IOTC-2008-WPTT-08

Estimation of Catch-at-Size, Catch-at-Age and Total Catch per Area

IOTC Secretariat

Summary

This document describes the methods used by the IOTC Secretariat to produce catch-at-size tables for yellowfin tuna, bigeye tuna, skipjack tuna, albacore and swordfish for the period 1950-2007 using estimates of total catch and the available catch and effort data and size frequency data in the IOTC database. Estimates of catch-at-size, catch-at-age and total catch per area are provided. The results are affected by the lack of information for some fleets, periods and years, and, in particular, by the lack of catch and size data from most artisanal fleets and some industrial fleets.

Rationale

Catch-At-Size (CAS) and Catch-at-Age (CAA) has three main uses:

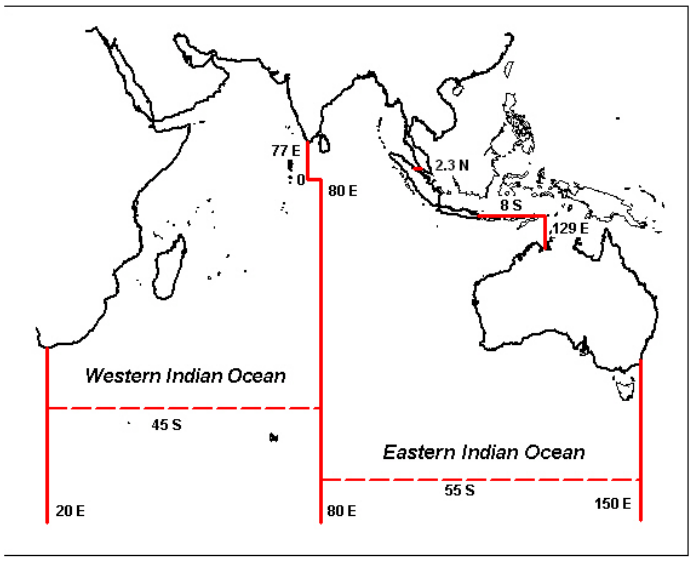
- Input for stock assessment models being currently used by the Commission's technical groups
- Stock status indicators (e.g. trends in average weight per fishery)
- Production of tables of total catch by fleet, species, gear, year, month and five degrees square areas.

The construction of a catch-at-size table for a particular species requires that length frequency distributions are assigned to the total catch. Thus, the sampled weight estimated for each stratum (i.e. the weight resulting from summing up the weights estimated for the specimens within each length class) is raised to the nominal catch recorded for that stratum.

Species involved

CAS tables are estimated for yellowfin tuna, bigeye tuna, skipjack tuna, albacore and swordfish. The estimation of CAS for other species has not been attempted in this paper due to a paucity of data.

Figure 1: IOTC areas used for the Nominal Catches



Input Data

Three datasets are used for the estimation of CAS:

- *Nominal catches*: Total catch estimates per Species, Fleet, Year, Gear and IOTC Area (Figure 1). The data in this dataset issues from two different sources:
  a. Reports from the flag countries or reports from other countries on the catches of foreign vessels operating within its Economic Exclusive Zone or based in ports within its territory.
  b. Estimates carried out by the IOTC Secretariat: this may involve changes in the catches reported by the above or the estimation of catches for non-reporting fleets (e.g. catches recorded under the NEI[1] category).
- *Catches per area* (from catch and effort): Catches (in tonnes or/and in number) are recorded per Species, Fleet, Year, Gear, Type of School, Time Interval (month or quarter usually) and area (usually 1 degree square areas for industrial purse seine fisheries, 5 degrees square areas for industrial longline fisheries and various regular or irregular areas for artisanal fisheries). Catches per area are not available for all Nominal catches strata. When recorded, the catches in these datasets might represent the total catches of the species in the year for the fleet and gear concerned or represent simply a sample of those.
- *Size data*: Size frequency data (standard or processed length or standard or processed weight) are recorded per Species, Fleet, Year, Gear, Type of School, Time Interval (month or quarter or year usually) and area (usually 5 degrees square areas for purse seine fisheries, 10 degrees latitude by 20 degrees longitude for longline fisheries and various regular or irregular areas for artisanal fisheries). Size data are not available for all Nominal catches strata. When recorded, the size data might represent the total catches of the species in the strata concerned or simply a sample of those.

The type of information recorded in each case is summarized in **Table 1** below:

Table 1.

Dataset	*Fishery Strata*	*Time Strata*	*Area Strata*	*Represents*
Nominal Catches	Fleet-Gear (or gear aggregate)-Species (or species aggregate)	Year	IOTC Area	Total catches
Catches per area	Fleet-Gear (or gear aggregate)-Type of School (purse seine only)-Species	Month (quarter or year)	1°square area (purse seine) 5°square area (longline) Other regular or irregular areas	Sample
Size data	Species- Fleet-Gear (or gear aggregate)-Type of School (purse seine only)-Type of measurement (length or weight, standard or processed)-Size interval (between size classes)	Quarter (year or month)	5°square area (purse seine) 10°Lat.*20°Lon. area (longline) Other regular or irregular areas	Sample

Data Processing

Estimating total catches per species and gear

The catches in the IOTC nominal catches database are not recorded per species and/or per gear in all cases. The Secretariat conducted a review aiming at estimating catches when data were not available by species or gear in the IOTC database. This process was documented in a paper presented to the WPTT in 2004 (IOTC-2004-WPTT-06).

Standardizing the data in the catch and effort table

The catches in the catch and effort table are recorded under different levels of aggregation. All the catches from this record were assigned per Species-Fleet-Gear-Type of School-Year-Month-5° square grid-Catch in number of fish-(and/or)-Catch in metric tons.

i. Area allocation: All the catches not recorded per 5° square areas were assigned to 5° square areas as follows:
   a. Allocation of catches recorded under irregular areas to regular grids: The catches recorded under irregular areas (e.g. port of unloading, fishing district, etc.) were assigned to regular grids. The areas assigned are shown in Appendix I .
   b. Aggregation of catches recorded under lower resolution areas: all catches recorded under areas smaller than the standard were aggregated under the corresponding 5° square areas.
   c. Disaggregation of catches recorded under higher resolution areas: all catches recorded under areas larger than the standard were evenly assigned per 5° square area.

ii. Time allocation: The catches recorded per time intervals higher than a month were proportionally assigned per month.

[1] Not elsewhere identified

Standardizing the available size frequency data

The samples in the size frequency table are recorded under different levels of aggregation. The samples from this record were aggregated depending on the species and type of fishery. The level of aggregation chosen in each case is indicated below:

- Industrial purse seine fisheries: Species-Fleet-Gear-Type of School-Year-Quarter-Purse Seine Statistical Area (Figure 2)-Fork length class (in centimetres)-Number of fish.
- Other fisheries (industrial longline plus all artisanal fisheries): Species-Fleet-Gear-Type of School-Year-Quarter-10º latitude by 20º longitude areas (Figure 3)-Fork length class (in centimetres)-Number of fish.

The areas referred to above are shown in Figures 2 and 3.

Figure 2: Areas used for industrial purse seiners

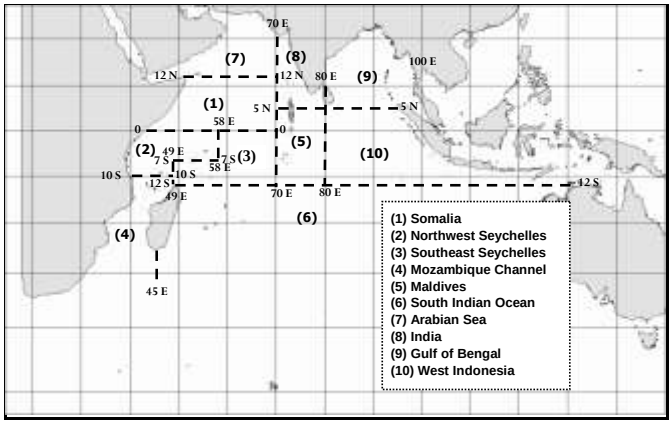
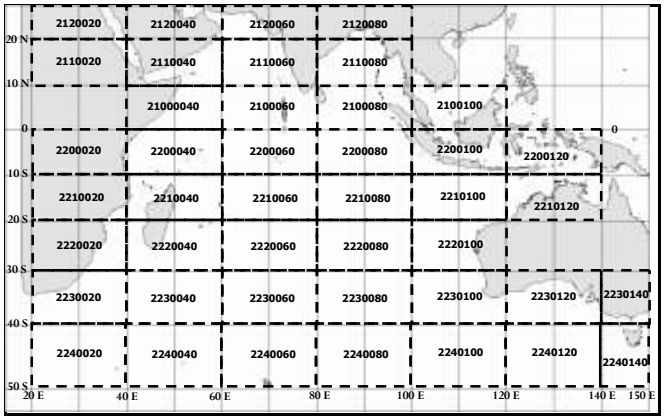


Figure 3: Areas used for other fisheries



Most of the size data in the IOTC database for industrial longline fisheries (Japan, Taiwan,China) is recorded as per the areas shown in Figure 3 above.

The intervals used between consecutive size classes were assigned depending on the species (Table 2).

Table 2: Standard length, first length, interval and total number of size classes used for tropical tuna species

Species	*Standard Length*	*First length (cm)*	*Interval between length classes (cm)*	*Total number of size classes*	*Maximum interval allowed (cm)*
Yellowfin tuna	Fork length	10	2	150	4
Bigeye tuna	Fork length	10	2	150	4
Skipjack tuna	Fork length	10	1	150	2
Albacore	Fork length	10	1	150	2
Swordfish	Fork length*	15	3	150	5

NOTE: All samples in the IOTC database were assigned according to the specifications above; the samples recorded under length intervals higher than the maximum interval specified above were not used
***Refers to lower-jaw fork-length**

The steps given to put the samples available for each species into standard form are indicated below:

i. Converting from non-standard measurement types into standard length (Table 3):
   a. Converting from weight into standard-length: The process used to estimate fork length from the gilled and gutted weights recorded for yellowfin tuna and bigeye tuna is documented in a separate document (IOTC-2006-WPTT-INF06).
   b. Converting from non-standard length into standard length: The regression equations indicated in Table 3 are used to estimate fork length from the lengths to the first dorsal fin recorded for yellowfin tuna and bigeye tuna, respectively (through slicing).

ii. Assigning the existing fork lengths per standard length class interval:
   a. Aggregation of lengths recorded under classes lower than the standard class: all lengths recorded under classes lower than the standard were aggregated to the closest lower class (e.g. YFT specimens recorded under the classes 10-11 cm and 11-12 cm were accumulated under the length class 10).
   b. Disaggregation of lengths recorded under classes higher than the standard class: all the specimens recorded under length classes below the standard classes defined in table 2 above were assigned proportionally to the length classes making the aggregate (e.g. 2/3 of the YFT specimens recorded under the length class 10-13 were assigned to the class 10-12 and 1/3 to the class 12-14). The samples recorded under length intervals over the maximum interval recorded in table 2 were not used.

iii. Area allocation: All the samples not recorded per standard areas (see figure 2 and figure 3 above) were assigned to the corresponding areas as follows:

a. Allocation of samples recorded under irregular areas to regular grids: The samples recorded under irregular areas (e.g. port of unloading, fishing district, etc.) were assigned to regular areas. The areas assigned are shown in Appendix I.
b. Aggregation of samples recorded within the standard areas: all samples recorded within the standard areas were aggregated under the corresponding areas.
c. Disaggregation of samples recorded under two or more standard areas: the samples recorded under two or more standard areas were assigned proportionally to the areas concerned.

Table 3: Regression equations used to convert from non-standard measurements into standard lengths, per species

Species: Yellowfin tuna

Type Measurement	*Equation*	*Parameters*	*Sample size*	*Size range*	*Variance*	*Covariance ab*	*Mean Residual*	*Gradient*
Weight gilled and gutted[A]	aW^b	a= 44.28699 b= 0.3008591	2,361	Min:14 Max:71	a=0.00752476509 b=2.86244E-07	-4.626246E-05	4.095958	a=3.033852 b=495.6385
Length to the base of the 1st dorsal fin[B]	aL^b	a=1.9011 b=1.177	3,139	Min:10 Max:50				
Length base of first dorsal fin to fork of of caudal fin	No equation available							

Species: Bigeye tuna

Type Measurement	*Equation*	*Parameters*	*Sample size*	*Size range*	*Variance*	*Covariance ab*	*Mean Residual*	*Gradient*
Weight gilled and gutted[A]	aW^b	a= 42.2186 b= 0.3012349	316	Min:12 Max:107	a=0.0321755341 b=1.299934E-06	-0.0002034041	3.98137	a=3.03806 b=473.1455
Length tip of the mouth to the base of the 1st dorsal fin[C]	$\frac{L+a}{b}^2$	a=21.45108 b=5.28756	2,858	Min:13 Max:48				
Length base of first dorsal fin to fork of of caudal fin	No equation available							

Species: Swordfish

Type Measurement	*Equation*	*Parameters*	*Sample size*	*Size range*	*Variance*	*Covariance ab*	*Mean Residual*	*Gradient*
Cleithrum to caudal fork length[D]	$\frac{L+b}{a}$	a= 0.8087 b= 8.6712	n/a	n/a				
Cleithrum to keel length[E]	$aL+b$	a=1.5511 b=13.5025	n/a	n/a				
Eye to Fork Length[D]	$aL+b$	a=1.066 b=10.449	n/a	n/a				
Pectoral fin to anal fin length[D]	$aL+b$	a=2.5407 b=25.698	n/a	n/a				
Pectoral fin to caudal fork length[D]	$aL+b$	a=1.2398 b=11.204	n/a	n/a				
Weight gilled and gutted[G]	$w/a^{1/b}$	a=4.3491E-06 b=3.188	n/a	n/a				
Weight headed and gutted[G]	$w/a^{1/b}$	a=0.000004592 b=3.137	n/a	n/a				
Weight round[F]	$w/a^{1/b}$	a=0.000003815 b=3.188	n/a	n/a				

A: Data from IPTP Penang Sampling Programme (1992-93)
B: Data from the Atlantic Ocean, Caverivière (1976) (Fonteneau, A. et J. Marcille (eds), 1988: Ressources, pêche et biologie des thonidés tropicaux de l'Atlantique Centre-Est. FAO Doc.Tech.Pêches, (292), page 261)
C: Data from the Atlantic Ocean, Champagnat et Pianet (1974) (ibid. B)
D: Need to add data source
*E: Two step conversion as CKL = (0.690253*EFL) -3.541823 in formula LJFL = 8.00884+(1.07064*EFL); NOAA Data (Pacific Ocean)*
F: Converted to GGT (GGT=RND/1.14 (Mejuto et al. 1998)) and inverted length-weight equation (ICCAT Mejuto et al 1998 South-East Atlantic Ocean)
G: Inverted length-weight equation (need to add data source)

iv. Time allocation: The catches not recorded per quarter were aggregated or proportionally disaggregated per quarter.

v. Estimation of sampled weight: The weight for each sample was calculated by adding the weights estimated for all the specimens making it. The equations used to estimate weight from the available lengths are shown in Table 4.

Table 4: Equations used to convert from standard (fork) length into round weight, per species

Species	*Gear Type/s*	*From type measurement – To type measurement*	*Equation*	*Parameters*	*Sample size*	*Length*
Yellowfin tuna	Purse seine Pole and Line Gillnet	<64cm Fork length – Round Weight(kg)[A] >=64 cm Fork length – Round Weight(kg)[A]	$w^{live}=aL^{b}$	a= 0.0000531300 b= 2.75366 a= 0.0000158490 b= 3.04600	n/a	n/a
	Longline Line Other Gears	Fork length(cm) – Gilled and gutted weight(kg)[B] Gilled and gutted weight(kg) - Round Weight(kg)[C]	$w^{GGT}=aL^{b}$ $w^{live}=1.13w^{GGT}$	a= 0.0000094007 b= 3.12684	15,133	Min:72 Max:177
Bigeye tuna	Purse seine Pole and Line Gillnet	Fork length(cm) – Round Weight(kg)[D]	$w^{live}=aL^{b}$	a= 0.000027000 b= 2.95100	n/a	n/a
	Longline Line Other Gears	Fork length(cm) – Gilled and gutted weight(kg)[B] Gilled and gutted weight(kg) - Round Weight(kg)[C]	$w^{GGT}=aL^{b}$ $w^{live}=1.13w^{GGT}$	a= 0.0000159207 b= 3.04154	12,047	Min:70 Max:187
Skipjack tuna	All gears	Fork length(cm) – Round Weight(kg)[E]	$w^{live}=aL^{b}$	a= 0.0000074800 b= 3.25260	14,140	Min:32 Max:78
Albacore	All gears	Fork length(cm) – Round Weight(kg)[F]	$w^{live}=aL^{b}$	a=0.0000569070 b=2.75140	n/a	n/a
Swordfish	All gears	Fork length(cm) – Round Weight(kg)[G]	$w^{live}=aL^{b}$	a=0.0000042030 b=3.21340	n/a	n/a

*A: **Montaudoin, Hallier and Hassani, IPTP TWS/90/48 (vol.4)***
B: Multilateral catch monitoring Benoa (2002-04)
C: ICCAT Field Manual (Appendix 4: Population parameters for key ICCAT species. Product Conversion Factors)
D: Cort (1986)
*E: **Data from the Atlantic Ocean,** Cayré et Laloë (**Fonteneau, A. et J. Marcille (eds), 1988: Ressources, pêche et biologie des thonidés tropicaux de l'Atlantique Centre-Est. FAO Doc.Tech.Pêches, (292)**, page262)*
F: Chien-Chung Hsu (Taiwanese gillnet fishery Indian Ocean)
G: ICCAT (Mejuto et al., 1988)

Examples of the standard tables referred to above can be found in Appendix II .

Breaking the nominal catches per time and area (CTA)

The aim of this process is to break the catches recorded in the nominal catches table per time and area. This information is used:

- For the estimation of catch-at-size tables: The length distributions of tuna species may change depending on the area and/or time fished and therefore the estimation of catches-at-size is likely to be improved if this information is used.
- For the estimation of total catches per time and area for the Tuna Atlas.

The steps given to assign the catches available for each NC stratum per month and 5° square areas are indicated below:

i. Nominal catches strata for which catches per time and area (CTA) exist:
   a. Deleting strata from the catches per time and area table: The catches per time and area for NEI-(deep)-freezing longliners and NEI-fresh tuna longliners were not used because they refer to very specific areas and times and are not considered to cover all the areas of operation of these fleets. The catches for industrial purse seiners operating under the flag of the Soviet Union and other flags in recent times (NEI-ex-Soviet) were deleted for some years for the same reason.
   b. Breaking the nominal catches per time and area: The nominal catches were broken per time and area in years for which spatio-temporal catches are available for the fleet concerned.

ii. Nominal catches strata for which catches per time and area do not exist:
  a. Catches per area are available for the same fleet in years before or after the year concerned:
  i. Catches for the same species are available: The catches recorded in the five years closest to the year of reference were accumulated and the average values obtained used to break the catches per area in the year concerned. Data extending to up to 25 years above or below the year concerned are used.
  ii. Catches for other species are available:
    a. The catches recorded in the year of reference were accumulated and the average values obtained used to break the catches per area in the year concerned
    b. The catches recorded in the five years closest to the year of reference were accumulated and the average values obtained used to break the catches per area in the year concerned. Data extending to up to 25 years above or below the year concerned are used.
  b.
  c. Catches per area are not available for the same fleet in years before or after the year concerned or they are available but very far in time (more than 25 years before or after the year concerned):
  i. Fleets that are presumed to operate as other fleets for which catches per area exist: This refers mainly to industrial fleets. The catches per area available for other fleets (and years) are used to break the nominal catches per month and 5 degrees square area/s.
    a. Catches per area for the alternative fleet are available for the same year: This information is used to break the nominal catches per time and area.
    b. Catches per area for the alternative fleet are not available for the same year: The same substitution scheme as the one defined in ii.a. above is used.

  The fisheries for which the above substitution scheme was used and the alternate fleets and gears selected for substitution in each case can be found in Appendix III.
  ii. Fleets that are presumed to operate in specific areas: This refers mainly to artisanal and semi-industrial fleets. One or more 5° square areas were assigned to each fleet. The areas assigned are shown in Appendix IV.
    c. Time-area catches exist for other fleets in the areas concerned: The nominal catches are broken per month and area according to the proportion that the catches available from other fleets make in the area/s concerned.
    d. Time-area catches do not exist for other fleets in the areas concerned: The catches for the fleet concerned are broken proportionally per month and area.

Estimating catches-at-size (CAS)

The aim of this process is to estimate length frequency distributions for each species, year and gear type. Thus, the accumulated weight estimated from the specimens making up the length frequency shall be the same than the total weight recorded in the stratum concerned and the weight issuing from all the strata shall be equal to the total catches recorded for the species in the year concerned. These data are used to estimate catches-at-age and other information used as input for stock assessment models.

The time-area resolution used for the estimation of catches-at-size depends on the gear type (see 'Standardizing the available size frequency data' on page 2 for details). The minimum sample size was set to 30 specimens. The samples made up of less than 30 fish were completed with specimens from other stratum/a until a total of 30 or more specimens were attained.

The amount of length frequency data available is scarce for some fisheries and/or periods. The use of length frequency information from fleets and/or gears other than the one for which nominal catches are recorded is required in many cases. The substitution scheme used to assign length frequency data per time and area is explained below:

i. Length frequency data are available for the stratum concerned:
  a. Deleting samples from the length frequency table: The samples recorded for South Korea were not used because they are presumed very incomplete.
  b. Assigning the available length frequency distributions per strata: The remaining length frequency distributions were assigned per strata.
ii. Length frequency data are not available for the stratum concerned:
  a. Length frequency data are available within the year before or after the quarter concerned:
  i. Length frequency data are available for the same fleet and gear. Two substitution schemes are used depending on the gear type:
    a. Industrial purse seiners: The areas defined in Figure 2 are used. The following latitude and longitude are assigned to each area[2]:

PS Area	*Q-Lat-Lon*
(1) Somalia	1 00 040

PS Area	*Q-Lat-Lon*
(6) S Indian Ocean	2 20 060

[2] Note that the substitution scheme is based on changes in time and/or space (latitude and/or longitude). The areas assigned are used for the substitution.

(2) NW Seychelles	2 00 020	(7) Arabian Sea	1 20 040
(3) SE Seychelles	2 00 060	(8) India	1 00 080
(4) Moz. Channel	2 10 020	(9) Gulf of Bengal	1 00 100
(5) Maldives	2 00 080	(10) W Indonesia	2 00 100

b. Other gears: The areas defined in Figure 3 are used. Two regions are identified:
   i. Areas below 10°S
   ii. Areas above 10°S

   The sizes of the specimens of yellowfin tuna and bigeye tuna seem to vary markedly depending on the latitude. The substitution scheme is therefore applied independently to each area (i.e. Length frequency data from areas below 10°S are not used for strata in the North and *vice versa*).

The substitution process is based on changes in time (quarter) and/or space (latitude and/or longitude). Below is an example of the first substitution steps. All steps are defined in the table presented in Appendix V.

Step	*Lat*	*Long*	*Qtr*	*Description*
1	0	0	-0.25	Length frequency data from the same area and previous quarter are used for substitution, if any
2	0	0	0.25	Length frequency data from the same area and following quarter are used for substitution, if any
3	0	-20	0	Length frequency data from the first area to the West and same quarter are used for substitution, if any
4	0	20	0	Length frequency data from the first area to the East and same quarter are used for substitution, if any
5	0	-20	-0.25	Length frequency data from the first area to the West and previous quarter are used for substitution, if any
!	!	!	!	!
764	0	120	1.00	Length frequency data from the area 120 degrees to the East and following year are used for substitution, if any
Note that the latitude and longitude defined above for industrial PS and those from the 10*20 grids for other fisheries are used				

ii. No length frequency data are available for the same fleet and gear: Information from other fleet/s is used. The length frequency data available from other fleets that are presumed to operate the same areas and/or use the same fishing techniques are used for substitution. The same substitution scheme in time and area is applied in each case. Three levels of aggregation are established. The complete substitution tables for each species are shown in Appendix VI. Below is an example of the substitution scheme:

CTA Strata			*Level Aggregation 1*		*Level Aggregation 2*		*Level Aggregation 3*	
Species	*Gear*	*Fleet*	*Gear Ag1*	*Fleet Ag1*	*Gear Ag2*	*Fleet Ag2*	*Gear Ag3*	*Fleet Ag3*
BET	LL	IND	LL	AG3	LL	AG2	LL	AG1
BET	LL	IRN	LL	AG2	LL	AG2	LL	AG1
BET	LL	JPN	LL	AG1	LL	AG1	LL	AG1
BET	LL	KOR	LL	AG1	LL	AG1	LL	AG1
BET	LL	NEI-DFRZ	LL	AG3	LL	AG2	LL	AG1
BET	LL	PHL	LL	AG3	LL	AG2	LL	AG1
BET	LL	SUN	LL	AG2	LL	AG2	LL	AG1
BET	LL	SYC	LL	AG3	LL	AG2	LL	AG1
BET	LL	THA	LL	AG1	LL	AG1	LL	AG1
BET	LL	TWN	LL	AG3	LL	AG2	LL	AG1

If no samples of bigeye tuna are recorded for the longline fishery of South Korea in the stratum concerned (or the sample is made up of less than 30 specimens) the samples available for South Korea and/or Japan and/or Thailand are aggregated. The substitution scheme defined in Appendix V applies also in this case. If no samples are available for the above fleets the second level of aggregation is used and the third level is used in the case that no samples are found.

b. No length frequency data are available within the year before or after the quarter concerned:

i. Length frequency data are available for the same fleet in other years: The samples for the three years that are closest to the year concerned are used. Only the samples from the 25 years before or after the year concerned are used.

ii. No length frequency data are available for the same fleet in other years or they are very far in time (more than 25 years ahead or behind the year concerned). The available length data for other fleets are used. The information from the fleets and gears specified in Appendix VI and the above substitution scheme (b.i.) apply in this case.

c. No Length frequency data are available for the gear concerned in the 25 years before or after the year concerned:

i. Length frequency data are available for the same fleet and gear anytime at all: all available samples are used (i.e. the accumulated length frequency for the whole period is used).

ii. No length frequency data are available for the same fleet and gear anytime at all: The available length data for other fleets are used. The information from the fleets and gears specified in Appendix VI and the above substitution scheme (c.i.) apply in this case.

The average weights estimated from the samples (by using the equations in Table 4) are used to estimate the number of specimens or the weight for each stratum in the CAS table:

- Longline fisheries: The catches are usually recorded in numbers. The average weights estimated from the sample are multiplied by the numbers of fish recorded (from the CTA table) to obtain the weights per stratum. This method is also used for fisheries for which only numbers of fish are recorded.
- Other fisheries: The catches are usually recorded in weight. The average weights estimated from the sample are divided by the weight recorded (from the CTA table) to obtain the numbers per stratum. This method is also used for longline fisheries for which only the weights are recorded.

The resulting weights are accumulated per fleet, gear, year, species and IOTC Area. The factor resulting from dividing the total catches estimated for the species (nominal catches) and those issuing from the CAS table is used to estimate total weight, total number of fish and number of fish per length class for each stratum in the CAS table.

Estimating total catches per area

The catches and numbers of fish in the CTA table are weighed by following the same approach (as explained in the last part of the previous section).

Estimation of catch-at-age tables

The catches-at-age for each species are estimated from the available catches-at-size. The estimation procedures for the yellowfin tuna, bigeye tuna and albacore are presented in a separate document (IOTC-2008-WPTT-11). More detailed information on the growth of tropical tunas is available in document IOTC-2008-WPTT09. CAA was not estimated for swordfish or the skipjack tuna.

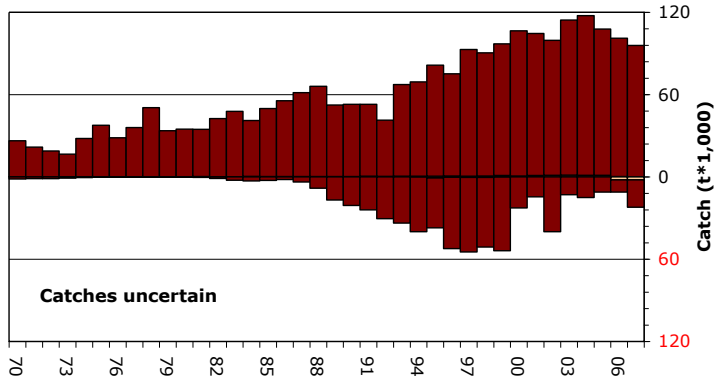
Results

Total catches per species

The total catches per species, gear type and year estimated from the process are shown in Appendix VII . **The catches estimates for 2007 are preliminary** due to the data being incomplete.

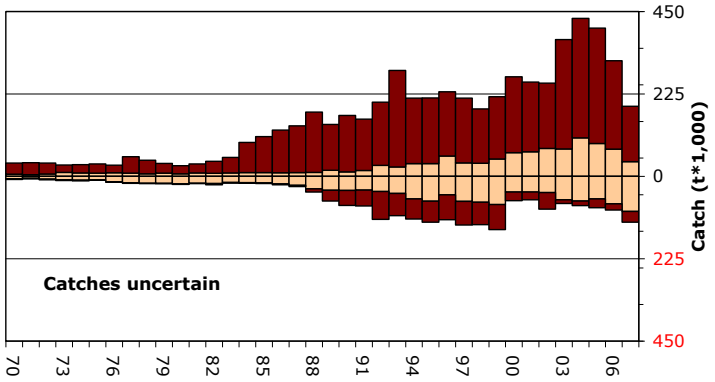
- Bigeye tuna: This species is caught by longliners, purse seiners and, to a lesser extent, bait boats and other artisanal fleets. The catches are likely to be of good quality. Figure 4 shows the status of the catches of bigeye tuna for 1970-2007.

Figure 4: Uncertainty of annual catch estimates for bigeye tuna (BET). The amount of the catch below the zero-line has been categorized as uncertain by the Secretariat. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets (1970-2007).



- Yellowfin tuna: This species is caught by several industrial (PS, LL) and artisanal (GILL, BB, LINE) fleets. Figure 5 shows the status of the catches of yellowfin tuna for 1970-2007. The amount of catches of yellowfin tuna that is not reported per gear is of concern, mainly since the early 90's. The majority of these catches is presumed to refer to artisanal gears, mainly gillnets, hand lines and troll lines. The catches recorded under those gears are thought, for this reason, less accurate.

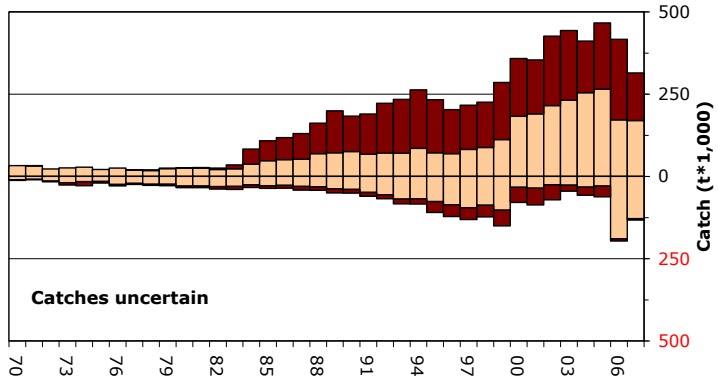
Figure 5: Uncertainty of annual catch estimates for yellowfin tuna (YFT). The amount of the catch below the zero-line has been categorized as uncertain by the Secretariat. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets (1970-2007).



- Skipjack tuna: This species is caught by industrial purse seiners and several artisanal fleets (GILL, BB, LINE and other). Figure 6 shows the status of the catches of skipjack tuna for 1970-2007. The amount of catches of skipjack tuna that is not reported per gear is of concern. The majority of these catches is presumed to refer to artisanal gears, mainly gillnets, hand lines and troll lines. The catches recorded under those gears are thought, for this reason, less accurate.

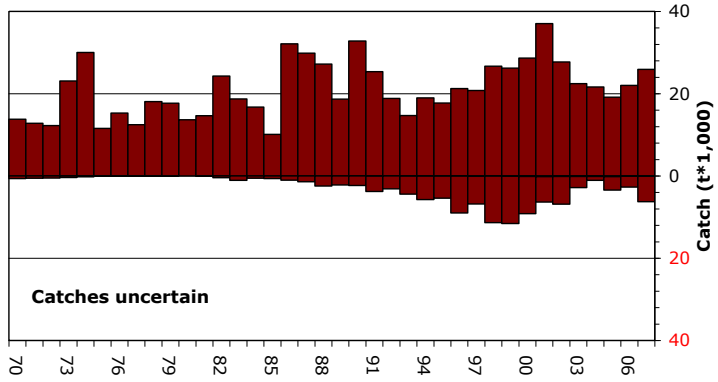
Figure 6: Uncertainty of annual catch estimates for skipjack tuna (SKJ). The amount of the catch below the zero-line has been categorized as uncertain by the Secretariat. Light bars represent data for artisanal

fleets and dark bars represent data for industrial fleets (1970-2007).



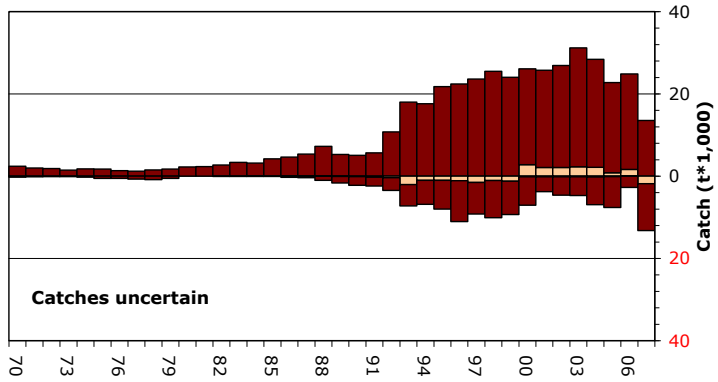
- Albacore: This species is caught by industrial longliners and industrial purse seiners. Albacore was also the target of a drifting gillnet fishery that operated during the late 80's and early 90's. Figure 7 shows the status of the catches of albacore for 1970-2007.

Figure 7: Uncertainty of annual catch estimates for albacore (ALB). The amount of the catch below the zero-line has been categorized as uncertain by the Secretariat. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets (1970-2007).



- Swordfish: This species is caught by industrial longliners, gillnets and, to a lesser extent, other artisanal or recreational fisheries. Figure 8 shows the status of the catches of albacore for 1970-2007..

Figure 8: Uncertainty of annual catch estimates for swordfish (SWO). The amount of the catch below the zero-line has been categorized as uncertain by the Secretariat. Light bars represent data for artisanal fleets and dark bars represent data for industrial fleets (1970-2007).



Catch-at-size tables (CAS)

CAS tables are estimated for yellowfin tuna, bigeye tuna, skipjack tuna, albacore and swordfish. The precision of the estimates is likely to vary depending on the quality of the catches (see the above section), the availability of catches in time and space and the amount (coverage) and representativeness of the samples available.

- Bigeye tuna:

Completeness of time-area catches: The amount of catches that are available in time and space *versus* the total catches of bigeye tuna estimated are shown in the figures 9 to 11 below. The amount of catches not available in time and space for longline fisheries is of concern making up between the 30-50% in recent years. This refers mainly to fleets operating under the flags of various non-reporting countries (NEI fleets).

Figure 9: Total catches of bigeye tuna (BET) available in time and space *versus* the total catches recorded for the species (all gears combined).

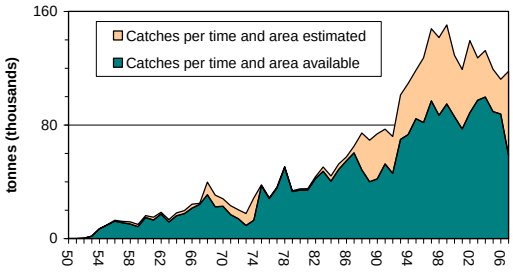


Figure 10: Total catches of bigeye tuna (BET) available in time and space *versus* the total catches recorded for the species (purse seine).

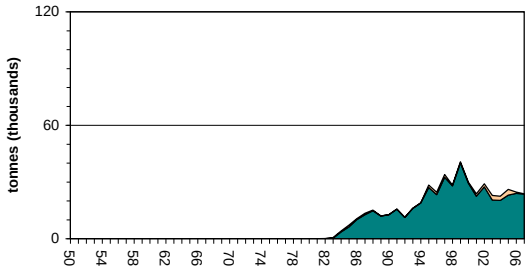
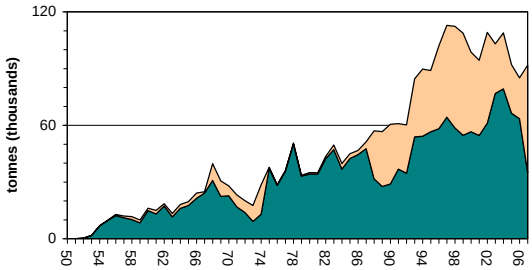


Figure 11: Total catches of bigeye tuna (BET) available in time and space *versus* the total catches recorded for the species (longline).

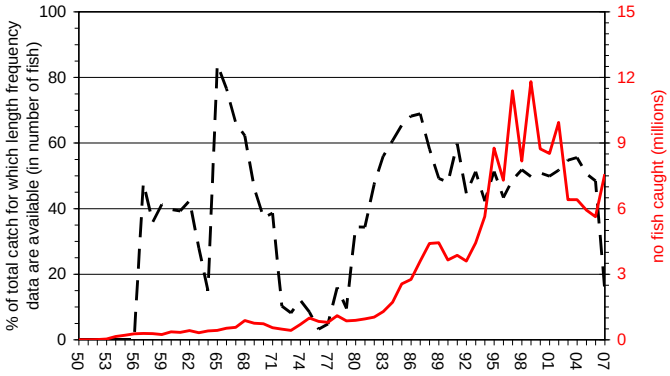


Completeness of length data: The catches estimated for strata having samples available *versus* the total catches estimated for the species per year is shown in Figures 12-14.. The estimation of catches-at-size is thought less accurate:

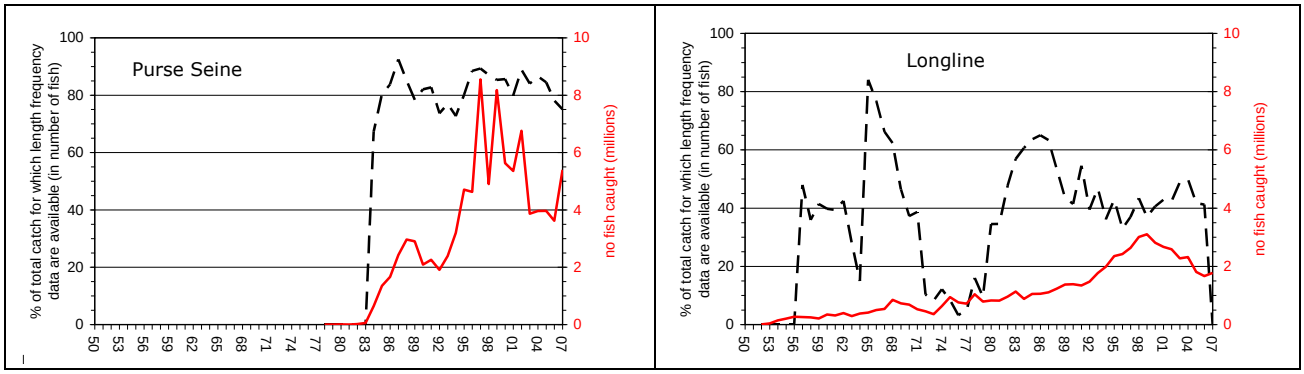
- 1950-1964: No size data are available for the species.
- 1969-1981 and 2004-06: The amount of samples available is very low.

The lack of data is likely to affect in the estimation of CAS for longline fisheries during the referred periods.
The numbers of fish measured per strata in relation with the total numbers caught by several longline fisheries, mainly Japan, has been declining in recent years. The representativeness of the samples might be also compromised for this reason.

Figure 12: Total numbers of bigeye tuna (BET) estimated and proportion (in weight) estimated for strata having length frequency data (all gears combined).



Figures 13-14: Total numbers of bigeye tuna (BET) estimated and proportion (in weight) estimated for strata having length frequency data: purse seine (left) and longline (right)



- Yellowfin tuna:

Completeness of time-area catches: The amount of catches that are available in time and space *versus* the total catches of yellowfin tuna estimated are shown in the figures 15 to 18 below. The amount of catches not available in time and space since the mid 80's for longline fisheries is of concern making up between 30-60% of the total catches estimated. The coverage in time and space is also very low for most artisanal fisheries, notably gillnet, hand line and troll line. The lack of spatial coverage is likely to be important for fleets operating in island countries or in countries having a large coastline, notably Indonesia and Sri Lanka. The lack of coverage in time is likely to be important for fleets operating in regions with a marked seasonality, notably the countries in the Arabian Peninsula (Yemen, Oman, Iran, and Pakistan) and Indonesia.

Figure 15: Total catches of yellowfin tuna (YFT) available in time and space *versus* the total catches recorded for the species (all gears combined).

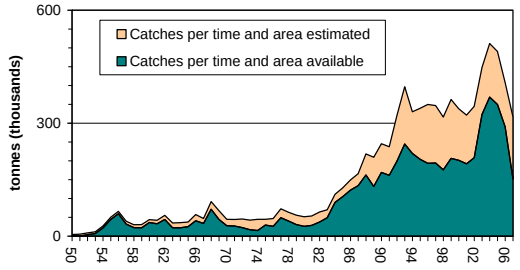


Figure 16: Total catches of yellowfin tuna (YFT) available in time and space *versus* the total catches recorded for the species (purse seine).

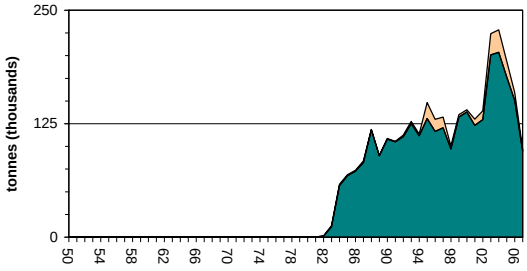


Figure 17: Total catches of yellowfin tuna (YFT) available in time and space *versus* the total catches recorded for the species (longline).

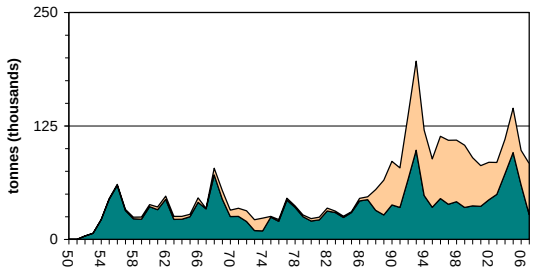
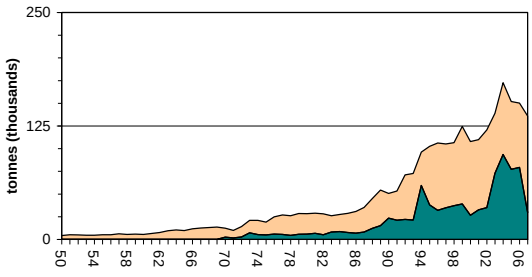


Figure 18: Total catches of yellowfin tuna (YFT) available in time and space *versus* the total catches recorded for the species (artisanal gears).



Completeness of length data: The catches estimated for strata having samples available *versus* the total catches estimated for the species per year is shown in Figure 19-22.. The estimation of catches-at-size is thought less accurate for 1970-1982 and 2006-07 due to the paucity of the samples available.

This lack of data is likely to affect in the estimation of CAS for longline fisheries during the referred periods.

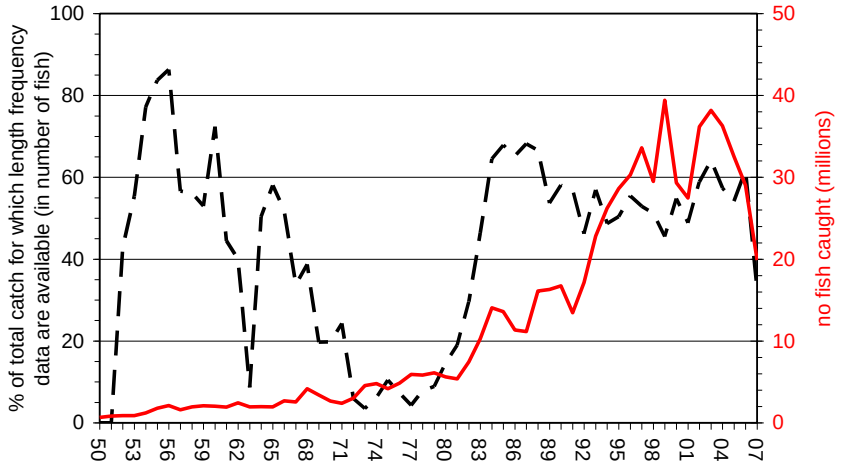
The numbers of fish measured per strata in relation with the total numbers caught by several longline fisheries, mainly Japan, has been declining in recent years. The representativeness of the samples might be also compromised for this reason.

The lack of length data for artisanal fisheries is of concern:

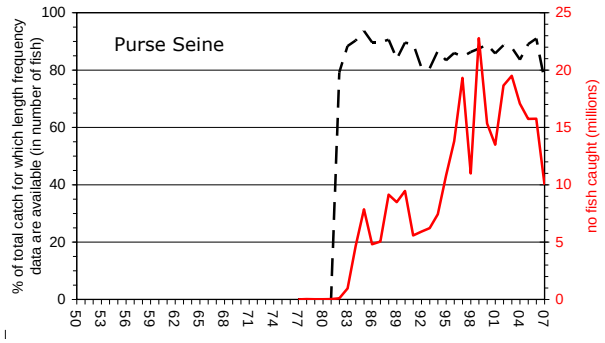
- Gillnet: No size data are available for 1950-1975. The amount of samples available is very low for other years or periods (1976-82, 1994-95, 2000-01).
- Pole and line: No size data are available for 1950-1980..
- Hand lines and troll lines: there is an almost complete lack of samples for both gears.

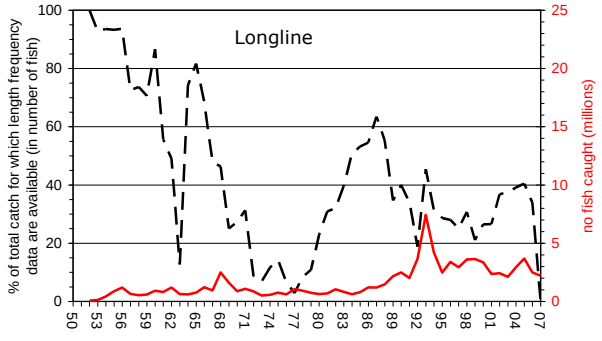
The quality of the CAS estimated for the artisanal gears is likely to be highly compromised due to the above.

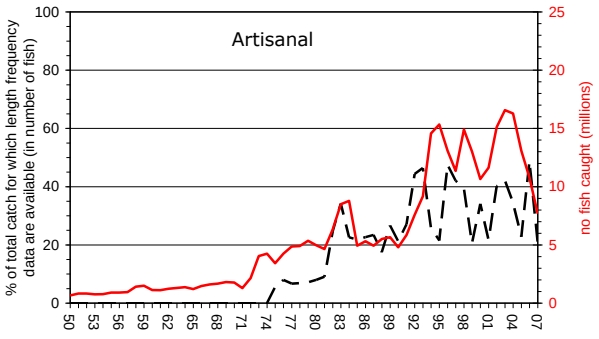
Figure 19: Total numbers of yellowfin tuna (YFT) estimated and proportion (in weight) estimated for strata having length frequency data (all gears combined).



Figures 20-22: Total numbers of yellowfin tuna (YFT) estimated and proportion (in weight) estimated for strata having length frequency data: purse seine (top left), longline (top right) and artisanal gears (bottom)







- Skipjack tuna

Completeness of time-area catches: The amount of catches that are available in time and space *versus* the total catches of skipjack tuna estimated are shown in the figures 23 to 26 below. The amount of catches not available in time and space since the early 90's (notably gillnets) is of concern. The coverage in time and space is also very low for most artisanal fisheries, notably the gillnet.

Figure 23: Total catches of skipjack tuna (SKJ) available in time and space *versus* the total catches recorded for the species (all gears combined).	**Figure 24: Total catches of skipjack tuna (SKJ) available in time and space *versus* the total catches recorded for the species (purse seine).**

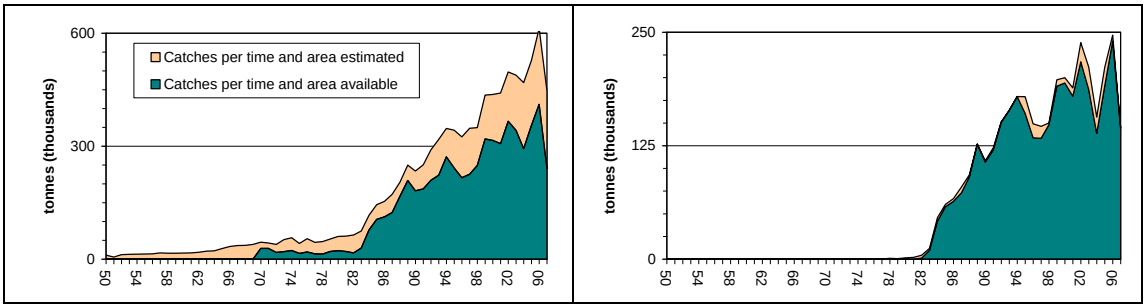
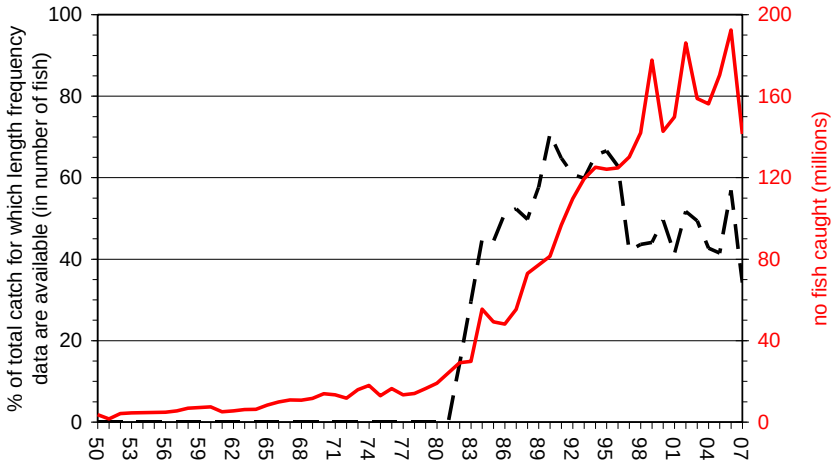


Figure 25: Total catches of skipjack tuna (SKJ) available in time and space *versus* the total catches recorded for the species (gillnet).

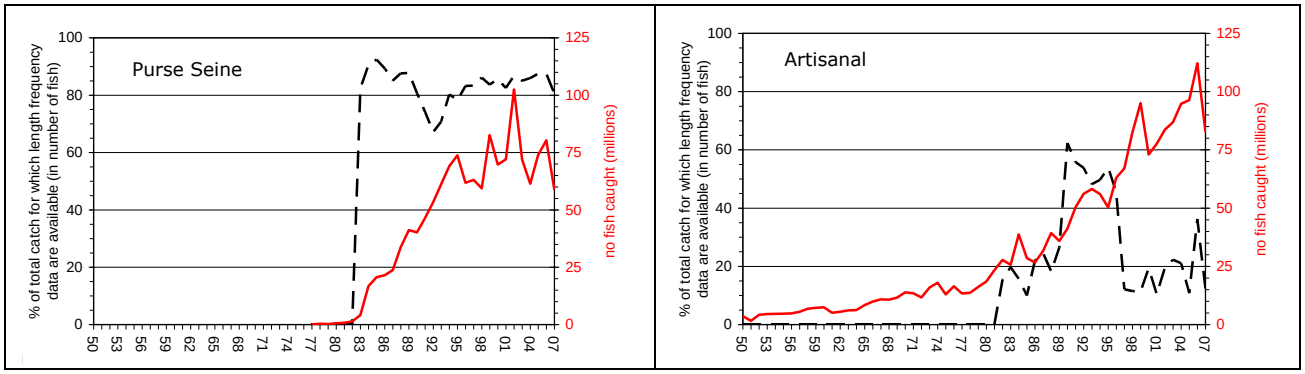
Figure 26: Total catches of skipjack tuna (SKJ) available in time and space *versus* the total catches recorded for the species (pole and line and other gears).

Completeness of length data: The catches estimated for strata having samples available *versus* the total catches estimated for the species per year is shown in Figure 27-29. The estimation of catches-at-size is thought less accurate for 1950-1982 due to the paucity of the samples available.
This lack of data is likely to affect in the estimation of CAS for all artisanal fisheries during the referred periods.
The representativeness of the samples is unknown for most artisanal fisheries.
The quality of the CAS estimated for the artisanal gears is likely to be highly compromised due to the above.

Figure 27: Total numbers of skipjack tuna (SKJ) estimated and proportion (in weight) estimated for strata having length frequency data (all gears combined).



Figures 28-29: Total numbers of skipjack tuna (SKJ) estimated and proportion (in weight) estimated for strata having length frequency data: purse seine (left) and artisanal gears (right)

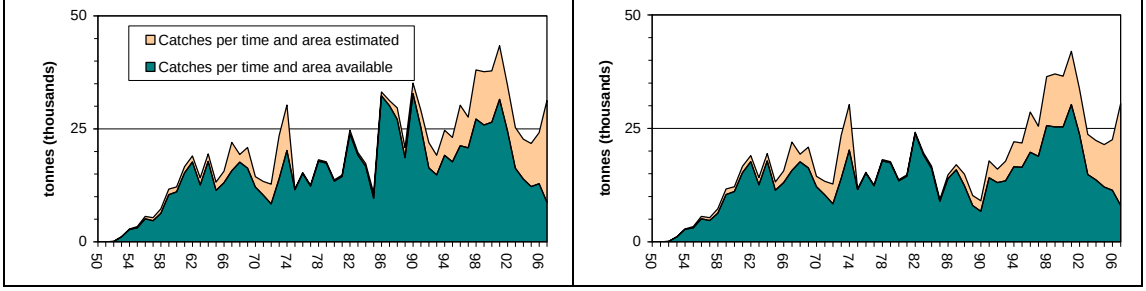


- Albacore

Completeness of time-area catches: The amount of catches that are available in time and space *versus* the total catches of albacore estimated are shown in the figures 30 and 31 below. The amount of catches not available in time and space for longline fisheries is of concern making up between the 20-40% in recent years. This refers mainly to fleets operating under the flags of various non-reporting countries (NEI fleets).

Figure 30: Total catches of albacore (ALB) available in time and space *versus* the total catches recorded for the species (all gears combined).

Figure 31: Total catches of albacore (ALB) available in time and space *versus* the total catches recorded for the species (longline).

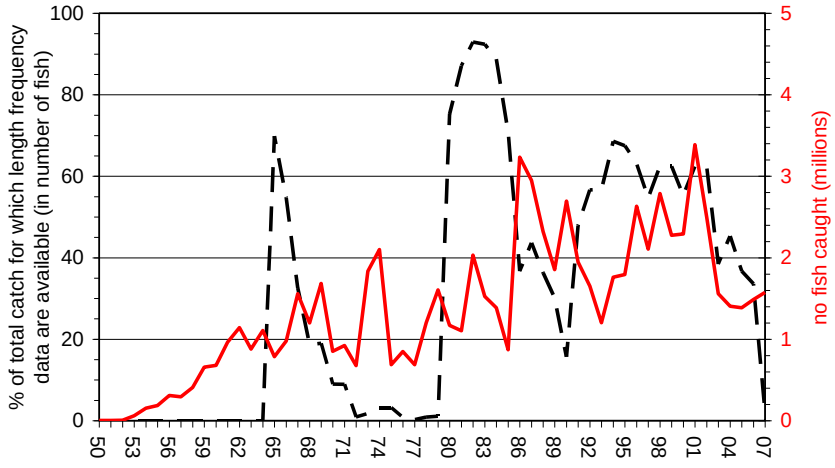


Completeness of length data: The catches estimated for strata having samples available *versus* the total catches estimated for the species per year is shown in Figures 32-34. The estimation of catches-at-size is thought less accurate:

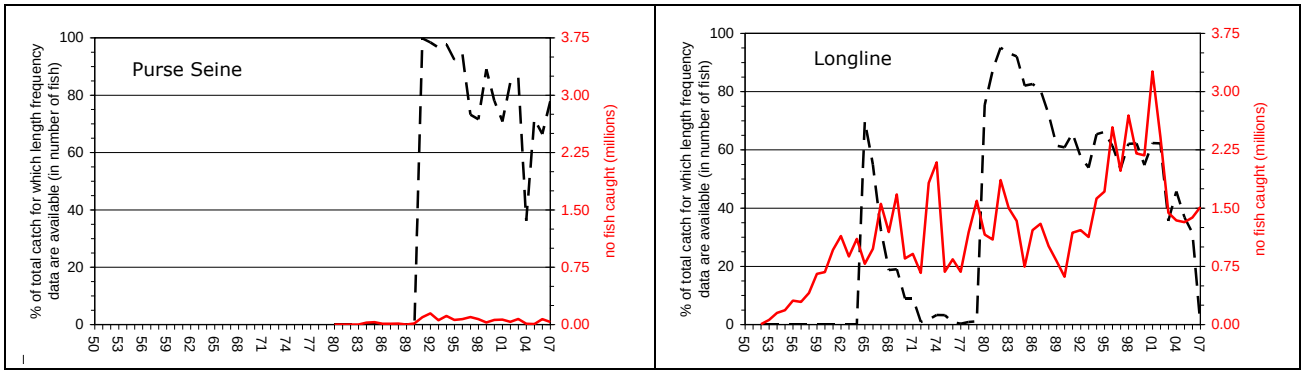
- 1950-1964: No size data are available for the species.
- 1969-1979 and 2006-07: The amount of samples available is very low.

The lack of data is likely to affect in the estimation of CAS for longline fisheries during the referred periods. The numbers of fish measured per strata in relation with the total numbers caught by several longline fisheries, mainly Japan, has been declining in recent years. The representativeness of the samples might be also compromised for this reason.

Figure 32: Total numbers of albacore (ALB) estimated and proportion (in weight) estimated for strata having length frequency data (all gears combined).



Figures 33-34: Total numbers of albacore (ALB) estimated and proportion (in weight) estimated for strata having length frequency data: purse seine (left) and longline (right)



- Swordfish

Completeness of time-area catches: The amount of catches that are available in time and space *versus* the total catches of swordfish estimated are shown in the figures 35 and 36 below. The amount of catches not available in time and space for longline fisheries is of concern making up between the 20-40% in recent years. This refers mainly to fleets operating under the flags of various non-reporting countries (NEI fleets).

Figure 35: Total catches of swordfish (SWO) available in time and space *versus* the total catches recorded for the species (all gears combined).

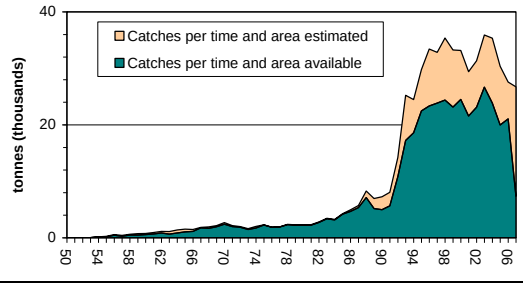
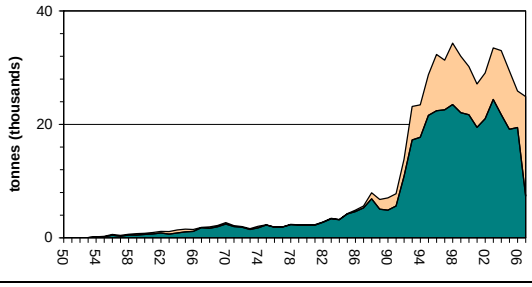
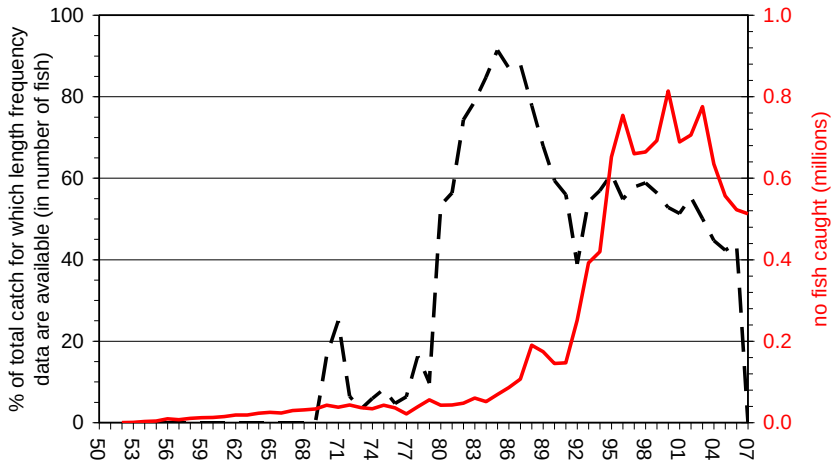


Figure 36: Total catches of swordfish (SWO) available in time and space *versus* the total catches recorded for the species (longline).

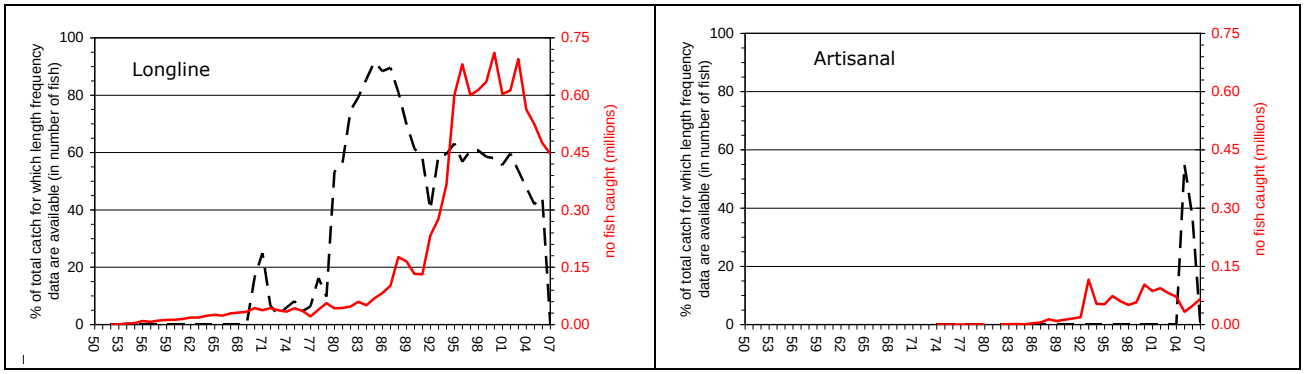


Completeness of length data: The catches estimated for strata having samples available *versus* the total catches estimated for the species per year is shown in Figures 37-39. The estimation of catches-at-size is thought less accurate for 1950-1980 due to the paucity of the samples available.
This lack of data is likely to affect in the estimation of CAS for all fisheries during the referred period.
The numbers of fish measured per strata in relation with the total numbers caught by several longline fisheries, mainly Japan, has been declining in recent years. The representativeness of the samples might be also compromised for this reason.

Figure 37: Total numbers of swordfish (SWO) estimated and proportion (in weight) estimated for strata having length frequency data (all gears combined).

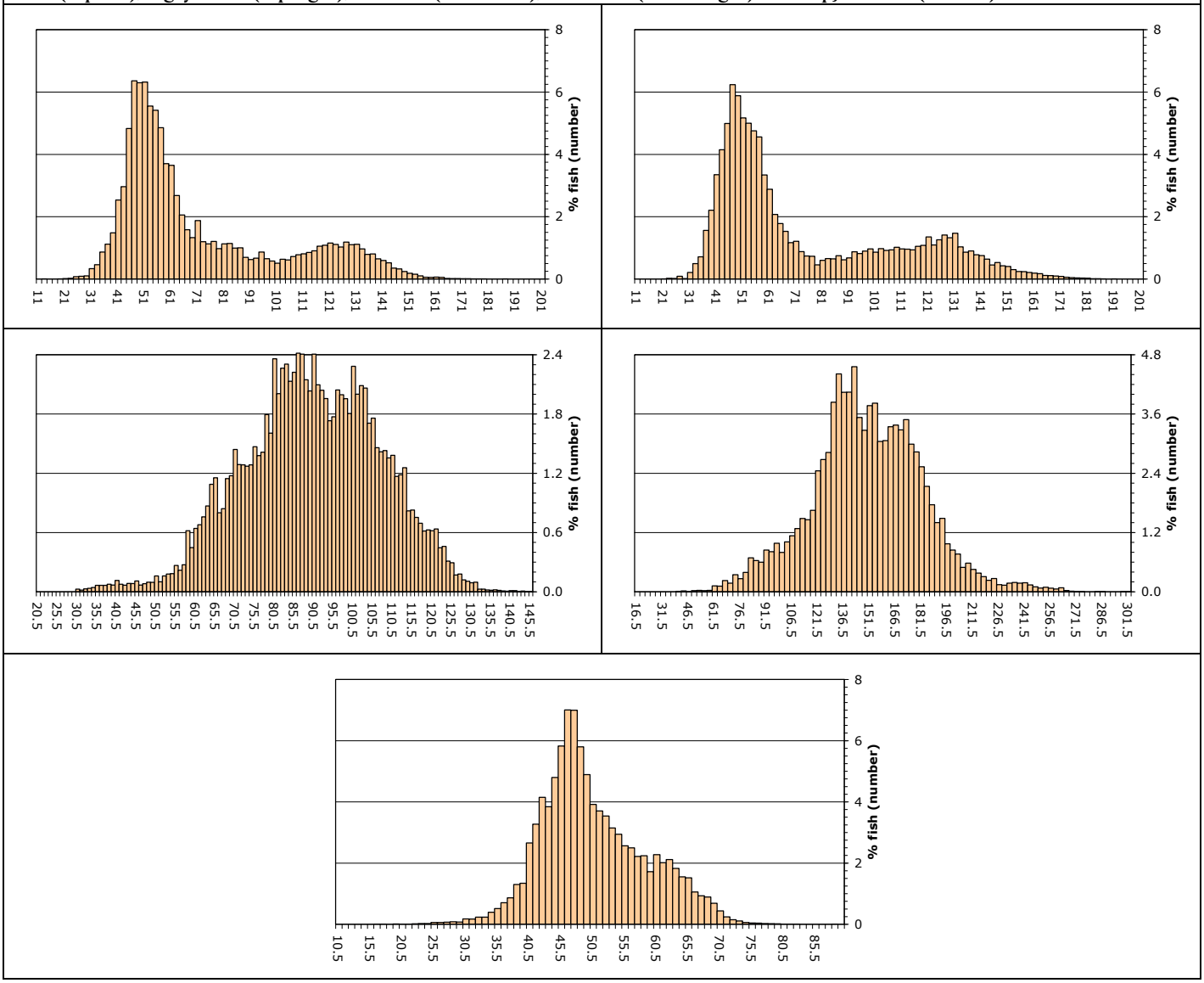


Figures 38-39: Total numbers of swordfish (SWO) estimated and proportion (in weight) estimated for strata having length frequency data: longline (left) and artisanal fleets (right)



Figures 40-44 below show the catches at size (number of fish 1997-2006) estimated for tropical tunas, albacore and swordfish

Figures 40-44: Proportion of fish by length class (average number 1997-2006) derived from the catches-at-size estimated for yellowfin tuna (top left), bigeye tuna (top right), albacore (centre left), swordfish (centre right) and skipjack tuna (bottom).



Catch-at-age tables (CAA)

CAA tables are estimated for bigeye tuna, yellowfin tuna and albacore.

Bigeye tuna:

CAA was estimated according to the following VB log k model (Laslett, Eveson and Polacheck method, IOTC-2008-WPTT-09) using the following parameter estimates :

$$L(t) = L_{\infty}\left(1 - e^{-k_2 (t - t_0)\left\{\frac{1+e^{-\beta (t - t_0 - \alpha)}}{1+e^{\beta\alpha}}\right\}^{-(k_2 - k_1)/\beta}}\right)$$

Species	L_∞	k_1	k_2	α	β	t_0
BET	160	0.071	0.4207	5.6033	2.999	-3.09

The numbers of fish estimated per age class for surface and longline fisheries are shown in Figure 45; the numbers of bigeye tuna obtained by age class, fishery and year are shown in Appendix VIII. The estimation of catches-at-age is likely to be compromised for some fisheries and periods (see the previous section).

Figure 45: Average numbers of bigeye tuna (BET) by age class (classes 8 and above are represented as 8+) and fishery estimated for 1963-82, 1983-92, 1993-02 and 2003-06

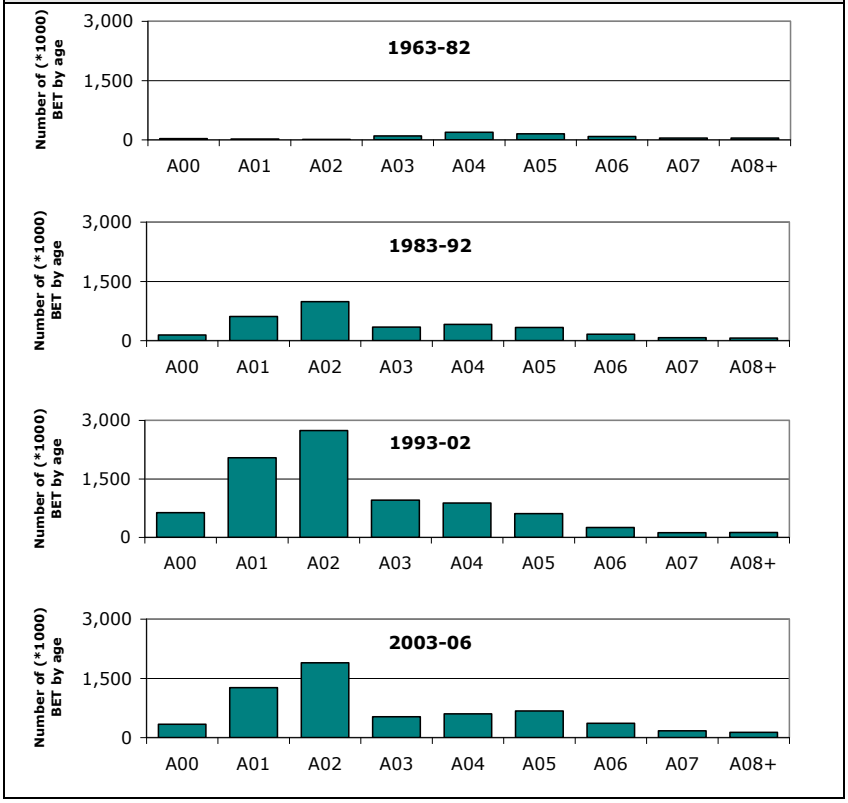


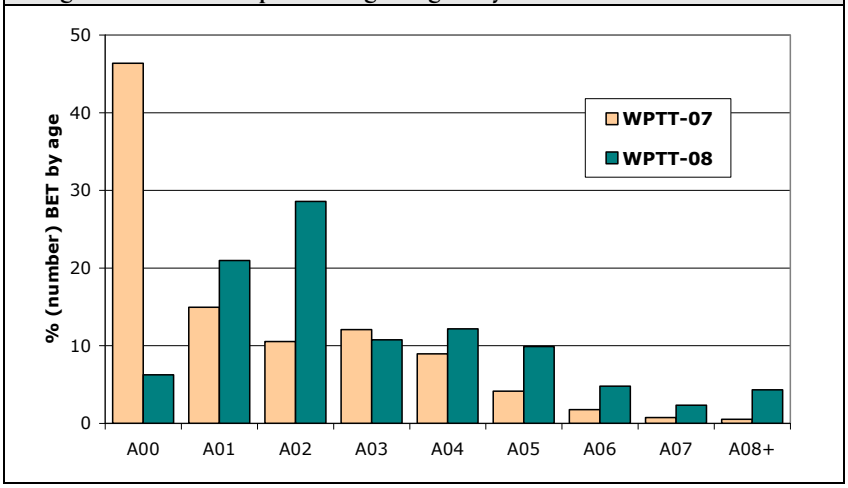
Figure 46 shows the total numbers of fish per age class estimated by using the above LEP method and from a VB age-length key used by the WPTT in 2006 (IOTC-2006-WPTT-INF07 using otolith data).

$$L(t) = L_\infty \left(1 - e^{-K[t - t_0]}\right)$$

using the values

Species	L_∞	t_0	k
BET	169	-0.336	0.32

Figure 46: Proportion (accumulated number 1950-2007) of bigeye tuna (BET) by age class (classes 8 and above are represented as 8+) and fishery estimated by using the latest and the previous age-length keys



Yellowfin tuna:

CAA was estimated according to the following VB log k model (Laslett, Eveson and Polacheck method, IOTC-2008-WPTT-09) using the following parameter estimates :

$$L(t) = L_\infty \left(1 - e^{-k_2 [t - t_0]} \left\{ \frac{1 + e^{-\beta [t - t_0 - \alpha]}}{1 + e^{\beta\alpha}} \right\}^{-k_2 - k_1 / \beta}\right)$$

Species	L_∞	k_1	k_2	α	β	t_0
YFT	146	0.1334	0.905	4.1228	10.9654	-1.42

The numbers of fish estimated per age class for surface and longline fisheries are shown in Figure 47; the numbers of yellowfin tuna obtained by age class, fishery and year are shown in Appendix VIII. The estimates of catches-at-age are likely to be affected by a lack of data for some fisheries and periods (see the previous section).

Figure 47: Average numbers of yellowfin tuna (YFT) by age class (classes 6 and above are represented as 6+) and fishery estimated for 1953-82, 1983-92, 1993-02 and 2003-06

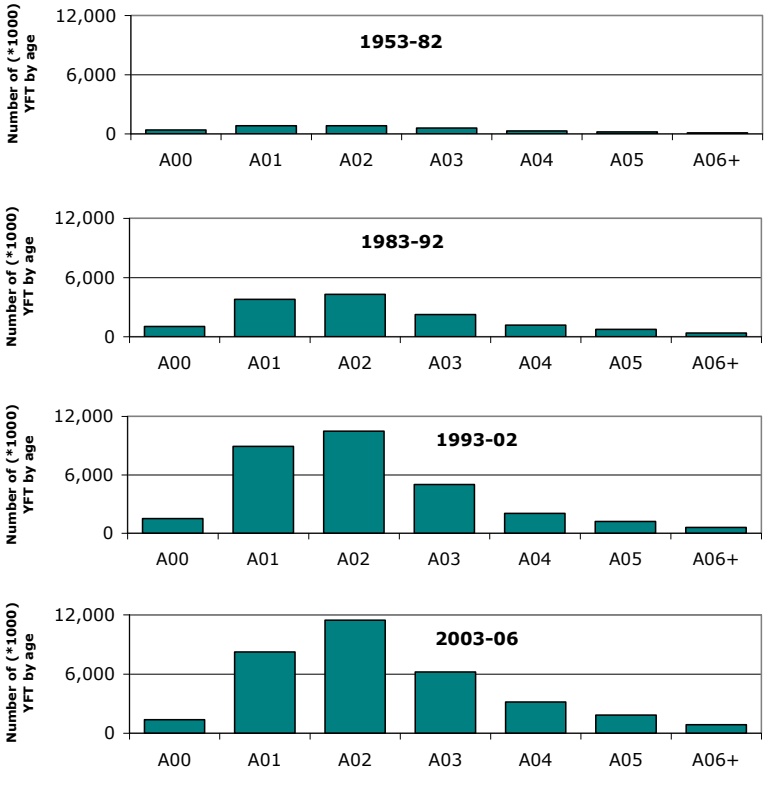


Figure 48 shows the total numbers of fish per age class estimated by using the above LEP method and the following Gascuel growth function used by the WPTT in 2007 (IOTC-2007-WPTT-INF10 using otolith and tagging data).

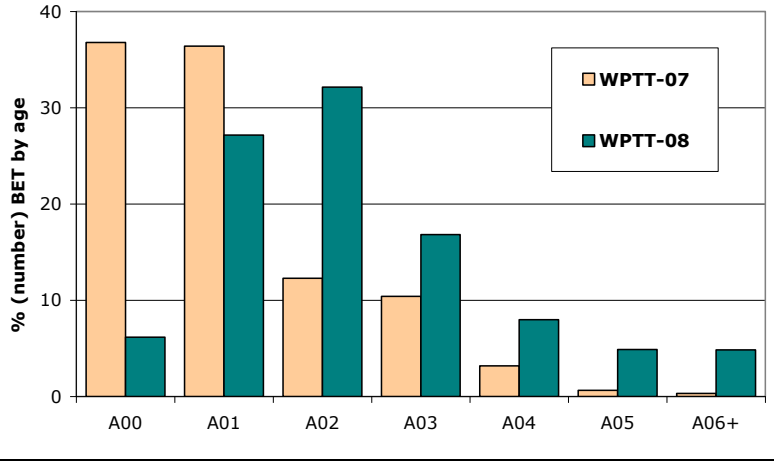
$$Lt = L_0 + bt + (L_\infty - (L_0 + bt))(1 - \exp(-kt))^m \ ;$$

$$t = \text{no closed solution}$$

Where

L_0	b	k	L_∞	k	m
22.646	-0-88.80101	0.32	165	-0.739	-1.020

Figure 48: Proportion (accumulated number 1950-2007) of yellowfin tuna (YFT) by age class (classes 6 and above are represented as 6+) and fishery estimated by using two different age-length keys



Albacore:

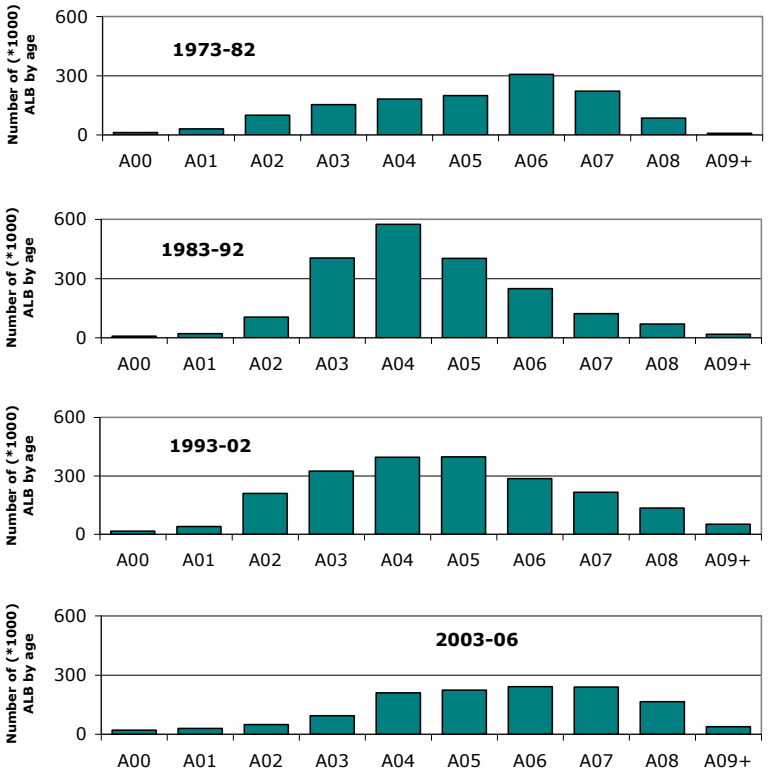
CAA was estimated using a VB model and albacore spine data from the South Atlantic Ocean (Lee and Yeh (1993)[3]):

$$L(t) = L_\infty \left[1 - e^{-K[t-t_0]}\right]$$ where:

Species	L_∞	t0	k
ALB	147.5	-1.89	0.126

The numbers of fish estimated per age class for surface and longline fisheries are shown in Figure 49; the numbers of albacore obtained by age class, fishery and year are shown in Appendix VIII. The estimates of catches-at-age are likely to be affected by a lack of data for some fisheries and periods (see the previous section).

Figure 49: Average numbers albacore (ALB) by age class (classes 9 and above are represented as 9+) and fishery estimated for 1973-82, 1983-92, 1993-02 and 2003-06



[3] Age and growth of south Atlantic albacore (SCRS/2006/110)

APPENDIX I

Areas allocated to catches and/or size frequency data not recorded under regular grids

CodeArea	Description	Grid Assigned
Custom grid for BIOT fishing areas (Chagos EEZ)		
BIOT	British Indian Ocean Territory EEZ	6205070
Custom grid for Indonesia landing places		
BACEH	Indonesia - Banda Aceh	6105095
BALI	Indonesia - Bali	6205115
PADANG	Indonesia - Padang	6200095
PELRATU	Indonesia - Pelabuhan Ratu	6205105
PRIGI	Indonesia - Prigi	6205110
Custom grid for Iran fishing areas		
ABADAN	Port of Abadan - Khouzestan	6125045
BANDAR	Port of Bandar - Abbas-Hormozgan	6125055
BERIS	Port of Beris - Sistan and Baluchistan	6125060
BUSHEHR	Port of Bushehr - Bushehr	6125050
BUSHRCOAST	Bushehr Area	6125050
DAYER	Port of Dayer - Bushehr	6125050
DEYLAM	Port of Deylam - Bushehr	6125050
GENAVEH	Port of Genaveh - Bushehr	6125050
HENDIJAN	Port of Hendijan - Khouzestan	6125045
HORMOZGAN	Hormozgan Area	6125050
IRAN	Iran Economic Exclusive Zone	2120040
JASK	Port of Jask - Hormozgan	6125055
KHOUZESTAN	Khouzestan Area	6125045
KOLAHI	Port of Kolahi - Hormozgan	6125055
LENGEH	Port of Lengeh - Hormozgan	6125050
MAHSHAHR	Port of Mahshahr - Khouzestan	6125045
NAKHLE	Port of Nakhle Taghi - Bushehr	6125050
OMANSEA	Oman Sea	1100030
POZM	Port of Pozm - Sistan and Baluchistan	6125060
QUISHM	Quishm Island- Hormozgan	6125055
RAMIN	Port of Ramin - Sistan and Baluchistan	6125060
SISTAN	Sistan Area	6125060
Custom grid for Malaysia Fishing Districts		
KEDAH	Malaysia-Kedah District	6100100
PENANG	Malaysia-Penang District	6100100
PERAK	Malaysia-Perak District	6100100
PERLIS	Malaysia-Perlis District	6105100
SELANGOR	Malaysia-Selangor District	6100100
Custom grid for Maldives Atolls		
ADDU	Addu - Seenu	5200073
ADDUHI	Addu - South hithadhoo - Seenu	5200073
ADDUMA	Addu - South maradhoo - Seenu	5200073
BAA	South Maalhosmadulu - Baa	5105072
DHKUDA	South Nilandhe - Dhaalu	5102072
FAADHI	Faadhippolhu - Lhaviyani	5105073
FELID	Felidhu Atholhu - Vaavu	5103073
FUVAHM	Fuvahmulah - Gnaviyani	5200073
GAVILI	North Huvadhu - Gaafu alifu	5100073
GAVILIKO	North Huvadhu - Kolamafushi - Gaafu Alifu	5100073
GAVILIVI	North Huvadhu -Gadhoo Villingili - Gaafu Alifu	5100073
GDHTHI	South Huvadhu - Gaafu Dhaalu	5100073
HDHKUL	South Thiladhunmathi - Haa Dhaalu	5106072
KMALE	Male Atholhu - Kaafu	5104073
KOLHUM	Kolhumadulu - Thaa	5102073
LMAAM	Hadhdhunmathi - Laamu	5101073
MALE	Male - Male	5104073
MMADU	Mulaku Atholhu - Meemu	5103073
NNILAN	North Nilandhe - Faafu	5103072
NRALIF	North Ari Atholhu - Alifu Alifu	5103072
NTHILA	North Thiladhunmathi - Haa Alifu	5106073
RALIF	Ari Atholhu - Alifu	5103072
RKAN	North Maalhosmadulu - Raa	5105072
SHAV	North Miladhunmathi - Shaviyani	5106073
SMILAD	South Miladhunmathi - Noonu	5105073
SRALIF	South Ari Atholhu - Alifu Dhaalu	5103072

CodeArea	Description	Grid Assigned
Custom grid for Omani landing places		
ALWUS	Al-Wusta	5120058
AWADU	Al-Wusta - Willayat A'Duqum	5120058
AWALJ	Al-Wusta - Willayat Al'Jazer	5120058
AWMAH	Al-Wusta - Willayat Mahut	5120058
BAKHA	Batinah - Willayat A'Khaburah	5125057
BAMUS	Batinah - Willayat A'Musanaa	5125057
BASUW	Batinah - Willayat A'Suwaiq	5125057
BATIN	Batinah	6120055
BBARK	Batinah - Willayat Barka	5125057
BLIWA	Batinah - Willayat Liwa	5125057
BSAHA	Batinah - Willayat Saham	5125057
BSHIN	Batinah - Willayat Shinas	5125057
BSOHA	Batinah - Willayat Sohar	5125057
DDHAL	Dhofar - Willayat Dhalkuit	5117056
DHOFA	Dhofar	6115050
DMIRB	Dhofar - Willayat Mirbat	5117056
DRHKU	Dhofar - Willayat Rhkuit	6115050
DSADA	Dhofar - Willayat Sadah	5117056
DSALA	Dhofar - Willayat Salalah	5117056
DSHHA	Dhofar - Willayat Shaleem&Halaniyat	5117056
DTAQA	Dhofar - Willayat Taqah	5117056
MMUSC	Muscat - Willayat Muscat	5124058
MMUTR	Muscat - Willayat Mutrah	5124058
MQURA	Muscat - Willayat Qurayat	5124058
MSEEB	Muscat - Willayat Seeb	5124058
MUBUK	Musadan - Willayat Bukha	5126057
MUDAB	Musadan - Willayat Dabba	5126057
MUKHA	Musadan - Willayat Khasab	5126057
MUSAD	Musandam	5126057
MUSCA	Muscat	5124058
OMAN	Omani EEZ	1100030
SHARQ	Sharqiyah	6120055
SJALA	Sharqiyah - Willayat Ja'laan	5121059
SMASI	Sharqiyah - Willayat Masirah	5121059
SSUR	Sharqiyah - Willayat Sur	5121059
Custom grid for Pakistan fishing areas		
PAKISTAN	Pakistan	3120060
Custom grid for Saudi Arabia fishing areas		
PERSIANGLF	Persian Gulf	2120040
REDSEA	Red Sea	1100030
SAUEEZ	Saudi Arabia Economic Exclusive Zone	1100030
Custom grid for Seychelles fishing areas		
SYCZEE	Seychelles Economic Exclusive Zone	3200050
Custom grid for Sri Lanka fishing areas		
BERU-TR5	Beruwala (SW) - Mechanised traditional orru	6105075
BERU-UN1	Beruwala (SW) - 5.5 - 7.2 m FRP dinghy	6105075
BERU-UN2	Beruwala (SW) - 8.8 - 9.8 m	6105075
BERU-UN2A	Beruwala (SW) - 8.8 - 9.8 m Single day boats	6105075
BERU-UN2B	Beruwala (SW) - 8.8 - 9.8 m Multi-day boats	6105075
BERU-UN3	Beruwala (SW) - 9.8 - 12.2 m	6105075
BERU-UN3A	Beruwala (SW) - 9.8 - 12.2 m	6105075
BERU-UN3B	Beruwala (SW) - Above 12.2m	6105075
CODB-UN2B	Codbay (NE) - 8.8 - 9.8 m Multi-day boats	6105080
DOND-UN1	Dondra (S) - 5.5 - 7.2 m FRP dinghy	6105080
DOND-UN2	Dondra (S) - 8.8 - 9.8 m	6105080
DOND-UN2A	Dondra (S) - 8.8 - 9.8 m Single day boats	6105080
DOND-UN2B	Dondra (S) - 8.8 - 9.8 m Multi-day boats	6105080
DOND-UN3	Dondra (S) - 9.8 - 12.2 m	6105080
DOND-UN3A	Dondra (S) - 9.8 - 12.2 m	6105080
DOND-UN3B	Dondra (S) - Above 12.2m	6105080
DOND-UN4	Dondra (S) - 15.2 - 18.3 m	6105080
GALL-UN1	Galle (SW) - 5.5 - 7.2 m FRP dinghy	6105075
GALL-UN2	Galle (SW) - 8.8 - 9.8 m	6105075

CodeArea	Description	Grid Assigned
Custom grid for Sri Lanka fishing areas (cont.)		
GALL-UN2A	Galle (SW) - 8.8 - 9.8 m Single day boats	6105075
GALL-UN2B	Galle (SW) - 8.8 - 9.8 m Multi-day boats	6105075
GALL-UN3	Galle (SW) - 9.8 - 12.2 m	6105075
GALL-UN3A	Galle (SW) - 9.8 - 12.2 m	6105075
GALL-UN3B	Galle (SW) - Above 12.2m	6105075
HAMB-UN1	Hambantota (SE) - 5.5 - 7.2 m FRP dinghy	6105080
HAMB-UN2A	Hambantota (SE) - 8.8 - 9.8 m Single day boats	6105080
HAMB-UN2B	Hambantota (SE) - 8.8 - 9.8 m Multi-day boats	6105080
KALM-UN1	Kalmunai (E) - 5.5 - 7.2 m FRP dinghy	6105080
KALM-UN2	Kalmunai (E) - 8.8 - 9.8 m	6105080
KALM-UN2A	Kalmunai (E) - 8.8 - 9.8 m Single day boats	6105080
KALM-UN2B	Kalmunai (E) - 8.8 - 9.8 m Multi-day boats	6105080
KALT-UN1	Kalmetiya SE) - 5.5 - 7.2 m FRP dinghy	6105080
KALT-UN2A	Kalmetiya SE) - 8.8 - 9.8 m Single day boats	6105080
KALT-UN2B	Kalmetiya SE) - 8.8 - 9.8 m Multi-day boats	6105080
KALT-UN3A	Kalmetiya SE) - 9.8 - 12.2 m	6105080
KAND-UN1	Kandakuliya (NW) - 5.5 - 7.2 m FRP dinghy	6105075
KAND-UN2	Kandakuliya (NW) - 8.8 - 9.8 m	6105075
KIRI-UN1	Kirinda (SE) - 5.5 - 7.2 m FRP dinghy	6105080
KIRI-UN2A	Kirinda (SE) - 8.8 - 9.8 m Single day boats	6105080
KIRI-UN2B	Kirinda (SE) - 8.8 - 9.8 m Multi-day boats	6105080
KIRI-UN3A	Kirinda (SE) - 9.8 - 12.2 m	6105080
KOTT-UN1	Kottegoda (S) - 5.5 - 7.2 m FRP dinghy	6105080
KOTT-UN2	Kottegoda (S) - 8.8 - 9.8 m	6105080
KOTT-UN2A	Kottegoda (S) - 8.8 - 9.8 m Single day boats	6105080
KOTT-UN3	Kottegoda (S) - 9.8 - 12.2 m	6105080
KUDA-TR5	Kudawela (SE) - Mechanised traditional orru	6105080
KUDA-UN1	Kudawela (SE) - 5.5 - 7.2 m FRP dinghy	6105080
KUDA-UN2	Kudawela (SE) - 8.8 - 9.8 m	6105080
KUDA-UN2A	Kudawela (SE) - 8.8 - 9.8 m Single day boats	6105080
KUDA-UN2B	Kudawela (SE) - 8.8 - 9.8 m Multi-day boats	6105080
KUDA-UN3	Kudawela (SE) - 9.8 - 12.2 m	6105080
KUDA-UN3A	Kudawela (SE) - 9.8 - 12.2 m	6105080
KUDA-UN3B	Kudawela (SE) - Above 12.2m	6105080
KUDA-UN4	Kudawela (SE) - 15.2 - 18.3 m	6105080
LKAE	East Area Sri lanka (E)	6105080
LKANE	Northeast Area Sri Lanka (NE)	6105080
LKANW	Northwest Area Sri Lanka (NW)	6105075
LKAS	South Area Sri Lanka (S)	6105080
LKASE	Southeast Area Sri Lanka (SE)	6105080
LKASW	Southwest Area Sri Lanka (SW)	6105075
LKAW	West Area Sri Lanka (W)	6105075
MALI-UN2A	Malikadu (E) - 8.8 - 9.8 m Single day boats	6105080
MALI-UN2B	Malikadu (E) - 8.8 - 9.8 m Multi-day boats	6105080

CodeArea	Description	Grid Assigned
Custom grid for Sri Lanka fishing areas (cont.)		
MIRI-TR5	Mirissa (S) - Mechanised traditional orru	6105080
MIRI-UN1	Mirissa (S) - 5.5 - 7.2 m FRP dinghy	6105080
MIRI-UN2	Mirissa (S) - 8.8 - 9.8 m	6105080
MIRI-UN2A	Mirissa (S) - 8.8 - 9.8 m Single day boats	6105080
MIRI-UN2B	Mirissa (S) - 8.8 - 9.8 m Multi-day boats	6105080
MIRI-UN3	Mirissa (S) - Above 9.8 m	6105080
MIRI-UN3A	Mirissa (S) - 9.8 - 12.2 m	6105080
MIRI-UN3B	Mirissa (S) - Above 12.2m	6105080
MIRI-UN4	Mirissa (S) - 15.2 - 18.3 m	6105080
MUTH-UN1	Muththur (NE) - 5.5 - 7.2 m FRP dinghy	6105080
NEGO-UN1	Negombo (W) - 5.5 - 7.2 m FRP dinghy	6105075
NEGO-UN2	Negombo (W) - 8.8 - 9.8 m	6105075
NEGO-UN2A	Negombo (W) - 8.8 - 9.8 m Single day boats	6105075
NEGO-UN2B	Negombo (W) - 8.8 - 9.8 m Multi-day boats	6105075
NEGO-UN3	Negombo (W) - Above 9.8 m	6105075
NEGO-UN3A	Negombo (W) - 9.8 - 12.2 m	6105075
NEGO-UN3B	Negombo (W) - Above 12.2m	6105075
NEGO-UN4	Negombo (W) - 15.2 - 18.3 m	6105075
SRIL	All Areas Sri Lanka (CA)	1100060
TANG-UN1	Tangalle (SE) - 5.5 - 7.2 m FRP dinghy	6105080
TANG-UN2	Tangalle (SE) - 8.8 - 9.8 m	6105080
TANG-UN2A	Tangalle (SE) - 8.8 - 9.8 m Single day boats	6105080
TANG-UN2B	Tangalle (SE) - 8.8 - 9.8 m Multi-day boats	6105080
TANG-UN3	Tangalle (SE) - 9.8 - 12.2 m	6105080
TANG-UN3A	Tangalle (SE) - 9.8 - 12.2 m	6105080
TANG-UN3B	Tangalle (SE) - Above 12.2m	6105080
TRIN-UN1	Trincomalee (NE) - 5.5 - 7.2 m FRP dinghy	6105080
TRIN-UN2	Trincomalee (NE) - 8.8 - 9.8 m	6105080
TRIN-UN2A	Trincomalee (NE) - 8.8 - 9.8 m Single day boats	6105080
TRIN-UN2B	Trincomalee (NE) - 8.8 - 9.8 m Multi-day boats	6105080
TRIN-UN3	Trincomalee (NE) - Above 9.8 m	6105080
TRIN-UN3A	Trincomalee (NE) - 9.8 - 12.2 m	6105080
TRIN-UN3B	Trincomalee (NE) - Above 12.2m	6105080
WELI-TR5	Weligama (S) - Mechanised traditional orru	6105080
WELI-UN1	Weligama (S) - 5.5 - 7.2 m FRP dinghy	6105080
WELI-UN2	Weligama (S) - 8.8 - 9.8 m	6105080
WELI-UN2A	Weligama (S) - 8.8 - 9.8 m Single day boats	6105080
WELI-UN2B	Weligama (S) - 8.8 - 9.8 m Multi-day boats	6105080
WELI-UN3A	Weligama (S) - 9.8 - 12.2 m	6105080
WELI-UN4	Weligama (S) - 15.2 - 18.3 m	6105080
Custom grid for Thai fishing areas		
ANDAM	Andaman Sea (Thai)	6105095
INOCE	Indian Ocean (Thai)	6105095

APPENDIX II
Examples of Standard Tables

a/ Nominal catches (NC)

ID	Fleet	EName	Area	Year	Gear	Species	CatchNC	CdeSubs
7461	AUS	Australia	IO_Eastern	1972	TROL	SKJ	100	1

Where:

Field	Description
ID	Unique identifier NC strata
Fleet	Fleet code
EName	Fleet description
Area	IOTC Area
Year	Year
Gear	Gear type code
Species	Species code
CatchNC	Total catch in tons
CdeSubs	Substitution code: original catches (0) or catches estimated (1)

b/ Catches per time-area stratum (CTA)

id	NCid	Species	Gear	School Type	Fleet	Year	Month Start	Month End	Grid	SF Area	IOTC Area	NO	MT	CE estimated
16287920	5360	YFT	PS	LS	FRA	2004	7	7	6210040	9210020	IO_Western		560	0

Where:

Field	Description
id	Unique identifier CTA strata
NCid	NC identifier (NC stratum to which each CTA stratum refers to)
Species	Species code
Gear	Gear type code
SchoolType	Type of school (used for industrial purse seine fisheries)
Fleet	Fleet code
Year	Year
Month	Month
Grid	5º square grid
SFArea	Length frequency data area (see figures 2 and 3) to which each CTA grid refers to
IOTC_Area	NC Area to which each CTA grid refers to
NO	Catch in number of fish (if available; required if MT is not available)
MT	Catch in metric tons (if available required if NO is not available)
CEestimated	Substitution code: original stratum (0) or stratum estimated (>0)

c/ Samples per time-area stratum (STA)

id	Species	Year	Quarter	Gear	Fleet	Grid	School type	SF no.Fish	SF mt.Fish	First Class Low	Size Interval	T001	…	T150
833327	YFT	2003	4	ELL	MUS	2210020	UNCL	128	5.753	10	2	0	…	0

Where:

Field	Description
id	Unique identifier STA strata
Species	Species code
Year	Year
Quarter	Quarter
Gear	Gear type code
Fleet	Fleet code
Grid	STA Areas (see figures 2 and 3)
Schooltype	Type of school (used for industrial purse seine fisheries)
SFnoFish	Number of fish in the sample
SFmtFish	Sampled weight (in tons)
FirstClassLow	First length class
SizeInterval	Interval between length classes
T001	Number of fish measured (1st length class)
……	Number of fish measured (2nd length class to 149th length class)
T150	Number of fish measured (150th length class)
SFestimated	Substitution code: original time-area-length class stratum (0) or time-area-length class stratum estimated (>0)

APPENDIX III

Industrial fleets for which no catches per time and area are available and alternate fleets whose data were used for substitution

Fleet Code	Fleet Name	Gear Code	IOTC Area	Year From	Year To	Alternate Fleet Code	Alternate Gear Code
BLZ	Belize	FLL	IO_Eastern	2001	2005	TWN	LL
BLZ	Belize	FLL	IO_Western	2001	2007	TWN	LL
BLZ	Belize	PS	IO_Eastern	2001	2002	ESP	PS
BLZ	Belize	PS	IO_Western	2001	2002	ESP	PS
GBR	United Kingdom	ELL	IO_Eastern	2005	2007	ESP	ELL
GBR	United Kingdom	ELL	IO_Western	2005	2007	ESP	ELL
GBR	United Kingdom	LL	IO_Western	2004	2004	ESP	ELL
IRN	Iran, Islamic Republic	LL	IO_Western	1976	2002	TWN	LL
IRN	Iran, Islamic Republic	PS	IO_Eastern	1996	1998	ESP	PS
IRN	Iran, Islamic Republic	PS	IO_Western	1992	2007	ESP	PS
KEN	Kenya	ELL	IO_Eastern	2005	2007	ESP	ELL
KEN	Kenya	ELL	IO_Western	1980	2007	TWN	LL
MDG	Madagascar	ELL	IO_Western	2002	2007	ESP	ELL
MDG	Madagascar	LL	IO_Eastern	2005	2005	TWN	LL
MDG	Madagascar	LL	IO_Western	2005	2005	TWN	LL
MUS	Mauritius	LL	IO_Western	1978	1981	TWN	LL
MYS	Malaysia	FLL	IO_Western	2006	2006	MUS	LL
NEI-DFRZ	NEI-Deep-freezing	ELL	IO_Eastern	2002	2007	ESP	ELL
NEI-DFRZ	NEI-Deep-freezing	ELL	IO_Western	2002	2007	ESP	ELL
NEI-DFRZ	NEI-Deep-freezing	LL	IO_Eastern	1985	2007	TWN	LL
NEI-DFRZ	NEI-Deep-freezing	LL	IO_Western	1985	2007	TWN	LL
NEI-DFRZ	NEI-Deep-freezing	TLL	IO_Western	2004	2004	TWN	LL
PAK	Pakistan	LL	IO_Western	1991	2000	TWN	LL
PRT	Portugal	SLL	IO_Western	2004	2004	ESP	ELL
SEN	Senegal	ELL	IO_Western	2003	2004	ESP	ELL
SUN	Soviet Union	LL	IO_Eastern	1977	1985	TWN	LL
SUN	Soviet Union	LL	IO_Western	1964	1989	TWN	LL
SUN	Soviet Union	PS	IO_Eastern	1985	1985	NEI-OTH	PS
URY	Uruguay	ELL	IO_Western	2001	2006	ESP	ELL

APPENDIX IV

Areas of operation assigned to fleets for which no catches per time and area are available

						Gear Type																
Fleet	EName	Area	YearFrom	YearTo	Grid	FLL	LL	LLEX	GILL	GIOF	HAND	LLF	TROL	SPOR	PSS	SEN	FN	DSEI	LIFT	TRAP	TRAW	OTHER
AUS	Australia	IO_Eastern	1963	2007	6220110				■		■			■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6220115				■					■		■				■	■	
AUS	Australia	IO_Eastern	1963	1980	6225100								■									
AUS	Australia	IO_Eastern	1963	2007	6225110				■		■			■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6230115				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6230120				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6230125				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6230130				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6230135				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6235115				■					■		■				■	■	
AUS	Australia	IO_Eastern	1963	1980	6235120								■									
AUS	Australia	IO_Eastern	1963	1980	6235125								■									
AUS	Australia	IO_Eastern	1963	1980	6235130								■									
AUS	Australia	IO_Eastern	1963	2007	6235135				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6235140				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6235145				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	1980	6240120								■									
AUS	Australia	IO_Eastern	1963	1980	6240125								■									
AUS	Australia	IO_Eastern	1963	1980	6240130								■									
AUS	Australia	IO_Eastern	1963	1980	6240135								■									
AUS	Australia	IO_Eastern	1963	2007	6240140				■				■	■		■				■	■	
AUS	Australia	IO_Eastern	1963	2007	6240145				■				■	■		■				■	■	
BGD	Bangladesh	IO_Eastern	1985	1985	6120085						■											
BGD	Bangladesh	IO_Eastern	1985	1985	6120090						■											
BHR	Bahrain	IO_Western	1976	1980	6125050				■													
BHR	Bahrain	IO_Western	1976	1980	6125055				■													
COM	Comoros	IO_Western	1950	2007	6210040						■		■									
COM	Comoros	IO_Western	1950	2007	6210045						■		■									
DJI	Djibouti	IO_Western	1983	2007	6110040				■													
FRA-REU	France-Reunion	IO_Western	1950	2007	6215050								■									
FRA-REU	France-Reunion	IO_Western	1950	2007	6215055								■									
FRA-REU	France-Reunion	IO_Western	1950	2007	6220050								■									
FRA-REU	France-Reunion	IO_Western	1950	2007	6220055								■									
FRAT	France-Territories	IO_Western	1995	2007	6210040						■		■									
FRAT	France-Territories	IO_Western	1995	2007	6210045						■		■									
IDN	Indonesia	IO_Eastern	1973	2007	6100090	■																
IDN	Indonesia	IO_Eastern	1950	2007	6100095	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6100100				■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6105090				■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6105095				■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1973	2007	6200085	■																
IDN	Indonesia	IO_Eastern	1973	2007	6200090	■																
IDN	Indonesia	IO_Eastern	1950	2007	6200095	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6200100	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1973	2007	6205085	■																
IDN	Indonesia	IO_Eastern	1973	2007	6205090	■																
IDN	Indonesia	IO_Eastern	1973	2007	6205095	■																
IDN	Indonesia	IO_Eastern	1950	2007	6205100	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6205105	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6205110	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6205115	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1973	2007	6210085	■																
IDN	Indonesia	IO_Eastern	1973	2007	6210090	■																
IDN	Indonesia	IO_Eastern	1973	2007	6210095	■																
IDN	Indonesia	IO_Eastern	1973	2007	6210100	■																
IDN	Indonesia	IO_Eastern	1973	2007	6210105	■																
IDN	Indonesia	IO_Eastern	1973	2007	6210110	■																
IDN	Indonesia	IO_Eastern	1973	2007	6210115	■																
IDN	Indonesia	IO_Eastern	1950	2007	6210120	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1950	2007	6210125	■			■		■	■	■		■			■	■			
IDN	Indonesia	IO_Eastern	1973	2007	6215090	■																
IDN	Indonesia	IO_Eastern	1973	2007	6215095	■																
IDN	Indonesia	IO_Eastern	1973	2007	6215100	■																
IDN	Indonesia	IO_Eastern	1973	2007	6215105	■																
IDN	Indonesia	IO_Eastern	1973	2007	6215110	■																
IDN	Indonesia	IO_Eastern	1973	2007	6215115	■																
IDN	Indonesia	IO_Eastern	1973	2007	6215120	■																
IDN	Indonesia	IO_Eastern	1973	2007	6220085	■																
IDN	Indonesia	IO_Eastern	1973	2007	6220090	■																
IDN	Indonesia	IO_Eastern	1973	2007	6220095	■																
IDN	Indonesia	IO_Eastern	1973	2007	6220100	■																
IDN	Indonesia	IO_Eastern	1973	2007	6220105	■																

						Gear Type															
Fleet	EName	Area	YearFrom	YearTo	Grid	FLL	LL	LLEX	GILL	GIOF	HAND	LLF	TROL	SPOR	PSS	SEN	FN	DSEI	LIFT	TRAP	TRAW	OTHER
IND	India	IO_Eastern	2005	2007	6100080																	
IND	India	IO_Eastern	2005	2007	6100085																	
IND	India	IO_Eastern	2005	2007	6100090																	
IND	India	IO_Eastern	2005	2007	6100100																	
IND	India	IO_Eastern	2005	2007	6105085																	
IND	India	IO_Eastern	1950	2007	6105090																	
IND	India	IO_Eastern	2005	2007	6105095																	
IND	India	IO_Eastern	1950	2007	6110080																	
IND	India	IO_Eastern	2005	2007	6110085																	
IND	India	IO_Eastern	1950	2007	6110090																	
IND	India	IO_Eastern	1950	2007	6115080																	
IND	India	IO_Eastern	1950	2007	6115085																	
IND	India	IO_Eastern	1950	2007	6120085																	
IND	India	IO_Eastern	2005	2007	6200080																	
IND	India	IO_Eastern	2005	2007	6200085																	
IND	India	IO_Eastern	2005	2007	6200090																	
IND	India	IO_Eastern	2005	2007	6205080																	
IND	India	IO_Eastern	2005	2007	6205085																	
IND	India	IO_Eastern	2005	2007	6205090																	
IND	India	IO_Eastern	2005	2007	6205095																	
IND	India	IO_Eastern	2005	2007	6210080																	
IND	India	IO_Eastern	2005	2007	6210085																	
IND	India	IO_Eastern	2005	2007	6210090																	
IND	India	IO_Eastern	2005	2007	6210095																	
IND	India	IO_Western	2005	2007	6100055																	
IND	India	IO_Western	2005	2007	6100060																	
IND	India	IO_Western	2005	2007	6100065																	
IND	India	IO_Western	2005	2007	6100070																	
IND	India	IO_Western	2005	2007	6100075																	
IND	India	IO_Western	2005	2007	6100080																	
IND	India	IO_Western	2005	2007	6105055																	
IND	India	IO_Western	2005	2007	6105060																	
IND	India	IO_Western	2005	2007	6105065																	
IND	India	IO_Western	1950	2007	6105070																	
IND	India	IO_Western	1950	2007	6105075																	
IND	India	IO_Western	2005	2007	6110055																	
IND	India	IO_Western	2005	2007	6110060																	
IND	India	IO_Western	2005	2007	6110065																	
IND	India	IO_Western	1950	2007	6110070																	
IND	India	IO_Western	1950	2007	6110075																	
IND	India	IO_Western	2005	2007	6115060																	
IND	India	IO_Western	2005	2007	6115065																	
IND	India	IO_Western	1950	2007	6115070																	
IND	India	IO_Western	1950	2007	6120070																	
IND	India	IO_Western	2005	2007	6200055																	
IND	India	IO_Western	2005	2007	6200060																	
IND	India	IO_Western	2005	2007	6200065																	
IND	India	IO_Western	2005	2007	6200070																	
IND	India	IO_Western	2005	2007	6200075																	
IND	India	IO_Western	2005	2007	6200080																	
IND	India	IO_Western	2005	2007	6205055																	
IND	India	IO_Western	2005	2007	6205060																	
IND	India	IO_Western	2005	2007	6205065																	
IND	India	IO_Western	2005	2007	6205070																	
IND	India	IO_Western	2005	2007	6205075																	
IND	India	IO_Western	2005	2007	6205080																	
IRN	Iran, Islamic Republic	IO_Western	1994	2007	6120050																	
IRN	Iran, Islamic Republic	IO_Western	1994	2007	6120055																	
IRN	Iran, Islamic Republic	IO_Western	1994	2007	6120060																	
IRN	Iran, Islamic Republic	IO_Western	1994	2007	6125045																	
IRN	Iran, Islamic Republic	IO_Western	1994	2007	6125050																	
IRN	Iran, Islamic Republic	IO_Western	1994	2007	6125055																	
JOR	Jordan	IO_Western	1998	2007	6125045																	
JOR	Jordan	IO_Western	1998	2007	6125050																	
KEN	Kenya	IO_Western	1981	2007	6200040																	
KEN	Kenya	IO_Western	1981	2007	6200045																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6100075																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6100080																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6105075																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6105080																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6105085																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6110075																	
LKA	Sri Lanka	IO_Eastern	1950	2007	6110080																	

						Gear Type																
Fleet	EName	Area	YearFrom	YearTo	Grid	FLL	LL	LLEX	GILL	GIOF	HAND	LLF	TROL	SPOR	PSS	SEN	FN	DSEI	LIFT	TRAP	TRAW	OTHER
MDV	Maldives	IO_Western	2002	2004	6100055																	
MDV	Maldives	IO_Western	2002	2004	6100060																	
MDV	Maldives	IO_Western	2002	2004	6100065																	
MDV	Maldives	IO_Western	1950	2004	6100070																	
MDV	Maldives	IO_Western	1950	2004	6100075																	
MDV	Maldives	IO_Western	2002	2004	6100080																	
MDV	Maldives	IO_Western	2002	2004	6105055																	
MDV	Maldives	IO_Western	2002	2004	6105060																	
MDV	Maldives	IO_Western	2002	2004	6105065																	
MDV	Maldives	IO_Western	1950	2004	6105070																	
MDV	Maldives	IO_Western	1950	2004	6105075																	
MDV	Maldives	IO_Western	2002	2004	6110055																	
MDV	Maldives	IO_Western	2002	2004	6110060																	
MDV	Maldives	IO_Western	2002	2004	6110065																	
MDV	Maldives	IO_Western	2002	2004	6110070																	
MDV	Maldives	IO_Western	2002	2004	6110075																	
MDV	Maldives	IO_Western	2002	2004	6115060																	
MDV	Maldives	IO_Western	2002	2004	6115065																	
MDV	Maldives	IO_Western	2002	2004	6200055																	
MDV	Maldives	IO_Western	2002	2004	6200060																	
MDV	Maldives	IO_Western	2002	2004	6200065																	
MDV	Maldives	IO_Western	1950	2004	6200070																	
MDV	Maldives	IO_Western	2002	2004	6200075																	
MDV	Maldives	IO_Western	2002	2004	6200080																	
MDV	Maldives	IO_Western	2002	2004	6205055																	
MDV	Maldives	IO_Western	2002	2004	6205060																	
MDV	Maldives	IO_Western	2002	2004	6205065																	
MDV	Maldives	IO_Western	2002	2004	6205070																	
MDV	Maldives	IO_Western	2002	2004	6205075																	
MDV	Maldives	IO_Western	2002	2004	6205080																	
MUS	Mauritius	IO_Western	1977	2007	6215055																	
MUS	Mauritius	IO_Western	1977	2007	6215060																	
MUS	Mauritius	IO_Western	1977	2007	6220055																	
MUS	Mauritius	IO_Western	1977	2007	6220060																	
MYS	Malaysia	IO_Eastern	2002	2007	6100080																	
MYS	Malaysia	IO_Eastern	2002	2007	6100085																	
MYS	Malaysia	IO_Eastern	2002	2007	6100090																	
MYS	Malaysia	IO_Eastern	2002	2007	6100100																	
MYS	Malaysia	IO_Eastern	2002	2007	6105085																	
MYS	Malaysia	IO_Eastern	2002	2007	6105090																	
MYS	Malaysia	IO_Eastern	2002	2007	6105095																	
MYS	Malaysia	IO_Eastern	2002	2007	6110085																	
MYS	Malaysia	IO_Eastern	2002	2007	6110090																	
MYS	Malaysia	IO_Eastern	2002	2007	6200080																	
MYS	Malaysia	IO_Eastern	2002	2007	6200085																	
MYS	Malaysia	IO_Eastern	2002	2007	6200090																	
MYS	Malaysia	IO_Eastern	2002	2007	6205080																	
MYS	Malaysia	IO_Eastern	2002	2007	6205085																	
MYS	Malaysia	IO_Eastern	2002	2007	6205090																	
MYS	Malaysia	IO_Eastern	2002	2007	6205095																	
MYS	Malaysia	IO_Eastern	2002	2007	6210080																	
MYS	Malaysia	IO_Eastern	2002	2007	6210085																	
MYS	Malaysia	IO_Eastern	2002	2007	6210090																	
MYS	Malaysia	IO_Eastern	2002	2007	6210095																	

						Gear Type																
Fleet	EName	Area	YearFrom	YearTo	Grid	FLL	LL	LLEX	GILL	GIOF	HAND	LLF	TROL	SPOR	PSS	SEN	FN	DSEI	LIFT	TRAP	TRAW	OTHER
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6100080																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6100085																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6100090																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6105085																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6105090																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6105095																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6110080																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6110085																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6110090																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6110095																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6200080																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6200085																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6200090																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6205080																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6205085																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6205090																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6205095																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6210080																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6210085																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6210090																	
NEI-ICE	NEI-Fresh Tuna	IO_Eastern	1989	2007	6210095																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6100055																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6100060																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6100065																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6100070																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6100075																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6100080																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6105055																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6105060																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6105065																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6105070																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6105075																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6110055																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6110060																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6110065																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6110070																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6110075																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6115060																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6115065																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6200055																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6200060																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6200065																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6200070																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6200075																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6200080																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6205055																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6205060																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6205065																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6205070																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6205075																	
NEI-ICE	NEI-Fresh Tuna	IO_Western	1998	2007	6205080																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6100090																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6100095																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6200090																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6200095																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6200100																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6205095																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6205100																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6205105																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6205110																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6205115																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6210105																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6210110																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6210115																	
NEI-IDN	NEI-Indonesia Fresh Tuna	IO_Eastern	1986	1999	6210120																	
OMN	Oman	IO_Western	2004	2007	6105055																	
OMN	Oman	IO_Western	2004	2007	6105060																	
OMN	Oman	IO_Western	2004	2007	6105065																	
OMN	Oman	IO_Western	2004	2007	6110055																	
OMN	Oman	IO_Western	2004	2007	6110060																	
OMN	Oman	IO_Western	2004	2007	6110065																	
OMN	Oman	IO_Western	1950	2007	6115050																	
OMN	Oman	IO_Western	1950	2007	6115055																	
OMN	Oman	IO_Western	2004	2007	6115060																	
OMN	Oman	IO_Western	2004	2007	6115065																	
OMN	Oman	IO_Western	1950	2007	6120055																	
OMN	Oman	IO_Western	1950	2007	6120060																	

						Gear Type																
Fleet	EName	Area	YearFrom	YearTo	Grid	FLL	LL	LLEX	GILL	GIOF	HAND	LLF	TROL	SPOR	PSS	SEN	FN	DSEI	LIFT	TRAP	TRAW	OTHER
PAK	Pakistan	IO_Western	1950	2007	6115060																	
PAK	Pakistan	IO_Western	1950	2007	6115065																	
PAK	Pakistan	IO_Western	1950	2007	6120060																	
PAK	Pakistan	IO_Western	1950	2007	6120065																	
QAT	Qatar	IO_Western	1982	2007	6125050																	
QAT	Qatar	IO_Western	1982	2007	6125055																	
SUN	Soviet Union	IO_Western	1963	1965	6110040																	
SUN	Soviet Union	IO_Western	1963	1965	6110045																	
SUN	Soviet Union	IO_Western	1963	1965	6115035																	
SUN	Soviet Union	IO_Western	1963	1965	6115040																	
SUN	Soviet Union	IO_Western	1963	1965	6120035																	
SUN	Soviet Union	IO_Western	1963	1965	6125030																	
SUN	Soviet Union	IO_Western	1963	1965	6125035																	
SYC	Seychelles	IO_Western	1970	1991	6200050																	
SYC	Seychelles	IO_Western	1970	1991	6200055																	
SYC	Seychelles	IO_Western	1970	1991	6205050																	
SYC	Seychelles	IO_Western	1970	1991	6205055																	
THA	Thailand	IO_Eastern	2006	2006	6100080																	
THA	Thailand	IO_Eastern	2006	2006	6100085																	
THA	Thailand	IO_Eastern	2006	2006	6100090																	
THA	Thailand	IO_Eastern	2006	2006	6100100																	
THA	Thailand	IO_Eastern	2006	2006	6105085																	
THA	Thailand	IO_Eastern	2006	2006	6105090																	
THA	Thailand	IO_Eastern	2006	2006	6105095																	
THA	Thailand	IO_Eastern	2006	2006	6110085																	
THA	Thailand	IO_Eastern	2006	2006	6110090																	
THA	Thailand	IO_Eastern	2006	2006	6200080																	
THA	Thailand	IO_Eastern	2006	2006	6200085																	
THA	Thailand	IO_Eastern	2006	2006	6200090																	
THA	Thailand	IO_Eastern	2006	2006	6205080																	
THA	Thailand	IO_Eastern	2006	2006	6205085																	
THA	Thailand	IO_Eastern	2006	2006	6205090																	
THA	Thailand	IO_Eastern	2006	2006	6205095																	
THA	Thailand	IO_Eastern	2006	2006	6210080																	
THA	Thailand	IO_Eastern	2006	2006	6210085																	
THA	Thailand	IO_Eastern	2006	2006	6210090																	
THA	Thailand	IO_Eastern	2006	2006	6210095																	
TMP	East Timor	IO_Eastern	1999	2007	6205115																	

						Gear Type																
Fleet	EName	Area	YearFrom	YearTo	Grid	FLL	LL	LLEX	GILL	GIOF	HAND	LLF	TROL	SPOR	PSS	SEN	FN	DSEI	LIFT	TRAP	TRAW	OTHER
TWN	Taiwan,China	IO_Eastern	2001	2007	6100080																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6100085																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6100090																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6100100																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6105085																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6105090																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6105095																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6110085																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6110090																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6200080																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6200085																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6200090																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6205080																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6205085																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6205090																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6205095																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6210080																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6210085																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6210090																	
TWN	Taiwan,China	IO_Eastern	2001	2007	6210095																	
TWN	Taiwan,China	IO_Western	2001	2007	6100055																	
TWN	Taiwan,China	IO_Western	2001	2007	6100060																	
TWN	Taiwan,China	IO_Western	2001	2007	6100065																	
TWN	Taiwan,China	IO_Western	2001	2007	6100070																	
TWN	Taiwan,China	IO_Western	2001	2007	6100075																	
TWN	Taiwan,China	IO_Western	2001	2007	6100080																	
TWN	Taiwan,China	IO_Western	2001	2007	6105055																	
TWN	Taiwan,China	IO_Western	2001	2007	6105060																	
TWN	Taiwan,China	IO_Western	2001	2007	6105065																	
TWN	Taiwan,China	IO_Western	2001	2007	6105070																	
TWN	Taiwan,China	IO_Western	2001	2007	6105075																	
TWN	Taiwan,China	IO_Western	2001	2007	6110055																	
TWN	Taiwan,China	IO_Western	2001	2007	6110060																	
TWN	Taiwan,China	IO_Western	2001	2007	6110065																	
TWN	Taiwan,China	IO_Western	2001	2007	6110070																	
TWN	Taiwan,China	IO_Western	2001	2007	6110075																	
TWN	Taiwan,China	IO_Western	2001	2007	6115060																	
TWN	Taiwan,China	IO_Western	2001	2007	6115065																	
TWN	Taiwan,China	IO_Western	2001	2007	6200055																	
TWN	Taiwan,China	IO_Western	2001	2007	6200060																	
TWN	Taiwan,China	IO_Western	2001	2007	6200065																	
TWN	Taiwan,China	IO_Western	2001	2007	6200070																	
TWN	Taiwan,China	IO_Western	2001	2007	6200075																	
TWN	Taiwan,China	IO_Western	2001	2007	6200080																	
TWN	Taiwan,China	IO_Western	2001	2007	6205055																	
TWN	Taiwan,China	IO_Western	2001	2007	6205060																	
TWN	Taiwan,China	IO_Western	2001	2007	6205065																	
TWN	Taiwan,China	IO_Western	2001	2007	6205070																	
TWN	Taiwan,China	IO_Western	2001	2007	6205075																	
TWN	Taiwan,China	IO_Western	2001	2007	6205080																	
TZA	Tanzania	IO_Western	1970	1975	6110040																	
TZA	Tanzania	IO_Western	1970	1975	6110045																	
TZA	Tanzania	IO_Western	1970	1975	6115035																	
TZA	Tanzania	IO_Western	1970	1975	6115040																	
TZA	Tanzania	IO_Western	1970	2007	6200035																	
TZA	Tanzania	IO_Western	1970	2007	6200040																	
TZA	Tanzania	IO_Western	1970	2007	6205035																	
TZA	Tanzania	IO_Western	1970	2007	6205040																	
YEM	Yemen	IO_Western	1950	1987	6110045																	
YEM	Yemen	IO_Western	1950	1987	6115050																	

APPENDIX V

Substitution scheme used for the estimation of Catches-at-Size (time-area)

Step	Lat	Lon	Qtr	Step	Lat	Lon	Qtr	Step	Lat	Lon	Qtr	Step	Lat	Lon	Qtr	Step	Lat	Lon	Qtr
1	0	0	-0.25	53	20	-20	0.00	105	30	-20	-0.25	157	40	0	-0.25	209	10	-80	0.00
2	0	0	0.25	54	20	20	0.00	106	30	20	-0.25	158	40	0	0.25	210	10	80	0.00
3	0	-20	0.00	55	-20	-20	-0.25	107	-30	-20	0.25	159	-40	-80	0.00	211	-10	-80	-0.25
4	0	20	0.00	56	-20	20	-0.25	108	-30	20	0.25	160	-40	80	0.00	212	-10	80	-0.25
5	0	-20	-0.25	57	20	-20	-0.25	109	30	-20	0.25	161	40	-80	0.00	213	10	-80	-0.25
6	0	-20	0.25	58	20	20	-0.25	110	30	20	0.25	162	40	80	0.00	214	10	80	-0.25
7	0	20	-0.25	59	-20	-20	0.25	111	-30	-40	0.00	163	-40	-80	-0.25	215	-10	-80	0.25
8	0	20	0.25	60	-20	20	0.25	112	-30	40	0.00	164	-40	80	-0.25	216	-10	80	0.25
9	-10	0	0.00	61	20	-20	0.25	113	30	-40	0.00	165	40	-80	-0.25	217	10	-80	0.25
10	10	0	0.00	62	20	20	0.25	114	30	40	0.00	166	40	80	-0.25	218	10	80	0.25
11	-10	0	-0.25	63	-10	-40	0.00	115	-30	-40	-0.25	167	-40	-80	0.25	219	-20	-80	0.00
12	-10	0	0.25	64	-10	40	0.00	116	-30	40	-0.25	168	-40	80	0.25	220	-20	80	0.00
13	10	0	-0.25	65	10	-40	0.00	117	30	-40	-0.25	169	40	-80	0.25	221	20	-80	0.00
14	10	0	0.25	66	10	40	0.00	118	30	40	-0.25	170	40	80	0.25	222	20	80	0.00
15	-10	-20	0.00	67	-10	-40	-0.25	119	-30	-40	0.25	171	-40	-20	0.00	223	-20	-80	-0.25
16	-10	20	0.00	68	-10	40	-0.25	120	-30	40	0.25	172	-40	20	0.00	224	-20	80	-0.25
17	10	-20	0.00	69	10	-40	-0.25	121	30	-40	0.25	173	40	-20	0.00	225	20	-80	-0.25
18	10	20	0.00	70	10	40	-0.25	122	30	40	0.25	174	40	20	0.00	226	20	80	-0.25
19	-10	-20	-0.25	71	-10	-40	0.25	123	-10	-60	0.00	175	-40	-20	-0.25	227	-20	-80	0.25
20	-10	20	-0.25	72	-10	40	0.25	124	-10	60	0.00	176	-40	20	-0.25	228	-20	80	0.25
21	10	-20	-0.25	73	10	-40	0.25	125	10	-60	0.00	177	40	-20	-0.25	229	20	-80	0.25
22	10	20	-0.25	74	10	40	0.25	126	10	60	0.00	178	40	20	-0.25	230	20	80	0.25
23	-10	-20	0.25	75	0	-60	0.00	127	-10	-60	-0.25	179	-40	-20	0.25	231	-30	-80	0.00
24	-10	20	0.25	76	0	60	0.00	128	-10	60	-0.25	180	-40	20	0.25	232	-30	80	0.00
25	10	-20	0.25	77	0	-60	-0.25	129	10	-60	-0.25	181	40	-20	0.25	233	30	-80	0.00
26	10	20	0.25	78	0	-60	0.25	130	10	60	-0.25	182	40	20	0.25	234	30	80	0.00
27	0	-40	0.00	79	0	60	-0.25	131	-10	-60	0.25	183	-40	-40	0.00	235	-30	-80	-0.25
28	0	40	0.00	80	0	60	0.25	132	-10	60	0.25	184	-40	40	0.00	236	-30	80	-0.25
29	0	-40	-0.25	81	-30	0	0.00	133	10	-60	0.25	185	40	-40	0.00	237	30	-80	-0.25
30	0	-40	0.25	82	30	0	0.00	134	10	60	0.25	186	40	40	0.00	238	30	80	-0.25
31	0	40	-0.25	83	-30	0	-0.25	135	-20	-60	0.00	187	-40	-40	-0.25	239	-30	-80	0.25
32	0	40	0.25	84	-30	0	0.25	136	-20	60	0.00	188	-40	40	-0.25	240	-30	80	0.25
33	-20	0	0.00	85	30	0	-0.25	137	20	-60	0.00	189	40	-40	-0.25	241	30	-80	0.25
34	20	0	0.00	86	30	0	0.25	138	20	60	0.00	190	40	40	-0.25	242	30	80	0.25
35	-20	0	-0.25	87	-30	-60	0.00	139	-20	-60	-0.25	191	-40	-40	0.25	243	0	-100	0.00
36	-20	0	0.25	88	-30	60	0.00	140	-20	60	-0.25	192	-40	40	0.25	244	0	100	0.00
37	20	0	-0.25	89	30	-60	0.00	141	20	-60	-0.25	193	40	-40	0.25	245	0	-100	-0.25
38	20	0	0.25	90	30	60	0.00	142	20	60	-0.25	194	40	40	0.25	246	0	-100	0.25
39	-20	-40	0.00	91	-30	-60	-0.25	143	-20	-60	0.25	195	-40	-60	0.00	247	0	100	-0.25
40	-20	40	0.00	92	-30	60	-0.25	144	-20	60	0.25	196	-40	60	0.00	248	0	100	0.25
41	20	-40	0.00	93	30	-60	-0.25	145	20	-60	0.25	197	40	-60	0.00	249	0	-120	0.00
42	20	40	0.00	94	30	60	-0.25	146	20	60	0.25	198	40	60	0.00	250	0	120	0.00
43	-20	-40	-0.25	95	-30	-60	0.25	147	0	-80	0.00	199	-40	-60	-0.25	251	0	-120	-0.25
44	-20	40	-0.25	96	-30	60	0.25	148	0	80	0.00	200	-40	60	-0.25	252	0	-120	0.25
45	20	-40	-0.25	97	30	-60	0.25	149	0	-80	-0.25	201	40	-60	-0.25	253	0	120	-0.25
46	20	40	-0.25	98	30	60	0.25	150	0	-80	0.25	202	40	60	-0.25	254	0	120	0.25
47	-20	-40	0.25	99	-30	-20	0.00	151	0	80	-0.25	203	-40	-60	0.25	255	0	0	-0.50
48	-20	40	0.25	100	-30	20	0.00	152	0	80	0.25	204	-40	60	0.25	256	0	0	0.50
49	20	-40	0.25	101	30	-20	0.00	153	-40	0	0.00	205	40	-60	0.25	257	0	-20	-0.50
50	20	40	0.25	102	30	20	0.00	154	40	0	0.00	206	40	60	0.25	258	0	-20	0.50
51	-20	-20	0.00	103	-30	-20	-0.25	155	-40	0	-0.25	207	-10	-80	0.00	259	0	20	-0.50
52	-20	20	0.00	104	-30	20	-0.25	156	-40	0	0.25	208	-10	80	0.00	260	0	20	0.50

Step	Lat	Lon	Qtr
261	-10	0	-0.50
262	-10	0	0.50
263	10	0	-0.50
264	10	0	0.50
265	-10	-20	-0.50
266	-10	20	-0.50
267	10	-20	-0.50
268	10	20	-0.50
269	-10	-20	0.50
270	-10	20	0.50
271	10	-20	0.50
272	10	20	0.50
273	0	-40	-0.50
274	0	-40	0.50
275	0	40	-0.50
276	0	40	0.50
277	-20	0	-0.50
278	-20	0	0.50
279	20	0	-0.50
280	20	0	0.50
281	-20	-40	-0.50
282	-20	40	-0.50
283	20	-40	-0.50
284	20	40	-0.50
285	-20	-40	0.50
286	-20	40	0.50
287	20	-40	0.50
288	20	40	0.50
289	-20	-20	-0.50
290	-20	20	-0.50
291	20	-20	-0.50
292	20	20	-0.50
293	-20	-20	0.50
294	-20	20	0.50
295	20	-20	0.50
296	20	20	0.50
297	-10	-40	-0.50
298	-10	40	-0.50
299	10	-40	-0.50
300	10	40	-0.50
301	-10	-40	0.50
302	-10	40	0.50
303	10	-40	0.50
304	10	40	0.50
305	0	-60	-0.50
306	0	-60	0.50
307	0	60	-0.50
308	0	60	0.50
309	-30	0	-0.50
310	-30	0	0.50
311	30	0	-0.50
312	30	0	0.50
313	-30	-60	-0.50
314	-30	60	-0.50
315	30	-60	-0.50
316	30	60	-0.50
317	-30	-60	0.50
318	-30	60	0.50
319	30	-60	0.50
320	30	60	0.50
321	-30	-20	-0.50
322	-30	20	-0.50
323	30	-20	-0.50
324	30	20	-0.50
325	-30	-20	0.50
326	-30	20	0.50
327	30	-20	0.50
328	30	20	0.50
329	-30	-40	-0.50
330	-30	40	-0.50
331	30	-40	-0.50
332	30	40	-0.50
333	-30	-40	0.50
334	-30	40	0.50
335	30	-40	0.50
336	30	40	0.50
337	-10	-60	-0.50
338	-10	60	-0.50
339	10	-60	-0.50
340	10	60	-0.50
341	-10	-60	0.50
342	-10	60	0.50
343	10	-60	0.50
344	10	60	0.50
345	-20	-60	-0.50
346	-20	60	-0.50
347	20	-60	-0.50
348	20	60	-0.50
349	-20	-60	0.50
350	-20	60	0.50
351	20	-60	0.50
352	20	60	0.50
353	0	-80	-0.50
354	0	-80	0.50
355	0	80	-0.50
356	0	80	0.50
357	-40	0	-0.50
358	-40	0	0.50
359	40	0	-0.50
360	40	0	0.50
361	-40	-80	-0.50
362	-40	80	-0.50
363	40	-80	-0.50
364	40	80	-0.50
365	-40	-80	0.50
366	-40	80	0.50
367	40	-80	0.50
368	40	80	0.50
369	-40	-20	-0.50
370	-40	20	-0.50
371	40	-20	-0.50
372	40	20	-0.50
373	-40	-20	0.50
374	-40	20	0.50
375	40	-20	0.50
376	40	20	0.50
377	-40	-40	-0.50
378	-40	40	-0.50
379	40	-40	-0.50
380	40	40	-0.50
381	-40	-40	0.50
382	-40	40	0.50
383	40	-40	0.50
384	40	40	0.50
385	-40	-60	-0.50
386	-40	60	-0.50
387	40	-60	-0.50
388	40	60	-0.50
389	-40	-60	0.50
390	-40	60	0.50
391	40	-60	0.50
392	40	60	0.50
393	-10	-80	-0.50
394	-10	80	-0.50
395	10	-80	-0.50
396	10	80	-0.50
397	-10	-80	0.50
398	-10	80	0.50
399	10	-80	0.50
400	10	80	0.50
401	-20	-80	-0.50
402	-20	80	-0.50
403	20	-80	-0.50
404	20	80	-0.50
405	-20	-80	0.50
406	-20	80	0.50
407	20	-80	0.50
408	20	80	0.50
409	-30	-80	-0.50
410	-30	80	-0.50
411	30	-80	-0.50
412	30	80	-0.50
413	-30	-80	0.50
414	-30	80	0.50
415	30	-80	0.50
416	30	80	0.50
417	0	-100	-0.50
418	0	-100	0.50
419	0	100	-0.50
420	0	100	0.50
421	0	-120	-0.50
422	0	-120	0.50
423	0	120	-0.50
424	0	120	0.50
425	0	0	-0.75
426	0	0	0.75
427	0	-20	-0.75
428	0	-20	0.75
429	0	20	-0.75
430	0	20	0.75
431	-10	0	-0.75
432	-10	0	0.75
433	10	0	-0.75
434	10	0	0.75
435	-10	-20	-0.75
436	-10	20	-0.75
437	10	-20	-0.75
438	10	20	-0.75
439	-10	-20	0.75
440	-10	20	0.75
441	10	-20	0.75
442	10	20	0.75
443	0	-40	-0.75
444	0	-40	0.75
445	0	40	-0.75
446	0	40	0.75
447	-20	0	-0.75
448	-20	0	0.75
449	20	0	-0.75
450	20	0	0.75
451	-20	-40	-0.75
452	-20	40	-0.75
453	20	-40	-0.75
454	20	40	-0.75
455	-20	-40	0.75
456	-20	40	0.75
457	20	-40	0.75
458	20	40	0.75
459	-20	-20	-0.75
460	-20	20	-0.75
461	20	-20	-0.75
462	20	20	-0.75
463	-20	-20	0.75
464	-20	20	0.75
465	20	-20	0.75
466	20	20	0.75
467	-10	-40	-0.75
468	-10	40	-0.75
469	10	-40	-0.75
470	10	40	-0.75
471	-10	-40	0.75
472	-10	40	0.75
473	10	-40	0.75
474	10	40	0.75
475	0	-60	-0.75
476	0	-60	0.75
477	0	60	-0.75
478	0	60	0.75
479	-30	0	-0.75
480	-30	0	0.75
481	30	0	-0.75
482	30	0	0.75
483	-30	-60	-0.75
484	-30	60	-0.75
485	30	-60	-0.75
486	30	60	-0.75
487	-30	-60	0.75
488	-30	60	0.75
489	30	-60	0.75
490	30	60	0.75
491	-30	-20	-0.75
492	-30	20	-0.75
493	30	-20	-0.75
494	30	20	-0.75
495	-30	-20	0.75
496	-30	20	0.75
497	30	-20	0.75
498	30	20	0.75
499	-30	-40	-0.75
500	-30	40	-0.75
501	30	-40	-0.75
502	30	40	-0.75
503	-30	-40	0.75
504	-30	40	0.75
505	30	-40	0.75
506	30	40	0.75
507	-10	-60	-0.75
508	-10	60	-0.75
509	10	-60	-0.75
510	10	60	-0.75
511	-10	-60	0.75
512	-10	60	0.75
513	10	-60	0.75
514	10	60	0.75
515	-20	-60	-0.75
516	-20	60	-0.75
517	20	-60	-0.75
518	20	60	-0.75
519	-20	-60	0.75
520	-20	60	0.75

Step	Lat	Lon	Qtr
521	20	-60	0.75
522	20	60	0.75
523	0	-80	-0.75
524	0	-80	0.75
525	0	80	-0.75
526	0	80	0.75
527	-40	0	-0.75
528	-40	0	0.75
529	40	0	-0.75
530	40	0	0.75
531	-40	-80	-0.75
532	-40	80	-0.75
533	40	-80	-0.75
534	40	80	-0.75
535	-40	-80	0.75
536	-40	80	0.75
537	40	-80	0.75
538	40	80	0.75
539	-40	-20	-0.75
540	-40	20	-0.75
541	40	-20	-0.75
542	40	20	-0.75
543	-40	-20	0.75
544	-40	20	0.75
545	40	-20	0.75
546	40	20	0.75
547	-40	-40	-0.75
548	-40	40	-0.75
549	40	-40	-0.75
550	40	40	-0.75
551	-40	-40	0.75
552	-40	40	0.75
553	40	-40	0.75
554	40	40	0.75
555	-40	-60	-0.75
556	-40	60	-0.75
557	40	-60	-0.75
558	40	60	-0.75
559	-40	-60	0.75
560	-40	60	0.75
561	40	-60	0.75
562	40	60	0.75
563	-10	-80	-0.75
564	-10	80	-0.75
565	10	-80	-0.75
566	10	80	-0.75
567	-10	-80	0.75
568	-10	80	0.75
569	10	-80	0.75
570	10	80	0.75
571	-20	-80	-0.75
572	-20	80	-0.75
573	20	-80	-0.75
574	20	80	-0.75
575	-20	-80	0.75
576	-20	80	0.75
577	20	-80	0.75
578	20	80	0.75
579	-30	-80	-0.75
580	-30	80	-0.75
581	30	-80	-0.75
582	30	80	-0.75
583	-30	-80	0.75
584	-30	80	0.75
585	30	-80	0.75
586	30	80	0.75
587	0	-100	-0.75
588	0	-100	0.75
589	0	100	-0.75
590	0	100	0.75
591	0	-120	-0.75
592	0	-120	0.75
593	0	120	-0.75
594	0	120	0.75
595	0	0	-1.00
596	0	0	1.00
597	0	-20	-1.00
598	0	-20	1.00
599	0	20	-1.00
600	0	20	1.00
601	-10	0	-1.00
602	-10	0	1.00
603	10	0	-1.00
604	10	0	1.00
605	-10	-20	-1.00
606	-10	20	-1.00
607	10	-20	-1.00
608	10	20	-1.00
609	-10	-20	1.00
610	-10	20	1.00
611	10	-20	1.00
612	10	20	1.00
613	0	-40	-1.00
614	0	-40	1.00
615	0	40	-1.00
616	0	40	1.00
617	-20	0	-1.00
618	-20	0	1.00
619	20	0	-1.00
620	20	0	1.00
621	-20	-40	-1.00
622	-20	40	-1.00
623	20	-40	-1.00
624	20	40	-1.00
625	-20	-40	1.00
626	-20	40	1.00
627	20	-40	1.00
628	20	40	1.00
629	-20	-20	-1.00
630	-20	20	-1.00
631	20	-20	-1.00
632	20	20	-1.00
633	-20	-20	1.00
634	-20	20	1.00
635	20	-20	1.00
636	20	20	1.00
637	-10	-40	-1.00
638	-10	40	-1.00
639	10	-40	-1.00
640	10	40	-1.00
641	-10	-40	1.00
642	-10	40	1.00
643	10	-40	1.00
644	10	40	1.00
645	0	-60	-1.00
646	0	-60	1.00
647	0	60	-1.00
648	0	60	1.00
649	-30	0	-1.00
650	-30	0	1.00
651	30	0	-1.00
652	30	0	1.00
653	-30	-60	-1.00
654	-30	60	-1.00
655	30	-60	-1.00
656	30	60	-1.00
657	-30	-60	1.00
658	-30	60	1.00
659	30	-60	1.00
660	30	60	1.00
661	-30	-20	-1.00
662	-30	20	-1.00
663	30	-20	-1.00
664	30	20	-1.00
665	-30	-20	1.00
666	-30	20	1.00
667	30	-20	1.00
668	30	20	1.00
669	-30	-40	-1.00
670	-30	40	-1.00
671	30	-40	-1.00
672	30	40	-1.00
673	-30	-40	1.00
674	-30	40	1.00
675	30	-40	1.00
676	30	40	1.00
677	-10	-60	-1.00
678	-10	60	-1.00
679	10	-60	-1.00
680	10	60	-1.00
681	-10	-60	1.00
682	-10	60	1.00
683	10	-60	1.00
684	10	60	1.00
685	-20	-60	-1.00
686	-20	60	-1.00
687	20	-60	-1.00
688	20	60	-1.00
689	-20	-60	1.00
690	-20	60	1.00
691	20	-60	1.00
692	20	60	1.00
693	0	-80	-1.00
694	0	-80	1.00
695	0	80	-1.00
696	0	80	1.00
697	-40	0	-1.00
698	-40	0	1.00
699	40	0	-1.00
700	40	0	1.00
701	-40	-80	-1.00
702	-40	80	-1.00
703	40	-80	-1.00
704	40	80	-1.00
705	-40	-80	1.00
706	-40	80	1.00
707	40	-80	1.00
708	40	80	1.00
709	-40	-20	-1.00
710	-40	20	-1.00
711	40	-20	-1.00
712	40	20	-1.00
713	-40	-20	1.00
714	-40	20	1.00
715	40	-20	1.00
716	40	20	1.00
717	-40	-40	-1.00
718	-40	40	-1.00
719	40	-40	-1.00
720	40	40	-1.00
721	-40	-40	1.00
722	-40	40	1.00
723	40	-40	1.00
724	40	40	1.00
725	-40	-60	-1.00
726	-40	60	-1.00
727	40	-60	-1.00
728	40	60	-1.00
729	-40	-60	1.00
730	-40	60	1.00
731	40	-60	1.00
732	40	60	1.00
733	-10	-80	-1.00
734	-10	80	-1.00
735	10	-80	-1.00
736	10	80	-1.00
737	-10	-80	1.00
738	-10	80	1.00
739	10	-80	1.00
740	10	80	1.00
741	-20	-80	-1.00
742	-20	80	-1.00
743	20	-80	-1.00
744	20	80	-1.00
745	-20	-80	1.00
746	-20	80	1.00
747	20	-80	1.00
748	20	80	1.00
749	-30	-80	-1.00
750	-30	80	-1.00
751	30	-80	-1.00
752	30	80	-1.00
753	-30	-80	1.00
754	-30	80	1.00
755	30	-80	1.00
756	30	80	1.00
757	0	-100	-1.00
758	0	-100	1.00
759	0	100	-1.00
760	0	100	1.00
761	0	-120	-1.00
762	0	-120	1.00
763	0	120	-1.00
764	0	120	1.00

APPENDIX VI

Substitution scheme used for the estimation of Catches-at-Size (Fleet-Gear)

a/Bigeye tuna

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
BB	AUS	BB	AG1	BB	AG1	SURF	AG1
BB	MDV	BB	AG2	BB	AG1	SURF	AG1
BB	TZA	BB	AG3	BB	AG1	SURF	AG1
BBM	MDV	BB	AG2	BB	AG1	SURF	AG1
BBN	MDV	BB	AG2	BB	AG1	SURF	AG1
DSEI	IDN	PSS	AG1	PSS	AG1	SURF	AG1
ELL	AUS	ELL	AG1	ELL	AG1	LL	AG1
ELL	ESP	ELL	AG2	ELL	AG1	LL	AG1
ELL	FRA-REU	ELL	AG3	ELL	AG1	LL	AG1
ELL	FRAT	ELL	AG3	ELL	AG1	LL	AG1
ELL	GBR	ELL	AG2	ELL	AG1	LL	AG1
ELL	GIN	ELL	AG2	ELL	AG1	LL	AG1
ELL	KEN	ELL	AG2	ELL	AG1	LL	AG1
ELL	MDG	ELL	AG3	ELL	AG1	LL	AG1
ELL	MUS	ELL	AG3	ELL	AG1	LL	AG1
ELL	NEI-DFRZ	ELL	AG2	ELL	AG1	LL	AG1
ELL	SYC	ELL	AG3	ELL	AG1	LL	AG1
ELL	URY	ELL	AG2	ELL	AG1	LL	AG1
FLL	BLZ	FLL	AG1	FLL	AG1	LL	AG1
FLL	CHN	FLL	AG1	FLL	AG1	LL	AG1
FLL	IDN	FLL	AG2	FLL	AG1	LL	AG1
FLL	MDV	FLL	AG1	FLL	AG1	LL	AG1
FLL	MYS	FLL	AG1	FLL	AG1	LL	AG1
FLL	NEI-ICE	FLL	AG1	FLL	AG1	LL	AG1
FLL	NEI-IDN	FLL	AG2	FLL	AG1	LL	AG1
FLL	OMN	FLL	AG1	FLL	AG1	LL	AG1
FLL	THA	FLL	AG1	FLL	AG1	LL	AG1
FLL	TWN	FLL	AG1	FLL	AG1	LL	AG1
G/L	LKA	G/L	AG1	GILL	AG1	GILL	AG1
GILL	AUS	GILL	AG4	GILL	AG1	GILL	AG1
GILL	IDN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	LKA	GILL	AG1	GILL	AG1	GILL	AG1
GILL	TMP	GILL	AG2	GILL	AG1	GILL	AG1
GILL	TWN	GILL	AG3	GILL	AG2	GILL	AG1
HAND	AUS	HAND	AG1	HAND	AG1	LL	AG1
HAND	COM	HAND	AG2	HAND	AG1	LL	AG1
HAND	FRA-REU	HAND	AG3	HAND	AG1	LL	AG1
HAND	FRAT	HAND	AG2	HAND	AG1	LL	AG1
HAND	KEN	HAND	AG2	HAND	AG1	LL	AG1
HAND	LKA	HAND	AG4	HAND	AG1	LL	AG1
HAND	SYC	HAND	AG4	HAND	AG1	LL	AG1
HAND	TZA	HAND	AG2	HAND	AG1	LL	AG1
HAND	ZAF	HAND	AG3	HAND	AG1	LL	AG1
HATR	LKA	HAND	AG5	HAND	AG1	LL	AG1
LL	BLZ	LL	AG3	LL	AG2	LL	AG1
LL	CHN	FLL	AG1	FLL	AG1	LL	AG1
LL	GBR	ELL	AG2	ELL	AG1	LL	AG1
LL	IND	LL	AG3	LL	AG2	LL	AG1
LL	IRN	LL	AG2	LL	AG2	LL	AG1
LL	JPN	LL	AG1	LL	AG1	LL	AG1
LL	KOR	LL	AG1	LL	AG1	LL	AG1
LL	LKA	HAND	AG4	HAND	AG1	LL	AG1
LL	MDG	ELL	AG2	ELL	AG1	LL	AG1
LL	MUS	ELL	AG2	ELL	AG1	LL	AG1
LL	NEI-DFRZ	LL	AG3	LL	AG2	LL	AG1
LL	OMN	LL	AG3	LL	AG2	LL	AG1
LL	PHL	LL	AG3	LL	AG2	LL	AG1
LL	PRT	ELL	AG2	ELL	AG1	LL	AG1
LL	SUN	LL	AG2	LL	AG2	LL	AG1
LL	SYC	LL	AG3	LL	AG2	LL	AG1
LL	THA	LL	AG1	LL	AG1	LL	AG1
LL	TWN	LL	AG3	LL	AG2	LL	AG1
LL	ZAF	ELL	AG2	ELL	AG1	LL	AG1
LLD	PRT	ELL	AG2	ELL	AG1	LL	AG1
LLEX	ESP	ELL	AG2	ELL	AG1	LL	AG1
LLEX	IND	LL	AG3	LL	AG2	LL	AG1
PS	BLZ	PS	AG5	PS	AG2	PS	AG1
PS	ESP	PS	AG2	PS	AG2	PS	AG1
PS	FRA	PS	AG3	PS	AG2	PS	AG1
PS	FRAT	PS	AG3	PS	AG2	PS	AG1
PS	IRN	PS	AG5	PS	AG2	PS	AG1
PS	JPN	PS	AG4	PS	AG3	PS	AG1
PS	MUS	PS	AG4	PS	AG3	PS	AG1
PS	NEI-OTH	PS	AG5	PS	AG2	PS	AG1
PS	NEI-SUN	PS	AG6	PS	AG4	PS	AG1
PS	SUN	PS	AG6	PS	AG4	PS	AG1
PS	SYC	PS	AG5	PS	AG2	PS	AG1
PS	THA	PS	AG6	PS	AG4	PS	AG1

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
PSS	IDN	PSS	AG1	PSS	AG1	SURF	AG1
RIN	LKA	PSS	AG2	PSS	AG1	SURF	AG1
SLL	PRT	ELL	AG2	ELL	AG1	LL	AG1
SLL	ZAF	ELL	AG2	ELL	AG1	LL	AG1
SPOR	ZAF	SPOR	AG1	TROL	AG2	TROL	AG1
TLL	NEI-DFRZ	ELL	AG2	ELL	AG1	LL	AG1
TLL	ZAF	ELL	AG2	ELL	AG1	LL	AG1
TROL	AUS	TROL	AG1	TROL	AG1	TROL	AG1
TROL	COM	TROL	AG2	TROL	AG2	TROL	AG1
TROL	FRA-REU	TROL	AG3	TROL	AG2	TROL	AG1
TROL	FRAT	TROL	AG2	TROL	AG2	TROL	AG1
TROL	IDN	TROL	AG1	TROL	AG1	TROL	AG1
TROL	LKA	TROL	AG5	TROL	AG1	TROL	AG1
TROL	MUS	TROL	AG3	TROL	AG2	TROL	AG1
UNCL	LKA	SURF	AG1	SURF	AG1	SURF	AG1

b/Yellowfin tuna

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
BB	AUS	BB	AG1	BB	AG1	BB	AG1
BB	ESP	BB	AG3	BB	AG1	BB	AG1
BB	IDN	BB	AG2	BB	AG1	BB	AG1
BB	IND	BB	AG2	BB	AG1	BB	AG1
BB	LKA	BB	AG2	BB	AG1	BB	AG1
BB	MDG	BB	AG3	BB	AG1	BB	AG1
BB	MDV	BB	AG2	BB	AG1	BB	AG1
BB	TZA	BB	AG3	BB	AG1	BB	AG1
BBM	MDV	BB	AG2	BB	AG1	BB	AG1
BBN	MDV	BB	AG2	BB	AG1	BB	AG1
BBPS	AUS	BB	AG1	BB	AG1	BB	AG1
BS	IDN	BS	AG1	PSS	AG1	ART	AG1
BS	OMN	BS	AG1	PSS	AG1	ART	AG1
CN	OMN	CN	AG1	PSS	AG1	ART	AG1
DSEI	IDN	DSEI	AG1	PSS	AG1	ART	AG1
ELL	AUS	ELL	AG1	ELL	AG1	LL	AG2
ELL	ESP	ELL	AG2	ELL	AG1	LL	AG2
ELL	FRA-REU	ELL	AG3	ELL	AG1	LL	AG2
ELL	FRAT	ELL	AG3	ELL	AG1	LL	AG2
ELL	GBR	ELL	AG2	ELL	AG1	LL	AG2
ELL	GIN	ELL	AG2	ELL	AG1	LL	AG2
ELL	KEN	ELL	AG2	ELL	AG1	LL	AG2
ELL	MDG	ELL	AG3	ELL	AG1	LL	AG2
ELL	MUS	ELL	AG3	ELL	AG1	LL	AG2
ELL	NEI-DFRZ	ELL	AG2	ELL	AG1	LL	AG2
ELL	SEN	ELL	AG2	ELL	AG1	LL	AG2
ELL	SYC	ELL	AG3	ELL	AG1	LL	AG2
ELL	URY	ELL	AG2	ELL	AG1	LL	AG2
FLL	BLZ	FLL	AG1	FLL	AG1	LL	AG2
FLL	CHN	FLL	AG1	FLL	AG1	LL	AG2
FLL	HND	FLL	AG1	FLL	AG1	LL	AG2
FLL	IDN	FLL	AG2	FLL	AG1	LL	AG2
FLL	IND	FLL	AG1	FLL	AG1	LL	AG2
FLL	MDV	FLL	AG1	FLL	AG1	LL	AG2
FLL	MYS	FLL	AG1	FLL	AG1	LL	AG2
FLL	NEI-ICE	FLL	AG1	FLL	AG1	LL	AG2
FLL	NEI-IDN	FLL	AG2	FLL	AG1	LL	AG2
FLL	OMN	FLL	AG1	FLL	AG1	LL	AG2
FLL	THA	FLL	AG1	FLL	AG1	LL	AG2
FLL	TWN	FLL	AG1	FLL	AG1	LL	AG2
FN	MDV	FN	AG1	GILL	AG1	ART	AG1
FN	OMN	FN	AG1	GILL	AG1	ART	AG1
G/L	LKA	G/L	AG1	G/L	AG1	G/L	AG1
GIHA	OMN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	AUS	GILL	AG1	GILL	AG1	GILL	AG1
GILL	BHR	GILL	AG2	GILL	AG1	GILL	AG1
GILL	DJI	GILL	AG3	GILL	AG1	GILL	AG1
GILL	IDN	GILL	AG1	GILL	AG1	GILL	AG1
GILL	IND	GILL	AG2	GILL	AG1	GILL	AG1
GILL	IRN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	JOR	GILL	AG2	GILL	AG1	GILL	AG1
GILL	KEN	GILL	AG3	GILL	AG1	GILL	AG1
GILL	LKA	GILL	AG2	GILL	AG1	GILL	AG1
GILL	OMN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	PAK	GILL	AG2	GILL	AG1	GILL	AG1
GILL	QAT	GILL	AG2	GILL	AG1	GILL	AG1
GILL	TMP	GILL	AG1	GILL	AG1	GILL	AG1
GILL	TWN	GILL	AG5	GILL	AG2	GILL	AG1
GILL	TZA	GILL	AG3	GILL	AG1	GILL	AG1
GILL	YEM	GILL	AG2	GILL	AG1	GILL	AG1
GIOF	LKA	GILL	AG5	GILL	AG2	GILL	AG1
HAND	AUS	HAND	AG1	HAND	AG1	LL	AG2
HAND	BGD	HAND	AG4	HAND	AG1	LL	AG2
HAND	COM	HAND	AG2	HAND	AG1	LL	AG2
HAND	FRA-REU	HAND	AG3	HAND	AG1	LL	AG2
HAND	FRAT	HAND	AG2	HAND	AG1	LL	AG2
HAND	GBRT	HAND	AG5	HAND	AG1	LL	AG2
HAND	IDN	HAND	AG1	HAND	AG1	LL	AG2
HAND	IND	HAND	AG4	HAND	AG1	LL	AG2
HAND	KEN	HAND	AG2	HAND	AG1	LL	AG2
HAND	LKA	HAND	AG5	HAND	AG1	LL	AG2
HAND	MDV	HAND	AG5	HAND	AG1	LL	AG2
HAND	OMN	HAND	AG4	HAND	AG1	LL	AG2
HAND	SYC	HAND	AG5	HAND	AG1	LL	AG2
HAND	TMP	HAND	AG1	HAND	AG1	LL	AG2
HAND	TZA	HAND	AG2	HAND	AG1	LL	AG2
HAND	YEM	HAND	AG4	HAND	AG1	LL	AG2
HAND	ZAF	HAND	AG3	HAND	AG1	LL	AG2
HARP	LKA	HARP	AG1	HAND	AG1	LL	AG2
HATR	LKA	HATR	AG5	ART	AG1	ART	AG1
LIFT	IDN	LIFT	AG1	PSS	AG1	ART	AG1
LL	BLZ	LL	AG3	LL	AG2	LL	AG2

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
LL	CHN	LL	AG3	LL	AG2	LL	AG2
LL	GBR	ELL	AG2	ELL	AG1	LL	AG2
LL	IND	LL	AG3	LL	AG2	LL	AG2
LL	IRN	LL	AG2	LL	AG2	LL	AG2
LL	JPN	LL	AG1	LL	AG1	LL	AG1
LL	KOR	LL	AG1	LL	AG1	LL	AG1
LL	LKA	HAND	AG5	HAND	AG1	LL	AG2
LL	MDG	LL	AG3	LL	AG2	LL	AG2
LL	MUS	ELL	AG2	ELL	AG1	LL	AG2
LL	NEI-DFRZ	LL	AG3	LL	AG2	LL	AG2
LL	OMN	LL	AG3	LL	AG2	LL	AG2
LL	PAK	LL	AG3	LL	AG2	LL	AG2
LL	PHL	LL	AG3	LL	AG2	LL	AG2
LL	PRT	ELL	AG2	ELL	AG1	LL	AG2
LL	SUN	LL	AG2	LL	AG2	LL	AG2
LL	SYC	LL	AG3	LL	AG2	LL	AG2
LL	THA	LL	AG1	LL	AG1	LL	AG1
LL	TWN	LL	AG3	LL	AG2	LL	AG2
LL	ZAF	ELL	AG2	ELL	AG1	LL	AG2
LLCO	MDV	HAND	AG6	HAND	AG1	LL	AG2
LLD	PRT	ELL	AG2	ELL	AG1	LL	AG2
LLEX	IND	LL	AG3	LL	AG2	LL	AG2
LLF	IDN	LLF	AG1	HAND	AG1	LL	AG2
LLHA	LKA	HAND	AG5	HAND	AG1	LL	AG2
OTHER	JOR	OTHER	AG1	PSS	AG1	ART	AG1
OTHER	TZA	OTHER	AG1	PSS	AG1	ART	AG1
PS	AUS	PS	AG1	PS	AG1	PS	AG1
PS	BLZ	PS	AG2	PS	AG2	PS	AG1
PS	ESP	PS	AG2	PS	AG2	PS	AG1
PS	FRA	PS	AG3	PS	AG2	PS	AG1
PS	FRAT	PS	AG3	PS	AG2	PS	AG1
PS	IRN	PS	AG5	PS	AG2	PS	AG1
PS	JPN	PS	AG4	PS	AG3	PS	AG1
PS	MUS	PS	AG4	PS	AG3	PS	AG1
PS	NEI-OTH	PS	AG5	PS	AG2	PS	AG1
PS	NEI-SUN	PS	AG6	PS	AG4	PS	AG1
PS	SUN	PS	AG6	PS	AG4	PS	AG1
PS	SYC	PS	AG5	PS	AG2	PS	AG1
PS	THA	PS	AG6	PS	AG4	PS	AG1
PSS	IDN	PSS	AG1	PSS	AG1	ART	AG1
PSS	SUN	PSS	AG2	PSS	AG1	ART	AG1
PSS	TZA	PSS	AG1	PSS	AG1	ART	AG1
RIN	LKA	PSS	AG1	PSS	AG1	ART	AG1
SLL	PRT	ELL	AG2	ELL	AG1	LL	AG2
SLL	ZAF	ELL	AG2	ELL	AG1	LL	AG2
SPOR	AUS	SPOR	AG1	TROL	AG1	ART	AG1
SPOR	ZAF	SPOR	AG1	TROL	AG1	ART	AG1
TLL	NEI-DFRZ	ELL	AG2	ELL	AG1	LL	AG2
TLL	ZAF	ELL	AG2	ELL	AG1	LL	AG2
TRAP	OMN	TRAP	AG1	TRAP	AG1	ART	AG1
TROL	AUS	TROL	AG1	TROL	AG1	ART	AG1
TROL	COM	TROL	AG2	TROL	AG1	ART	AG1
TROL	FRA-REU	TROL	AG3	TROL	AG1	ART	AG1
TROL	FRAT	TROL	AG2	TROL	AG1	ART	AG1
TROL	IDN	TROL	AG1	TROL	AG1	ART	AG1
TROL	IND	TROL	AG4	TROL	AG1	ART	AG1
TROL	IRN	TROL	AG4	TROL	AG1	ART	AG1
TROL	JOR	TROL	AG4	TROL	AG1	ART	AG1
TROL	KEN	TROL	AG2	TROL	AG1	ART	AG1
TROL	LKA	TROL	AG5	TROL	AG1	ART	AG1
TROL	MDV	TROL	AG5	TROL	AG1	ART	AG1
TROL	MUS	TROL	AG3	TROL	AG1	ART	AG1
TROL	OMN	TROL	AG4	TROL	AG1	ART	AG1
TROL	SYC	TROL	AG3	TROL	AG1	ART	AG1
TROL	TMP	TROL	AG1	TROL	AG1	ART	AG1
TROL	TZA	TROL	AG2	TROL	AG1	ART	AG1
TROL	YEM	TROL	AG4	TROL	AG1	ART	AG1
TROLM	MDV	TROL	AG5	TROL	AG1	ART	AG1
TROLN	MDV	TROL	AG5	TROL	AG1	ART	AG1
UNCL	LKA	OTHER	AG1	ART	AG1	ART	AG1
UNCL	MDV	OTHER	AG1	ART	AG1	ART	AG1

c/Skipjack tuna

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
BB	AUS	BB	AG1	BB	AG1	BB	AG1
BB	ESP	BB	AG3	BB	AG2	BB	AG1
BB	IDN	BB	AG2	BB	AG1	BB	AG1
BB	IND	BB	AG2	BB	AG3	BB	AG1
BB	KOR	BB	AG3	BB	AG2	BB	AG1
BB	LKA	BB	AG2	BB	AG3	BB	AG1
BB	MDG	BB	AG3	BB	AG2	BB	AG1
BB	MDV	BB	AG2	BB	AG3	BB	AG1
BB	TZA	BB	AG3	BB	AG2	BB	AG1
BBM	MDV	BB	AG2	BB	AG3	BB	AG1
BBN	MDV	BB	AG2	BB	AG3	BB	AG1
BBPS	AUS	BB	AG1	BB	AG1	BB	AG1
BS	IDN	PSS	AG1	PSS	AG1	SURF	AG1
BS	OMN	PSS	AG2	PSS	AG1	SURF	AG1
DSEI	IDN	PSS	AG1	PSS	AG1	SURF	AG1
ELL	AUS	ELL	AG1	ELL	AG1	LL	AG1
ELL	ESP	ELL	AG2	ELL	AG1	LL	AG1
ELL	FRA-REU	ELL	AG3	ELL	AG1	LL	AG1
ELL	GBR	ELL	AG2	ELL	AG1	LL	AG1
ELL	GIN	ELL	AG2	ELL	AG1	LL	AG1
ELL	KEN	ELL	AG2	ELL	AG1	LL	AG1
ELL	NEI-DFRZ	ELL	AG2	ELL	AG1	LL	AG1
ELL	URY	ELL	AG2	ELL	AG1	LL	AG1
FLL	BLZ	FLL	AG1	FLL	AG1	LL	AG1
FLL	CHN	FLL	AG1	FLL	AG1	LL	AG1
FLL	IDN	FLL	AG2	FLL	AG1	LL	AG1
FLL	MDV	FLL	AG1	FLL	AG1	LL	AG1
FLL	MYS	FLL	AG1	FLL	AG1	LL	AG1
FLL	NEI-ICE	FLL	AG1	FLL	AG1	LL	AG1
FLL	OMN	FLL	AG1	FLL	AG1	LL	AG1
FLL	THA	FLL	AG1	FLL	AG1	LL	AG1
FLL	TWN	FLL	AG1	FLL	AG1	LL	AG1
FN	MDV	FN	AG1	FN	AG1	SURF	AG1
FN	OMN	FN	AG2	FN	AG1	SURF	AG1
G/L	LKA	GILL	AG5	GILL	AG2	GILL	AG1
GIHA	OMN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	AUS	GILL	AG1	GILL	AG1	GILL	AG1
GILL	BHR	GILL	AG2	GILL	AG1	GILL	AG1
GILL	DJI	GILL	AG3	GILL	AG1	GILL	AG1
GILL	IDN	GILL	AG1	GILL	AG1	GILL	AG1
GILL	IND	GILL	AG2	GILL	AG1	GILL	AG1
GILL	IRN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	JOR	GILL	AG2	GILL	AG1	GILL	AG1
GILL	KEN	GILL	AG3	GILL	AG1	GILL	AG1
GILL	LKA	GILL	AG2	GILL	AG1	GILL	AG1
GILL	OMN	GILL	AG2	GILL	AG1	GILL	AG1
GILL	PAK	GILL	AG2	GILL	AG1	GILL	AG1
GILL	QAT	GILL	AG2	GILL	AG1	GILL	AG1
GILL	SYC	GILL	AG3	GILL	AG1	GILL	AG1
GILL	TMP	GILL	AG1	GILL	AG1	GILL	AG1
GILL	TWN	GILL	AG5	GILL	AG2	GILL	AG1
GILL	TZA	GILL	AG3	GILL	AG1	GILL	AG1
GILL	YEM	GILL	AG2	GILL	AG1	GILL	AG1
GIOF	LKA	GILL	AG5	GILL	AG2	GILL	AG1
HAND	AUS	HAND	AG1	HAND	AG1	HAND	AG1
HAND	BGD	HAND	AG4	HAND	AG2	HAND	AG1
HAND	COM	HAND	AG2	HAND	AG3	HAND	AG1
HAND	FRA-REU	HAND	AG3	HAND	AG3	HAND	AG1
HAND	FRAT	HAND	AG2	HAND	AG3	HAND	AG1
HAND	GBRT	HAND	AG5	HAND	AG2	HAND	AG1
HAND	IDN	HAND	AG1	HAND	AG1	HAND	AG1
HAND	IND	HAND	AG4	HAND	AG2	HAND	AG1
HAND	IRN	HAND	AG4	HAND	AG4	HAND	AG1
HAND	KEN	HAND	AG2	HAND	AG3	HAND	AG1
HAND	LKA	HAND	AG5	HAND	AG2	HAND	AG1
HAND	MDV	HAND	AG5	HAND	AG2	HAND	AG1
HAND	OMN	HAND	AG6	HAND	AG4	HAND	AG1
HAND	SYC	HAND	AG5	HAND	AG2	HAND	AG1
HAND	TZA	HAND	AG2	HAND	AG3	HAND	AG1
HAND	YEM	HAND	AG6	HAND	AG4	HAND	AG1
HAND	ZAF	HAND	AG3	HAND	AG3	HAND	AG1
HARP	LKA	HARP	AG1	HARP	AG1	SURF	AG1
HATR	LKA	HAND	AG5	HAND	AG2	HAND	AG1
LL	BLZ	LL	AG3	LL	AG2	LL	AG1
LL	CHN	FLL	AG1	FLL	AG1	LL	AG1
LL	GBR	ELL	AG2	ELL	AG1	LL	AG1
LL	IND	LL	AG3	LL	AG2	LL	AG1
LL	JPN	LL	AG1	LL	AG1	LL	AG1
LL	KOR	LL	AG1	LL	AG1	LL	AG1
LL	LKA	HAND	AG5	HAND	AG2	HAND	AG1
LL	MDG	ELL	AG2	ELL	AG1	LL	AG1
LL	MUS	ELL	AG2	ELL	AG1	LL	AG1

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
LL	NEI-DFRZ	LL	AG3	LL	AG2	LL	AG1
LL	OMN	LL	AG3	LL	AG2	LL	AG1
LL	PRT	ELL	AG2	ELL	AG1	LL	AG1
LL	SUN	LL	AG2	LL	AG2	LL	AG1
LL	THA	LL	AG1	LL	AG1	LL	AG1
LL	TWN	LL	AG3	LL	AG2	LL	AG1
LL	ZAF	ELL	AG2	ELL	AG1	LL	AG1
LLCO	MDV	HAND	AG6	HAND	AG1	HAND	AG1
LLD	PRT	ELL	AG2	ELL	AG1	LL	AG1
LLEX	ESP	ELL	AG2	ELL	AG1	LL	AG1
LLEX	IND	LL	AG3	LL	AG2	LL	AG1
LLF	IDN	LLF	AG1	HAND	AG1	HAND	AG1
OTHER	JOR	OTHER	AG1	OTHER	AG1	SURF	AG1
OTHER	TZA	OTHER	AG2	OTHER	AG1	SURF	AG1
PS	AUS	PS	AG1	PS	AG1	PS	AG1
PS	BLZ	PS	AG5	PS	AG2	PS	AG1
PS	ESP	PS	AG2	PS	AG2	PS	AG1
PS	FRA	PS	AG3	PS	AG2	PS	AG1
PS	FRAT	PS	AG3	PS	AG2	PS	AG1
PS	IRN	PS	AG5	PS	AG2	PS	AG1
PS	JPN	PS	AG4	PS	AG3	PS	AG1
PS	MUS	PS	AG4	PS	AG3	PS	AG1
PS	NEI-OTH	PS	AG5	PS	AG2	PS	AG1
PS	NEI-SUN	PS	AG6	PS	AG4	PS	AG1
PS	SUN	PS	AG6	PS	AG4	PS	AG1
PS	SYC	PS	AG5	PS	AG2	PS	AG1
PS	THA	PS	AG6	PS	AG4	PS	AG1
PSS	IDN	PSS	AG1	PSS	AG1	SURF	AG1
PSS	IND	PSS	AG1	PSS	AG1	SURF	AG1
PSS	SUN	PSS	AG2	PSS	AG1	SURF	AG1
PSS	TZA	PSS	AG1	PSS	AG1	SURF	AG1
RIN	LKA	PSS	AG1	PSS	AG1	SURF	AG1
SEN	AUS	PSS	AG1	PSS	AG1	SURF	AG1
SPOR	AUS	SPOR	AG1	SPOR	AG1	SURF	AG1
SPOR	ZAF	SPOR	AG2	SPOR	AG1	SURF	AG1
TRAP	AUS	TRAP	AG1	TRAP	AG1	SURF	AG1
TRAP	OMN	TRAP	AG2	TRAP	AG1	SURF	AG1
TRAW	AUS	TRAW	AG1	TRAW	AG1	SURF	AG1
TRAW	IND	TRAW	AG2	TRAW	AG1	SURF	AG1
TROL	AUS	TROL	AG1	TROL	AG1	TROL	AG1
TROL	COM	TROL	AG2	TROL	AG2	TROL	AG1
TROL	FRA-REU	TROL	AG3	TROL	AG2	TROL	AG1
TROL	FRAT	TROL	AG2	TROL	AG2	TROL	AG1
TROL	IDN	TROL	AG1	TROL	AG1	TROL	AG1
TROL	IND	TROL	AG4	TROL	AG3	TROL	AG1
TROL	JOR	TROL	AG4	TROL	AG3	TROL	AG1
TROL	LKA	TROL	AG5	TROL	AG3	TROL	AG1
TROL	MDV	TROL	AG5	TROL	AG3	TROL	AG1
TROL	MUS	TROL	AG3	TROL	AG2	TROL	AG1
TROL	MYS	TROL	AG1	TROL	AG1	TROL	AG1
TROL	OMN	TROL	AG6	TROL	AG3	TROL	AG1
TROL	SYC	TROL	AG3	TROL	AG3	TROL	AG1
TROLM	MDV	TROL	AG5	TROL	AG3	TROL	AG1
TROLN	MDV	TROL	AG5	TROL	AG3	TROL	AG1
UNCL	LKA	OTHER	AG3	OTHER	AG1	SURF	AG1
UNCL	MDV	OTHER	AG3	OTHER	AG1	SURF	AG1

d/Albacore

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
BB	AUS	BB	AG1	BB	AG1	SURF	AG1
DSEI	IDN	DSEI	AG1	PSS	AG1	SURF	AG1
ELL	AUS	ELL	AG1	ELL	AG1	LL	AG1
ELL	ESP	ELL	AG2	ELL	AG1	LL	AG1
ELL	FRA-REU	ELL	AG3	ELL	AG1	LL	AG1
ELL	FRAT	ELL	AG4	ELL	AG1	LL	AG1
ELL	GBR	ELL	AG2	ELL	AG1	LL	AG1
ELL	GIN	ELL	AG2	ELL	AG1	LL	AG1
ELL	KEN	ELL	AG2	ELL	AG1	LL	AG1
ELL	MDG	ELL	AG4	ELL	AG1	LL	AG1
ELL	MUS	ELL	AG3	ELL	AG1	LL	AG1
ELL	NEI-DFRZ	ELL	AG2	ELL	AG1	LL	AG1
ELL	URY	ELL	AG2	ELL	AG1	LL	AG1
FLL	BLZ	FLL	AG1	FLL	AG1	LL	AG1
FLL	CHN	FLL	AG2	FLL	AG1	LL	AG1
FLL	IDN	FLL	AG3	ELL	AG1	LL	AG1
FLL	MDV	FLL	AG4	FLL	AG1	LL	AG1
FLL	MYS	FLL	AG2	FLL	AG1	LL	AG1
FLL	NEI-ICE	FLL	AG2	FLL	AG1	LL	AG1
FLL	NEI-IDN	FLL	AG3	FLL	AG1	LL	AG1
FLL	OMN	FLL	AG4	FLL	AG1	LL	AG1
FLL	THA	FLL	AG2	FLL	AG1	LL	AG1
FLL	TWN	FLL	AG2	FLL	AG1	LL	AG1
GILL	TWN	GILL	AG1	GILL	AG1	LL	AG1
HAND	AUS	HAND	AG1	HAND	AG1	LL	AG1
HAND	COM	HAND	AG2	HAND	AG1	LL	AG1
HAND	FRAT	HAND	AG2	HAND	AG1	LL	AG1
HAND	KEN	HAND	AG3	HAND	AG1	LL	AG1
HAND	TZA	HAND	AG3	HAND	AG1	LL	AG1
LL	BLZ	LL	AG3	LL	AG1	LL	AG1
LL	CHN	LL	AG3	LL	AG1	LL	AG1
LL	JPN	LL	AG4	LL	AG2	LL	AG1
LL	KOR	LL	AG4	LL	AG2	LL	AG1
LL	MDG	LL	AG5	LL	AG1	LL	AG1
LL	MUS	LL	AG6	LL	AG1	LL	AG1
LL	NEI-DFRZ	LL	AG3	LL	AG1	LL	AG1
LL	OMN	LL	AG1	LL	AG1	LL	AG1
LL	PHL	LL	AG3	LL	AG1	LL	AG1
LL	PRT	ELL	AG2	ELL	AG1	LL	AG1
LL	SUN	LL	AG3	LL	AG1	LL	AG1
LL	SYC	LL	AG3	LL	AG1	LL	AG1
LL	THA	LL	AG4	LL	AG2	LL	AG1
LL	TWN	LL	AG3	LL	AG1	LL	AG1
LL	ZAF	ELL	AG3	ELL	AG1	LL	AG1
LLD	PRT	ELL	AG2	ELL	AG1	LL	AG1
LLEX	ESP	ELL	AG2	ELL	AG1	LL	AG1
LLEX	IND	LL	AG1	LL	AG1	LL	AG1
PS	AUS	PS	AG5	PS	AG3	PS	AG1
PS	BLZ	PS	AG3	PS	AG1	PS	AG1
PS	ESP	PS	AG1	PS	AG1	PS	AG1
PS	FRA	PS	AG1	PS	AG1	PS	AG1
PS	FRAT	PS	AG1	PS	AG1	PS	AG1
PS	IRN	PS	AG3	PS	AG1	PS	AG1
PS	JPN	PS	AG4	PS	AG2	PS	AG1
PS	MUS	PS	AG4	PS	AG2	PS	AG1
PS	NEI-OTH	PS	AG3	PS	AG1	PS	AG1
PS	NEI-SUN	PS	AG2	PS	AG2	PS	AG1
PS	SUN	PS	AG2	PS	AG2	PS	AG1
PS	SYC	PS	AG3	PS	AG1	PS	AG1
PS	THA	PS	AG2	PS	AG2	PS	AG1
PSS	IDN	PSS	AG1	PSS	AG1	SURF	AG1
SLL	PRT	ELL	AG2	ELL	AG1	LL	AG1
SLL	ZAF	LL	AG2	LL	AG1	LL	AG1
SPOR	AUS	SPOR	AG1	SPOR	AG1	SURF	AG1
SPOR	ZAF	SPOR	AG2	SPOR	AG1	SURF	AG1
TLL	NEI-DFRZ	ELL	AG3	ELL	AG1	LL	AG1
TLL	ZAF	ELL	AG3	ELL	AG1	LL	AG1
TROL	AUS	TROL	AG2	TROL	AG1	SURF	AG1
TROL	FRA-REU	TROL	AG3	TROL	AG1	SURF	AG1
TROL	IDN	TROL	AG1	TROL	AG1	SURF	AG1
TROL	MUS	TROL	AG3	TROL	AG1	SURF	AG1

e/Swordfish

Gear	Fleet	GearA	FleetA	GearA2	FleetA2	GearA3	FleetA3
BB	TZA	BB	AG1	BB	AG1	SURF	AG1
ELL	AUS	ELL	AG1	ELL	AG1	LL	AG1
ELL	ESP	ELL	AG2	ELL	AG1	LL	AG1
ELL	FRA-	ELL	AG3	ELL	AG1	LL	AG1
ELL	FRAT	ELL	AG3	ELL	AG1	LL	AG1
ELL	GBR	ELL	AG2	ELL	AG1	LL	AG1
ELL	GIN	ELL	AG2	ELL	AG1	LL	AG1
ELL	KEN	ELL	AG2	ELL	AG1	LL	AG1
ELL	MDG	ELL	AG3	ELL	AG1	LL	AG1
ELL	MUS	ELL	AG3	ELL	AG1	LL	AG1
ELL	NEI-	ELL	AG2	ELL	AG1	LL	AG1
ELL	SEN	ELL	AG2	ELL	AG1	LL	AG1
ELL	SYC	ELL	AG4	ELL	AG1	LL	AG1
ELL	URY	ELL	AG2	ELL	AG1	LL	AG1
FLL	BLZ	FLL	AG1	FLL	AG1	LL	AG1
FLL	CHN	FLL	AG3	FLL	AG1	LL	AG1
FLL	IDN	FLL	AG3	FLL	AG1	LL	AG1
FLL	IND	FLL	AG2	FLL	AG1	LL	AG1
FLL	MDV	FLL	AG2	FLL	AG1	LL	AG1
FLL	MYS	FLL	AG3	FLL	AG1	LL	AG1
FLL	NEI-ICE	FLL	AG3	FLL	AG1	LL	AG1
FLL	NEI-IDN	FLL	AG3	FLL	AG1	LL	AG1
FLL	OMN	FLL	AG2	FLL	AG1	LL	AG1
FLL	THA	FLL	AG3	FLL	AG1	LL	AG1
FLL	TWN	FLL	AG3	FLL	AG1	LL	AG1
G/L	LKA	GILL	AG1	GILL	AG1	GILL	AG1
GILL	IDN	GILL	AG2	GILL	AG2	GILL	AG1
GILL	LKA	GILL	AG1	GILL	AG1	GILL	AG1
GILL	TWN	GILL	AG3	GILL	AG1	GILL	AG1
HAND	AUS	HAND	AG1	HAND	AG1	LL	AG1
HAND	FRAT	HAND	AG2	HAND	AG1	LL	AG1
HAND	IDN	HAND	AG5	HAND	AG1	LL	AG1
HAND	LKA	HAND	AG3	HAND	AG1	LL	AG1
HAND	SYC	HAND	AG4	HAND	AG1	LL	AG1
HATR	LKA	HAND	AG3	HAND	AG1	LL	AG1
LL	BLZ	LL	AG1	LL	AG1	LL	AG1
LL	CHN	LL	AG1	LL	AG1	LL	AG1
LL	GBR	ELL	AG2	ELL	AG1	LL	AG1
LL	IND	LL	AG2	LL	AG1	LL	AG1
LL	IRN	LL	AG2	LL	AG1	LL	AG1
LL	JPN	LL	AG3	LL	AG2	LL	AG1
LL	KOR	LL	AG4	LL	AG1	LL	AG1
LL	LKA	LL	AG2	LL	AG2	LL	AG1
LL	MDG	LL	AG5	LL	AG2	LL	AG1
LL	MUS	ELL	AG2	ELL	AG1	LL	AG1
LL	NEI-	LL	AG1	LL	AG1	LL	AG1
LL	OMN	LL	AG2	LL	AG1	LL	AG1
LL	PHL	LL	AG1	LL	AG1	LL	AG1
LL	PRT	ELL	AG2	ELL	AG1	LL	AG1
LL	SUN	LL	AG1	LL	AG1	LL	AG1
LL	SYC	LL	AG1	LL	AG1	LL	AG1
LL	THA	LL	AG3	LL	AG2	LL	AG1
LL	TWN	LL	AG1	LL	AG1	LL	AG1
LL	ZAF	ELL	AG3	ELL	AG1	LL	AG1
LLD	PRT	ELL	AG2	ELL	AG1	LL	AG1
LLEX	ESP	ELL	AG2	ELL	AG1	LL	AG1
LLEX	IND	LL	AG2	LL	AG1	LL	AG1
SLL	PRT	ELL	AG2	ELL	AG1	LL	AG1
SLL	ZAF	ELL	AG3	ELL	AG1	LL	AG1
SPOR	ZAF	HAND	AG2	HAND	AG1	LL	AG1
TLL	NEI-	ELL	AG3	ELL	AG1	LL	AG1
TLL	ZAF	ELL	AG3	ELL	AG1	LL	AG1
TROL	FRA-	TROL	AG1	TROL	AG1	SURF	AG1
TROL	FRAT	TROL	AG1	TROL	AG1	SURF	AG1
TROL	KEN	TROL	AG2	TROL	AG1	SURF	AG1
TROL	LKA	TROL	AG3	TROL	AG1	SURF	AG1
TROL	TZA	TROL	AG2	TROL	AG1	SURF	AG1
UNCL	LKA	SURF	AG1	SURF	AG1	SURF	AG1

APPENDIX VII
Total catches and total number of fish estimated per species, gear and year

a/Bigeye tuna

Bigeye Tuna catches in number of fish						
Year	Purse Seine-FS	Purse Seine-LS	Longline-Japan	Longline-Taiwan	Artisanal	Total
1950					0	0
1951					1	1
1952			6,433		0	6,433
1953			36,776		0	36,777
1954			142,620	2,252	0	144,873
1955			199,862	5,170	0	205,033
1956			252,975	14,959	0	267,934
1957			236,159	22,667	31,866	290,691
1958			209,541	37,833	31,866	279,240
1959			172,587	37,429	31,866	241,882
1960			307,750	34,671	15,933	358,354
1961			264,645	49,166	23,900	337,711
1962			364,265	30,954	23,900	419,119
1963			248,846	43,977	23,900	316,724
1964			333,314	43,117	23,900	400,331
1965			371,928	38,625	15,934	426,487
1966			440,423	58,103	23,900	522,427
1967			484,453	54,318	27,087	565,858
1968			650,839	200,562	27,087	878,489
1969			523,072	203,004	28,680	754,756
1970			390,167	291,889	47,830	729,886
1971			378,090	146,331	27,648	552,069
1972			288,302	163,565	31,967	483,834
1973			246,549	110,953	69,040	426,541
1974			475,995	158,667	66,924	701,586
1975			804,331	139,307	53,866	997,504
1976			634,060	126,374	75,165	835,599
1977			576,262	138,436	84,697	799,395
1978	94	803	907,094	132,184	63,002	1,103,177
1979	29	171	594,048	196,689	72,430	863,367
1980	733	2,916	557,548	270,854	57,608	889,659
1981	102	2,314	616,297	204,826	126,150	949,689
1982	3,906	15,427	655,250	305,543	56,326	1,036,452
1983	10,967	46,677	784,199	348,766	101,628	1,292,237
1984	126,852	515,623	537,022	343,652	195,164	1,718,313
1985	212,080	1,137,985	657,433	393,339	153,470	2,554,308
1986	276,444	1,388,915	576,202	482,428	33,498	2,757,487
1987	728,780	1,698,362	605,804	502,749	57,633	3,593,329
1988	946,313	2,016,421	574,670	655,066	207,988	4,400,458
1989	699,119	2,204,006	386,433	988,129	156,654	4,434,342
1990	466,198	1,623,380	399,835	986,789	171,591	3,647,794
1991	253,622	2,007,098	222,600	1,117,480	261,304	3,862,104
1992	182,230	1,726,689	227,586	1,247,051	218,440	3,601,997
1993	325,433	2,063,635	252,375	1,516,825	269,390	4,427,658
1994	137,652	3,057,820	453,085	1,533,398	453,718	5,635,674
1995	242,664	4,460,618	607,174	1,741,050	1,714,406	8,765,912
1996	348,715	4,280,604	546,616	1,873,788	243,689	7,293,413
1997	203,058	8,347,481	581,629	2,053,439	197,336	11,382,942
1998	660,165	4,239,481	474,415	2,534,494	262,683	8,171,238
1999	692,905	7,480,889	362,709	2,736,473	530,220	11,803,196
2000	385,548	5,245,162	391,273	2,415,426	294,329	8,731,738
2001	236,779	5,120,576	408,056	2,257,370	492,464	8,515,244
2002	145,968	6,609,721	245,176	2,342,031	596,043	9,938,940
2003	255,224	3,612,687	255,015	2,018,902	269,172	6,410,999
2004	133,015	3,825,197	334,502	1,982,419	134,211	6,409,344
2005	301,109	3,666,465	351,838	1,452,695	155,095	5,927,202
2006	229,817	3,389,951	357,871	1,307,511	338,954	5,624,105
2007	382,036	5,012,384	467,924	1,304,257	409,340	7,575,941

Bigeye Tuna catches in weight (tonnes)						
Year	Purse Seine-FS	Purse Seine-LS	Longline-Japan	Longline-Taiwan	Artisanal	Total
1950					0	0
1951					0	0
1952			280		0	280
1953			1,653		0	1,653
1954			6,750	100	0	6,850
1955			9,539	201	0	9,740
1956			12,245	601	0	12,846
1957			11,090	901	69	12,060
1958			10,153	1,502	69	11,723
1959			8,366	1,502	69	9,937
1960			14,813	1,302	34	16,149
1961			13,048	1,903	51	15,002
1962			17,279	1,202	51	18,533
1963			11,600	1,703	51	13,354
1964			16,009	2,032	51	18,092
1965			17,734	1,837	34	19,605
1966			21,548	2,611	51	24,210
1967			22,358	2,420	58	24,836
1968			30,412	9,255	58	39,726
1969			22,006	8,518	62	30,585
1970			16,281	11,643	83	28,007
1971			16,095	7,014	51	23,160
1972			13,303	6,814	61	20,177
1973			12,537	4,995	130	17,662
1974			21,631	6,845	127	28,603
1975			31,788	5,985	102	37,875
1976			23,989	4,608	142	28,739
1977			29,341	6,666	161	36,168
1978	1	4	45,062	5,567	120	50,753
1979	0	1	25,677	7,813	133	33,624
1980	6	15	25,233	9,664	106	35,024
1981	1	12	27,228	7,653	231	35,125
1982	34	82	30,962	12,467	111	43,657
1983	125	462	35,747	13,816	199	50,349
1984	1,620	2,400	25,788	13,933	377	44,118
1985	1,719	5,439	30,106	14,777	338	52,379
1986	2,516	8,114	27,642	19,005	237	57,514
1987	4,608	8,792	29,922	21,298	446	65,066
1988	6,578	8,489	29,395	27,612	2,243	74,317
1989	3,612	8,384	19,905	36,689	698	69,288
1990	5,883	6,785	18,947	41,519	698	73,832
1991	5,349	10,275	10,053	50,757	656	77,090
1992	2,339	8,921	10,430	49,708	475	71,874
1993	7,463	8,550	13,604	70,946	557	101,120
1994	4,791	14,090	26,242	63,504	665	109,292
1995	4,869	23,513	23,781	65,138	1,234	118,535
1996	3,823	20,705	28,169	73,755	906	127,359
1997	2,446	31,519	29,858	82,992	929	147,744
1998	6,353	21,981	20,726	91,567	938	141,565
1999	5,619	35,040	15,472	93,252	1,163	150,545
2000	5,691	24,167	17,366	81,278	645	129,147
2001	4,267	19,451	14,693	79,655	1,067	119,133
2002	4,100	24,943	14,091	95,063	1,209	139,407
2003	7,172	15,662	11,217	91,816	1,317	127,184
2004	3,658	18,749	13,288	95,544	1,173	132,411
2005	8,529	17,540	15,299	76,677	1,154	119,199
2006	6,406	18,249	17,370	67,735	2,398	112,159
2007	5,571	18,123	22,468	69,298	2,239	117,700

b/Yellowfin tuna(i)

Yellowfin Tuna catches in number of fish											
Year	Purse Seine-FS	Purse Seine-LS	Longline-Japan	Longline-Taiwan	Baitboat	Gillnet	Gillnet/Longline	Handline	Troll line	Other	Total
1950					402,089	157,007		42,866	45,902	14,876	662,740
1951					406,132	232,134		55,938	108,207	22,005	824,415
1952			62,801		408,154	187,743		52,571	139,416	28,397	879,081
1953			120,749		408,375	148,302		44,247	128,871	28,397	878,940
1954			424,884	5,857	410,585	142,326		43,339	148,312	28,397	1,203,699
1955			858,334	20,118	545,119	135,905		35,717	155,660	28,397	1,779,249
1956			1,160,668	32,247	545,561	152,711		30,582	155,949	25,569	2,103,287
1957			613,274	34,673	526,218	209,666		30,724	151,689	25,569	1,591,813
1958			482,629	50,402	1,018,906	188,615		31,556	146,077	26,549	1,944,734
1959			518,565	64,686	1,080,238	200,785		36,162	144,361	29,377	2,074,175
1960			850,434	63,999	647,027	256,373		35,372	154,062	27,812	2,035,079
1961			720,629	80,364	542,730	312,483		37,737	188,504	33,065	1,915,513
1962			1,096,886	98,084	524,119	435,813		38,631	196,206	42,608	2,432,346
1963			532,049	97,284	523,220	491,333		47,121	204,318	39,653	1,934,979
1964			511,581	89,067	521,683	556,620		50,663	197,083	41,435	1,968,131
1965			677,517	75,413	355,951	543,659		46,278	207,369	46,286	1,952,474
1966			1,076,433	136,183	523,285	636,689		49,254	207,962	44,427	2,674,232
1967			850,234	97,743	592,861	692,829		55,257	218,259	46,803	2,553,986
1968			1,823,144	672,601	592,861	747,210		60,696	226,280	46,803	4,169,594
1969			978,502	621,223	627,403	785,426		114,101	226,255	50,867	3,403,776
1970			406,868	471,020	827,275	642,414		85,304	171,369	40,323	2,644,575
1971			680,439	406,318	468,237	489,773		72,905	217,730	40,446	2,375,847
1972			490,253	369,948	959,746	718,002		91,683	317,353	58,547	3,005,531
1973			315,454	196,842	2,560,539	838,863		148,079	436,980	58,628	4,555,385
1974			411,511	153,656	1,952,423	1,645,711		169,762	340,451	129,390	4,802,904
1975			596,413	157,408	1,712,132	1,243,032		167,247	220,155	76,845	4,173,232
1976			448,013	155,099	1,831,326	1,732,471		236,875	336,018	102,467	4,842,267
1977	170	6,491	764,665	290,211	1,795,287	1,530,775		228,176	1,144,314	168,024	5,928,115
1978	3,453	22,862	755,750	161,873	1,421,410	1,485,983		294,117	1,432,976	261,287	5,839,710
1979	3,526	7,792	561,705	178,850	1,689,864	1,722,164		188,558	1,484,550	271,443	6,108,452
1980	4,060	10,496	413,186	214,770	1,767,615	1,712,746		121,509	1,135,960	231,800	5,612,142
1981	10,638	14,904	463,705	220,341	2,158,640	1,937,453		144,310	298,118	108,205	5,356,316
1982	30,303	63,788	826,446	207,567	2,710,306	2,661,895		129,412	600,686	227,640	7,458,044
1983	546,445	410,661	615,501	204,134	5,485,740	2,264,921		124,801	453,782	160,162	10,266,148
1984	2,682,620	1,987,038	431,354	184,515	6,366,885	1,579,238		147,531	470,072	207,796	14,057,049
1985	2,035,283	5,819,524	536,120	254,335	2,245,228	1,270,743		235,968	971,219	212,256	13,580,674
1986	2,315,986	2,492,245	643,832	565,752	1,481,700	1,489,900	30,147	220,747	1,869,194	227,062	11,336,565
1987	1,664,351	3,376,141	510,144	679,345	1,848,449	1,098,947	37,764	299,793	1,433,468	209,242	11,157,643
1988	3,001,185	6,133,871	539,687	925,853	1,536,368	1,664,220	39,235	547,021	1,342,274	378,734	16,108,448
1989	3,197,766	5,289,819	309,467	1,849,980	1,780,302	2,089,922	70,485	640,862	705,169	370,871	16,304,644
1990	4,063,676	5,397,425	334,903	2,157,861	1,175,180	1,921,823	75,854	561,407	669,537	382,099	16,739,764
1991	2,127,868	3,449,121	174,256	1,839,205	2,262,370	1,981,023	128,828	498,261	853,037	117,921	13,431,892
1992	2,032,255	3,872,649	223,579	3,434,384	2,168,031	3,160,511	196,246	607,311	1,342,220	102,004	17,139,190
1993	2,233,988	3,981,533	215,251	7,214,533	2,890,960	3,190,292	266,209	2,011,140	752,656	57,026	22,813,589
1994	1,922,932	5,504,275	283,642	3,921,625	5,931,174	4,191,791	477,443	2,811,086	1,036,324	124,774	26,205,067
1995	2,399,705	8,403,303	232,881	2,248,036	5,540,124	5,210,113	259,798	2,468,998	1,247,171	603,859	28,613,987
1996	2,352,512	11,436,791	339,574	3,054,073	4,309,317	4,493,743	599,772	2,204,964	1,268,672	213,946	30,273,366
1997	1,534,017	17,784,152	425,735	2,509,822	3,979,627	3,908,000	759,032	1,457,920	1,175,508	69,315	33,603,127
1998	2,860,620	8,122,543	550,786	3,050,953	5,391,519	4,225,869	742,610	2,981,934	1,412,863	147,712	29,487,409
1999	2,588,851	20,188,387	443,105	3,195,026	3,116,967	5,338,693	1,168,850	1,996,829	1,301,022	78,756	39,416,487
2000	2,257,626	13,077,964	440,410	2,915,753	3,062,319	4,222,692	750,461	1,375,474	1,169,031	65,508	29,337,239
2001	2,452,218	11,034,114	414,019	1,939,119	3,678,981	4,206,107	764,884	1,613,511	1,269,798	88,752	27,461,501
2002	2,233,881	16,409,226	265,828	2,155,338	4,214,292	4,456,348	771,652	4,225,907	1,260,899	177,853	36,171,226
2003	3,903,407	15,596,450	413,291	1,688,716	3,518,029	6,159,852	1,211,133	4,251,735	1,218,838	200,249	38,161,700
2004	4,203,970	12,864,748	586,172	2,347,946	4,062,886	6,058,787	757,496	3,627,427	1,635,800	139,855	36,285,088
2005	3,457,107	12,284,039	641,854	3,046,494	3,200,339	4,280,400	1,132,809	1,985,899	2,199,914	272,626	32,501,481
2006	2,324,305	13,426,075	572,107	1,915,118	1,421,442	5,309,698	1,349,570	1,126,024	1,476,646	98,051	29,019,035
2007	1,840,375	8,155,896	728,779	1,474,275	1,364,369	2,117,417	1,624,818	949,166	1,537,646	88,358	19,881,099

b/Yellowfin tuna(ii)

Yellowfin Tuna catches in weight (tonnes)											
Year	Purse Seine-FS	Purse Seine-LS	Longline-Japan	Longline-Taiwan	Baitboat	Gillnet	Gillnet/Longline	Handline	Troll line	Other	Total
1950					1,511	1,709		655	170	119	4,164
1951					1,525	2,332		788	315	163	5,124
1952			3,683		1,532	2,002		798	385	209	8,609
1953			6,757		1,533	1,791		711	316	209	11,318
1954			21,666	210	1,541	1,753		711	440	209	26,531
1955			44,163	690	2,047	1,712		707	486	209	50,014
1956			59,485	1,090	2,049	1,788		656	489	185	65,741
1957			31,864	1,253	1,976	2,802		689	463	185	39,232
1958			22,644	1,827	1,978	2,185		709	460	185	29,987
1959			22,182	2,382	1,976	2,330		824	450	209	30,354
1960			36,055	2,243	1,025	2,785		860	520	185	43,673
1961			32,730	2,880	1,528	3,063		975	652	207	42,034
1962			44,191	3,470	1,504	4,278		1,042	568	229	55,282
1963			21,981	3,405	1,516	5,817		1,304	615	234	34,873
1964			22,163	3,116	1,509	6,417		1,392	718	251	35,565
1965			25,000	2,664	1,034	6,417		1,258	680	275	37,328
1966			40,899	4,824	1,513	7,735		1,350	680	263	57,265
1967			30,512	3,512	1,715	8,134		1,513	755	287	46,427
1968			53,559	24,925	1,715	8,612		1,582	808	287	91,489
1969			32,207	21,663	1,814	8,753		1,690	888	309	67,324
1970			15,524	16,724	2,380	7,331		1,518	831	254	44,561
1971			20,766	13,491	1,468	5,725		1,351	1,069	265	44,135
1972			18,150	13,273	2,670	7,927		1,654	1,424	369	45,467
1973			14,707	6,928	7,657	8,693		2,327	1,803	374	42,489
1974			18,051	5,343	6,314	9,550		2,912	1,467	682	44,321
1975			19,715	5,552	4,869	9,289		2,987	1,201	687	44,300
1976			16,469	5,372	5,403	12,896		3,943	1,628	841	46,551
1977	6	28	35,107	10,237	5,128	11,592		3,877	5,139	1,161	72,276
1978	111	104	31,109	5,811	4,199	11,273		4,108	4,887	1,593	63,197
1979	63	40	21,311	5,552	4,848	13,131		4,064	4,883	1,631	55,523
1980	71	59	16,390	6,407	4,861	12,994		4,633	4,242	1,523	51,180
1981	182	82	17,306	7,094	6,143	14,658		4,929	2,186	916	53,496
1982	698	468	26,609	7,874	4,977	14,804		5,041	2,353	1,030	63,854
1983	8,379	4,246	23,966	7,142	7,896	11,159		4,402	1,874	769	69,833
1984	46,789	11,451	18,109	7,352	8,477	10,260		5,873	1,634	1,226	111,172
1985	44,964	23,791	21,957	8,511	7,541	10,692		6,686	2,721	1,075	127,938
1986	47,209	26,237	26,131	19,032	6,706	11,081	509	6,724	4,191	1,527	149,349
1987	46,944	36,852	21,489	25,377	7,887	13,192	638	8,659	3,059	1,665	165,762
1988	87,399	31,223	23,372	31,454	6,288	19,743	663	11,948	2,976	3,352	218,416
1989	52,868	36,881	13,247	51,943	5,797	26,108	1,191	15,507	2,637	3,037	209,217
1990	78,980	29,719	13,794	72,212	5,294	22,537	1,281	16,084	2,715	2,805	245,422
1991	78,753	26,652	7,535	71,212	7,571	21,176	2,176	18,266	3,433	576	237,350
1992	74,782	37,507	10,113	126,534	8,609	34,480	3,315	16,367	7,416	850	319,973
1993	85,469	41,936	10,016	186,374	9,915	34,810	4,497	14,948	7,660	835	396,460
1994	77,542	36,022	13,624	106,773	12,977	41,393	7,865	22,398	10,100	1,404	330,096
1995	68,869	79,282	10,618	77,956	12,348	49,355	4,449	22,806	10,121	3,460	339,263
1996	68,453	61,218	16,617	96,995	12,126	52,266	8,568	19,876	10,953	2,332	349,403
1997	49,431	82,721	19,577	89,563	12,858	45,329	12,494	21,969	11,723	780	346,445
1998	43,220	57,160	19,358	89,932	13,604	45,939	12,222	23,849	9,657	1,306	316,248
1999	47,973	86,793	15,679	88,032	13,279	56,911	18,431	25,358	9,616	796	362,869
2000	61,469	78,786	17,616	72,332	10,825	42,336	14,899	28,027	10,864	801	337,955
2001	78,998	50,969	15,747	65,494	11,798	44,155	12,553	29,832	10,922	669	321,137
2002	77,058	61,934	14,350	70,483	17,046	45,360	13,389	34,068	10,063	667	344,419
2003	137,492	86,584	19,387	65,277	16,839	58,972	20,762	31,299	9,359	1,721	447,692
2004	168,799	59,595	20,358	89,795	15,038	74,393	22,632	41,333	17,251	2,036	511,232
2005	124,008	69,888	25,028	119,557	17,644	54,891	19,576	39,726	17,117	2,962	490,397
2006	85,020	74,454	26,686	71,384	17,339	51,044	25,738	41,149	13,616	1,281	407,709
2007	53,375	43,862	23,897	59,530	14,767	39,190	27,898	40,497	12,404	1,151	316,572

c/Skipjack tuna

Skipjack Tuna catches in number of fish

Year	Purse Seine-FS	Purse Seine-LS	Baitboat	Gillnet	Handline	Troll line	Other	Total
1950			3,057,116	445,237	114,713	28,446	13,525	3,659,037
1951			552,938	649,352	140,331	144,571	84,645	1,571,838
1952			3,270,282	544,438	98,457	154,521	91,085	4,158,782
1953			3,667,398	486,435	81,552	159,934	97,845	4,493,165
1954			3,729,272	506,235	79,136	177,216	105,358	4,597,216
1955			3,760,149	512,981	101,726	179,034	106,232	4,660,122
1956			3,786,735	585,969	117,181	190,141	113,237	4,793,262
1957			4,121,858	961,920	107,216	178,970	119,148	5,489,112
1958			5,503,963	859,755	115,750	189,645	121,522	6,790,635
1959			5,942,001	813,217	124,336	178,910	114,600	7,173,065
1960			5,917,037	1,059,139	154,799	181,893	118,469	7,431,339
1961			3,234,021	1,280,123	184,334	237,199	149,392	5,085,068
1962			3,171,543	1,657,355	258,142	234,252	148,695	5,469,987
1963			3,249,579	2,097,692	343,582	275,167	161,867	6,127,886
1964			3,232,700	2,186,544	338,688	284,032	230,724	6,272,688
1965			5,378,923	2,187,427	318,925	300,540	180,315	8,366,130
1966			6,357,924	2,601,535	371,408	323,561	198,977	9,853,406
1967			7,063,679	2,836,618	411,574	319,042	186,963	10,817,875
1968			6,619,702	3,057,393	468,874	347,141	209,883	10,702,993
1969			7,362,777	3,176,833	489,098	352,450	205,862	11,587,020
1970			10,060,445	2,626,581	642,521	371,703	157,727	13,858,977
1971			10,170,381	2,102,315	568,068	387,292	163,703	13,391,760
1972			7,026,861	3,191,946	667,140	512,791	267,991	11,666,730
1973			10,171,855	3,996,112	811,149	609,563	265,827	15,854,505
1974			12,806,047	3,426,352	734,050	677,076	302,960	17,946,486
1975			7,544,248	3,167,155	671,430	1,087,178	464,258	12,934,269
1976			8,695,388	4,845,599	956,716	1,350,646	598,201	16,446,550
1977	827	57,547	6,658,900	4,389,259	959,776	888,630	447,963	13,402,902
1978	49,355	318,261	6,641,596	4,713,244	941,447	885,117	435,072	13,984,092
1979	71,741	168,489	8,663,688	4,675,517	602,494	1,544,856	651,631	16,378,417
1980	146,611	389,910	10,569,778	4,740,130	771,945	1,717,973	708,140	19,044,487
1981	210,191	529,931	9,480,321	10,525,854	847,616	1,756,535	723,813	24,074,262
1982	360,684	1,061,990	14,137,431	9,902,523	454,973	2,221,481	1,039,215	29,178,297
1983	862,079	3,250,800	16,125,721	5,436,212	422,758	2,581,808	1,130,051	29,809,429
1984	4,733,053	11,987,313	30,291,267	4,958,900	396,907	2,227,918	832,880	55,428,238
1985	3,898,185	16,717,784	18,904,730	6,009,131	345,373	2,371,063	912,049	49,158,314
1986	6,246,971	15,233,397	17,698,140	5,084,208	331,375	2,427,619	1,090,340	48,112,050
1987	8,336,310	15,433,520	21,598,952	5,161,852	360,961	3,308,545	1,113,833	55,313,973
1988	9,591,343	24,106,470	28,527,751	5,498,718	373,442	3,452,273	1,430,221	72,980,218
1989	16,262,500	24,929,085	22,714,145	6,643,187	598,598	4,180,671	1,776,736	77,104,922
1990	9,590,648	30,565,365	27,875,196	7,433,292	605,887	3,782,382	1,486,395	81,339,164
1991	6,976,668	39,453,703	34,876,370	9,387,932	632,955	3,997,220	1,397,348	96,722,196
1992	10,652,688	42,769,389	37,402,488	10,815,780	976,404	5,277,785	1,699,010	109,593,543
1993	13,604,469	47,554,765	39,399,363	12,502,563	476,920	4,462,332	1,393,480	119,393,891
1994	15,332,581	53,714,668	37,345,416	13,930,651	285,299	3,094,074	1,390,090	125,092,779
1995	11,896,334	61,861,205	31,129,311	14,516,200	440,850	2,742,625	1,516,288	124,102,812
1996	11,404,567	50,392,567	39,516,722	17,522,092	329,998	3,379,114	2,251,899	124,796,959
1997	6,939,721	56,145,877	41,092,946	18,450,816	308,270	3,839,189	3,359,799	130,136,618
1998	9,104,842	50,262,319	54,111,213	20,309,795	296,478	4,604,490	3,246,833	141,935,971
1999	15,583,107	66,977,396	64,017,134	23,671,472	160,837	3,855,141	3,337,915	177,603,003
2000	9,381,460	60,314,171	40,115,458	26,697,644	118,805	3,142,461	2,918,910	142,688,911
2001	8,106,384	63,949,311	44,128,708	25,827,447	111,283	3,670,766	3,913,221	149,707,121
2002	7,063,076	95,412,550	51,113,517	25,381,977	160,930	3,591,534	3,401,352	186,124,937
2003	7,994,219	63,857,026	48,651,122	31,149,279	89,959	3,566,053	3,551,903	158,859,561
2004	5,203,707	56,151,022	50,514,667	34,916,430	115,970	5,490,724	3,778,765	156,171,285
2005	13,551,965	60,407,221	57,960,024	29,922,441	235,704	5,242,786	3,012,186	170,332,327
2006	9,475,999	70,799,008	55,304,538	44,578,588	315,390	7,794,202	4,173,295	192,441,020
2007	8,211,055	50,417,511	39,956,933	30,381,086	417,476	7,600,435	4,374,477	141,358,973

Skipjack Tuna catches in weight (tonnes)

Year	Purse Seine-FS	Purse Seine-LS	Baitboat	Gillnet	Handline	Troll line	Other	Total
1950			8,153	1,990	431	69	40	10,683
1951			1,472	2,815	522	312	247	5,367
1952			8,719	2,374	362	332	266	12,053
1953			9,778	2,201	302	338	286	12,905
1954			9,942	2,288	294	383	308	13,215
1955			10,024	2,323	386	391	311	13,435
1956			10,095	2,612	441	415	332	13,895
1957			10,989	3,978	394	390	578	16,329
1958			11,060	3,226	425	413	548	15,672
1959			10,989	3,341	455	390	529	15,704
1960			10,201	4,336	565	406	689	16,197
1961			9,613	5,026	671	529	764	16,603
1962			9,178	6,638	931	514	841	18,103
1963			9,401	9,197	1,238	590	722	21,149
1964			9,343	9,834	1,223	616	951	21,967
1965			15,596	9,898	1,148	639	831	28,111
1966			18,443	11,844	1,340	688	1,052	33,367
1967			20,514	12,583	1,483	687	918	36,185
1968			19,208	13,498	1,692	750	1,165	36,314
1969			21,343	13,874	1,867	825	914	38,823
1970			29,231	11,528	2,397	1,210	625	44,991
1971			29,796	9,244	2,148	1,160	600	42,949
1972			20,145	13,887	2,499	1,371	964	38,867
1973			29,129	17,214	2,993	1,611	809	51,756
1974			36,229	14,986	2,727	1,710	925	56,578
1975			21,265	13,888	2,511	2,473	1,395	41,533
1976			24,863	20,720	3,501	3,198	1,770	54,052
1977	3	129	18,782	18,764	3,507	2,157	1,322	44,663
1978	201	717	18,781	19,874	3,474	2,164	1,292	46,503
1979	207	400	24,650	20,196	2,175	3,827	1,920	53,374
1980	406	1,014	30,105	19,654	2,761	4,341	2,083	60,364
1981	586	1,416	26,782	22,770	3,029	4,452	2,138	61,174
1982	1,219	2,976	25,911	23,972	1,651	5,166	3,118	64,013
1983	2,363	9,487	31,392	20,182	1,537	6,012	3,652	74,626
1984	13,956	31,771	43,710	17,009	1,477	5,468	3,146	116,537
1985	12,337	48,029	54,188	19,630	1,422	5,642	3,448	144,696
1986	20,844	45,808	57,669	18,757	1,415	5,632	3,280	153,405
1987	31,794	47,422	58,746	22,230	1,401	6,539	4,034	172,165
1988	26,849	66,045	73,916	24,770	1,368	6,882	4,264	204,094
1989	50,686	76,145	76,487	29,309	2,272	9,573	5,019	249,493
1990	27,462	80,789	77,451	32,649	2,289	8,981	4,405	234,025
1991	18,174	104,613	75,989	35,386	2,390	9,231	4,629	250,412
1992	29,993	121,331	76,282	41,305	3,988	12,252	4,942	290,093
1993	40,274	123,655	85,805	47,714	2,045	12,321	5,999	317,813
1994	50,947	128,229	90,829	59,471	1,192	10,276	6,134	347,078
1995	35,136	143,801	91,797	54,085	1,342	10,053	5,971	342,185
1996	35,414	113,749	93,367	60,519	1,274	12,220	8,105	324,648
1997	21,198	125,068	99,293	76,889	1,154	14,454	9,480	347,536
1998	22,655	127,385	103,326	72,405	1,023	13,388	8,764	348,946
1999	37,011	160,559	117,433	97,805	605	13,156	9,002	435,570
2000	28,937	170,945	105,480	109,116	472	13,624	8,894	437,468
2001	29,031	159,534	116,051	109,587	427	15,779	10,637	441,046
2002	22,794	215,789	134,346	104,363	616	12,155	7,110	497,173
2003	30,992	180,556	128,592	127,646	360	11,876	8,384	488,406
2004	18,565	137,882	133,239	147,553	449	20,454	10,384	468,526
2005	43,125	168,011	152,921	138,254	883	15,440	9,437	528,071
2006	34,954	211,940	147,759	183,732	1,196	19,819	13,495	612,894
2007	23,785	120,962	106,836	161,677	1,556	18,947	13,385	447,148

d/Albacore

Albacore catches in number of fish						
Year	Purse Seine	Longline-Japan	Longline-Taiwan	Gillnet	Other	Total
1950					2,445	2,445
1951					2,445	2,445
1952		3,186			2,445	5,631
1953		59,484				59,484
1954		144,647	4,982		2,445	152,074
1955		164,812	20,040		2,445	187,297
1956		273,115	34,646		2,445	310,205
1957		250,340	40,725		2,445	293,510
1958		343,197	63,017		2,445	408,659
1959		575,573	78,270		2,445	656,287
1960		608,272	68,365		2,445	679,081
1961		866,276	95,266		2,445	963,987
1962		1,046,639	93,968		2,445	1,143,052
1963		768,843	107,149		2,445	878,437
1964		1,011,834	91,201		2,445	1,105,480
1965		704,772	78,395		2,445	785,612
1966		855,646	119,885		2,445	977,976
1967		1,439,429	114,521		4,890	1,558,840
1968		679,400	512,201		7,334	1,198,935
1969		1,011,866	664,102		7,334	1,683,302
1970		401,692	448,289		2,445	852,426
1971		421,803	487,511		12,632	921,946
1972		277,571	387,283		12,632	677,486
1973		872,930	951,459		10,187	1,834,575
1974		929,445	1,159,510		12,225	2,101,180
1975		298,805	380,191		8,965	687,961
1976		293,581	545,421		9,782	848,785
1977		132,903	546,018		8,213	687,134
1978		325,429	863,975		11,649	1,201,053
1979		134,419	1,459,000		9,857	1,603,277
1980	3	148,262	1,010,827		9,491	1,168,583
1981	5	133,021	961,567		8,059	1,102,651
1982	552	130,522	1,729,234	10,641	160,978	2,031,927
1983	3	163,907	1,335,434	10,735	13,911	1,523,991
1984	24,810	137,432	1,198,280		24,487	1,385,009
1985	31,936	204,129	541,924	83,935	8,885	870,809
1986	9,841	199,398	1,016,147	2,000,507	7,723	3,233,616
1987	10,888	160,967	1,137,431	1,630,177	8,523	2,947,987
1988	11,783	100,334	910,382	1,289,944	9,351	2,321,794
1989	298	75,895	741,293	1,029,479	7,818	1,854,783
1990	14,821	69,760	546,009	2,046,923	17,519	2,695,033
1991	96,249	74,477	1,108,044	643,231	25,695	1,947,696
1992	146,273	158,099	1,057,740	275,658	14,264	1,652,035
1993	57,142	84,313	1,043,431		16,442	1,201,329
1994	113,320	100,865	1,521,793		24,299	1,760,276
1995	59,505	113,494	1,599,288		22,614	1,794,901
1996	70,016	155,986	2,383,505		22,849	2,632,356
1997	99,037	201,230	1,777,797		28,311	2,106,375
1998	71,603	205,914	2,485,956		22,877	2,786,348
1999	27,959	132,557	2,070,453		43,450	2,274,420
2000	60,166	161,056	2,016,906		53,078	2,291,206
2001	65,341	233,638	3,025,989		63,034	3,388,003
2002	36,403	338,291	2,074,595		49,170	2,498,459
2003	71,998	268,743	1,170,842		46,314	1,557,897
2004	10,810	316,757	1,024,195		53,807	1,405,570
2005	7,262	352,800	964,675		61,001	1,385,738
2006	71,340	536,132	841,817		37,317	1,486,605
2007	32,550	330,843	1,182,790		29,650	1,575,832

Albacore catches in weight (tonnes)						
Year	Purse Seine	Longline-Japan	Longline-Taiwan	Gillnet	Other	Total
1950					6	6
1951					6	6
1952		61			6	67
1953		1,094				1,094
1954		2,734	90		6	2,830
1955		3,059	276		6	3,341
1956		5,075	530		6	5,611
1957		4,662	656		6	5,324
1958		6,285	991		6	7,282
1959		10,410	1,228		6	11,644
1960		11,062	1,062		6	12,130
1961		15,241	1,384		6	16,631
1962		17,649	1,337		6	18,992
1963		12,559	1,591		6	14,156
1964		17,814	1,625		6	19,445
1965		11,892	1,306		6	13,204
1966		13,705	1,898		6	15,609
1967		20,323	1,654		12	21,988
1968		10,957	8,349		18	19,324
1969		12,944	7,898		18	20,860
1970		6,572	7,841		6	14,419
1971		5,755	7,554		31	13,340
1972		5,249	7,476		31	12,756
1973		11,096	12,348		25	23,469
1974		12,536	17,688		30	30,254
1975		5,122	6,514		22	11,658
1976		5,361	9,929		24	15,314
1977		2,524	9,983		20	12,527
1978		5,032	13,086		29	18,147
1979		2,410	15,252		24	17,687
1980	0	2,458	11,211		23	13,693
1981	0	2,122	12,606		20	14,749
1982	12	1,932	22,231	118	410	24,703
1983	0	2,240	17,382	129	35	19,785
1984	558	2,195	14,486		62	17,300
1985	726	2,771	6,534	721	22	10,774
1986	219	2,861	11,886	18,175	19	33,160
1987	243	2,703	14,267	14,026	21	31,260
1988	268	1,673	13,239	14,441	23	29,643
1989	7	1,142	9,051	10,621	19	20,840
1990	341	1,114	7,918	25,703	44	35,120
1991	2,245	1,263	16,564	9,001	63	29,136
1992	3,300	1,886	14,105	2,643	35	21,969
1993	1,335	1,384	16,361		41	19,121
1994	2,577	1,855	20,205		60	24,698
1995	1,295	2,058	19,700		56	23,109
1996	1,584	2,485	26,100		56	30,225
1997	2,031	3,361	22,103		70	27,564
1998	1,569	3,357	33,048		56	38,030
1999	556	2,314	34,669		107	37,647
2000	1,164	2,685	33,822		131	37,802
2001	1,281	3,079	38,895		155	43,411
2002	772	3,226	30,450		121	34,570
2003	1,496	2,413	21,245		114	25,268
2004	232	4,155	18,172		133	22,692
2005	164	4,413	16,991		190	21,758
2006	1,548	6,914	15,590		92	24,144
2007	725	6,774	23,694		73	31,266

e/Swordfish

Swordfish catches in number of fish					
Year	Longline-Swordfish	Longline-Other	Gillnet	Other	Total
1950					
1951					
1952		155			155
1953		475			475
1954		2,910			2,910
1955		3,680			3,680
1956		9,093			9,093
1957		7,145			7,145
1958		10,316			10,316
1959		11,919			11,919
1960		12,594			12,594
1961		14,769			14,769
1962		18,516			18,516
1963		18,366			18,366
1964		22,878			22,878
1965		25,313			25,313
1966		23,402			23,402
1967		29,398			29,398
1968		31,364			31,364
1969		33,419			33,419
1970		42,826		58	42,884
1971		37,644			37,644
1972		43,055		23	43,078
1973		36,930			36,930
1974		33,690		52	33,742
1975		42,446		23	42,470
1976		36,072		34	36,106
1977		21,150		68	21,218
1978		39,094		61	39,155
1979		55,845		68	55,913
1980	124	42,302		29	42,456
1981	166	43,295			43,461
1982	214	46,814	527		47,555
1983	320	59,160	786		60,266
1984		50,287	926	128	51,341
1985		68,697	371	39	69,107
1986		82,671	3,260	64	85,996
1987		101,542	5,166	24	106,732
1988		176,525	13,502	113	190,141
1989	518	164,464	8,881	65	173,928
1990		132,729	12,103	81	144,913
1991	70	131,291	15,506	72	146,940
1992	1,727	230,837	18,806	172	251,541
1993	20,899	255,703	114,907	743	392,252
1994	31,905	333,900	52,825	602	419,232
1995	15,406	584,845	51,716	518	652,485
1996	32,139	648,547	72,824	722	754,233
1997	53,748	546,248	57,425	2,388	659,809
1998	112,895	501,024	49,895	625	664,440
1999	123,506	511,252	56,793	621	692,172
2000	97,022	613,699	102,572	567	813,861
2001	138,498	464,137	82,844	3,246	688,725
2002	154,172	458,268	91,907	1,668	706,015
2003	166,394	528,100	80,282	538	775,315
2004	216,259	346,606	68,730	3,063	634,658
2005	278,198	245,566	32,129	579	556,471
2006	248,155	226,499	47,352	513	522,520
2007	226,284	220,428	65,496	518	512,726

Swordfish catches in weight (tonnes)					
Year	Longline-Swordfish	Longline-Other	Gillnet	Other	Total
1950					
1951					
1952		10			10
1953		31			31
1954		181			181
1955		242			242
1956		578			578
1957		414			414
1958		631			631
1959		732			732
1960		776			776
1961		933			933
1962		1,139			1,139
1963		1,089			1,089
1964		1,389			1,389
1965		1,516			1,516
1966		1,468			1,468
1967		1,838			1,838
1968		1,916			1,916
1969		2,160			2,160
1970		2,681		1	2,682
1971		2,135			2,135
1972		1,969		0	1,970
1973		1,599			1,599
1974		2,013		1	2,014
1975		2,291		0	2,292
1976		1,876		1	1,877
1977		1,922		1	1,923
1978		2,375		1	2,377
1979		2,281		1	2,282
1980	8	2,243		1	2,252
1981	11	2,294			2,305
1982	14	2,782	12		2,809
1983	22	3,405	18		3,445
1984		3,218	22	7	3,246
1985		4,254	9	1	4,263
1986		4,866	72	1	4,939
1987		5,602	101	0	5,704
1988		7,943	322	2	8,267
1989	37	6,703	201	1	6,942
1990		7,029	225	1	7,255
1991	5	7,754	304	1	8,064
1992	97	13,730	377	3	14,207
1993	674	22,479	2,049	14	25,216
1994	1,538	21,904	999	12	24,452
1995	870	27,882	1,009	8	29,768
1996	1,524	30,802	1,093	11	33,430
1997	2,398	28,897	1,428	107	32,830
1998	5,144	29,169	1,048	11	35,372
1999	6,208	25,800	1,216	11	33,235
2000	5,046	25,149	2,959	10	33,164
2001	7,969	19,148	2,224	56	29,397
2002	8,990	20,068	2,247	29	31,335
2003	9,685	23,799	2,402	9	35,895
2004	12,240	20,769	2,275	53	35,337
2005	14,486	14,945	937	12	30,381
2006	12,184	13,685	1,677	16	27,562
2007	11,964	12,937	1,813	15	26,729

APPENDIX VIII
Total numbers of fish estimated per age class and year

a/Bigeye tuna

Bigeye tuna total number of fish by age										
Year	Age0	Age1	Age2	Age3	Age4	Age5	Age6	Age7	Age8+	Total
1950										
1951										
1952		4	18	494	2,116	2,047	933	387	431	6,430
1953		7	106	3,311	10,572	11,222	5,761	2,676	3,124	36,779
1954	1	49	800	14,915	39,023	36,925	21,339	11,603	20,216	144,871
1955	2	87	1,590	20,788	54,812	51,855	30,066	16,359	29,473	205,032
1956	3	96	1,494	29,363	70,228	64,992	38,651	21,616	41,496	267,939
1957	15,685	13,284	3,897	33,240	71,235	61,969	35,552	19,526	36,307	290,695
1958	15,690	13,310	4,377	32,228	65,879	56,898	33,532	18,626	38,701	279,241
1959	15,684	13,243	3,498	28,290	55,266	48,948	28,689	16,112	32,155	241,885
1960	7,844	6,700	3,229	41,906	92,554	81,483	47,191	26,034	51,415	358,356
1961	11,765	10,050	3,862	37,881	80,749	75,037	44,103	24,881	49,381	337,709
1962	11,769	10,028	4,109	48,130	108,737	94,992	54,568	29,789	56,997	419,119
1963	11,762	9,960	3,208	37,618	86,290	71,280	38,184	20,266	38,158	316,726
1964	11,759	9,869	1,536	36,623	101,894	95,217	58,453	32,049	52,929	400,329
1965	7,840	6,582	2,049	52,810	110,382	91,353	56,853	32,468	66,150	426,487
1966	11,773	10,680	8,057	68,416	129,505	97,832	61,104	38,112	96,947	522,426
1967	13,326	11,237	1,996	58,160	162,114	134,048	77,085	41,413	66,474	565,853
1968	13,327	12,108	5,613	94,946	234,375	207,144	135,372	69,617	105,981	878,483
1969	14,172	12,055	8,481	115,618	230,916	175,489	81,409	42,972	73,643	754,755
1970	29,011	17,112	27,943	92,564	223,877	154,827	87,353	39,097	58,108	729,892
1971	16,706	9,320	6,560	100,552	118,328	122,795	72,206	40,814	64,788	552,069
1972	17,751	12,082	5,644	46,486	140,862	119,519	65,327	30,507	45,661	483,839
1973	38,494	25,873	3,840	19,194	104,427	100,422	53,405	29,516	51,369	426,540
1974	37,341	28,548	16,470	81,433	137,264	196,336	96,168	41,228	66,796	701,584
1975	29,773	23,084	42,366	230,965	227,023	162,436	110,136	66,032	105,686	997,501
1976	41,502	28,994	13,649	185,481	289,813	104,250	61,677	38,406	71,827	835,599
1977	46,762	32,359	7,235	76,062	179,357	172,784	87,117	49,391	148,327	799,394
1978	34,801	24,146	7,587	72,731	282,980	297,157	155,049	79,176	149,550	1,103,177
1979	40,272	27,625	5,452	119,289	248,441	214,113	90,085	44,326	73,763	863,366
1980	32,318	23,687	16,009	162,697	228,454	200,122	91,471	43,312	91,582	889,652
1981	70,463	48,588	15,522	153,607	255,277	165,152	93,588	49,260	98,226	949,683
1982	31,622	28,256	31,942	159,836	285,523	179,804	102,988	61,653	154,830	1,036,454
1983	55,982	42,157	47,421	219,034	316,509	267,008	131,524	69,447	143,159	1,292,241
1984	126,334	324,604	285,192	195,171	285,503	220,616	102,220	57,481	121,189	1,718,310
1985	185,753	575,839	535,776	329,016	368,112	263,288	126,365	62,474	107,683	2,554,306
1986	19,364	256,711	1,103,693	392,780	386,506	290,595	136,356	62,627	108,859	2,757,491
1987	149,744	627,757	1,329,299	419,194	393,859	330,270	148,301	61,561	133,341	3,593,326
1988	138,554	917,429	1,795,669	345,812	384,012	392,500	171,924	82,079	172,474	4,400,453
1989	196,794	1,233,184	1,398,004	500,843	412,875	313,326	151,384	74,014	153,913	4,434,337
1990	176,734	696,244	1,131,214	298,255	513,739	413,517	201,733	87,640	128,719	3,647,795
1991	173,582	852,533	1,117,538	347,721	468,003	432,125	243,789	107,553	119,269	3,862,113
1992	206,565	570,447	1,114,009	366,237	583,554	384,565	185,042	77,359	114,231	3,602,009
1993	234,149	1,013,606	1,077,208	300,204	564,162	602,370	266,878	128,558	240,523	4,427,658
1994	414,803	993,868	1,859,208	576,497	595,092	473,979	276,901	152,477	292,855	5,635,680
1995	1,674,261	1,096,904	2,957,121	1,205,589	827,069	471,723	210,389	105,213	217,638	8,765,907
1996	335,776	1,900,733	2,095,475	783,112	910,717	630,477	254,943	113,285	268,896	7,293,414
1997	275,594	3,463,247	4,606,681	824,776	775,760	722,894	293,315	128,926	291,753	11,382,946
1998	137,774	1,392,964	2,959,495	1,277,937	1,089,956	692,786	275,990	120,109	224,225	8,171,236
1999	642,423	2,896,892	4,367,525	1,553,900	1,090,548	686,694	250,472	113,858	200,885	11,803,197
2000	735,422	2,229,505	2,342,741	1,316,576	1,029,643	580,953	180,940	79,599	236,358	8,731,737
2001	1,004,870	2,351,187	2,118,027	1,106,122	919,533	496,988	209,538	92,109	216,874	8,515,248
2002	881,447	3,062,494	2,997,992	615,204	973,667	741,202	304,113	129,038	233,785	9,938,942
2003	426,345	1,601,573	1,592,229	518,187	788,761	723,586	358,297	159,373	242,647	6,410,998
2004	398,282	1,221,685	1,898,705	584,217	709,670	774,478	403,836	179,212	239,257	6,409,342
2005	206,191	1,269,267	2,108,580	405,135	479,865	629,527	362,564	176,287	289,783	5,927,199
2006	322,933	966,610	1,977,987	606,930	424,506	560,060	319,829	164,105	281,147	5,624,107
2007	570,154	2,617,730	2,164,096	417,943	408,045	580,122	339,662	185,120	293,071	7,575,943

b/Yellowfin tuna

Yellowfin tuna total number of fish by age								
Year	Age0	Age1	Age2	Age3	Age4	Age5	Age6+	Total
1950	60,689	240,124	237,281	99,392	13,374	6,181	5,707	662,748
1951	71,709	284,587	312,993	124,920	15,866	7,426	6,917	824,418
1952	74,883	294,526	301,893	117,621	25,367	27,836	36,964	879,090
1953	72,429	283,002	269,732	112,843	36,573	44,537	59,833	878,949
1954	74,525	291,233	273,838	140,117	121,577	135,906	166,510	1,203,706
1955	91,231	356,765	312,626	170,093	232,236	278,006	338,299	1,779,256
1956	91,269	358,345	320,961	201,578	314,302	366,461	450,371	2,103,287
1957	88,472	349,019	325,666	213,226	168,403	193,693	253,337	1,591,816
1958	366,358	617,754	292,465	202,229	150,205	144,177	171,551	1,944,739
1959	441,621	613,156	290,161	217,535	208,606	151,847	151,257	2,074,183
1960	296,324	420,686	251,257	294,768	312,642	228,078	231,325	2,035,080
1961	207,462	395,241	324,508	279,664	254,462	214,804	239,380	1,915,521
1962	205,661	406,345	392,150	479,851	416,119	262,938	269,281	2,432,345
1963	200,914	400,178	399,300	383,393	232,395	156,595	162,203	1,934,978
1964	213,927	396,996	422,036	366,842	230,978	166,537	170,812	1,968,128
1965	160,220	318,785	403,415	506,906	243,929	156,331	162,885	1,952,471
1966	216,728	407,687	463,137	621,256	449,947	263,256	252,221	2,674,232
1967	242,672	451,882	493,266	621,718	367,863	197,070	179,520	2,553,991
1968	246,479	463,554	537,930	1,564,126	645,479	357,757	354,265	4,169,590
1969	268,675	517,563	599,962	922,975	566,904	276,453	251,238	3,403,770
1970	322,898	551,809	518,451	560,490	303,880	192,942	194,109	2,644,579
1971	186,520	376,881	427,020	757,460	289,509	167,967	170,492	2,375,849
1972	387,336	698,888	623,237	611,218	327,087	178,477	179,291	3,005,534
1973	865,755	1,575,705	1,016,752	540,263	226,455	159,903	170,550	4,555,383
1974	585,608	1,484,772	1,630,922	553,608	226,291	158,605	163,096	4,802,902
1975	617,013	1,107,908	1,084,029	822,350	257,133	142,610	142,190	4,173,233
1976	656,477	1,303,900	1,463,142	895,818	235,988	142,274	144,662	4,842,261
1977	707,121	1,661,665	1,673,122	906,576	363,423	290,982	325,227	5,928,116
1978	627,100	1,662,870	1,812,566	914,760	351,381	230,920	240,110	5,839,707
1979	764,827	1,778,755	1,884,188	1,062,522	289,067	166,496	162,601	6,108,456
1980	755,799	1,645,125	1,724,816	899,294	258,489	161,993	166,622	5,612,138
1981	733,694	1,444,414	1,547,717	991,627	301,882	170,318	166,657	5,356,309
1982	731,363	2,241,984	2,795,233	1,015,790	317,259	173,190	183,227	7,458,046
1983	2,338,216	3,769,271	2,509,219	838,635	341,574	229,518	239,718	10,266,151
1984	3,049,810	5,617,516	3,004,948	946,660	523,202	427,543	487,361	14,057,040
1985	854,948	5,283,862	4,599,812	1,213,251	629,633	477,887	521,289	13,580,682
1986	494,033	2,997,544	4,054,448	1,537,180	1,058,763	615,865	578,737	11,336,570
1987	702,360	2,307,902	3,468,979	2,226,300	1,214,041	646,419	591,646	11,157,647
1988	609,879	4,077,081	5,807,499	2,459,831	1,393,387	887,030	873,751	16,108,458
1989	471,869	3,532,615	5,866,069	3,797,820	1,220,183	723,028	693,057	16,304,641
1990	476,642	3,557,670	6,104,464	2,945,093	1,764,860	987,213	903,831	16,739,773
1991	579,883	3,507,967	3,250,015	2,233,795	1,738,767	1,064,649	1,056,815	13,431,891
1992	715,730	3,210,164	4,352,707	4,148,952	1,767,180	1,416,102	1,528,358	17,139,193
1993	755,153	4,562,983	5,223,698	6,397,730	2,967,290	1,515,142	1,391,595	22,813,591
1994	1,816,004	7,699,493	7,339,003	4,902,906	1,914,255	1,248,562	1,284,857	26,205,080
1995	1,314,899	7,558,824	10,405,469	4,956,973	1,984,055	1,187,312	1,206,458	28,613,990
1996	1,061,277	8,724,050	11,447,259	4,414,379	2,100,271	1,261,763	1,264,361	30,273,360
1997	1,305,079	11,533,157	12,230,247	4,085,501	1,892,901	1,261,016	1,295,225	33,603,126
1998	1,650,748	8,293,353	10,309,046	5,402,827	1,878,490	997,457	955,490	29,487,411
1999	1,294,328	12,170,665	16,101,003	5,766,781	2,005,831	1,076,346	1,001,525	39,416,479
2000	1,618,605	8,336,282	10,002,074	5,102,926	1,878,849	1,181,823	1,216,681	29,337,240
2001	1,650,466	8,833,505	8,575,541	4,095,942	1,880,756	1,188,499	1,236,795	27,461,504
2002	2,492,660	11,376,823	13,215,097	4,917,645	1,880,837	1,156,426	1,131,742	36,171,230
2003	1,490,619	10,773,450	12,780,871	7,300,868	2,734,049	1,582,664	1,499,172	38,161,693
2004	2,339,783	8,374,030	10,908,983	7,269,503	3,444,133	2,019,207	1,929,442	36,285,081
2005	982,863	7,511,390	11,131,690	5,073,502	3,659,988	2,160,008	1,982,025	32,501,466
2006	671,515	6,283,432	10,978,502	5,192,168	2,769,718	1,593,936	1,529,760	29,019,031
2007	795,292	5,053,845	6,275,306	2,515,786	2,608,388	1,366,741	1,265,737	19,881,095

c/Albacore

Albacore total number of fish by age											
Year	Age0	Age1	Age2	Age3	Age4	Age5	Age6	Age7	Age8	Age9+	Total
1950	1,032	1,068	332	12							2,444
1951	1,032	1,068	332	12							2,444
1952	1,032	1,068	332	12	16	169	947	1,025	703	326	5,630
1953			12	30	237	2,333	21,942	24,077	8,482	2,371	59,484
1954	1,032	1,086	454	401	1,078	5,929	46,233	56,081	28,515	11,263	152,072
1955	1,085	1,978	1,553	3,090	6,822	13,694	56,257	60,596	26,625	15,592	187,292
1956	1,048	1,900	1,795	3,042	8,256	19,372	101,309	108,711	42,096	22,674	310,203
1957	1,052	1,338	1,499	2,951	6,126	19,519	94,155	102,592	42,985	21,292	293,509
1958	1,090	1,768	3,278	6,509	11,281	44,033	125,718	124,040	58,566	32,375	408,658
1959	1,101	2,124	4,136	8,725	17,688	67,777	215,016	211,742	88,403	39,575	656,287
1960	1,094	2,072	3,708	11,317	18,619	69,447	213,289	210,741	100,905	47,887	679,079
1961	1,135	2,427	6,106	11,348	22,134	132,035	357,258	286,583	106,657	38,300	963,983
1962	1,135	2,445	7,256	47,732	76,357	221,982	300,075	287,049	137,516	61,510	1,143,057
1963	1,135	2,519	6,525	46,683	68,576	175,856	258,522	192,141	84,068	42,411	878,436
1964	1,032	1,068	332	171	1,759	81,938	583,314	261,927	124,664	49,276	1,105,481
1965	1,032	1,068	338	786	17,479	159,803	301,348	225,527	64,655	13,571	785,607
1966	1,032	1,068	1,810	10,658	52,350	284,562	303,999	237,647	76,548	8,303	977,977
1967	2,060	2,200	6,965	197,285	223,240	408,252	378,999	255,567	64,786	19,482	1,558,836
1968	3,092	3,208	8,129	52,732	97,489	195,247	399,225	317,814	70,311	51,691	1,198,938
1969	3,092	5,626	73,634	407,259	372,192	243,662	315,347	180,156	48,917	33,418	1,683,303
1970	1,032	1,533	9,711	62,205	82,921	89,860	164,204	247,538	125,429	67,995	852,428
1971	5,324	5,925	62,361	114,427	153,288	77,476	206,980	156,503	89,441	50,221	921,946
1972	5,324	5,528	1,894	212	2,773	14,745	205,994	258,582	110,335	72,098	677,485
1973	4,296	4,551	147,780	541,823	262,653	87,059	357,399	292,307	86,330	50,369	1,834,567
1974	5,156	11,545	38,096	202,032	401,527	277,027	621,546	389,967	117,206	37,075	2,101,177
1975	3,780	5,068	1,483	1,956	7,778	72,046	333,380	193,430	61,765	7,276	687,962
1976	4,124	4,302	1,441	277	8,171	55,535	274,334	360,892	129,899	9,812	848,787
1977	3,464	4,507	9,894	972	7,743	24,478	243,679	237,654	129,317	25,426	687,134
1978	4,912	7,157	21,155	14,060	90,664	418,799	364,293	158,270	81,954	39,792	1,201,056
1979	7,581	95,265	387,723	214,468	181,858	206,257	256,990	159,142	50,953	43,041	1,603,278
1980	10,722	65,251	167,132	158,967	232,657	195,781	145,641	90,248	48,000	54,177	1,168,576
1981	4,021	15,263	58,025	120,460	228,054	257,624	189,878	135,472	58,191	35,662	1,102,650
1982	69,512	92,543	157,827	281,219	389,349	399,559	279,307	196,792	88,345	77,464	2,031,917
1983	9,051	31,050	121,564	271,233	274,793	272,059	215,879	151,263	88,485	88,615	1,523,992
1984	10,581	26,172	110,159	269,977	307,485	237,831	162,961	119,215	69,160	71,467	1,385,008
1985	4,049	21,587	70,978	127,242	221,186	165,180	107,500	80,013	37,939	35,139	870,813
1986	3,256	4,580	165,094	1,096,051	1,133,621	500,297	159,440	94,508	50,443	26,326	3,233,616
1987	10,089	63,172	411,559	752,533	838,702	411,223	168,769	97,218	56,112	138,609	2,947,986
1988	3,944	6,762	13,843	242,123	909,552	486,682	389,057	135,114	38,183	96,531	2,321,791
1989	8,340	26,082	63,770	383,292	707,449	357,884	162,363	56,819	39,073	49,703	1,854,775
1990	7,314	7,792	11,961	273,435	759,702	958,518	393,409	89,228	89,957	103,722	2,695,038
1991	10,824	11,234	4,645	109,951	414,048	421,158	470,071	238,399	124,246	143,119	1,947,695
1992	7,891	10,986	71,595	517,461	183,158	209,319	253,688	158,969	98,102	140,864	1,652,033
1993	7,317	9,423	32,879	159,120	263,804	137,247	115,056	125,220	152,176	199,085	1,201,327
1994	11,106	37,359	179,857	103,428	359,690	343,566	245,224	196,765	123,566	159,713	1,760,274
1995	9,519	39,458	165,043	204,361	346,681	490,610	194,305	150,884	89,234	104,812	1,794,907
1996	16,296	63,994	364,257	483,740	458,469	563,989	405,758	110,342	67,347	98,165	2,632,357
1997	11,935	20,191	400,410	335,056	252,184	312,984	234,063	222,066	110,839	206,644	2,106,372
1998	10,110	40,147	249,886	438,215	481,685	481,500	425,447	265,054	125,143	269,157	2,786,344
1999	18,589	50,246	163,760	199,556	308,495	328,704	262,660	305,230	204,571	432,609	2,274,420
2000	22,587	36,254	102,961	212,601	373,245	352,757	223,928	203,618	203,783	559,470	2,291,204
2001	27,155	43,559	267,923	782,424	676,780	459,475	339,349	366,468	140,961	283,902	3,387,996
2002	21,423	56,947	172,883	320,376	431,798	500,141	409,255	210,662	125,114	249,864	2,498,463
2003	19,517	45,801	92,604	100,111	164,086	202,989	263,229	250,243	193,307	226,005	1,557,892
2004	22,676	24,968	24,846	85,698	221,726	235,757	232,176	208,377	174,577	174,761	1,405,562
2005	22,865	26,095	39,637	84,097	215,492	241,488	246,213	220,253	136,192	153,401	1,385,733
2006	15,761	19,600	36,907	105,480	237,362	214,521	221,426	277,822	156,255	201,476	1,486,610
2007	12,501	12,973	23,267	13,682	48,261	106,442	110,819	534,424	362,587	350,874	1,575,830