

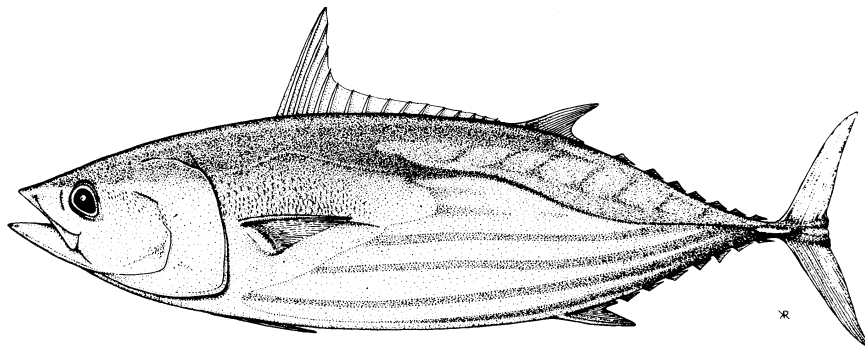


SCTB15 Working Paper

SWG-x

Current status of data available from the Indonesian and Philippines domestic tuna fisheries

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1. INTRODUCTION

Indonesia and the Philippines represent two of the largest domestic tuna fisheries in the world. The estimated tuna catch from the Indonesian and Philippine fisheries (Figure 1) contribute 17% and 13% of the western and central Pacific Ocean (WCPO) total catch, respectively, and 13% and 9% of the Pacific Ocean total catch, respectively. Appropriate data from these fisheries are therefore fundamental to regional tuna stock assessments, and this has been acknowledged in recent meetings of the Standing Committee on Tuna and Billfish (SCTB).

Recognising the importance of having adequate information, the *Fourteenth Meeting of the Standing Committee on Tuna and Billfish* (SCTB14), held in Noumea, New Caledonia 9–16 August 2001, directed the Statistics Working Group (SWG) to " ... compile annual catch estimates, catch and effort data and length data from Indonesia and the Philippines and examine the availability of data for Vietnam for presentation at SCTB15".

In response, this paper attempts to

- summarise the current situation with respect to the availability of data from these fisheries,
- list areas where more clarification is required, where data are currently lacking and where there are perceived problems, and,
- briefly suggest where future work could be focussed to improve the availability and collection of data from these fisheries.

This paper is by no means comprehensive or complete, but will hopefully serve as a working document that can be used in subsequent reviews of missing information, and in the resolution of perceived problem areas. It should be noted that delegates from each country are attending SCTB15, and are no doubt in a better position to provide a more comprehensive background to their respective fisheries, as required.

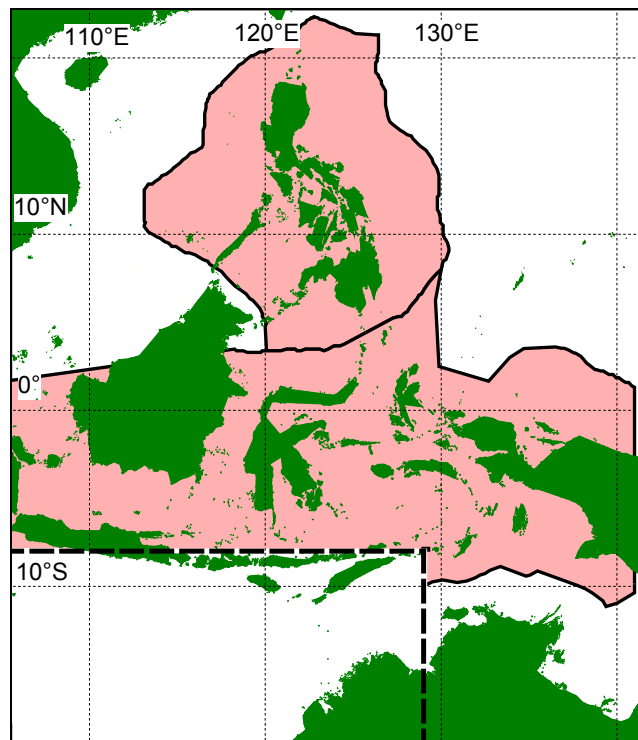


Figure 1. Map showing the Philippines and Indonesian estimated 200-mile boundaries. The dashed line represents the boundary between FAO areas 57 and 71, separating the Pacific Ocean portion of the Indonesian EEZ with the Indian Ocean.

2. INDONESIAN TUNA FISHERIES

The Statistics division of the Directorate General of Capture Fisheries (of the Directorate General of Fisheries Indonesia–DGF) are responsible for compiling statistics collected in eight provinces (containing 70–80 districts) representing tuna fisheries from the **Pacific** side of the Indonesian EEZ. (Indonesia has, in total, 26 provinces and 214 districts with respect to marine capture fisheries). The DGF have distinguished the districts that service vessels fishing in the Indian Ocean from districts that service vessels fishing in the Pacific Ocean (basically FAO areas 57 and 71, respectively) and this is reflected in the statistics provided.

The data are collected by "enumerators" assigned in each district to collect fisheries information (e.g. catch, fishing trips and vessel numbers) from a wide range of fisheries (and not just tuna fisheries). The information used to estimate annual catches comes from three basic sources: sample survey of villages (artisanal fisheries), sample survey of selected major landing centres (commercial fisheries) and the reports provided by fishing companies.

For the tuna fisheries, species identification is acknowledged to be a major problem. Catch is allocated to the species groups 'skipjack' and 'tunas', the latter which represent yellowfin and bigeye but not the 'eastern little tunas' (i.e. kawakawa and *Auxis* spp.), which comprise a separate category. Billfish taken by longline vessels have also been included in the 'tunas' category, but no further information is currently available to suggest whether other species might be included in the general 'tunas' category. Unfortunately, more detailed information on the protocol for sampling/survey has not been provided to date.

The Research Institute of Marine Fisheries (RIMF–BPPL) of Indonesia, in conjunction with the Indo-Pacific Tuna Programme (IPTP), have collected tuna catch and effort, and size composition data at certain ports of unloading since the early 1980s. Since the end of 1992, when the IPTP ceased involvement in the sampling, funding constraints drastically reduced the coverage of sampling. The protocol for port sampling is described in IPTP manuals and has been maintained during the 1990s after IPTP ceased involvement. Figure 2 provides an indication of Pacific-side sampling sites throughout Indonesia (north of 8°S).

ANNEX 1 summarises the current status regarding the availability of Indonesian tuna fishery data.

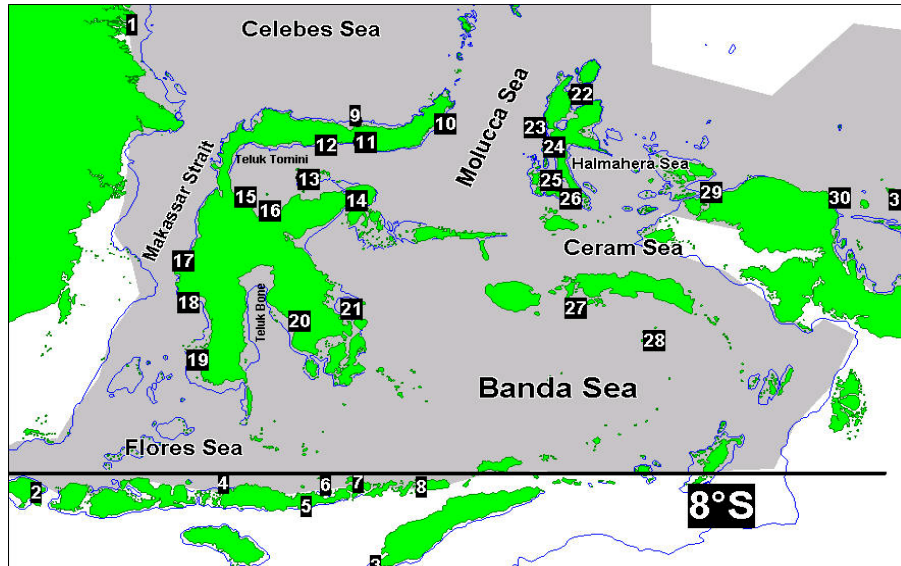


Figure 2. Map of Indonesia waters (Pacific-side) including port sampling sites mentioned in Carrara and Uktolseja (1997). Grey shading north of 8°S represents Indonesian waters deeper than 200 metres.

Port Sampling Sites (as mentioned in Carrara and Uktolseja (1997))

1	Tarakan	9	Kuandang	17	Mamadju	25	Labuna
2	Benoa, Bali	10	Bitung	18	Magjene	26	Bacan
3	Kupang	11	Gorontalo	19	Ujung Padang (Sulawesi)	27	Ambon
4	Labuhan Bajo	12	Tilamuta	20	Kolaka	28	Bandanaira
5	Ende	13	Togian	21	Kendari	29	Sorong
6	Maumere	14	Luwuk	22	Tobelo	30	Manokwari
7	Larantuka	15	Parigi	23	Ternate	31	Biak
8	Kalabahi	16	Poso	24	Tidore		

2.1 ANNUAL CATCH ESTIMATES

The SPC Tuna Fishery Yearbook (latest version for year 2000–Lawson, 2001) describes the sources and provisions of annual catch estimates for the Indonesian tuna fishery. In recent years, annual catch estimates have been provided by the Statistics Division of the Directorate General of Capture Fisheries.

In regards to annual catch estimates, the following priority areas require more information/clarification.

- 2.1.1 The large "unclassified" catch estimates provided for Indonesia have been more than 120,000 t. in recent years. (Unclassified refers to catch where the gear has not been provided. It is essentially the difference between total catch and catch estimates provided for handline, longline, pole-and-line and purse seine gears). More information is required on where this catch comes from (i.e. what districts) and the gear(s) believed to represent this catch. (For example, is this catch largely artisanal catch?).
- 2.1.2 The annual "unclassified" catch estimate for "tunas" (primarily attributed to yellowfin) in recent years has been more than 80,000 t., making it a significant contributor (20%) of the WCPO yellowfin catch for all gears. Also, the proportion of "tunas" to skipjack catch from "unclassified" gears in recent years has been 2:1. This large catch requires further explanation/clarification.
- 2.1.3 More information is required on the individual species that are included in the "tuna" estimates category. (Currently it is understood that yellowfin, bigeye and billfish comprise the "tuna" category, which is distinct from the "skipjack" category).
- 2.1.4 Further background is required on the sampling protocol used by DGF at unloading ports within each province/district.
- 2.1.5 Clarification on whether the number of trips by gear type and an average measure of days per trip (by gear) are available from the DGF statistics.

2.2 CATCH AND EFFORT DATA STRATIFIED BY TIME AND AREA

The historic use of catch logsheets by the larger industrial longline, pole-and-line and purse seine fleets of Indonesia (fishing in FAO Area 71) is currently not clear. There is evidence that longline data held by RIMF exist at the level of 1°x1° grids and month going back to the early 1980s but the origin of this information is currently not known. Fishing companies provide the DGF and RIMF with annual catches for their longline, pole-and-line and purse seine fleets, but these are understood to be based on unloadings, and hence do not have a spatial component. Data collected through the historic RIMF/IPTP sampling (undertaken in ports of unloading) provide an indication of broad areas fished only. To date, the OFP have not been provided with any catch and effort data stratified by time and area for the Indonesian tuna fisheries (see ANNEX 1).

In summary, virtually no catch and effort data from what is perceived to exist are currently available, and further detailed review is therefore necessary to provide a more comprehensive profile of the catch and effort data potentially available from the Indonesian tuna fisheries.

2.3 SIZE AND SPECIES COMPOSITION DATA

ANNEX 1–Tables A1–A3 provides an indication of the available size and species composition data from the Indonesian tuna fisheries. The port sampling has benefited from the use of a consistent sampling protocol over nearly two decades (the IPTP-developed sampling protocol). The identification of small bigeye in the catch of yellowfin has been addressed in recent years as a result of collaborative projects between the Philippines and Indonesia; the extent of this training throughout Indonesia is currently not known.

Review of available size data (ANNEX 1–Table A3) and statistics provided in Carrara and Uktolseja (1997) suggest a large artisanal troll fleet (around 40,000 vessels in some years) which possibly contributes a significant catch of skipjack and yellowfin, yet it is not covered by annual catch estimates. This could possibly account for the large 'unclassified' catches. In any event, further review of artisanal troll catches is no doubt required.

In summary, some RIMF/IPTP size and species composition data have been provided, but further detailed review is necessary to provide a more comprehensive profile of the size and species data available from the Indonesian tuna fisheries.

2.4 SUGGESTIONS FOR FUTURE WORK

The size, diversity and broad areas covered by Indonesian domestic fisheries suggest that any undertaking to improve data related to the exploitation of tuna and billfish would require considerable resources. It appears that obtaining information to the level received from other WCPO tuna fisheries would not be possible without large-scale project(s) that were assured continuous funding. At this stage, the establishment and continued undertaking of such work appears to be beyond the resources of the Indonesian government and beyond the scope of the SCTB. The contribution made by Indonesian domestic tuna fisheries to the WCPO tuna catch is significant and therefore improving information on this fishery should be a priority item for the future Western Central Pacific Fisheries Commission (WCPFC) and associated fora (e.g. the PrepCon and Scientific Co-ordinating Group–SCG).

In the meantime, certain ad hoc work could be undertaken and priority items have been summarised into three general areas.

- Review the DGF data holdings
 1. Review the gears, number of vessels fishing, number of trips undertaken and catch by category for each district where data are collected.
 2. Review the sampling protocol; for example, obtain an indication of the coverage with respect to the districts where sampling is undertaken versus ports of unloading where sampling is not undertaken.
 3. Answer the questions raised in Section 2.1
- Review the RIMF/IPTP data holdings
 1. Obtain more detail on the available catch and effort data stratified by time and area and update summarised tables.
 2. Obtain more detail on the available size and species composition data and update summarised tables.
 3. Attempt to resolve the problem of the large unclassified catches (in the DGF statistics) with reference to artisanal troll activities.
- Review the possibility of re-establishing port sampling in key ports (once identified)
 1. In this respect, possibly consider the collaborative approach adopted by CSIRO (working with RIMF) for port sampling vessels taking southern bluefin tuna in the Indian Ocean and unloading in Bali.

3. PHILIPPINES TUNA FISHERIES

The Philippines Bureau of Agricultural Statistics (BAS) has been responsible for compiling statistics collected from domestic tuna fisheries since 1987 (previously, this was undertaken by the Bureau of Fisheries and Aquatic Resources–BFAR). The data are collected through surveys of many ports of unloading throughout Philippines and from a wide-range of fisheries (and not just tuna fisheries). The information used to estimate annual catches comes from three basic sources: sample surveys of municipal (artisanal) fisheries, sample surveys of selected major landing centres and the reports provided by fishing companies.

BAS receives estimates for commercial catches from the Port Authorities (PFDA), but catch by species and gear is acknowledged to be unreliable. The municipal fisheries catches are estimated by reviewing changes in patterns of fishing/unloadings, which are sourced from interviews with brokers and captains from vessels. It appears this is more of a qualitative, than quantitative, process and hence considered not reliable/accurate. Further, in recent years funding cuts have meant that coverage by the interview process has been reduced. Fisheries statistics is acknowledged by BAS to be secondary in comparison to their responsibilities to the

agricultural sector. Unfortunately, detailed information on the protocol for sampling/survey are not available at this time.

The Bureau of Fisheries and Aquatic Resources (BFAR) were responsible for compiling catches estimates prior to 1987 (when BAS assumed this role). In recent years, an executive order from the Philippines government requires that BFAR and BAS have a closer relationship in regards to the compilation of fishery statistics. BFAR have also been responsible for collecting size composition and trip catch and effort data from vessels from several fisheries (and not just tuna) unloading in ports throughout the Philippines since the early 1980s. Sampling was continuous through the 1980s and into the early 1990s, but coverage of tuna vessel unloadings was low. Coverage of domestic tuna fleets increased substantially with the Landed Catch and Effort Monitoring Project (LCEM) conducted as part of the Philippines Tuna Research Project (PTRP) during 1993 and 1994. In mid 1997, BFAR received funding to establish the National Stock Assessment Project (NSAP), the largest component being the establishment of substantial port sampling data collection throughout the country. As at the end of 2001, there were more than 200 ports covered by sampling.

During 2001, the research arm of BFAR became a separate entity, the National Fisheries Research and Development Institute, leaving BFAR to handle management, regulatory and training duties related to fisheries (and other 'aquatic resources').

ANNEX 2 summarises the current status regarding the availability of Philippines tuna fishery data.

3.1 ANNUAL CATCH ESTIMATES

The SPC Tuna Fishery Yearbook (latest version for year 2000–Lawson, 2001) describes the sources and provisions of annual catch estimates for the Philippine tuna fishery. In recent years, annual catch estimates have been provided by the Bureau of Agricultural Statistics (BAS).

In regards to annual catch estimates, the following priority areas require more information/clarification.

- 3.1.1 It would be useful to obtain more background on the available BAS statistics, if possible. For example, more detail on the protocol for sampling, the coverage of sampling, the reliability of municipal estimates versus commercial estimates would be useful. The "unclassified" catch estimates are not as large as in Indonesia, but more information on where this catch comes from, and the gear(s) believed to represent this catch would be useful.
- 3.1.2 The sources of catch by handline vessels need further explanation. The largest handline fleet in the Philippines is based out of General Santos City and catches around 10,000 t of target tuna (YFT/BET) per year. This suggests that the commercial catch elsewhere or the municipal handline catch might be considerable (since the annual catch estimate is close to 40,000 mt for YFT/BET). There is a definite distinction between the commercial handline fishery, which undertakes longer trips fishing on FADs targetting YFT/BET, and the small-scale hook-and-line fishery landing catches at municipal markets. More information on the handline fleets in the Philippines would help clarify the situation.
- 3.1.3 The annual catch estimates for the ring-net gear in recent years (~38,000 mt) is underestimated according to experienced BFAR field staff in General Santos City. This needs follow-up.
- 3.1.4 BAS provides annual catch estimates for swordfish landed in commercial and municipal fisheries. The 1997 annual swordfish catch for the municipal fisheries was over 4,000 mt, an order of magnitude larger than the commercial catch. This needs follow-up.

3.2 CATCH AND EFFORT DATA STRATIFIED BY TIME AND AREA

The historic use of catch logsheets by the larger industrial purse seine fleets of Philippines is currently not documented. These vessels are obliged to provide logsheets when they fish in Pacific Island countries but it is not sure whether this is the case for fishing within Philippines waters. It is understood that domestic fishing companies provide the BAS and BFAR with annual catches for their fleets, but as these data are based on unloadings, there is no spatial component. Data collected through the historic port sampling by

BFAR over the years provide an indication of broad areas fished only (i.e. fishing ground). The OFP has been provided with some catch and effort data from port sampling, but the coverage is mostly very low and the spatial component is broad fishing area only. There is also no indication as to whether the available data provide the representative spatial distribution of catch and effort throughout the Philippines (see ANNEX 2).

3.3 SIZE AND SPECIES COMPOSITION DATA

ANNEX 2–Tables B1–B2 provide an indication of the available size and species composition data from the Philippine tuna fisheries. The port sampling has benefited from the use of a consistent sampling protocol over nearly two decades (this protocol appears to be very similar to, or an offshoot of the IPTP-developed sampling protocol used in Indonesia). The identification of small bigeye in the catch of yellowfin has been a priority issue with BFAR since the beginning of the LCEM project (early 1990s). Small bigeye lengths appear in the size composition data for the 1980s, so perhaps this was addressed earlier.

Data for the period 1988–1992 and 1996–1997 have not been provided as yet. The NSAP project covers the port sampling data collected since 1998, but the backlog of data processing has not yet been completed.

3.4 SUGGESTIONS FOR FUTURE WORK

As with the Indonesian domestic fisheries, any undertaking to obtain sufficient data on the exploitation of tuna and billfish in the Philippines domestic fisheries requires considerable resources. The recent establishment of the NSAP project in the Philippines demonstrates a commitment towards improving information on the domestic tuna fisheries, and should therefore be encouraged and supported wherever possible. As with Indonesia, the contribution made by Philippines domestic tuna fisheries to the WCPO tuna catch is significant and therefore improving information on this fishery should be a priority item for the future Western Central Pacific Fisheries Commission (WCPFC) and associated fora (e.g. the PrepCon and Scientific Co-ordinating Group–SCG).

In the meantime, certain ad hoc work could be undertaken and priority items have been summarised into two general areas.

- If possible, obtain more detailed information on the BAS tuna fisheries data holdings in answering the questions raised in Section 3.1.
- Provide technical assistance to the new Philippines fisheries research institute, where appropriate.
 1. Over the past 18 months, the OFP has provided technical advice on the design and development of the NSAP database system. In January 2002, the Philippines government funded a two-week visit by the IT manager of the Fisheries Research Institute (Mr. Val Manlulu) to OFP offices to further develop the NSAP database. Further assistance is expected to be provided to the mutual benefit of both organisations;
 2. Assist in filling the gaps in the port sampling data, where appropriate.

REFERENCES

Carrara, G., J. Uktolseja (1997). Review of Indonesian Tuna Statistics (based on the work by J. Moron, 1994). In Report on the Indonesian/FAO/DANIDA Workshop on the Assessment of the Potential of Marine Fishery Resources of Indonesia. FAO, Rome.

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ANNEX 1. INDONESIA

Table A1. Availability of tuna fishery data from Indonesian domestic fleets (Pacific Ocean only)
(shading indicates where data may exist but have not been provided)

	ANNUAL ESTIMATES			CATCH/EFFORT AND SIZE DATA				
	Annual catch estimates	Annual Vessel numbers by gear	Sources and Coverage of estimates	Gears covered	Catch-Effort by time/area	Size data	small BET vs YFT	Sources and Coverage of data
1950	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1951	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1952	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1953	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1954	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1955	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1956	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1957	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1958	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1959	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1960	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1961	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1962	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1963	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1964	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1965	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1966	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1967	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1968	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1969	?	?	(see note 1.)	-	-	-	-	(see note 3.)
1970	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1971	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1972	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1973	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1974	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1975	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1976	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1977	Yes	?	(see note 2.)	-	-	-	-	(see note 3.)
1978	Yes	?	(see note 2.)	LL	Yes?	?	N/A	(see note 4.)
1979	Yes	?	(see note 2.)	LL	Yes?	?	N/A	(see note 4.)
1980	Yes	?	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1981	Yes	?	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1982	Yes	?	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1983	Yes	?	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1984	Yes	?	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1985	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes	No	(see note 6.)
1986	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes	No	(see note 6.)
1987	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes	No	(see note 6.)
1988	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	?	?	(see note 5.)
1989	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	?	?	(see note 5.)
1990	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1991	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1992	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1993	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1994	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1995	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1996	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1997	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1998	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
1999	Yes	Yes	(see note 2.)	LL,PL,PS,TR	Yes?	Yes?	?	(see note 5.)
2000	Yes	Yes	(see note 2.)	-	-	-	-	(see note 7.)
2001	Yes	Yes	(see note 2.)	-	-	-	-	(see note 7.)

Notes

- 1 No indication of the existence annual catch estimates prior to 1970.
- 2 See Tuna Fishery Year Book (2001) and SCTB15 Working Paper SWG-2. A request for landed catches by district, gear and species was made to DGF (Nov. 2000). No reply as yet.
- 3 No catch and effort nor size data collection prior to 1978 (?)
- 4 Longline data available at 1°x1° grids and month stratification (primarily Pacific Ocean) exist (see below); not sure if size data exist for this period.
- 5 Longline catch and effort data stratified by 1°x1° and month for the period 1978–1996 provided to RIMF by PPSB (fishing company). Longline activities up to and including 1986 were mostly on the Pacific side, then progressively moved to the Indian Ocean. This fleet essentially fished in the Indian Ocean during the 1990s (confirmation required). These data have not been provided.

Port sampling data by RIMF/IPTP for these years has apparently covered pole-and-line, troll, purse seine, longline and handline fleets at one stage or another. Data collected assumed to be unloaded catch, effort (number of trips) and size composition data collected through port sampling based on the IPTP-developed protocol. Distinction of small BET from YFT apparently not possible in early years (needs to be confirmed for each gear type). Sampling data known to exist for LL and PL, but need to confirm existence of data for other gears. (see Table A2)

Also, size and species composition data collected from domestic tagging cruises, for example, tagging cruises during 1999 on P&L vessels (3,570 fish) provide size data (SKJ 2,988; YFT 240; BET 342). These data have not been provided.

- 6 IPTP size composition data provided by David Ardill, IOTC (Aug 2001) (see Table A3). Note that additional size data may exist for this period.
- 7 No sampling undertaken during 2000/2001.

Table A2. Summary of port sampling undertaken in Indonesian ports (Pacific-side) (Source: RIMF)

Year	Ambon	Sorong	Bitung	Bali
1980	Yes	Yes	-	-
1981	Yes	Yes	-	-
1982	Yes	Yes	-	-
1983	-	Yes	-	-
1984	Yes	Yes	Yes	-
1985	Yes	Yes	Yes	-
1986	Yes	Yes	Yes	Yes
1987	Yes	Yes	Yes	-
1988	Yes	Yes	Yes	Yes
1989	Yes	Yes	Yes	Yes
1990	Yes	Yes	Yes	Yes
1991	Yes	Yes	Yes	Yes
1992	Yes	Yes	-	?
1993	Yes	Yes	-	?
1994	Yes	Yes	-	?
1995	Yes	Yes	Yes	?
1996	Yes	Yes	Yes	?
1997	Yes	Yes	Yes	?
1998	Yes	Yes	Yes	?
1999	Yes	Yes	Yes	?
2000	-	-	-	?

Notes

- 1 Ports of Ambon, Sorong and Bitung understood to primarily cover sampling of P&L and PS vessels.
- 2 For the period 1980-1990, Ambon/Sorong/Bitung sampling represented close to 12,000 samples annually (in collaboration with IPTP)
- 3 IPTP involvement ceased in early 1990s
1993 - ~ 300 samples / month
1994 = ~ 2,000 samples for the year
since 1995 only very small number of samples/year until 1999 when funding constraints meant sampling ceased
- 4 Sampling of longline vessels in Bali (Benoa) in recent years in collaboration with CSIRO (Australia). This sampling targets southern bluefin tuna (*Thunnus maccoyii*) taken by vessels fishing in the Indian Ocean

Table A3. Summary of IPTP port sampling data provided to the OFP by IOTC
(number of fish measured)

Year	Gear	SKJ samples	YFT samples
1985	PL	7,390	597
	TR	9,483	4,557
1986	PL	42,465	0
	PS	4,739	348
1987	PS	71,267	0
	PS	3,879	90
	TR	11,383	10,857

ANNEX 2. PHILIPPINES

Table B1. Availability of tuna fishery data from the Philippines domestic fleets
(shading indicates where data may exist but have not been provided)

	ANNUAL ESTIMATES			CATCH/EFFORT AND SIZE DATA				Sources and Coverage of data
	Annual catch estimates	Annual Vessel numbers by gear	Sources and Coverage of estimates	Gears covered	Catch-Effort by time/area	Size data	small BET vs YFT	
1950	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1951	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1952	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1953	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1954	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1955	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1956	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1957	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1958	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1959	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1960	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1961	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1962	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1963	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1964	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1965	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1966	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1967	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1968	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1969	No	No	(see note 1.)	-	-	-	-	(see note 4.)
1970	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1971	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1972	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1973	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1974	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1975	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1976	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1977	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1978	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1979	Yes	No	(see note 1.)	-	-	-	-	(see note 4.)
1980	Yes	No	(see note 1.)	GN, HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1981	Yes	No	(see note 1.)	HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1982	Yes	Yes	(see note 1.)	BN, GN, HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1983	Yes	Yes	(see note 1.)	HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1984	Yes	Yes	(see note 1.)	HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1985	Yes	Yes	(see note 1.)	BN, GN, HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1986	Yes	Yes	(see note 1.)	BN, GN, HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1987	Yes	Yes	(see note 1.)	BN, GN, HL, PS, RN, TR	Yes	Yes	No	(see note 5.)
1988	Yes	Yes	(see note 2.)	?	?	?	?	(see note 6.)
1989	Yes	Yes	(see note 2.)	?	?	?	?	(see note 6.)
1990	Yes	Yes	(see note 2.)	?	?	?	?	(see note 6.)
1991	Yes	Yes	(see note 2.)	?	?	?	?	(see note 6.)
1992	Yes	Yes	(see note 2.)	?	?	?	?	(see note 6.)
1993	Yes	Yes	(see note 2.)	BN, GN, HL, LL, PS, RN, TR	Yes	Yes	Yes	(see note 7.)
1994	Yes	Yes	(see note 2.)	BN, GN, HL, LL, PS, RN, TR	Yes	Yes	Yes	(see note 7.)
1995	Yes	Yes	(see note 2.)	-	-	-	-	(see note 8.)
1996	Yes	Yes	(see note 2.)	?	?	?	?	(see note 9.)
1997	Yes	Yes	(see note 2.)	?	?	?	?	(see note 9.)
1998	Yes	Yes	(see note 3.)	?	?	?	?	(see note 10.)
1999	Yes	Yes	(see note 3.)	?	?	?	?	(see note 10.)
2000	Yes	Yes	(see note 3.)	?	?	?	?	(see note 10.)
2001	Yes	Yes	(see note 3.)	?	?	?	?	(see note 10.)

Notes

- See Tuna Fishery YearBook (2001), SCTB15 Working Paper SWG-2 and OFP Internal Report No. 34
BFAR mentioned (Nov. 2000) that unclassified catches up to and including 1986 can be resolved into catches by gear.
Noel Barut mentioned that BFAR have catch estimates available back to the 1950s.
- See Tuna Fishery Year Book and OFP Internal Report No. 34
BFAR consider that (BAS) statistics since 1987 have problems
Catches of Ringnet thought to be under-estimated (BFAR field staff Nov. 2000)
Catches of municipal handline thought to be over-estimated (Nov. 2000)

3. Estimates provided by BAS (June 2002)
BFAR are attempting to estimate catches by region for 1997 through 1999 (Nov. 2000)
4. Apparently no data collected during years 1950-1979
5. Data provided to OFP on magnetic tapes by BFAR. Data represent port sampling at a number of ports throughout the Philippines. Unloaded catch and trip effort data are available and includes fishing ground (i.e. broad area), but coverage poor. Distinction of small BET from YFT needs to be confirmed, although data exists. Species coverage is therefore SKJ, YFT for surface gears and SKJ, YFT, BET for HL
6. Data were collected but not sure if these are available. I understand these exist in hard-copy form (at the very least) so maybe need to be entered. Coverage unknown but perhaps as per 1980-1987 data).
7. Data provided under the Philippines Tuna Research Project (PTRP) Landed Catch and Effort Monitoring Project (LCEM) SPC were involved in this project. More data are available for this period (19 sampling sites used). Distinction of small BET from YFT has been made. Unloaded catch and trip effort data are available and includes fishing ground (i.e. broad area). Species coverage is therefore SKJ, YFT, and BET for all gears
8. Apparently, no sampling was conducted during 1995.
9. Sampling recommenced during 1996 for two years prior to the establishment of the National Stock Assessment Project in 1998. Summaries are available, but these have been compiled from hard-copy data which have apparently not yet been entered. Followup required. Distinction of small BET from YFT assumed to be catered for. Unloaded catch and trip effort data are available and includes fishing ground (i.e. broad area). Species coverage is therefore SKJ, YFT, and BET for all gears
10. Establishment of NSAP in 1998, with coverage increasing each year. 168 sampling sites covered by the end of 2000. As at Nov. 2000, very few data had been processed electronically, as the database system was being established. Distinction of small BET from YFT assumed to be catered for. Unloaded catch and trip effort data are available and includes fishing ground (i.e. broad area). Species coverage is therefore SKJ, YFT, and BET for all gears. Coverage is higher than any of the previous periods.

Table B2. Summary of port sampling data provided to the OFP by BFAR
(number of fish measured)

Year	Gear	SKJ samples	YFT samples	BET samples
1980	HL	264	954	42
	RN	11,955	8,287	145
	PS	1,216	516	0
	OTH	69	85	0
1981	HL	538	1,532	28
	RN	8,837	5,989	65
	PS	1,419	634	0
1982	HL	2,678	4,576	358
	RN	6,958	6,180	281
	PS	1,884	1,400	120
	OTH	39	47	3
1983	HL	1,790	2,578	132
	RN	9,296	8,260	284
	PS	1,332	1,025	46
	OTH	75	65	0
1984	HL	3,653	3,115	365
	RN	4,188	2,820	255
	PS	1,537	1,307	277
	OTH	946	307	26
1985	HL	2,554	2,910	395
	RN	2,749	1,690	202
	PS	452	352	36
	OTH	1,199	453	62
1986	HL	2,108	2,544	242
	RN	1,111	410	39
	PS	435	294	3
	OTH	790	562	40
1987	HL	3,245	3,482	278
	RN	1,642	917	60
	PS	1,596	1,332	178
	OTH	1,759	1,589	67
1993	HL	58,414	123,370	8,768
	RN	16,351	6,624	868
	PS	23,270	15,717	1,525
	OTH	15,229	3,303	125
1994	HL	57,132	79,271	8,931
	RN	13,347	4,216	444
	PS	19,412	11,436	2,464
	OTH	12,454	1,694	12