helped to improve the estimates in Thailand, Malaysia, Sri Lanka and Indonesia. The collection of past information should continue to allow better estimates of historical catches in countries like Indonesia.

Current catches have been estimated at about 50,000 tonnes, mostly yellowfin tuna (YFT) and bigeye tuna (BET).



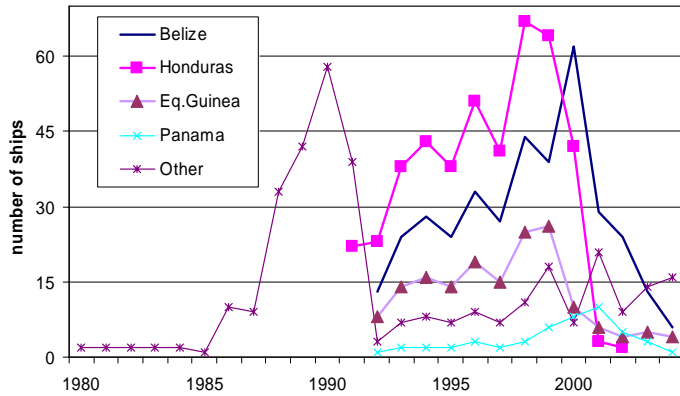
**Figure 7: Estimated catches in the Indian Ocean of non-reporting fresh tuna longliners per flag country**



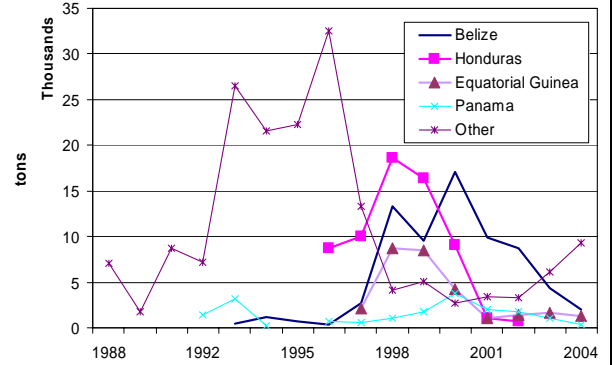
**Figure 8: Total catches per species in the Indian Ocean estimated for non-reporting fresh tuna longline fleets**

## B/ NON REPORTING DEEP-FREEZING LONGLINE FLEETS

**Figure 9: Number of non-reporting deep-freezing longliners estimated to operate in the Indian Ocean (per flag country)**

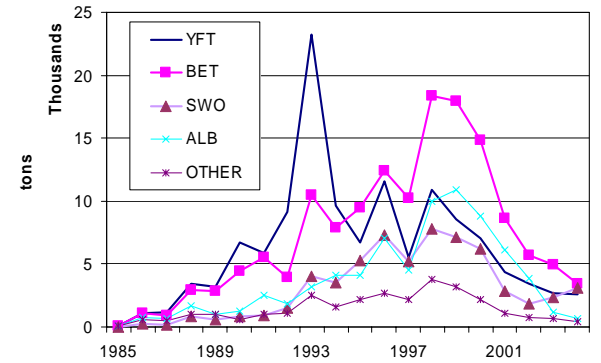


**Figure 10: Estimated catches of non-reporting deep-freezing longliners according to the flag of operation**



The reporting of new information regarding the activities of vessels fishing for tropical tunas in the IOTC Area of Competence during 2005 allowed the production of new estimates of numbers of non-reporting deep-freezing longliners by flag. The main sources for these data are the IOTC Vessel Record and Foreign Tuna Vessels Activity Record to which many new records were input during 2005.

The total number of longliners estimated to operate in recent years amount to about 30, with total catches estimated at 15,000 tonnes. Honduras, Belize, Equatorial Guinea and Panama were the flags most used by non-reporting longliners over the last decade with an increasing number of vessels operating under other flags as Togo, Ukraine, Namibia, Cambodia, Georgia, Uruguay in recent years.. The catch series was estimated according to average catches per vessel and species composition for the Taiwanese or Spanish fleet during that period, assuming that most of the vessels operating under flags of non-reporting countries were originally from Taiwan, China or Spain, respectively. Although there are many indications to support this, the assumption that the vessels from non-reporting countries are exploiting the same spatio-temporal strata than the Taiwanese or Spanish over time could be wrong for some flags or periods.



**Figure 11: Total catches per species in the Indian Ocean estimated for non-reporting deep-freezing longline fleets**

The lack of catch and effort and size frequency records regarding non-reporting vessels is of concern.

The dramatic drop in the number of non reporting longliners vessels operating and catches estimated since 2001 is not fully understood. This could be due to the re-flagging of vessels recorded before under this category to flags of reporting countries. The increase in the number of longliners operating in the Indian Ocean reported by Seychelles and Philippines in recent years would support this assumption. The low catches reported by both countries, however, are thought not to account for this dramatic increase in the number of vessels operating. It is, therefore, likely that the catches recorded since 2001 for these two countries have to be updated once that more information become available.

## C/ NON REPORTING INDUSTRIAL PURSE SEINE FLEETS

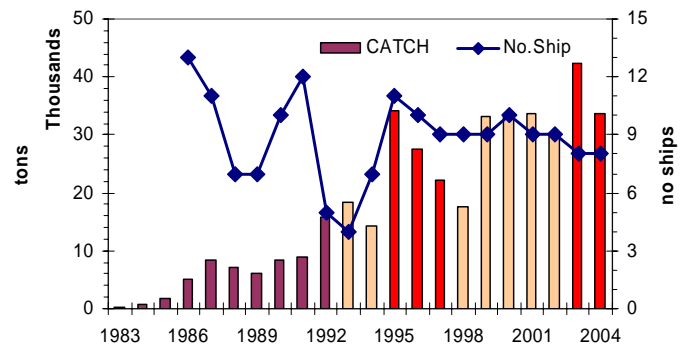
Between 8 and 11 non-reporting purse seiners have been operating in the Indian Ocean since 1995 under several flags. The catches of these vessels, mainly of skipjack, have been ranging between 30,000 and 40,000 tonnes.

The catches were estimated from two different sources:

- No catch data available (1995-97; 2003-04): The estimate was conducted taking into account past average catch rates for the Soviet Union fleet (to which most of these vessels belonged to) and species composition for the European fleet, assuming that the two fleets exploit the same areas. This assumption could be biased for periods in which the European vessels operate in the EEZs of third countries, which could not be the case with the ex-Soviet vessels.
- Catch data available (1998-2002): The total catches and number of sets per day and area (1 degree square) were provided for the period 1998-2002<sup>4</sup>. The catches of EC purse seiners were used to estimate catches per species and type of set (free or log school). The catches estimated for these years are thought more accurate.

**Detailed information about the fleet and catch estimates of non-reporting fleets has been provided in documents presented to the species Working Parties since 2000.**

**Figure 12: Number of ships and total catches per species in the Indian Ocean estimated for non-reporting industrial purse seine fleets**



The catches of Soviet vessels (brown pattern) are also shown for reference  
The catches of NEI-PS are shown in red or light orange depending on the estimation procedure (see text on the right)

<sup>4</sup> Catches for 1997 and 2003 were also provided although only for several months.

### BOX 3: SRI LANKA AND YEMEN

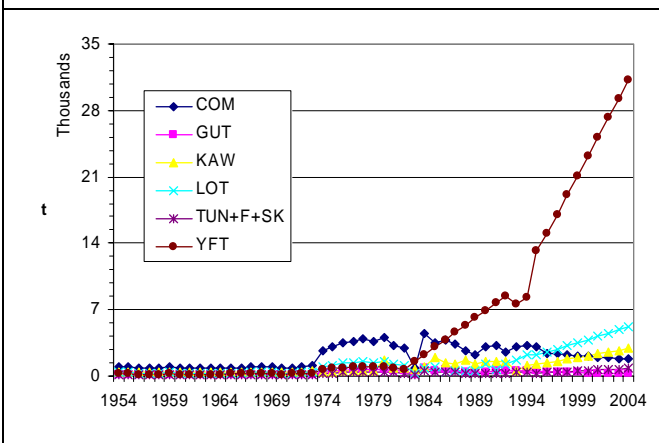
Tuna and tuna-like fisheries in **Sri Lanka** initiated well before 1950. Catches are available for Sri Lanka since 1950. Nevertheless, the catches gathered at the IOTC Secretariat for this country were considered very poor quality due to the following reasons:

- Catches incomplete, especially in the early years of the fishery.
- Dramatic discrepancies between catches reported by the National Aquatic Resources and Development Agency (NARA) and the Statistical Unit of the Ministry of Fisheries and Aquatic Resources (MOFAR), the two institutions reporting catches to the IOTC.
- Catches highly aggregated per gears and/or species
- Mislabelling, mainly of billfish species

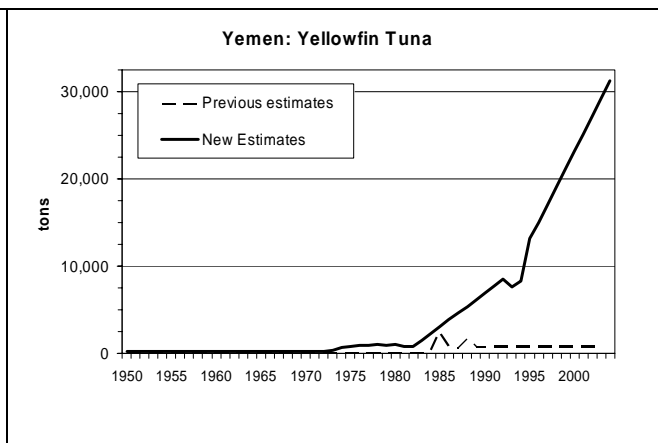
Although the information collected through the recently implemented IOTC/OFCF/NARA sampling is not considered complete and the catches estimated using this information are very preliminary the estimates tend to indicate that the previous catch figures might be dramatically higher than the real catches, mainly due to an overestimation of vessel numbers and its activity (effort).

The catches of swordfish, marlins, skipjack tuna and yellowfin tuna might be affected if the above is confirmed true.

The IOTC Secretariat estimated in 2005 the catches of artisanal boats operating in **Yemen** for 1950-2004. The new catches estimated are probably more realistic than the previous although they are still uncertain due to the scarce information available and numerous assumptions needed to complete the series. More details about the estimation were provided in a document presented to the latest Working Party on Tropical Tunas (WPTT-05-06). The new catches of yellowfin estimated are more than 30 times higher than those previously in the IOTC database.



**Figure 13: Total catches per species in the Indian Ocean estimated for the artisanal fishery operating in Yemen**



**Figure 14: New versus previous catches of yellowfin tuna estimated for Sri Lanka (1950-2004)**

## BOX 4: IOTC/OFCF SAMPLING PROGRAMS

**Table 8: Total number of fish sampled and total number of length measurements taken by enumerators in processing plants of ports covered through IOTC/OFCF Sampling**

Country	Port	Year	From-To	YFT		BET		SWO		OTH		TOTAL	
				noS	noL	noS	noL	noS	noL	noS	noL	noS	noL
Thailand	Phuket	2000	January-December	16,982	1,630	6,853	376	1,459	187	3,993	224	29,287	2,417
		2001	January-December	12,824	2,388	12,212	1,794	1,133	214	3,994	541	30,163	4,937
		2002	January-December	17,294	1,958	20,284	2,646	741	64	2,291	221	40,610	4,889
		2003	January-December	37,739	2,301	17,270	1,003	1,424	121	2,492	171	58,925	3,596
		2004	January-December	31,071	3,377	20,223	2,086	691	42	6,174	62	58,159	5,567
Malaysia	Penang	2001	January-December		670		366					25,524	1,036
		2002	January-December		1,626		1,766					14,673	3,392
		2003	January-December		1,100		301					7,267	1401
Sri Lanka	Mutwal (Colombo)	2000	January-December	10,972		7,028		84		460		18,544	
		2001	January-December	20,934		14,980		43		1,149		37,106	
		2002	January-December	25,062	2,200	16,136	1,397	334	56	1,416	233	42,948	3,886
		2003	January-December	21,725	288	11,988	176	129	8	669	24	34,511	496
Indonesia	Muara Baru (Jakarta)	2002	August-December	14,577	6,769	12,682	6,231	175		123		27,557	13,000
		2003	January-December	103,899	36,265	52,237	19,768	5870	162	9,569	339	171,575	56,534
		2004	January-December	107,084	13,860	63,570	7,534	5719		33,414		209,787	21,394
	Cilacap	2002	August-December	1,810	1,810	3,005	3,005	352	352	3,936	3,931	9,103	9,098
		2003	January-December	17,570	17,533	8,429	8,413	1120	1102	1,931	933	29,050	27,981
		2004	January-December	11,634	11,548	7,088	7,072	644	618	2,130	191	21,496	19,429
	Benoa (Bali)	2002	June-December	34,718	4,013	36,047	4,443	4,158	364	9,360	795	84,283	9,615
		2003	January-December	77,201	8,952	61,200	6,555	5,862	196	24,344	947	168,607	16,650
		2004	January-December	44,809	4,305	46,613	4,817	5,468	5	28,041	604	124,931	9,731
Total		2000	January-December	27,954	1,630	13,881	376	1,543	187	4,453	224	47,831	2,417
		2001	January-December	33,758	3,058	27,192	2,160	1,176	214	5,143	541	67,269	5,973
		2002	January-December	93,461	18,376	88,154	19,488	5,760	836	17,126	5,180	204,501	43,880
		2003	January-December	258,134	66,439	151,124	36,216	14,405	1,589	39,005	2,414	462,668	106,658
		2004	January-December	194,598	33,090	137,494	21,509	12,522	665	69,759	857	414,373	56,121
TOTAL				607,905	122,593	417,845	79,749	35,406	3,491	135,486	9,216	1,196,642	215,049

**Table 9: Total number of fish recorded in landing sheets collected from shipping agents in Phuket and Penang**

Country	Port	Year	From-To	YFT	BET	SWO	OTH	TOTAL
				noS	noS	noS	noS	noS
Thailand, Malaysia	Phuket, Penang	1998	January-December	6,543	13,034	1,062	1,742	22,381
		1999	January-December	10,543	21,498	1,488	979	34,508
		2000	January-December	6,948	7,744	869	1,545	17,106
TOTAL				24,034	42,276	3,419	4,266	73,995

The Secretariat has been implementing Sampling Programs to monitor the activities of non-reporting fleets since 2000. Sampling programs have been conducted in ports in Indonesia, Phuket, Penang and Sri Lanka, where most of the catches of non-reporting fresh tuna longliners operating in the Indian Ocean are unloaded.

Sampling in Maldives, Oman has allowed increasing the amount of size data available from artisanal fisheries, mainly pole and line and gillnet.

The strengthening of the sampling activities in Sri Lanka will allow the estimation of catches of artisanal fleets in a more precise way in the early future.

Scientists and samplers of research institutions in the three countries, AFDEC<sup>5</sup>, FRI<sup>6</sup>, NARA<sup>7</sup> and DGCF<sup>8</sup>/RIMF<sup>9</sup> are collecting the information in close cooperation with IOTC/OFCF Project staff.

<sup>5</sup> Andaman Sea Fisheries Development Centre, Phuket

<sup>6</sup> Fisheries Research Institute, Penang

The main objectives of these programs are to:

- Collect current and historic information regarding the activities of non-reporting vessels in the Indian Ocean in order to be able to estimate their catches as accurately as possible.
- Collect size frequency statistics through sampling and the retrieval of current and historical data from tuna operators or buyers.
- Collect other relevant biological information concerning the main species landed.

The information collected to date has allowed the Secretariat to conduct preliminary estimates of catches for the period of activity of these fleets, being mostly longliners operating under the flags of Taiwan, China and Indonesia. The estimates will probably change as more information about the activities of this fleet is obtained through the schemes currently operating or by implementation of new schemes in other important landing ports.

The Secretariat estimated catch-at-size tables for fresh tuna longline fleets operating in the Indian ocean since 1998 as well as complete the estimates of catches and number of vessels operating for the same period.

## BOX 5: DATA AVAILABILITY

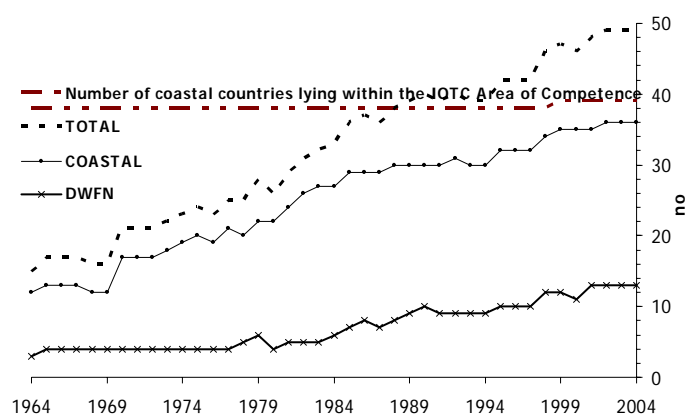
The number of **coastal countries (or territories)** for which tuna statistics are available in the IOTC nominal catches database ranges from 12 in 1964 to 36 in 2004 (out of the 39 coastal countries or territories lying within the IOTC Area of Competence). The low number of countries for which statistics are available in the early years of the fishery, especially between 1950 and 1970, could be because tunas were not targeted, non-reporting or to poor monitoring of fisheries in some countries. Although the catches of most artisanal fisheries are not believed high, the existence of historical records in each country might be investigated.

The catches of **DWFNs** have, on the contrary, usually been high. The following fleets are not monitored by the flag countries:

**Fresh tuna longliners (IDN, NEI-ICE, NEI-IDN):** A large number of fresh tuna longliners, mainly from Indonesia and Taiwan, China, has been operating in the Indian Ocean since the early 1970's, but their catches were never or poorly monitored by the responsible countries. These fleets are currently monitored through the IOTC/OFCF Sampling Schemes in Indonesia, Thailand, Malaysia and Sri Lanka. Recent estimates are close to 50,000 tonnes.

**Deep-freezing longliners (NEI-DFRZ):** Between 25 and 150 longliners have been operating in the Indian Ocean in recent years under flags of countries not reporting to the IOTC. The catches have been estimated since the mid-eighties, mainly using information from the IOTC vessel record. Current estimates amount to some 10,000 tonnes.

The number of NEI-DFRZ longliners operating in the Indian Ocean during recent years has dramatically decreased.



**Figure 15: Number of flags for which catches are available in the IOTC NC database:**

This is probably because of the re-flagging of many longliners to flags of reporting countries, especially Seychelles and Philippines. Nevertheless, the catches reported by these countries are considered very low, probably due to statistical systems still unable to monitor the new fisheries.

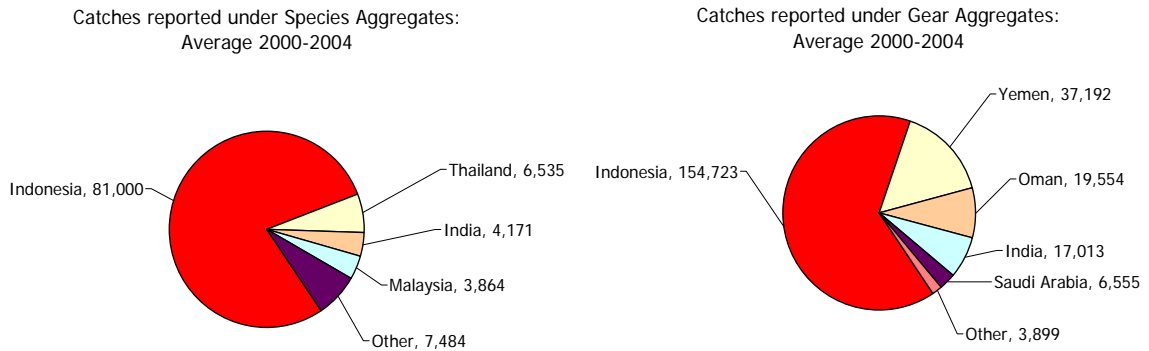
**Ex-Soviet purse seiners (NEI-SUN)** operating under Belize and Panama flags: No catches were reported for the 9 to 11 ex-Soviet ships operating in the Indian Ocean from 1994 to 1997. Total catches amounting to around 30,000 tons were reported for 1998-2002 but catches per species and type of school had to be estimated (see **Box 2 C**).

<sup>7</sup> National Aquatic Resources and Development Agency, Colombo

<sup>8</sup> Directorate General of Capture Fisheries, Jakarta

<sup>9</sup> Research Institute for Marine Fisheries, Jakarta

## BOX 6 : GEAR AND SPECIES AGGREGATION



**Figure 16: Proportion of the total catches recorded under species (above left) or gear (above right) aggregates in the IOTC Nominal Catches Database per country during 2000-2004 (average catches in tonnes are shown in each case)**

The number of countries not reporting detailed statistics to the IOTC has been always high. Numerous countries have been submitting highly aggregated statistics (80% or more of the catches reported under aggregates containing two or more species or catches not reported by gear) in recent times.

**Indonesia:** The catches of Indonesian vessels in the Indian Ocean were not reported to IOTC between 1993 and 2000. Catches reported after 2000 are considered poor quality due to:

- Highly aggregated catches: the statistical system is unable to produce detailed catches for most tuna and tuna-like species;
- The Indonesian catch statistics are not thought to fully account for the sharp increases in the number of longliners operating under its flag in recent years (especially since 1995)

New estimates conducted by the Secretariat resulted in catches above 150,000 t since 1995. More than 60% of the catches reported aggregated to the IOTC in recent times thus come from Indonesia. Furthermore, high proportions of tropical tunas and billfish, under IOTC mandate are caught in Indonesia.

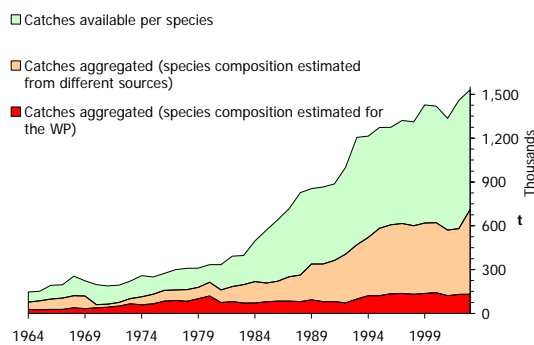
**Yemen:** The new catch series estimated for this country is thought more realistic than the previous. The allocation of catches per gear is, however, difficult due to the scarce information available.

**India:** India has reported the artisanal catches aggregated at the gear level until 2000 and significant catches aggregated at the species level (mainly of neritic tuna species).

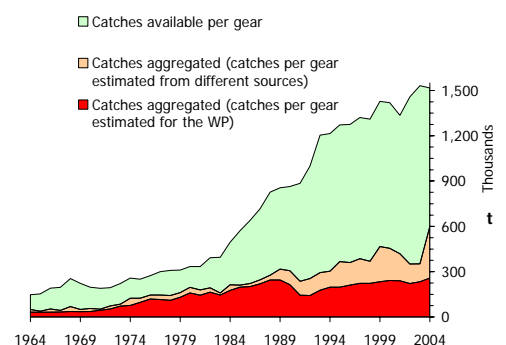
**Sri Lanka, Thailand, Pakistan and Malaysia:** The amount of catches recorded aggregated in the IOTC Nominal Catches Database for these countries has been high in recent years. These aggregates mostly refer to neritic tuna species, although considerable amounts of billfish species have also been reported by Sri Lanka in recent years.

### ALL SPECIES

- Billfish
- Neritic Tunas
- Temperate Tunas
- Tropical Tunas



**Figure 17: Amount of catch reported per species and aggregated**



**Figure 18: Amount of catch reported per gear and aggregated**

Almost all catch statistics in the IOTC databases between 1950 and 1969 come from the FAO and are thus considered as being originally aggregated (no gear information is provided in the FAO databases). Nevertheless, the Secretariat was able to assign the catches partially to the corresponding species or gears, especially in well known fisheries with more or less stable composition in species of the catches and a single gear (e.g. Japanese longliners). The amount of catch recorded under unclassified gears remained very high until the mid-eighties.

The amount of catches reported under species aggregates has been increasing since 1970, more rapidly since the early eighties. The main reason for this increase is the growing number of non-reporting fleets operating in the Indian Ocean, using mainly longlines. The Secretariat has been using different sources to estimate the catches of these vessels (sampling programmes, foreign tuna vessels activity, vessel record), although the series are still considered incomplete.

Around 25% of the catches in the IOTC NC database have been recorded under unclassified gears in recent years. This uncertainty is mostly attributable to artisanal fleets operating in coastal countries unable to produce detailed statistics or not reporting the information to IOTC. Indonesia (65% of the total catches reported under unclassified gears come from Indonesia) and Yemen (16%) are the major contributors in this respect.

The levels of aggregation are very different between and within the different species groups:

**Billfish:** The species within this group are mostly caught by longlines and, to a lesser extent, gillnets. While aggregation does not represent a problem as regards the gears used it does at the species level. About half the catches of these species have been reported aggregated. Sri Lanka, India and Pakistan have been reporting high catches of billfish under species aggregates in recent years. The aggregation concerns mainly species other than the swordfish which is easily identified, mostly caught by industrial fleets and has a high market value. Catches, besides those from non-reporting fleets, are thus well known for this species. The IOTC/OFCF/NARA catch monitoring program implemented in Sri Lanka since 2005 will allow that catches are estimated per species for 2005 and following years.

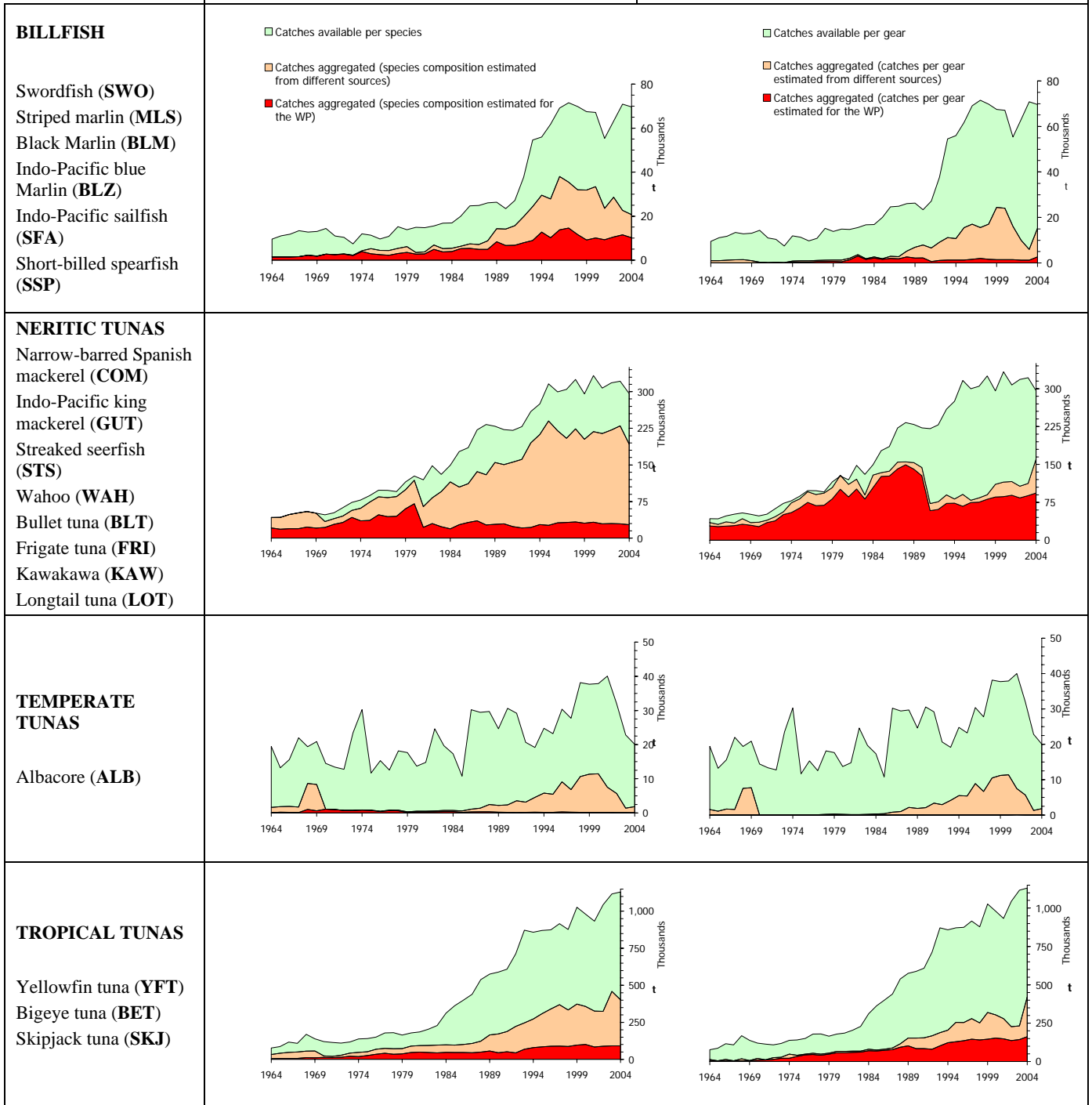
**Neritic tunas:** Species and gear aggregation are widespread within this group. Current levels of aggregation have been close to 60% and 30% as regards species and gears, respectively. Indonesia, India and Thailand are the major contributors in this respect. The high levels of aggregation are thought to be mainly due to no or incomplete reporting from the countries, since several among them are known to have been routinely collecting the statistics.

**Temperate and Tropical tunas:** Most of the catches of the six species under these groups come from industrial fleets and, therefore, gear and species aggregation are quite low. Nevertheless, the rising number of non-reporting fleets operating in the Indian Ocean in recent years is increasing the amount of catches that have to be estimated by the Secretariat. Indonesia is the mayor contributor to this uncertainty, especially regarding the tropical tuna species (80% of the total catches of tropical tuna species reported under gear or species aggregates come from this country).



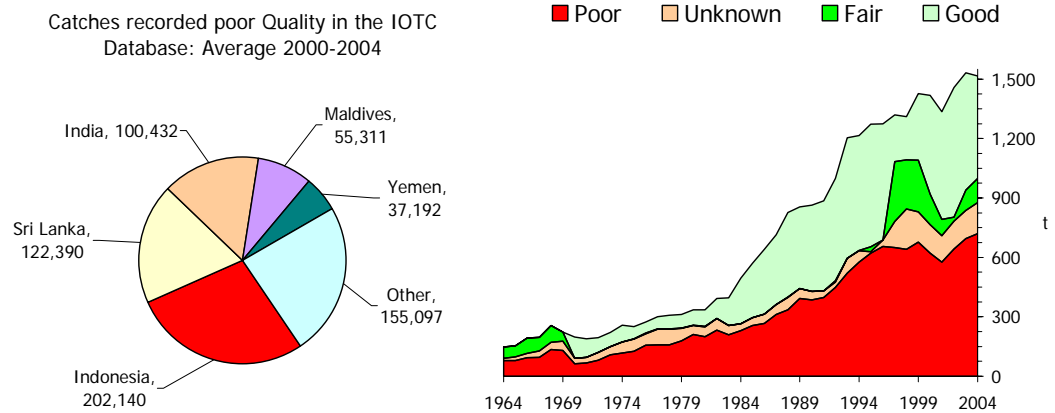
**Figures 19-22: Amount of catch reported at the species level and aggregated**

**Figure 23-26: Amount of catch reported at the gear level and aggregated**



## BOX 7: DATA QUALITY

ALL SPECIES



**Figure 27: Presumed quality of the data in the IOTC nominal catches database and main fleets for which catches are thought inaccurate or uncertain in recent years.**

The following quality codes were assigned to the records in the IOTC databases:

- **4 (Good):** The catches recorded in a given stratum are presumed to represent the actual catches occurred in that stratum. This refers to all data available from countries having data collection and processing systems with known ability to produce good catch estimates and to the data estimated by the Secretariat from sources thought to be reliable. No inconsistencies in the data were found during the verification and validation processes run at the Secretariat or communicated from the reporting source.
- **3 (Fair):** This refers to data coming from the same sources as above but for which minor inconsistencies were found during validation and verification or communicated from the reporting source. These inconsistencies referred were not thought to affect the catches recorded in the strata concerned substantially.
- **2 (Unknown):** It is not known whether the catches recorded in a given stratum represent the actual catches occurred in that stratum as insufficient or no information was provided by the reporting source about how the estimates were obtained.
- **1 (Poor):** The catches recorded in a given stratum are thought inaccurate as major inconsistencies were found during validation and verification or many assumptions had to be made in the estimates.

Sharp increases in the catches recorded as poor quality have been noted since the mid-eighties. This uncertainty comes mostly from:

**Indonesia (IDN):** Although the current estimates are possibly more accurate regarding the total catches, the catches at the species level are still thought uncertain.

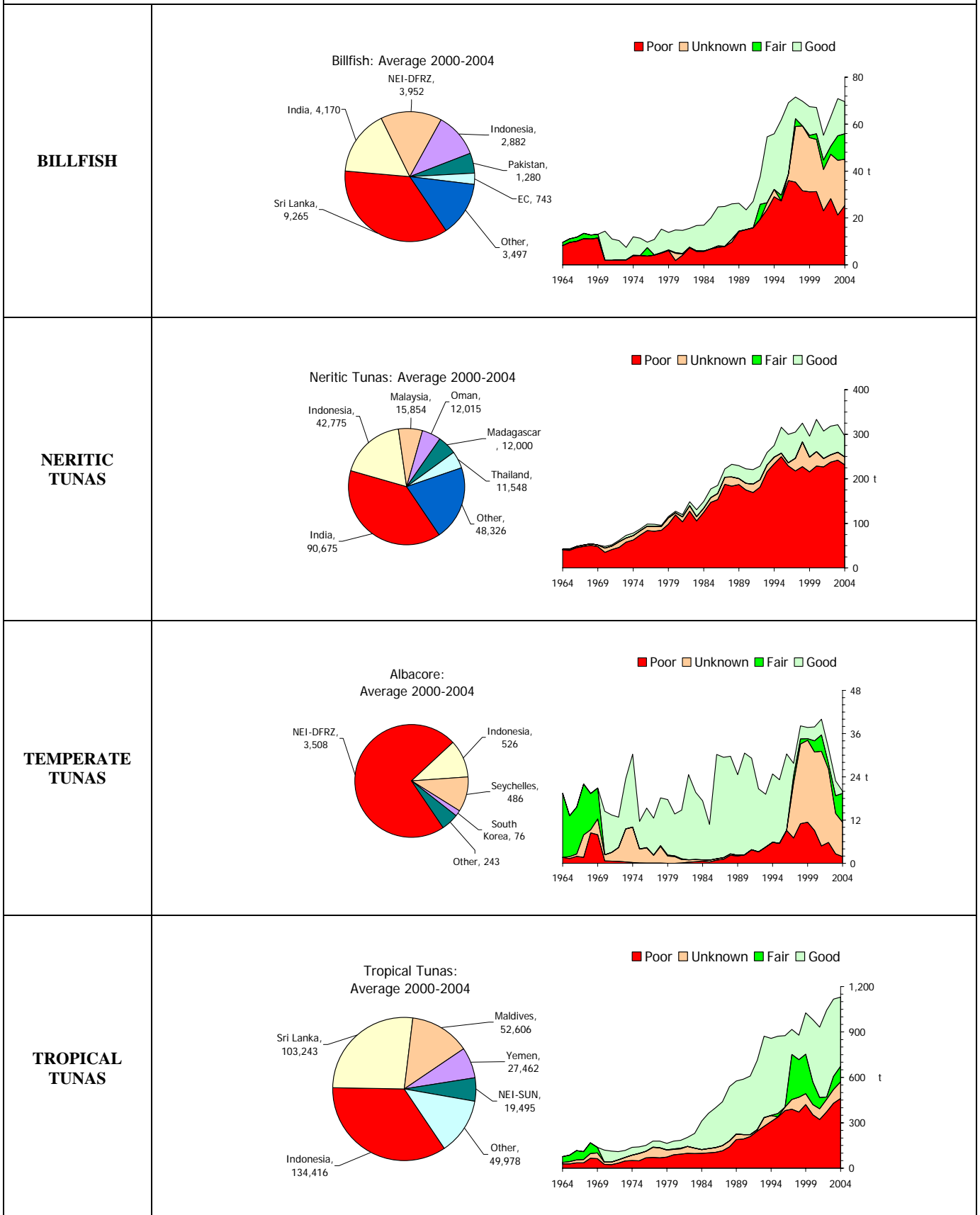
**Non-reporting DWFNs (Taiwan, China, NEI-DFRZ, NEI-ICE and NEI-SUN):** The catches of NEI vessels are estimated by the Secretariat using the reported numbers per year and mean catches and species breakdowns from fleets thought to operate in a similar way. The IOTC sampling programmes are proving helpful to reduce the uncertainty of catches estimated for fresh-tuna longline fleets (NEI-ICE). The amount of information available for non-reporting deep-freezing longliners (NEI-DFRZ) and purse seiners (NEI-SUN) is still very low.

**Sri Lanka (LKA), Yemen (YEM) Maldives (MDV) and India (IND):** The either unreliable or highly aggregated data available from these countries needed to be re-estimated by the Secretariat, sometimes using information for years far from those which the catches had to be estimated. Thus, gear and/or species breakdowns were estimated assuming fisheries were not changing over time. The risk from these assumptions increases with the gap in time between the new catches and the year when catches were used as basis for the estimate.

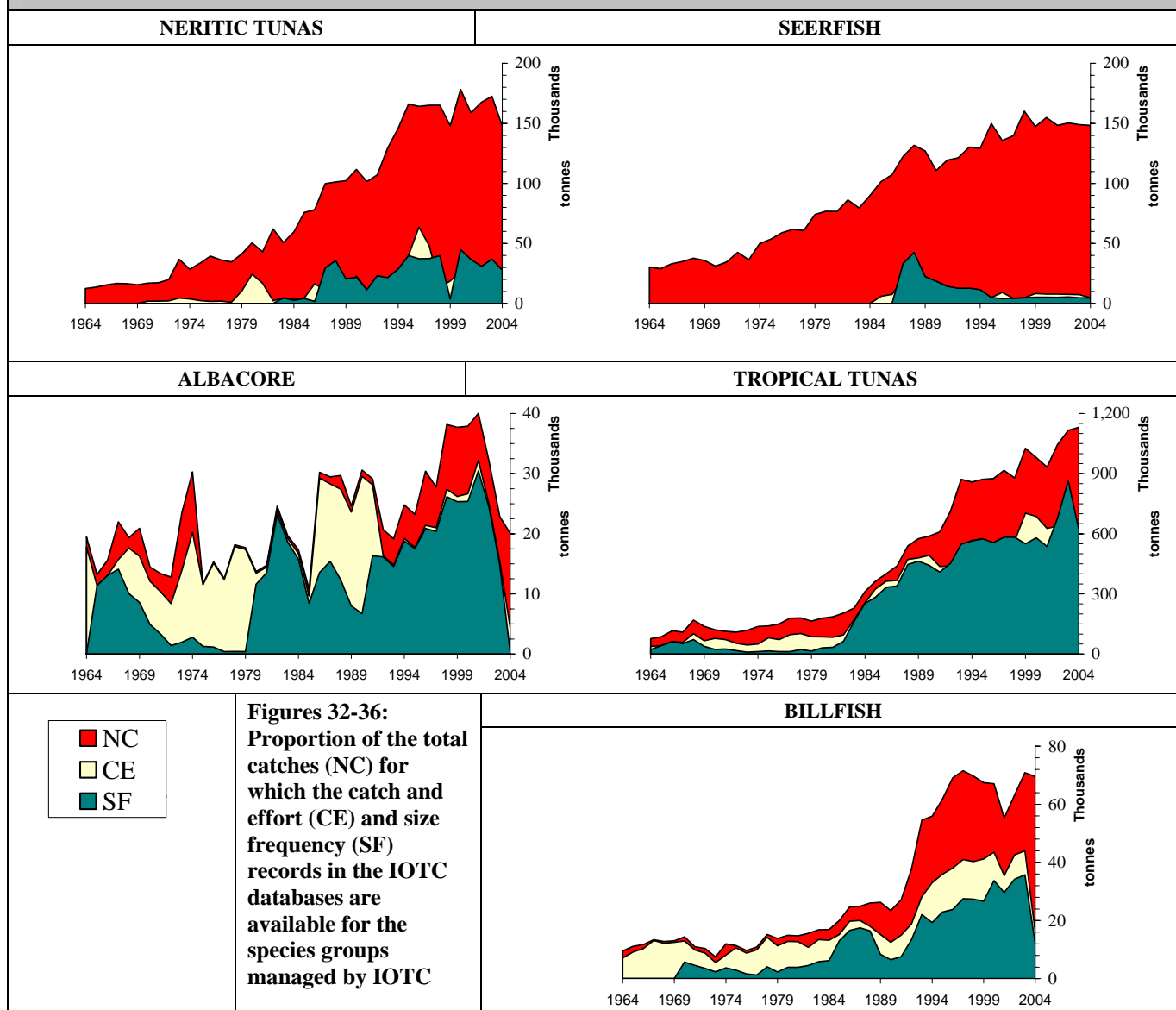
The amount of catches with a poor quality code is of concern, especially for **billfish** and **neritic tunas**. Poor quality catches amount to more than half the total catches in recent years for these categories. The fleets that contributed mostly to this uncertainty are from **India, Indonesia** and **Malaysia**, for the neritic tunas, and **NEI-DFRZ, India** and **Sri Lanka**, for billfish.

Although less affected than the others, the quality of the catches of **tropical** and **temperate tuna** species have been worsening in recent years. The main reason for the increase is the high amount of catches not available per species that the Secretariat had to break into the corresponding species. All catches obtained through the disaggregation of catch aggregates into species were labelled poor quality due to the scarce information that was available for the estimation.

**Figures 28-31: Presumed quality of the data in the IOTC nominal catches database and main fleets which catches are thought inaccurate or uncertain in recent years.**



## BOX 8: DATA COMPLETENESS



The Charts above and in the next page are optimistic views about the proportion of the total catches for which records in the IOTC catch and effort and size frequency databases are available. Catch and Effort (CE) and/or size frequency (SF) records were presumed fully representative of the total catches (NC) per species, country and year whenever one or more records were found in the Catch and Effort and/or Size Frequency databases for that species, gear, year and country.

In spite of this approach, the situation is of concern for some species groups and fisheries:

**BILLFISH:** Recent coverage rates amount to about 50% of catch and effort and size frequency data, respectively. The marked drop in the coverage in recent years is due to:

- Non-reporting of statistics for important **longline fisheries** operating in the Indian Ocean: Fresh tuna longliners from **Taiwan, China** and **Indonesia** and deep-freezing longliners (DWFNs) operating under several flags (mainly **Belize, Honduras, Equatorial Guinea** and **Panama**)
- Lack of size frequency statistics for deep-freezing longliners from the Republic of **Korea** and **Philippines**.

The lack of the data above concerns swordfish mostly and, to a lesser extent, all marlin species.

- Lack of catch and effort and size frequency data from **artisanal fisheries**, especially **gillnets** and **troll lines**. The Indo-Pacific sailfish and, to a lesser extent, the black and blue marlins are the species most affected.

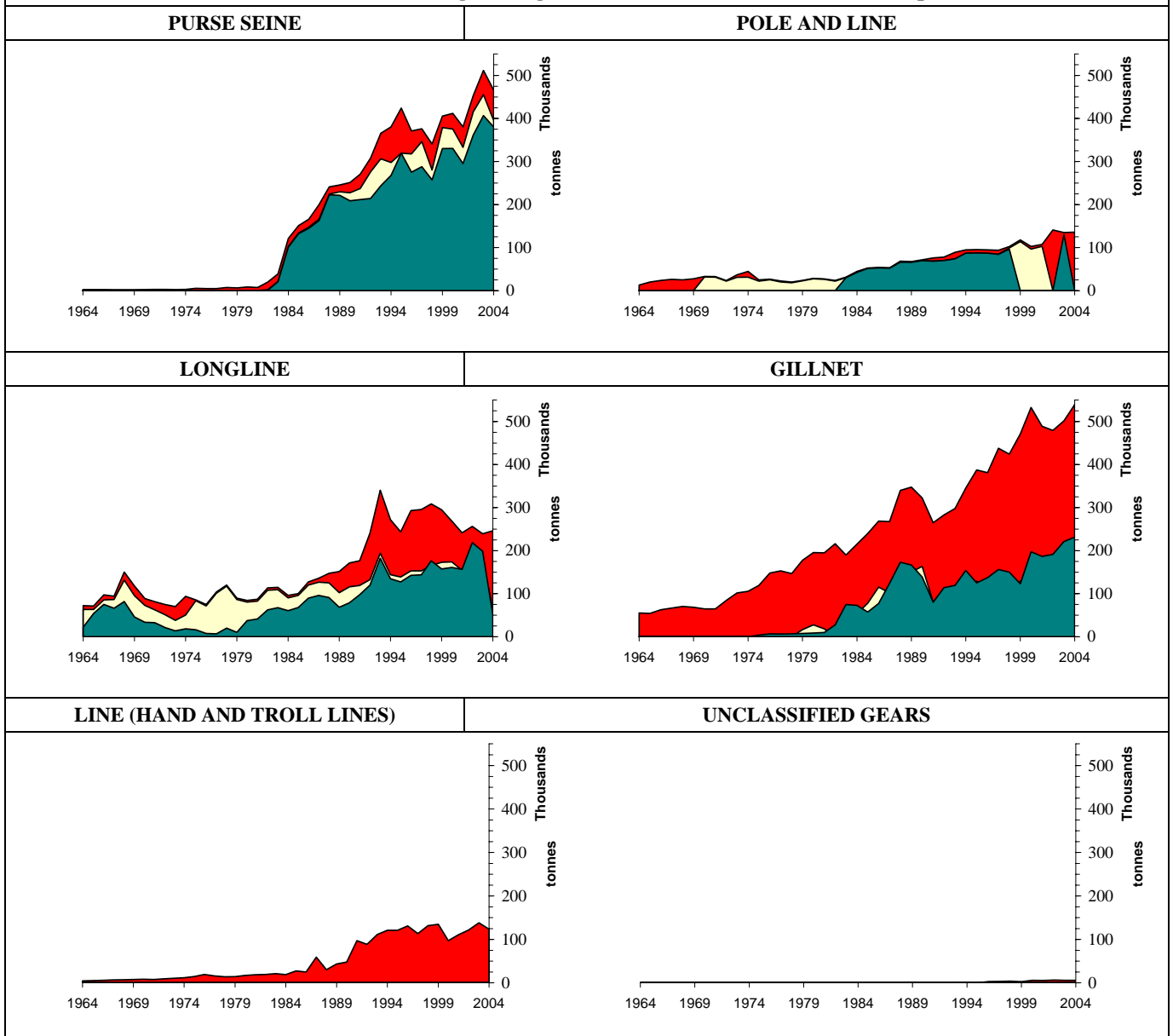
**NERITIC TUNAS and SEERFISH:** These species, caught mostly by artisanal gears, have been either badly monitored or not reported in detail. Recent coverage rates are around the 10% for both catch and effort and size frequency statistics. No or scarce catch and effort and size frequency statistics are available at IOTC from **India, Iran, Indonesia, United Arab Emirates** and, up to recent years, **Oman** and

**Thailand.** Catch and effort records and size samples are, however, collected in all these countries.

**ALBACORE:** Current levels of coverage are around the 75% regarding catch and effort and size data. The proportion of catches for which size data are available increased dramatically for 1980-2003 thank to a dataset recently provided by Taiwan,China..

**TROPICAL TUNAS:** The coverage rates for both the catch and effort and size frequency data have been lower since the mid-eighties. This is due to the increase in the number non-reporting fleets operating in the Indian Ocean, mainly fresh tuna longliners from **Indonesia** and longliners (both fresh and deep-freezing) from DWFNs.

**Figures 37-42: Proportion of the total catches (NC) which the catch and effort (CE) and size frequency (SF) records in the IOTC databases are available according to the gears under which the statistics were reported.**



**NOTE:** Catch and Effort (CE) and/or size frequency (SF) records were presumed fully representative of the total catches (NC) per species, country and year whenever one or more records were found in the Catch and Effort and/or Size Frequency databases for that species, gear, year and country.

The completeness of catch and effort and size frequency data is also changing depending on the gear: while **pole and line** and **purse seines** are well covered from the mid-eighties to the late-nineties<sup>10</sup>, this is not the case with all other gears, especially **gillnets** and **lines**, both having very low coverage rates. The statistics for **longliners** have been less complete since the mid-eighties, with coverage rates of 50% for both catch and effort and size frequency. The size data provided by Taiwan,China has increased dramatically the proportion of fish measured for 1980-2003.

<sup>10</sup> Catch and effort and size frequency have not been available for the pole and line fishery of Maldives since 1994 (detailed data) and 1998, respectively.

**BOX 9: AVAILABILITY OF CATCHES OF SPECIES OTHER THAN IOTC TUNA AND TUNA-LIKE SPECIES AND DISCARDS FROM INDUSTRIAL FLEETS OPERATING IN THE IOTC AREA OF COMPETENCE**

Gear	Fleet	Av00/04	NTAD	SKH	TUX	DISCARDS
Longline	Taiwan,China	105,353	348	2,010	102,996	NO
	Indonesia	54,166	825	1,936	51,406	NO
	Japan	36,546	0	0	36,546	NO
	NEI-Deep-freezing	19,280	87	919	18,274	NO
	NEI-Fresh Tuna	16,292	263	168	15,862	NO
	China	6,872	51	20	6,802	NO
	Spain	6,753	117	3,372	3,264	NO
	Seychelles	4,972	71	126	4,775	NO
	Korea, Republic of	4,770	0	10	4,760	NO
	Australia	2,690	0	57	2,632	Partial
	Philippines	2,453	2	31	2,419	NO
	France-Reunion	2,221	57	53	2,111	NO
	Other	5,888	117	2,003	3,768	NO
	TOTAL LL	268,258	1,939	10,705	255,614	
Purse Seine	Spain	150,365	0	0	150,365	NO
	France	95,098	0	0	95,098	Partial
	Seychelles	55,103	0	0	55,103	NO
	NEI-Other	48,651	0	0	48,651	NO
	NEI-Ex-Soviet Union	34,712	0	0	34,712	NO
	Iran, Islamic Republic	16,304	23	0	16,281	NO
	Other	49,057	0	0	49,056	NO
	TOTAL PS	449,290	23	0	449,266	
	TOTAL	717,547	1,962	10,705	704,880	

**Table 10: Average catches of tuna and tuna-like species (TUX) for the period 2000-2004 and amounts of sharks (SKH) and other non-tuna or tuna-like species (NTAD) from the IOTC NC database**

The reporting of catches of sharks and species other than those covered in the IOTC Agreement has been scarce and uneven over time. It is currently impossible to know to what extent the catches of these species are underestimated due to the lack of reliable data.

The reporting of discards has also been very low. Furthermore, when reported, the discards never represented the total amount and no indication was given on what proportion of the total catches was covered, being impossible to estimate their totals. These discards might involve considerable amounts of undersized tuna species, especially in purse seine fisheries exploiting schools associated to fish aggregating devices (FADs).

Underreporting concerns more industrial fisheries, mainly longline and purse seine, than artisanal fisheries, where the amount of discards is thought negligible.

Species aggregation is, besides underreporting, an important problem concerning the reporting of these data, with some 60% of the catches available reported under species aggregates.

The implementation of observer programs in industrial fleets might help to reduce the uncertainties regarding the catches of these species. The Secretariat presented an update on the situation of data concerning bycatch and discards to the latest Working Party on Bycatch (WPB-05-01).

Gear	SppGroup	Total	Aggregated	Disaggregated
Longline	NTAD	9,694	8,698	996
	SKH	53,524	24,981	28,544
Purse Seine	NTAD	115	115	0
	SKH	2	2	0
	TOTAL	63,335	33,795	29,540

**Table 11: Average catches of sharks (SKH) and other non-tuna or tuna-like species (NTAD) recorded under species aggregates (Aggregated) or at the species level (Disaggregated) in the IOTC NC database for the period 2000-2004**

Species	ScientName	AvCatch	Longline	Purse Seine	Baitboat	Gillnet	Line	Other
Sharks various nei	<i>Selachimorpha (Pleurotremata)</i>	43,819	23,737		2	172,127	1,092	22,139
Other non tuna-like fishes nei	<i>Fishes non Scombroidei</i>	16,368	6,715		32,829	26,523	14,159	1,615
Silky shark	<i>Carcharhinus falciformis</i>	12,691	13			63,442		
Blue shark	<i>Prionace glauca</i>	9,997	25,871			24,112		1
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	2,766	31			13,800		
Indian mackerel	<i>Rastrelliger kanagurta</i>	2,471				197		12,159
Requiem sharks nei	<i>Carcharhinidae</i>	2,288	863			10,553		25
Thresher sharks nei	<i>Alopias spp.</i>	1,918	168			9,424		
Hammerhead sharks nei	<i>Sphyrna spp.</i>	1,738	38			8,654		
Sharks mackerel, porbeagles nei	<i>Lamnidae</i>	1,093	9			5,434		25
Rays, stingrays, mantas nei	<i>Rajiformes</i>	979	2			4,881		10
Dogtooth tuna	<i>Gymnosarda unicolor</i>	773	5		2,573	19	1,264	5
Shortfin mako	<i>Isurus oxyrinchus</i>	631	2,542			611		0
Non targeted, associated and dependent species		419	1,981	115		1		1
Striped bonito	<i>Sarda orientalis</i>	316				1,334		7
Common dolphinfish	<i>Coryphaena hippurus</i>	170	294					554
Black escolar	<i>Lepidocybium flavobrunneum</i>	118	588					
Dogfishes nei	<i>Squalus spp.</i>	33	167					
Oilfish	<i>Ruvettus pretiosus</i>	16	80					
Mackerels Indian, nei	<i>Rastrelliger spp.</i>	14				15		51
Smooth-hound	<i>Mustelus mustelus</i>	9	47					1
Butterfly kingfish	<i>Gasterochisma melampus</i>	5	27					
Tope shark	<i>Galeorhinus galeus</i>	4	5					14
Copper shark	<i>Carcharhinus brachyurus</i>	2	7					2
Longfin mako	<i>Isurus paucus</i>	2	8					
Dusky shark	<i>Carcharhinus obscurus</i>	2	0					8
Porbeagle	<i>Lamna nasus</i>	1	6					
Angular rough shark	<i>Oxymotus centrina</i>	1	5					
Smooth hammerhead	<i>Sphyrna zygaena</i>	1	4					0
Barracudas	<i>Sphyrna spp.</i>	0	2					
Blacktip reef shark	<i>Carcharhinus melanopterus</i>	0						2
Bigeye thresher	<i>Alopias Spenciliosus</i>	0	2					
Scalloped hammerhead	<i>Sphyrna lewini</i>	0	7					
Bonnethead, hammerhead sharks	<i>Sphyrnidae</i>	0	0					
Broadnose sevengill shark	<i>Notorhynchus cepedianus</i>	0	0					0
Tiger shark	<i>Galeocerdo cuvier</i>	0	0					
Sharks nei other than oceanic whitetip shark and blue shark		0	0					

**Table 12: Species other than tuna and tuna-like for which catches are available in the IOTC NC database and average catches reported for the last five years**

# Catch Tables

Legend:      AvC    Mean catches of the Species for the last five years

- <1    Catches below 1,000 tons
- 1-3    Catches from 1,000 to 3,000 tons
- >3    Catches above 3,000 tons























Table 12: Total Catches of Albacore (ALB) and Southern Bluefin Tuna (SBF) in the Indian Ocean for the period 1955-2004 (in thousand of metric tonnes)

**ALB**

Gear	55	56	57	58	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	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04												
Purse Seine																												0.0	0.0	0.0	0.0	0.6	0.7	0.2	0.2	0.3	0.0	0.3	2.2	3.3	1.3	2.6	1.3	1.6	2.0	1.6	0.6	1.2	1.3	0.8	1.5	0.2										
Baitboat																												0.4	0.0	0.0			0.0										0.0	0.0																		
Longline	3.3	5.6	5.3	7.3	11.6	12.1	16.6	19.0	14.2	19.4	13.2	15.6	22.0	19.4	20.9	14.5	13.4	12.8	23.5	30.3	11.7	15.3	12.5	18.1	17.7	13.7	14.7	24.2	19.6	16.7	9.3	14.8	17.0	15.0	10.2	9.1	17.8	16.0	17.8	22.2	21.9	28.8	25.7	36.5	37.1	36.6	38.6	31.1	21.3	19.7												
Gillnet																																	0.7	15.2	12.2	14.4	14.4	21.1	9.0	1.3																						
Hand Line																					0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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											
Troll Line	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0												
Other																																																														
<b>Total</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>7</b>	<b>12</b>	<b>12</b>	<b>17</b>	<b>19</b>	<b>14</b>	<b>19</b>	<b>13</b>	<b>16</b>	<b>22</b>	<b>19</b>	<b>21</b>	<b>14</b>	<b>13</b>	<b>13</b>	<b>24</b>	<b>30</b>	<b>12</b>	<b>15</b>	<b>13</b>	<b>18</b>	<b>18</b>	<b>14</b>	<b>15</b>	<b>25</b>	<b>20</b>	<b>17</b>	<b>11</b>	<b>30</b>	<b>29</b>	<b>30</b>	<b>25</b>	<b>31</b>	<b>29</b>	<b>21</b>	<b>19</b>	<b>25</b>	<b>23</b>	<b>30</b>	<b>28</b>	<b>38</b>	<b>38</b>	<b>38</b>	<b>40</b>	<b>32</b>	<b>23</b>	<b>20</b>												

**SBF**

Gear	55	56	57	58	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	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04		
Purse Seine																												9.7	15.3	12.9	11.8	12.2	11.4	9.6	9.5	4.6	3.6	2.3	1.6	1.5	2.0	1.8	3.3	4.8	3.3	5.3	4.6	5.4	4.9	5.6	5.2	
Baitboat																												3.2	4.5	4.4	3.7	2.0	1.1	1.2	1.1	0.4	0.3	0.1				0.8	1.5		0.9	0.0						
Longline	2.8	14.8	14.1	8.5	48.5	70.2	62.8	31.9	47.8	33.9	33.8	33.6	56.6	50.8	45.6	28.6	26.3	27.1	24.5	27.0	19.4	25.2	21.2	14.0	13.2	19.0	14.6	12.1	18.7	17.2	16.1	11.9	11.9	11.0	11.9	9.2	7.9	8.3	5.3	6.3	6.4	8.6	9.5	10.6	10.6	7.2	8.9	6.8	4.2	5.4		
Gillnet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.1	0.0		0.0	0.0											
Hand Line																																																				
Troll Line	0.4	0.5	1.0	1.0	2.0	2.5	3.4	3.8	4.0	6.1	4.8	6.1	3.5	3.1	3.7	2.5	3.1	4.9	7.2	7.7	5.2	7.7	9.6	6.9	6.6	9.7									0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0		
Other																																																				
<b>Total</b>	<b>3</b>	<b>15</b>	<b>15</b>	<b>10</b>	<b>50</b>	<b>73</b>	<b>66</b>	<b>36</b>	<b>52</b>	<b>40</b>	<b>39</b>	<b>40</b>	<b>60</b>	<b>54</b>	<b>49</b>	<b>31</b>	<b>29</b>	<b>32</b>	<b>32</b>	<b>35</b>	<b>25</b>	<b>33</b>	<b>31</b>	<b>21</b>	<b>20</b>	<b>29</b>	<b>28</b>	<b>32</b>	<b>36</b>	<b>33</b>	<b>30</b>	<b>24</b>	<b>23</b>	<b>22</b>	<b>17</b>	<b>13</b>	<b>11</b>	<b>10</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>12</b>	<b>14</b>	<b>12</b>	<b>10</b>	<b>11</b>		
























# Data Catalogues

## Availability

(Availability of Nominal Catches, Catch and Effort and Size Frequency Statistics in the IOTC databases)

Legend:      SpC    Mean catches of the Species for the last five years

	Nominal catches available
	Catch and Effort data available
	Size frequency data available



TROPICAL TUNAS: Yellowfin tuna (YFT)

(YFT) Albacore: THONS TROPICAUX

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	PS																											AUSTRALIE
	LL	0.448																										
	BB	0.000																										
	GILL	0.001																										
	LINE	0.007																										
	UNCL	0.000																										
CHINA	LL	2.104																										CHINE
TAIWAN,CHINA	LL	26.222																										TAIWAN,CHINE
	GILL																											
COMOROS	LINE	5.598																										COMORES
	UNCL	0.002																										
EAST TIMOR	LINE	0.003																										TIMOR ORIENTAL
EUROPEAN COMMUNITY	PS	113.960																										COMMUNAUTÉ EUROPÉENNE
	LL	0.422																										
	BB																											
	LINE	0.284																										
FRANCE-TERRITORIES	PS	0.887																										FRANCE-TERRITOIRES
	LL	0.005																										
	LINE	0.308																										
GUINEA	LL	0.028																										GUINÉE
INDIA	LL	0.033																										INDE
	BB	0.553																										
	GILL	0.753																										
	LINE	0.445																										
INDONESIA	PS	1.271																										INDONÉSIE
	LL	23.440																										
	GILL	0.822																										
	UNCL	0.329																										
IRAN I R	PS	6.156																										IRAN, RÉP. ISLAMIQUE D'
	LL	0.178																										
	GILL	23.913																										
JAPAN	PS	0.594																										JAPON
	LL	16.405																										
	UNCL																											
JORDAN	UNCL	0.004																										JORDANIE
KENYA	LL																											KENYA
	LINE	0.080																										
KOREA REP	LL	1.942																										CORÉE, RÉPUBQUE DE
MADAGASCAR	BB																											MADAGASCAR
MALAYSIA	LL	0.146																										MALAISIE
MALDIVES	LL	0.086																										MALDIVES
	BB	14.374																										
	LINE	3.391																										
	UNCL	0.014																										
MAURITIUS	PS	0.022																										MAURICE
	LL	0.018																										
	LINE	0.104																										
OMAN	LL	0.020																										OMAN
	GILL	7.216																										
PAKISTAN	LL	0.044																										PAKISTAN
	GILL	3.467																										
PHILIPPINES	LL	0.931																										PHILIPPINES
SEYCHELLES	PS	24.645																										SEYCHELLES
	LL	0.755																										
	LINE	0.001																										
	UNCL																											
SOUTH AFRICA	LL	0.291																										AFRIQUE DU SUD
	LINE	0.067																										
	UNCL																											
SOVIET UNION	PS																											UNION SOVIÉTIQUE
	LL																											
SRI LANKA	BB																											SRI LANKA
	GILL	27.669																										
	LINE	0.066																										
TANZANIA	UNCL	0.700																										TANZANIE
THAILAND	PS	0.091																										THAÏLANDE
	LL	0.200																										
UK-TERRITORIES	LINE	0.016																										RU-TERRITOIRES
VANUATU	LL																											VANUATU
YEMEN AR RP	LINE	27.201																										YÉMEN
NEI-FRESH	LL	8.945																										NCA-FRAIS

**TROPICAL TUNAS: Yellowfin tuna (YFT)**

**(YFT) Albacore: THONS TROPICAUX**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays	
NEI-FROZEN	LL	3.841																										NCA-CONGELÉ	
NOT ELSEWHERE INCLUDED	PS	26.403																											NON COMPRIS AILLEURS
Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays	

**TROPICAL TUNAS: Bigeye tuna (BET)**

**(BET) Thon obèse; Patudo: THONS TROPICAUX**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	LL	0.379																										AUSTRALIE
	BB																											
	GILL	0.000																										
	LINE	0.000																										
CHINA	LL	3.678																										CHINE
TAIWAN,CHINA	LL	40.865																										TAIWAN,CHINE
	GILL																											
COMOROS	LINE	0.032																										COMORES
EUROPEAN COMMUNITY	PS	16.146																										COMMUNAUTÉ EUROPÉENNE
	LL	0.284																										
	LINE	0.005																										
FRANCE-TERRITORIES	PS	0.115																										FRANCE-TERRITOIRES
	LL	0.000																										
INDIA	LL	0.004																										INDE
INDONESIA	LL	18.101																										INDONÉSIE
IRAN I R	PS	0.235																										IRAN, RÉP. ISLAMIQUE D'
	LL	0.021																										
JAPAN	PS	0.661																										JAPON
	LL	11.696																										
KENYA	LL																											KENYA
KOREA REP	LL	1.679																										CORÉE, RÉPUBQUE DE
MALAYSIA	LL	0.100																										MALAISIE
MALDIVES	LL	0.094																										MALDIVES
	BB	1.010																										
MAURITIUS	PS	0.002																										MAURICE
	LL	0.009																										
	LINE	0.005																										
OMAN	LL	0.013																										OMAN
PHILIPPINES	LL	1.126																										PHILIPPINES
SEYCHELLES	PS	3.213																										SEYCHELLES
	LL	2.029																										
	LINE																											
SOUTH AFRICA	LL	0.135																										AFRIQUE DU SUD
	LINE	0.000																										
SOVIET UNION	PS																											UNION SOVIÉTIQUE
	LL																											
SRI LANKA	GILL	0.055																										SRI LANKA
	LINE	0.028																										
THAILAND	PS	0.054																										THAÏLANDE
	LL	0.123																										
VANUATU	LL																											VANUATU
NEI-FRESH	LL	4.639																										NCA-FRAIS
NEI-FROZEN	LL	6.991																										NCA-CONGELÉ
NOT ELSEWHERE INCLUDED	PS	5.200																										NON COMPRIS AILLEURS
Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays

TROPICAL TUNAS: Skipjack tuna (SKJ)

(SKJ) Listao: THONS TROPICAUX

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	PS	0.650																										AUSTRALIE
	LL	0.000																										
	BB	0.571																										
	GILL	0.000																										
	LINE	0.001																										
	UNCL	0.000																										
CHINA	LL																											CHINE
TAIWAN,CHINA	LL	0.025																										TAIWAN,CHINE
COMOROS	LINE	2.400																										COMORES
	UNCL																											
EUROPEAN COMMUNITY	PS	123.373																										COMMUNAUTÉ EUROPÉENNE
	LL	0.001																										
	BB																											
	LINE	0.075																										
FRANCE-TERRITORIES	PS	0.804																										FRANCE-TERRITOIRES
	LINE	0.326																										
INDIA	LL	0.000																										INDE
	BB	3.522																										
	GILL	0.118																										
	LINE	0.062																										
	UNCL	0.135																										
INDONESIA	PS	3.223																										INDONÉSIE
	LL	0.198																										
	BB																											
	GILL	7.250																										
	UNCL	35.599																										
IRAN I R	PS	5.738																										IRAN, RÉP. ISLAMIQUE D'
	GILL	30.875																										
	LINE																											
JAPAN	PS	1.989																										JAPON
	LL	0.002																										
	UNCL																											
JORDAN	UNCL	0.049																										JORDANIE
KENYA	LL																											KENYA
KOREA REP	LL																											CORÉE, RÉPUBQUE DE
	BB																											
MADAGASCAR	BB																											MADAGASCAR
MALDIVES	LL	0.008																										MALDIVES
	BB	98.667																										
	LINE	1.164																										
	UNCL	0.102																										
MAURITIUS	PS	0.060																										MAURICE
	LL																											
	LINE	0.008																										
OMAN	LL	0.000																										OMAN
	GILL	0.104																										
PAKISTAN	GILL	3.439																										PAKISTAN
SEYCHELLES	PS	26.888																										SEYCHELLES
	UNCL																											
SOUTH AFRICA	LINE	0.000																										AFRIQUE DU SUD
	UNCL																											
SOVIET UNION	PS																											UNION SOVIÉTIQUE
SRI LANKA	BB																											SRI LANKA
	GILL	63.077																										
	LINE	0.037																										
THAILAND	PS	0.314																										THAÏLANDE
	LL	0.000																										
UK-TERRITORIES	LINE	0.001																										RU-TERRITOIRES
YEMEN AR RP	GILL	0.031																										YÉMEN
	LL	0.027																										NCA-FRAIS
	LL	0.001																										NCA-CONGELÉ
NOT ELSEWHERE INCLUDED	PS	42.260																										NON COMPRIS AILLEURS



**TEMPERATE TUNAS: Albacore (ALB)**

**(ALB) Germon: THONS TEMPERES**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	PS																											AUSTRALIE
	LL	0.078																										
	BB																											
	LINE	0.003																										
	UNCL	0.000																										
CHINA	LL	0.031																									CHINE	
TAIWAN,CHINA	LL	17.653																									TAIWAN,CHINE	
EUROPEAN COMMUNITY	GILL																											
	PS	0.734																									COMMUNAUTÉ EUROPÉENNE	
	LL	0.542																										
FRANCE-TERRITORIES	LINE	0.071																										
	PS	0.016																									FRANCE-TERRITOIRES	
	LL	0.000																										
	LINE	0.000																										
INDONESIA	LL	3.510																									INDONÉSIE	
IRAN I R	PS																										IRAN, RÉP. ISLAMIQUE D'	
JAPAN	LL	2.851																									JAPON	
KENYA	LL																										KENYA	
KOREA REP	LL	0.116																									CORÉE, RÉPUBQUE DE	
MAURITIUS	PS																										MAURICE	
	LL	0.019																										
	LINE																											
	LL	0.000																									OMAN	
PHILIPPINES	LL	0.037																									PHILIPPINES	
SEYCHELLES	PS	0.089																									SEYCHELLES	
	LL	0.871																										
	LL	0.046																									AFRIQUE DU SUD	
	LINE	0.003																										
SOVIET UNION	PS																										UNION SOVIÉTIQUE	
	LL																											
	LL	0.029																									THAÏLANDE	
	LL																										VANUATU	
NEI-FRESH	LL	0.080																									NCA-FRAIS	
NEI-FROZEN	LL	3.508																									NCA-CONGELÉ	
NOT ELSEWHERE INCLUDED	PS	0.149																									NON COMPRIS AILLEURS	

**TEMPERATE TUNAS: Southern bluefin tuna (SBF)**

**(SBF) Thon rouge du Sud: THONS TEMPERES**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	PS	5.148																										AUSTRALIE
	LL	0.016																										
	BB																											
	GILL	0.000																										
	LINE																											
CHINA	UNCL																											
CHINA	LL	0.003																									CHINE	
TAIWAN,CHINA	LL																										TAIWAN,CHINE	
	GILL																											
	LL	0.001																									COMMUNAUTÉ EUROPÉENNE	
	LL	1.112																									INDONÉSIE	
JAPAN	LL	3.353																									JAPON	
KOREA REP	LL	0.518																									CORÉE, RÉPUBQUE DE	
MAURITIUS	LL	0.000																									MAURICE	
PHILIPPINES	LL	0.071																									PHILIPPINES	
SEYCHELLES	LL	0.120																									SEYCHELLES	
SOUTH AFRICA	LL	0.001																									AFRIQUE DU SUD	
THAILAND	LL	0.007																									THAÏLANDE	
NEI-FRESH	LL																										NCA-FRAIS	
NEI-FROZEN	LL	0.000																									NCA-CONGELÉ	

NERITIC TUNAS: Kawakawa, Frigate and Bullet tunas (KAW, FRI, BLT)

(KAW, FRI, BLT) Thonine orientale, Auxide et Bonitou :THONS NERITIQUES

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	PS																											AUSTRALIE
	BB																											
	LINE	0.001																										
	UNCL	0.000																										
COMOROS	LINE	0.178																										COMORES
	UNCL																											
EGYPT	UNCL	0.388																										EGYPTE
ERITREA	GILL	0.007																										ERYTHRÉE
EUROPEAN COMMUNITY	PS	0.358																										COMMUNAUTÉ EUROPÉENNE
	LL	0.000																										
	LINE	0.024																										
INDIA	PS	2.134																										INDE
	LL	0.000																										
	GILL	20.221																										
	LINE	9.686																										
	UNCL	4.728																										
INDONESIA	GILL	0.275																										INDONÉSIE
	UNCL	8.838																										
IRAN I R	PS																											IRAN, RÉP. ISLAMIQUE D'
	LL																											
	GILL	14.522																										
	LINE																											
ISRAEL	UNCL																											ISRAËL
JORDAN	UNCL	0.042																										JORDANIE
MALAYSIA	PS	8.030																										MALAISIE
	GILL	0.099																										
	LINE	0.001																										
	UNCL	0.058																										
MALDIVES	LL	0.002																										MALDIVES
	BB	5.625																										
	LINE	0.737																										
	UNCL	0.030																										
OMAN	GILL	2.470																										OMAN
PAKISTAN	GILL	1.744																										PAKISTAN
SAUDI ARABIA	PS	0.001																										ARABIE SAOUDITE
	GILL	0.066																										
	LINE	0.087																										
	UNCL	0.119																										
SEYCHELLES	PS	0.038																										SEYCHELLES
	GILL																											
	LINE	0.080																										
	UNCL																											
SOUTH AFRICA	LINE	0.000																										AFRIQUE DU SUD
SOVIET UNION	PS																											UNION SOVIÉTIQUE
SRI LANKA	PS	0.991																										SRI LANKA
	BB																											
	GILL	3.835																										
	LINE	0.014																										
THAILAND	PS	7.257																										THAÏLANDE
	GILL	0.054																										
	UNCL																											
UK-TERRITORIES	LINE	0.000																										RU-TERRITORIES
UN ARAB EMIRATES	GILL	0.888																										EMIRATS ARABES UNIES
	LINE	0.142																										
	UNCL	0.153																										
YEMEN AR RP	GILL	2.565																										YÉMEN
NOT ELSEWHERE INCLUDED	PS	0.225																										NON COMPRIS AILLEURS

**NERITIC TUNAS: Longtail tuna (LOT)**

**(LOT) Thon mignon : THONS NERITIQUES**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	LL																											AUSTRALIE
	LINE	0.022																										
	UNCL	0.005																										
CHINA	LL																											CHINE
TAIWAN,CHINA	LL																											TAIWAN,CHINE
ERITREA	GILL																											ERYTHRÉE
INDIA	GILL	4.554																										INDE
	LINE	1.856																										
	UNCL																											
IRAN I R	PS	4.151																										IRAN, RÉP. ISLAMIQUE D'
	LL																											
	GILL	27.879																										
	LINE																											
JORDAN	UNCL	0.003																										JORDANIE
MALAYSIA	PS	3.442																										MALAISIE
	GILL	0.312																										
	LINE	0.001																										
	UNCL	0.058																										
OMAN	GILL	6.846																										OMAN
PAKISTAN	GILL	4.938																										PAKISTAN
SAUDI ARABIA	PS	0.001																										ARABIE SAOUDITE
	GILL	0.009																										
	LINE	0.014																										
	UNCL	0.116																										
SEYCHELLES	PS	0.230																										SEYCHELLES
SOVIET UNION	PS																											UNION SOVIÉTIQUE
SRI LANKA	GILL																											SRI LANKA
	LINE																											
THAILAND	PS	2.870																										THAÏLANDE
	GILL	0.672																										
	UNCL																											
UN ARAB EMIRATES	GILL	1.712																										EMIRATS ARABES UNIES
	LINE	0.273																										
	UNCL	0.297																										
YEMEN AR RP	GILL	4.537																										YÉMEN
NOT ELSEWHERE INCLUDED	PS	0.017																										NON COMPRIS AILLEURS

**NERITIC TUNAS: Narrow-barred Spanish mackerel (COM)**

**(COM) Thazard rayé indo-pacifique :THONS NERITIQUES**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	GILL	0.000																										AUSTRALIE
	LINE	0.435																										AUSTRALIE
	UNCL	0.001																										AUSTRALIE
BAHRAIN	GILL	0.032																										BAHREÏN
	LINE	0.069																										BAHREÏN
EGYPT	UNCL	0.406																										EGYPTE
ERITREA	GILL	0.173																										ERYTHRÉE
INDIA	PS	0.125																										INDE
	GILL	18.232																										INDE
	LINE	2.801																										INDE
INDONESIA	UNCL	11.607																										INDONÉSIE
	UNCL	20.246																										INDONÉSIE
	UNCL	20.246																										INDONÉSIE
IRAN I R	LL																											IRAN, RÉP. ISLAMIQUE D'
	GILL	7.385																										IRAN, RÉP. ISLAMIQUE D'
	LINE																											IRAN, RÉP. ISLAMIQUE D'
ISRAEL	UNCL																											ISRAËL
JORDAN	UNCL	0.001																										JORDANIE
KENYA	GILL	0.794																										KENYA
	LINE	0.125																										KENYA
	UNCL																											KENYA
KUWAIT	GILL	0.141																										KOWEÏT
MADAGASCAR	LINE	12.000																										MADAGASCAR
OMAN	GILL	2.592																										OMAN
PAKISTAN	GILL	8.608																										PAKISTAN
QATAR	GILL	0.935																										QATAR
SAUDI ARABIA	PS	0.018																										ARABIE SAOUDITE
	LL	0.001																										ARABIE SAOUDITE
	GILL	1.175																										ARABIE SAOUDITE
SOUTH AFRICA	LINE	1.040																										AFRIQUE DU SUD
	UNCL	3.283																										AFRIQUE DU SUD
	UNCL																											AFRIQUE DU SUD
SRI LANKA	GILL	2.849																										SRI LANKA
	LINE	0.009																										SRI LANKA
	UNCL																											SRI LANKA
SUDAN	UNCL	0.031																										SOUDAN
UN ARAB EMIRATES	GILL	4.330																										EMIRATS ARABES UNIES
	LINE	0.693																										EMIRATS ARABES UNIES
	UNCL	0.750																										EMIRATS ARABES UNIES
YEMEN AR RP	GILL	1.925																										YÉMEN

**NERITIC TUNAS: Indo-Pacific king mackerel (GUT)**

**(GUT) Thazard ponctué indo-pacifique :THONS NERITIQUES**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays	
INDIA	PS	0.056																										INDE	
	GILL	8.178																											INDE
	LINE	1.256																											INDE
INDONESIA	UNCL	5.207																											INDONÉSIE
	UNCL	11.814																											INDONÉSIE
	UNCL	11.814																											INDONÉSIE
IRAN I R	LL																												IRAN, RÉP. ISLAMIQUE D'
	GILL	3.716																											IRAN, RÉP. ISLAMIQUE D'
	LINE																												IRAN, RÉP. ISLAMIQUE D'
KUWAIT	GILL	0.146																											KOWEÏT
SAUDI ARABIA	GILL	0.269																											ARABIE SAOUDITE
	LINE	0.037																											ARABIE SAOUDITE
	UNCL	0.007																											ARABIE SAOUDITE
SOUTH AFRICA	LINE	0.020																											AFRIQUE DU SUD
SRI LANKA	GILL																												SRI LANKA
YEMEN AR RP	GILL	0.316																											YÉMEN

NERITIC TUNAS: Striped seerfish and Wahoo (STS, WAH)

Thazard cirrus et Thazard-bâtard : THONS NERITIQUES

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	PS	0.001																										AUSTRALIE
	LL	0.003																										
	BB																											
	GILL	0.000																										
	LINE	0.017																										
	UNCL	0.000																										
BANGLADESH	GILL	0.060																										BANGLADESH
CHINA	LL																											CHINE
TAIWAN,CHINA	LL																											TAIWAN,CHINE
COMOROS	LINE	0.373																										COMORES
	UNCL	0.001																										
DJIBOUTI	GILL	0.060																										DJIBOUTI
ERITREA	GILL	0.000																										ERYTHRÉE
EUROPEAN COMMUNITY	LL	0.002																										COMMUNAUTÉ EUROPÉENNE
	LINE	0.057																										
FRANCE-TERRITORIES	LL	0.000																										FRANCE-TERRITOIRES
	LINE	0.090																										
INDIA	LL	0.000																										INDE
	GILL	0.020																										
	LINE	0.003																										
	UNCL	0.012																										
INDONESIA	LL	0.057																										INDONÉSIE
KENYA	GILL	0.160																										KENYA
	LINE	0.015																										
	UNCL	0.060																										
MALAYSIA	PS	0.131																										MALAISIE
	LL																											
	GILL	1.968																										
	LINE	0.048																										
	UNCL	1.706																										
OMAN	LL	0.000																										OMAN
PAKISTAN	GILL																											PAKISTAN
SEYCHELLES	LINE	0.004																										SEYCHELLES
SOUTH AFRICA	LL	0.000																										AFRIQUE DU SUD
	LINE	0.002																										
	UNCL																											
SRI LANKA	GILL	0.186																										SRI LANKA
	LINE	0.007																										
TANZANIA	UNCL	0.430																										TANZANIE
THAILAND	PS	0.668																										THAÏLANDE
	GILL	1.274																										
	UNCL	3.563																										
UN ARAB EMIRATES	GILL	0.862																										EMIRATS ARABES UNIES
	LINE	0.138																										
	UNCL	0.149																										
NEI-FRESH	LL	0.001																										NCA-FRAIS
NEI-FROZEN	LL	0.000																										NCA-CONGELÉ

**BILLFISH: Swordfish (SWO)**

**(SWO) Espadon :POISSONS-EPEE**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	LL	1.706																										AUSTRALIE
	LINE	0.000																										
CHINA	LL	0.494																										CHINE
TAIWAN,CHINA	LL	13.020																										TAIWAN,CHINE
EUROPEAN COMMUNITY	LL	4.706																										COMMUNAUTÉ EUROPÉENNE
	LINE	0.025																										
FRANCE-TERRITORIES	LL	0.003																										FRANCE-TERRITOIRES
GUINEA	LL	0.273																										GUINÉE
INDIA	LL	0.006																										INDE
INDONESIA	LL	1.585																										INDONÉSIE
IRAN I R	LL	0.010																										IRAN, RÉP. ISLAMIQUE D'
JAPAN	LL	1.274																										JAPON
	UNCL																											
KENYA	LL																											KENYA
	LINE	0.004																										
KOREA REP	LL	0.090																										CORÉE, RÉPUBQUE DE
MALAYSIA	LL	0.006																										MALAISIE
MAURITIUS	LL	0.273																										MAURICE
OMAN	LL	0.001																										OMAN
PHILIPPINES	LL	0.211																										PHILIPPINES
SEYCHELLES	LL	0.834																										SEYCHELLES
	LINE																											
SOUTH AFRICA	LL	0.411																										AFRIQUE DU SUD
	LINE																											
SOVIET UNION	LL																											UNION SOVIÉTIQUE
SRI LANKA	GILL	2.152																										SRI LANKA
THAILAND	LL	0.015																										THAÏLANDE
VANUATU	LL																											VANUATU
NEI-FRESH	LL	0.820																										NCA-FRAIS
NEI-FROZEN	LL	3.240																										NCA-CONGELÉ

**BILLFISH: Blue marlin, Black marlin and Striped marlin (BUM, BLM, MLS)**

**(BUM, BLM, MLS) Makaïre bleu, Makaïre noir et Marlin rayé :POISSONS-EPEE**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	LL	0.001																										AUSTRALIE
	LINE	0.000																										
CHINA	LL																											CHINE
TAIWAN,CHINA	LL	4.521																										TAIWAN,CHINE
EUROPEAN COMMUNITY	LL	0.082																										COMMUNAUTÉ EUROPÉENNE
	LINE	0.034																										
FRANCE-TERRITORIES	LL																											FRANCE-TERRITOIRES
	LINE	0.004																										
GUINEA	LL	0.009																										GUINÉE
INDIA	LL	0.006																										INDE
INDONESIA	LL	2.599																										INDONÉSIE
IRAN I R	LL	0.004																										IRAN, RÉP. ISLAMIQUE D'
JAPAN	LL	0.818																										JAPON
KENYA	LL																											KENYA
	LINE	0.036																										
KOREA REP	LL	0.082																										CORÉE, RÉPUBQUE DE
MALAYSIA	LL	0.011																										MALAISIE
MAURITIUS	LL	0.007																										MAURICE
OMAN	LL	0.001																										OMAN
PHILIPPINES	LL	0.044																										PHILIPPINES
SEYCHELLES	LL	0.104																										SEYCHELLES
	LINE																											
SOUTH AFRICA	LL	0.009																										AFRIQUE DU SUD
	LINE	0.000																										
UNCL																												
SOVIET UNION	LL																											UNION SOVIÉTIQUE
SRI LANKA	GILL	3.257																										SRI LANKA
	LINE	0.017																										
THAILAND	LL	0.006																										THAÏLANDE
UK-TERRITORIES	LINE	0.000																										RU-TERRITOIRES
VANUATU	LL																											VANUATU
NEI-FRESH	LL	1.165																										NCA-FRAIS
NEI-FROZEN	LL	0.782																										NCA-CONGELÉ

**BILLFISH: Indo-Pacific sailfish and Short-billed spearfish (SFA, SSP)**

**(SFA, SSP) Voilier indo-pacifique et Makaïre à rostre court :POISSONS-EPEE**

Country	Gear	AvC	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97	99	01	03	Pays
AUSTRALIA	LL	0.000																										AUSTRALIE
	LINE	0.000																										
CHINA	LL																											CHINE
TAIWAN,CHINA	LL	0.015																										TAIWAN,CHINE
COMOROS	LINE	0.250																										COMORES
ERITREA	GILL	0.000																										ERYTHRÉE
EUROPEAN COMMUNITY	LL	0.041																										COMMUNAUTÉ EUROPÉENNE
	LINE	0.007																										
FRANCE-TERRITORIES	LL	0.000																										FRANCE-TERRITOIRES
	LINE	0.018																										
INDIA	LL	0.004																										INDE
INDONESIA	LL	0.758																										INDONÉSIE
IRAN I R	LL	0.001																										IRAN, RÉP. ISLAMIQUE D'
	GILL	5.969																										
JAPAN	LL	0.149																										JAPON
KENYA	LL																											KENYA
	GILL	0.094																										
	LINE	0.107																										
	UNCL																											
KOREA REP	LL	0.000																										CORÉE, RÉPUBQUE DE
MAURITIUS	LL	0.000																										MAURICE
OMAN	GILL	0.155																										OMAN
PAKISTAN	LL																											PAKISTAN
	GILL																											
SAUDI ARABIA	GILL																											ARABIE SAOUDITE
	LINE	0.000																										
	UNCL	0.009																										
SEYCHELLES	LL	0.007																										SEYCHELLES
	LINE	0.001																										
SOUTH AFRICA	LL	0.000																										AFRIQUE DU SUD
	LINE	0.000																										
	UNCL																											
SRI LANKA	GILL	3.822																										SRI LANKA
	LINE	0.015																										
THAILAND	LL	0.001																										THAÏLANDE
UK-TERRITORIES	LINE	0.000																										RU-TERRITOIRES
NEI-FRESH	LL	0.139																										NCA-FRAIS
NEI-FROZEN	LL	0.007																										NCA-CONGELÉ