



**SCIENTIFIC COMMITTEE
FOURTH REGULAR SESSION**

11-22 August 2008
Port Moresby, Papua New Guinea

**ANNUAL REPORT – PART 1
INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS**

WCPFC-SC4-AR PART 1/WP-24

PHILIPPINES

PHILIPPINE ANNUAL FISHERY REPORT UPDATE

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I. INTRODUCTION

The Philippines is still one of the top fish producing countries in the world. Over 1.5 million people depend on the fishing industry for their livelihood. Philippines is also considered as a major tuna producer in the Western and Central Pacific Ocean (WCPO), both for domestic food security and on an industrial scale. The fishing industry's contribution to the country's Gross Domestic Products (GDP) were 2.2% and 4.3% at current and constant prices, respectively (*Philippine Fisheries Profile, 2006*).

In 2006, the foreign trade performance of the fishery industry gave a net surplus of 386 million dollars. With a total export value of 505 million US dollars and import value of 119 million US dollars. Tuna remained as one of the top export fishery commodity and are exported fresh/chilled/frozen, smoked/dried and canned. Major export markets are Japan, USA, Thailand and Singapore (*Philippine Fisheries Profile, 2006*).

Chilled/frozen fish comprise a bulk of the total import in terms of value. Tuna mackerel and milkfish are considered major import fish commodities. Tuna has the largest import share of 62% followed by mackerel (37%) and milkfish (0.5%). Chilled/frozen fish were mostly supplied by Papua New Guinea, Indonesia and Taiwan (*Philippine Fisheries Profile, 2006*).

II. FLEET STRUCTURE

The fishing sector consists of municipal and commercial components, with the former involving vessels less than 3 GT in size, and under the jurisdiction of the Local Government Units (LGUs). The number of municipal vessels is not well documented in most areas. While larger commercial vessels (> 3GT) are required to fish outside municipal waters, beyond 15km off the shoreline and are required to secure commercial fishing vessel license (CFVL) at the Bureau of Fisheries and Aquatic Resources which is subject to renewal every three (3) years. With the implementation of RA 9379 or the Handline Fishing Law, this gives a separate category for the handline vessels which were formerly considered under the municipal fishing vessels.

The Bureau of Fisheries and Aquatic Resources (BFAR) list of registered Philippine vessels operating in the Western and Central Pacific Region is shown in Table 1.

Table 1. List of Philippine vessels operating in the convention area.

Type of Vessel	Number of Registered Vessels
Brine boat	1
Carrier (< 250 GT)	109
Carrier (>250 GT)	72
Catcher (< 250 GT) *	85
Catcher (>250 GT)**	74
Fish Reefer	4
Light Boat	196
Ranger boat	22
Skiff boat	1
Sonar boat	11
Surveyor	10
Tanker	2
Total	587

* 16 handline, 60 purse seines and 9 ring nets

** 23 longlines and 51 purse seines.

III. ANNUAL TUNA CATCH IN THE PHILIPPINE EEZ

Since 1987, the official fishery statistics for the Philippines have been compiled by the Bureau of Agricultural Statistics (BAS), based on probability (stratified random sampling by data collectors) and non-probability (interviews by regular BAS staff) surveys, supplemented by secondary data from administrative sources e.g. landings sites and ports (Vallesteros, 2002). Annual Fisheries Statistics for commercial, municipal, inland and aquaculture sectors are published for three year time frames, most recently for 2004-2006 inclusive (BAS, 2008), and include volume and value of production by province and by region, information on fish prices and foreign trade statistics.

Catch breakdown by the 31 main marine species is available¹, estimates of annual bigeye and yellowfin catches for the past years have been reported as a combined catch (yellowfin/bigeye tuna) but for 2005 BAS started to separate catches for these two species of tunas with the assistance from the WCPFC. However, there is still a need to improve the identification of these two (2) species to accurately reflect the actual catch of yellowfin and bigeye. The available BAS estimates for the tuna catch by species for the period 2003-2007 are given in Table 2 below.

It should be noted that past statistics (before 2003) was under reported because, the degree of cooperation from the private sector was not that ideal due to the lesser appreciation on fisheries data in fisheries management. The recent cooperation of the fishing sector strengthened the data collection system thus resulting to a better catch level estimate by BAS. The recent increase in catch was in fact not the result of increased fishing effort but with the cooperation and support of the fishing industry sector recognizing the importance of accurate catch data in fisheries management which in the long term will benefit them.

¹ Around 20% of the municipal catch and 6-8% of the commercial landings are not captured by these 30 species

The annual tuna catch estimates include all the tuna catch unloaded in Philippine ports regardless where they were caught and does not separate those catches from foreign waters or whether it is caught by foreign-flagged vessel.

This year BFAR launched the catch documentation scheme which requires purse seine, ringnet and handline operators to submit monthly logsheets report and for the canneries the submission of monthly cannery unloading data. BAS also promised to update their statistical frames and methodologies in order to address the above issue. All these efforts are geared towards improvement of the country's catch estimates.

Table 2. Total tuna catch, by species, for 2003-2007

Source: BAS Annual Fisheries Statistics; 2007 data are provisional

Year	Commercial			Municipal			TOTAL
	Skipjack	Yellowfin/ bigeye	Bigeye	Skipjack	Yellowfin/ bigeye	Bigeye	
2003	114,077	87,473	-	24,242	39,767		265,559
2004	115,739	87,095	-	27,404	42,458		272,696
2005	112,696	69,833	11,600	30,368	44,194	10,086	278,777
2006	130,930	66,334	15,334	33,396	47,063	14,137	307,193
2007	152,098	82,660	17,325	33,766	51,832	16,891	354,572

* Note: The 2007 total catch estimate reflects the actual tuna production. However, the breakdown by species needs further review and verification.

Tuna catch breakdown by gear is not available from the present national statistics publication. The WCPFC Tuna Fishery Yearbook has however provided an estimated breakdown of catch by gear (see Table 3). Based from this table, around 60,000 MT of yellowfin tuna is being caught by small hook and line fishing gear. This figure needs revalidation because the said estimate is too high and may not be actually happening in real situation.

No other fishing by foreign flag vessels is permitted in the Philippines EEZ, but a considerable amount of IUU fishing, based on the regularity of apprehensions of vessels illegally fishing in Philippine waters, would seem to occur, much of it involving tuna vessels. A desk study carried out in 1995 (PTRP, 1995) concluded that IUU longline catches of up to 10,000MT (40% yellowfin) may have been taken in some years.

Landings/ transshipments by foreign longline vessels are permitted in Davao (Toril) port, where around 5,000MT of mostly tuna is landed annually (Table 7). Over half is retained for processing and consumption, with the rest transshipped by air. Most of these retained catch do not pass the export quality standards and import permit is not necessary since the DA Secretary has signed a certificate of necessity. It is also assumed that all of this catch is taken outside Philippine waters.

Table 3. Estimated catch of oceanic tuna species, by gear type, for 2001 – 2005 in Western and Central Pacific Oceans (in MT)

Source: WCPFC Tuna Fishery Yearbook 2006

	Hook- and-Line (Small)	Handline (Large)	Longline	Purse Seine	Ringnet	Unclassified	TOTAL
2001							
Skipjack	27,005	0	1,892	65,920	9,654	538	105,009
Yellowfin	38,904	8,914	2,380	21,776	2,727	1,236	75,937
Bigeye	3,659	349	264	3,423	285	117	8,097
Total	69,568	9,263	4,536	91,119	12,666	1,891	189,043
2002							
Skipjack	27,518	0	1,936	83,362	12,024	538	125,378
Yellowfin	45,410	9,944	2,789	16,651	1,995	1,420	78,209
Bigeye	4,274	336	310	1,105	37	140	6,202
Total	77,202	10,280	5,035	101,118	14,056	2,098	209,789
2003							
Skipjack	34,534	0	2,431	99,033	13,544	668	150,210
Yellowfin	57,774	12,543	3,550	26,555	3,867	1,798	106,087
Bigeye	5,437	472	394	2,437	385	190	9,315
Total	97,745	13,015	6,375	128,025	17,796	2,656	265,612
2004							
Skipjack	35,830	0	2,520	99,502	13,399	704	151,955
Yellowfin	58,974	13,099	3,622	28,744	4,560	1,849	110,848
Bigeye	5,548	263	403	3,193	311	174	9,892
Total	100,352	13,362	6,545	131,439	18,270	2,727	272,695
2005							
Skipjack	35,906	0	2,491	100,310	12,363	697	151,767
Yellowfin	61,554	12,990	3,470	29,648	5,979	1,775	115,416
Bigeye	5,130	670	729	4,413	336	316	11,594
Total	102,590	13,660	6,690	134,371	18,678	2,788	278,777

IV. ANNUAL CATCHES IN THE CONVENTION AREA

In addition to the estimated catch by Philippine vessels in the EEZ (see above), to this must be added catches by Philippines flag vessels taken outside the EEZ and elsewhere in the Convention area. The extra - EEZ catches are assumed to include those made by purse seine and ring net vessels in adjacent areas and based in overseas ports, distant water longliners operating in the Convention area, and catches by the wide-ranging handline vessels. Recently, BFAR have already required certain fishing vessels such as purse seine, ringnet and also the handline to adopt the logsheet system to address the above issue. Although a lot of problems are being encountered such as resistance of some vessel operators such as the handline operators. But BFAR is exerting all efforts to pursue this activity in order to improve logsheet compliance in the near future which will in turn improve statistical data gathering and documentation.

The fisheries data collection system records all catch landed by Philippine registered vessels including those fish caught outside Philippine waters e.g. PNG and high seas. It is believed that up to 80,000MT of catch are taken outside the Philippine EEZ. This primarily includes catch by small purse seiners and ring netters and catch by handliners fishing outside

Philippine waters, and landing their catch in Philippine ports. One lacking component of the Philippine catch statistics would be the catch of the Philippine flagged vessels unloading outside the Philippines (e.g. Indonesia and PNG).

Purse seine catches in the PNG EEZ

Data on the catch by PNG-based Philippines flag vessels, and Philippines vessels fishing in PNG under access agreements are available from the SPC Regional Database, and are summarized for the period 2003-2006 below. A small proportion of the catch taken in Indonesia and in other PIN waters e.g. FSM, Kiribati under access agreements is included in these figures.

Table 4. Catch by Philippines purse seine bilateral access vessels in PNG waters, 2003-2006

Source: SPC Regional Tuna Fishery Database

Year	No. of vessels	Skipjack	Yellowfin	Other	TOTAL
2003	10	24,339	7,099	487	31,926
2004	11	27,288	5,748	817	33,853
2005	10	14,971	6,585	506	22,062
2006	12	20,552	6,598	258	27,408

Table 5. Catch by PNG-based Philippine purse seine vessels in PNG waters, 2003-2006.

Source: SPC Regional Tuna Fishery Database

Year	No. of vessels	Skipjack	Yellowfin	Other	TOTAL
2003	18	46,600	17,913	339	64,852
2004	19	44,455	13,234	164	57,852
2005	19	27,550	21,408	663	49,621
2006	20	39,625	18,025	163	57,813

Purse seine and ring net catches in other areas

No data are similarly available on the catch by Philippines purse seine and ring net vessels in other waters within the Convention area, including high seas areas, the Palau EEZ, South China Sea etc.

Handline vessel operators are apparently resistant in the introduction of the logsheet. These are vessels which are fishing for larger tunas, primarily for export or local processing, are wide-ranging. However, in recent years the actual number of handline vessels has declined due to the high cost of fuel but the capacity of their vessel increased.

V. MARKET DESTINATION OF CATCHES

Most of the **municipal** tuna catch (102,000MT of oceanic tunas in 2007) is landed as wet fish in thousands of landing sites all over the Philippines. BAS suggests that there were over 8,488 municipal landing centers in 2007. Much of the municipal catch is processed by drying, salting, smoking etc. No data are available on the disposal of the municipal catch after

landing, but little of the municipal tuna catch would enter large scale commercial processing, the exception being large handline-caught tuna exported as sashimi and marketed either frozen or smoked, mostly in General Santos (see later), and possibly small amounts of tuna sold as wet fish direct to canneries.

The **commercial** domestic tuna catch of oceanic tunas (252,000MT in 2007) is increasingly directed towards processing by domestic canneries, based in the Philippines and elsewhere, with lesser amounts to frozen smoked operations. For 2007, BAS suggests there were 455 commercial landing centers (including PFDA & LGU controlled ports and even private wharfs). The estimated 220,000MT annual output of the 7 canneries is mostly supplied by landings from Philippine purse seiners and ring netters, both local vessels and via carriers from overseas operations. Overseas operations also supply canneries in PNG (30,000MT p.a.) and Indonesia (currently 20,000MT p.a.); some tuna is imported to supplement cannery supply.

Official figures for **exports of tuna products** for the period 2003-2007 are tabulated below. The first category includes chilled sashimi quality fish, frozen whole fish for canning and presumably frozen smoked tuna. The volume of canned exports is somehow fluctuating.

Table 6. Tuna exports by commodity, 2003 –2007

Source: NSO data, in BAS Fisheries Statistics for 2003 – 2007

Tuna commodity, by volume (MT)	2003	2004	2005	2006	2007
Fresh/chilled/frozen	27,206	23,347	13,679	24,406	26,854
Dried/smoked	228	137	21	42	0.4
Canned	56,854	53,873	30,769	45,611	48,284
TOTAL VALUE (million USD)	153.10	150.78	98.22	136.05	218.55

VI. ONSHORE DEVELOPMENTS

Transshipment by foreign vessels is permitted in only one port in the Philippines - Davao (Toril), as noted earlier. Table 7 below lists the details of these unloading.

Table 7. Vessel Arrivals and Unloading Volumes by Foreign Longline Vessels, Davao Fish Port

Source: PFDA, 2008

Year	Port Calls	Volume of Unloadings (MT)	Transhipped (MT)	Retained (MT)
2003	643	5,065	1,884	3,181
2004	621	4,210	1,797	2,413
2005	661	5,198	2,406	2,792
2006	974	5,811	2,901	2,910
2007	762	5,928	2,478	3,450

Harbor infrastructure

The General Santos Fish Port Complex (GSFPC), the country's major tuna unloading port, with 95,000 MT total tuna unloadings in 2007, has undergone significant expansion and improvement. Major components of the said expansion/improvement project includes construction of deep wharves, cold storage and processing area, port handling equipment, power substation, waste water treatment plant, water supply system and other ancillary facilities. GSFPC port facilities have already met international standards for HACCP GMP-SSOP and accredited by the European Union (EU), Japan and United States. As of July 2007, 99% of the expansion project has been completed. Several of the six other major fish ports in the country are proposed for rehabilitation in the near future. While Navotas Fish Port Complex, in Metro Manila is the second largest total tuna unloadings of 15,000 MT for 2007. Upgrading, rehabilitation and improvement of Navotas Fish Port Complex (NFPC) will soon be realized. Rehabilitation project for NFPC includes upgrading of port facilities (*such as roads, electrical and power system, landing quay and west breakwater*), construction of cold storage and processing plant, and waste water treatment facilities.

Processing plants

There are currently 7 tuna canneries operational in the Philippines, 6 in General Santos and 1 in Zamboanga, although there have been eight or more in the past. The other cannery (Miramar Fishing Corp.) in Zamboanga has temporarily stopped its operation since the last quarter of 2005.

There is also a Philippine-owned and operated cannery in Madang, Papua New Guinea processing around 30,000MT per year, and two Philippine-operated canneries in Bitung, Indonesia, processing around 20,000MT of tuna per year.

Most of the handline catch supply fresh and frozen sashimi processors and domestic market. There are more than 15 frozen tuna processors in the Philippine, 80% of which are located in General Santos City and supports about 3,000 jobs. Majority of its production is exported to US and European countries.

VII. TUNA STATISTICS AND RESEARCH

The Bureau of Fisheries and Aquatic Resources (BFAR), in collaboration with the National Fisheries Research and Development Institute, Bureau of Agricultural Statistics, Philippine Fisheries Development Authority and the tuna industry conducted the Tuna Statistics Review/Workshop last June 2 – 3, 2008 at BFAR Conference Room, Quezon City. A representative from the WCPFC/SPC also participated in this review/workshop. The purpose of the said review/workshop was to review existing data and estimates, in order to work towards a system of producing reliable catch estimates by gear type.

The Bureau also launched the catch documentation scheme which includes the catch and effort logsheet system for the purse seine, ringnet and handline vessels. Aside from this BFAR also requires canneries to submit monthly cannery unloading data. All these efforts are geared towards improving tuna statistics/data gathering. TUFMAN system has recently been

installed by the SPC database manager and it is being utilized to process the data collected on the logsheets.

The National Stock Assessment Program (NSAP) has continued to collect port sampling data (species composition, length frequency and vessel catch and effort information). Preliminary results of NSAP – IPDCP for 2005 – 2007 is found in *Annex 1*. The SPC Database manager has recently visited the NFRDI Office to provide further technical support and assistance on the NSAP Database System.

BAS continued to conduct their regular monitoring activities but with no additional support from the IPDCP funds this year, they are only conducting non-probability surveys throughout the country. They will initially update their frames in data gathering to be able to separate catches from different sources / categories (e.g. catches of foreign-flagged & Philippine-flagged vessels).

There is no observer programme for the Philippine tuna fishery, although some observer coverage of vessels fishing in the PNG EEZ is provided by PNG NFA. The Bureau of Fisheries and Aquatic Resources is also in close collaboration with the private sector for the development of the national VMS.

VIII. FUTURE PROSPECT

A UNEP-GEF funded project entitled “Reversing Environmental Degradation Trends in South China Sea and Gulf of Thailand” initiates the establishment of fish *refugia* in identified sites in South China Sea to address the issue of growth over-fishing and recruitment over fishing. Several sites in the Philippines have already been identified for this particular project. The National Tuna Industry Council has strongly show support in the adoption of this concept to address the issue of growth over-fishing in the tuna fishery.

Another UNEP-GEF funded project entitled West Pacific East Asia Oceanic Fisheries Management Project is expected to start next year which involves Indonesia, Philippines and Vietnam. The objective of this project is to strengthen national capacities and international cooperation on priority transboundary concerns relating to the conservation and management of highly migratory fish stocks in the west Pacific Ocean and east Asia. The project includes the following components: monitoring, data enhancement, fishery assessment, policy & institutional strengthening and fishery management.

A Philippine National Tuna Management Plan was developed during 2004, and has been approved by the National Tuna Industry Council. Although the Plan was expected to be implemented in 2006, it should be approved by the National Fisheries and Aquatic Resources Management Council (NFARMC) first before its implementation, in which at the moment there is no NFARMC constituted or has yet to be convened which somehow delays the implementation of the said plan. But BFAR and other concerned sectors are already formulating actions to address the above issue.

A new Fisheries Administrative Order (FAO) on mesh size regulation for the tuna fishery has been prepared to address the issue of catching juvenile tunas, but is yet to be fully implemented due to some government requirements to fulfill.

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ANNEX 1
Preliminary Results:
NSAP - IPDCP
2005 - 2007



Preliminary Results: NSAP & IPDCP 2005-2007

The Philippines Data Collection Project (IPDCP) which started last January 2005 is being implemented as part of the National Stock Assessment Project (NSAP) activities of the Bureau of Fisheries of Aquatic Resources which aims to strengthen the data collection system to address the conservation and management issues of highly migratory fish stocks by setting a standard data collection and verification for the tuna fisheries in the region.

This paper discusses the preliminary results of the IPDCP which focuses on the three (3) major fishing gears used in the Philippines particularly in General Santos City, namely, handline, purse seine and ringnet.

This paper would discuss catch composition, size composition and trends in CPUE for three key fishing gears. Available time series of effort and CPUE will be presented and those factors that may be influencing the 'effectiveness' of effort will also be described. Available NSAP data from 2005 – 2007 were compiled and discussed in the succeeding sections of this paper.

1. Catch Composition

Handline (Figures 1 and 4)

For the handline fishery, yellowfin (*Thunnus albacares*) comprises 80 – 83% of the total handline catch as observed for the past three (3) years. The rest of the catch was composed of bigeye (*Thunnus obesus*), 2 - 4%; albacore (*Thunnus alalunga*), 2 – 3% and other species, 12 – 13%. The other species includes marlins (*Makaira mazara* and *Makaira indica*), swordfish (*Xiphias gladius*) and sailfish (*Istiophorus platypterus*). Albacore catch is said to be seasonal usually observed during the first and last quarter of the year. It can be noted from the graph that the landed catch for this fishery is at an increasing trend.

Purse Seine (Figures 2 and 5)

Catch of purse seines landed in General Santos City is mainly composed of the following: yellowfin (*Thunnus albacares*), 14 – 18%; bigeye (*Thunnus obesus*), 1.5 – 2%; skipjack (*Katsuwano pelamis*), 49 – 60%; bullet tuna (*Auxis rochei*), 8 – 20%; frigate tuna (*Auxis thazard*), 4 – 5%, Eastern little tuna (*Euthynnus affinis*), 1 %; and other small pelagics (*Decapterus sp.*, *Caranx sp.*), 8 – 9.5%. Skipjack tuna was the dominant landed catch of purse seines for the past three years. Figure 5 shows that the annual landed catch for skipjack and other neritic tunas (bullet tuna and frigate tuna) is relatively at a decreasing trend from 2005 – 2007.

Ringnet (Figures 3 and 6)

Catch of ringnet landed in General Santos City is mainly composed of the following: yellowfin (*Thunnus albacares*), 6 – 14%; bigeye (*Thunnus obesus*), 1 – 2%; skipjack (*Katsuwano pelamis*), 24 – 57%; bullet tuna (*Auxis rochei*), 23 – 40%; frigate tuna (*Auxis thazard*), 6 – 8.5%, Eastern little tuna (*Euthynnus affinis*), 2 – 3%; and other small pelagics (*Decapterus sp.*, *Caranx sp.*), 4 – 17%. Skipjack and bullet tunas are the major species landed by ringnets in General Santos City.

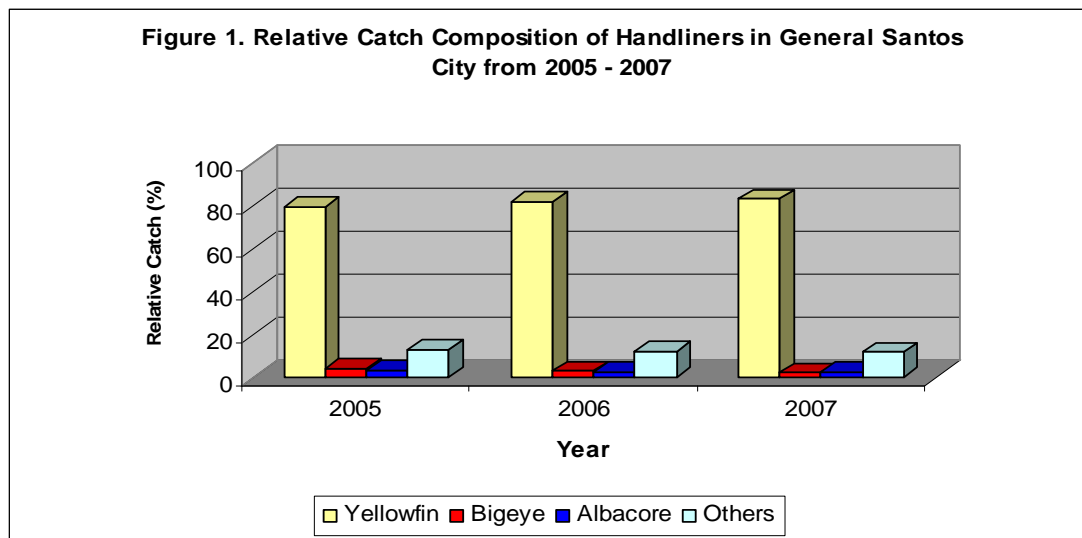


Figure 2. Relative Catch Composition of Purse Seines in General Santos City from 2005 - 2007

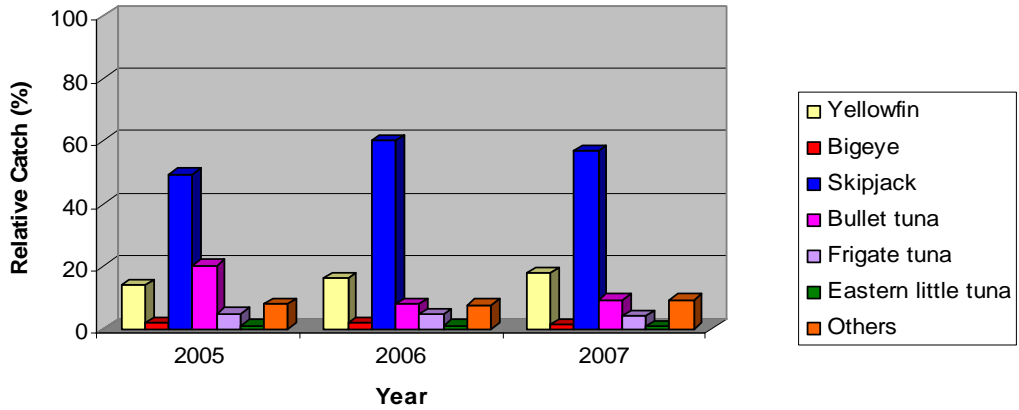


Figure 3. Relative Catch Composition of Ringnets in General Santos City from 2005 - 2007

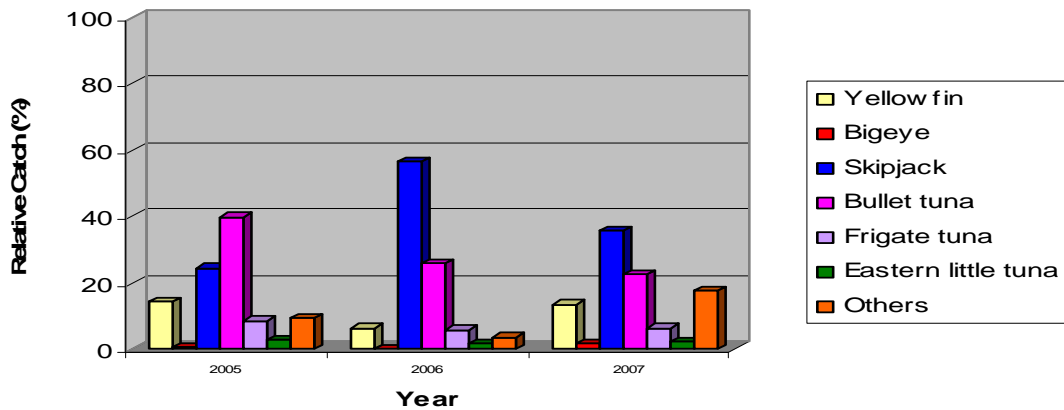
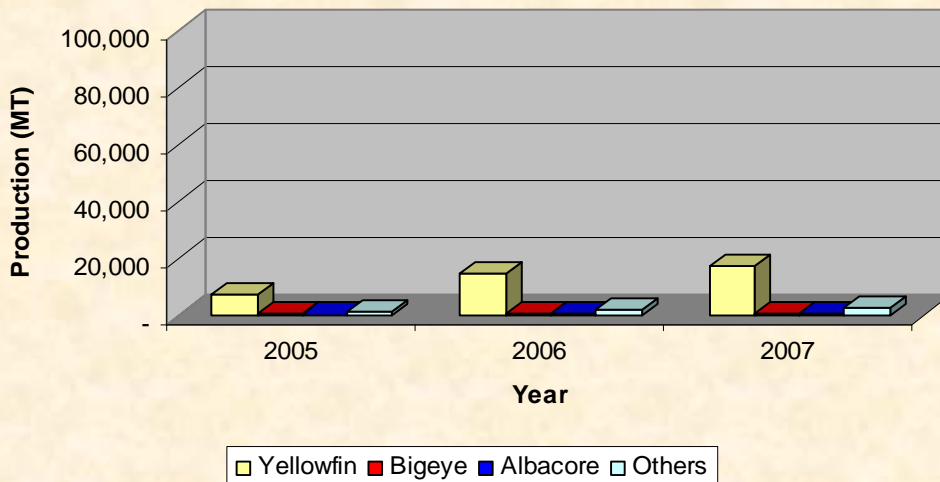
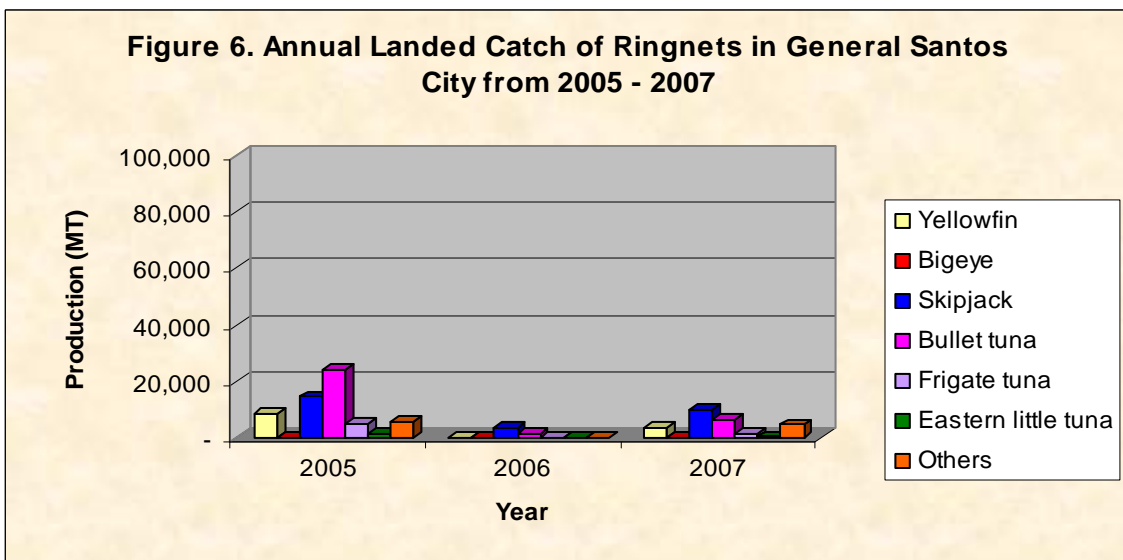
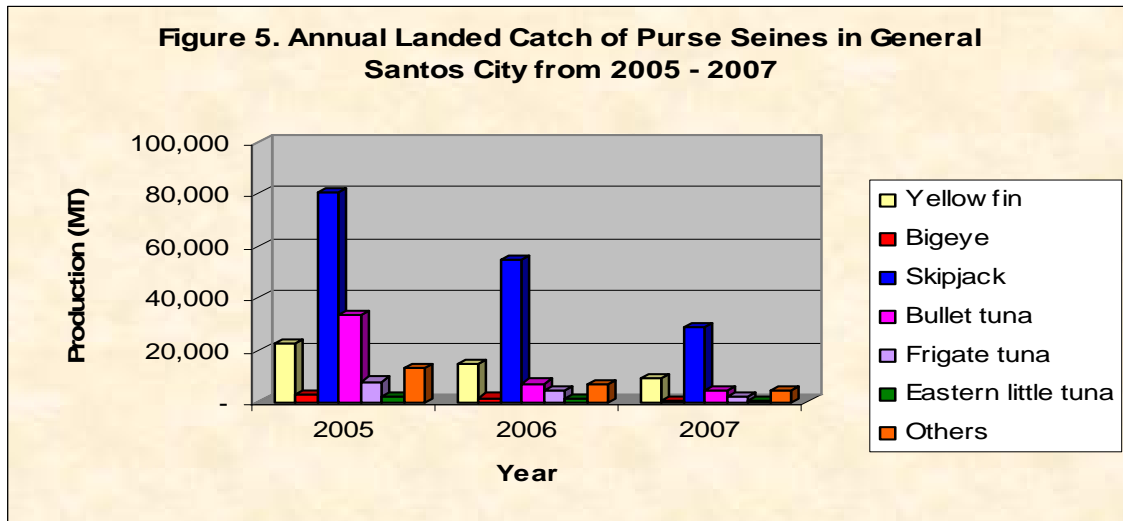


Figure 4. Annual Landed Catch of Handlines in General Santos City from 2005 - 2007





* Note: In 2006, the low landed catch for ringnet might be due to low sampling coverage for this particular gear.

There are other areas aside from General Santos City where purse seines and ringnets unload their catch and monitored by NSAP – IPDCP. These areas are in Region 3: Zambales; Region 6: Iloilo and Antique; and ARMM: Jolo, Sulu. The total annual landed catch in these areas would range from 1,000 – 4,500MT for purse seine and 150 – 3,000MT for ringnet for the past 3 years.

Purse Seines in Regions 3 and 6 (Figures 7, 8, 11 & 12)

Catch of purse seines landed in Region 3: Zambales is mainly composed of the following: yellowfin (*Thuunus albacares*), 22 - 32%; bigeye (*Thuunus obesus*), 1- 6%; skipjack (*Katsuwanos pelamis*), 53 - 69%; bullet tuna (*Auxis rochei*), 2 - 4%; frigate tuna (*Auxis thazard*), 4 - 15%, and other small pelagics, 1%. Skipjack tuna was the dominant species landed by purse seines for the past three years.

While the catch of purse seines landed in Region 6: Iloilo & Antique is mainly composed of the following: yellowfin (*Thuunus albacares*), 2 - 8%; bigeye (*Thuunus obesus*), 1 - 2%; skipjack (*Katsuwanos pelamis*), 15 - 24%; bullet tuna (*Auxis rochei*), 52 - 57%;

frigate tuna (*Auxis thazard*), 5 - 6%, and other small pelagics, 10 - 18%. Neritic tunas were the dominant species landed by purse seines in Region 6.

Ringnets in Regions 6 and ARMM (Figures 9, 10, 13 and 14)

Catch of ringnets landed in Region 6: Iloilo & Antique is mainly composed of the following: yellowfin (*Thuunus albacares*), 1 - 6%; skipjack (*Katsuwanos pelamis*), 1 - 12%; bullet tuna (*Auxis rochei*), 49 - 85%; frigate tuna (*Auxis thazard*), 1 - 2%, and other small pelagics. Bullet tuna was the dominant species landed by ringnet for the past three years.

While the catch of ringnet landed in ARMM: Jolo, Sulu is mainly composed of the following: yellowfin (*Thuunus albacares*), 1 - 3%; skipjack (*Katsuwanos pelamis*), 20 - 63%; bullet tuna (*Auxis rochei*), 4 - 20%; frigate tuna (*Auxis thazard*), 15 - 27%, and other small pelagics, 1 - 25%. Skipjack tuna was the dominant species landed by ringnet in ARMM from 2005 - 2007.

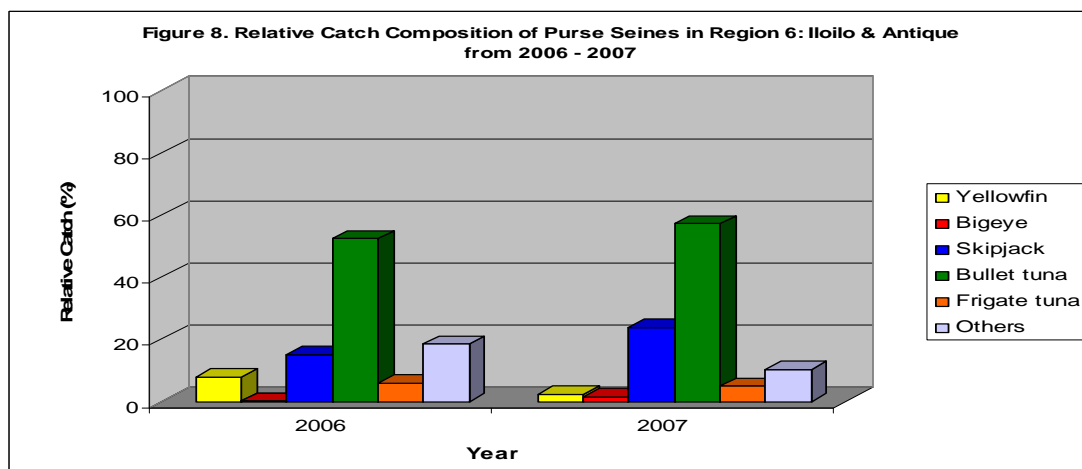
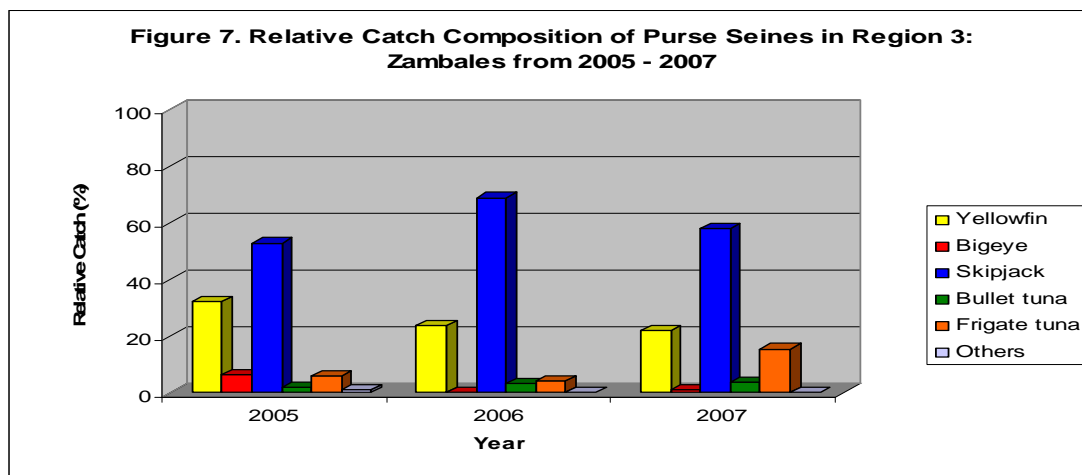


Figure 9. Relative Catch Composition of Ringnets in Region 6: Iloilo & Antique from 2005 - 2007

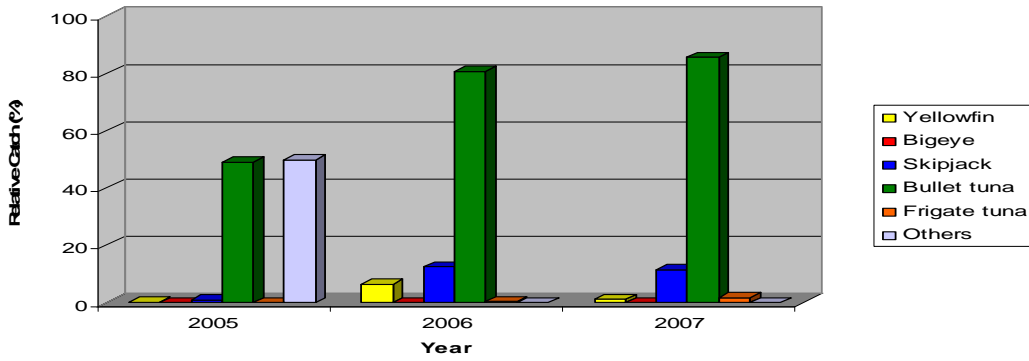


Figure 10. Relative Catch Composition of Ringnets in ARMM: Jolo, Sulu from 2005 - 2007

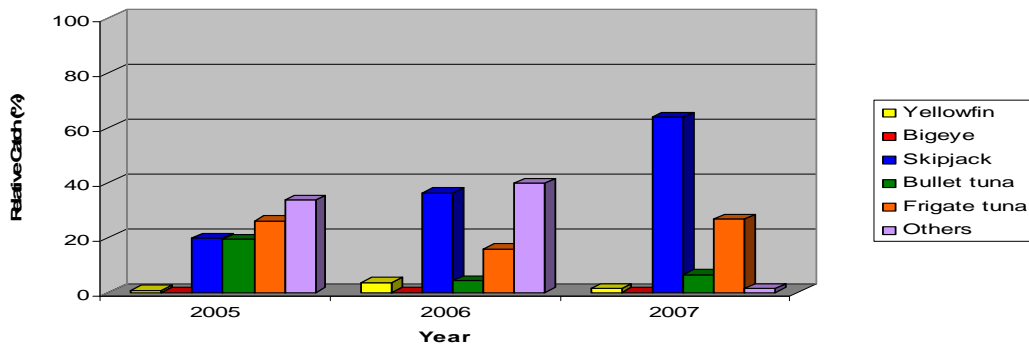


Figure 11. Annual Landed Catch of Purse Seines in Region 3: Zambales from 2005 - 2007

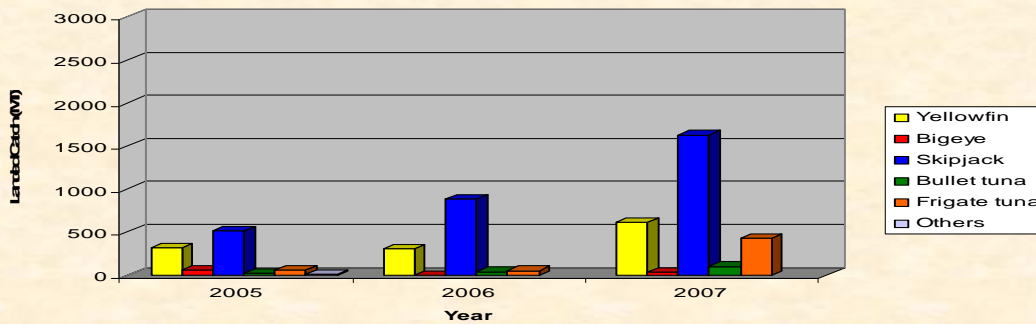
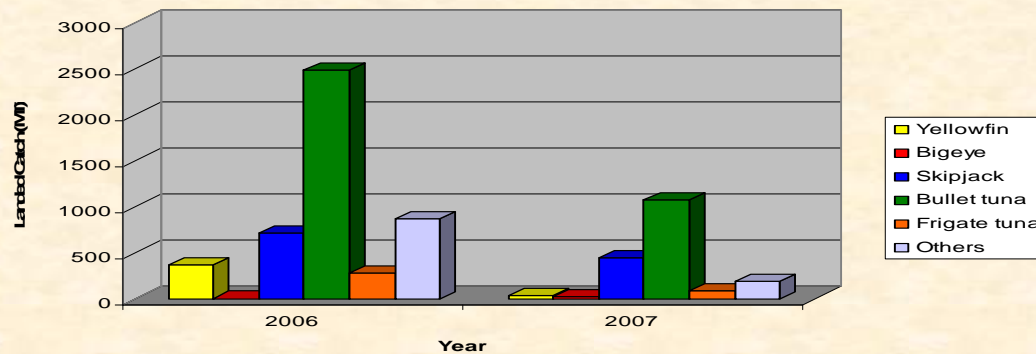
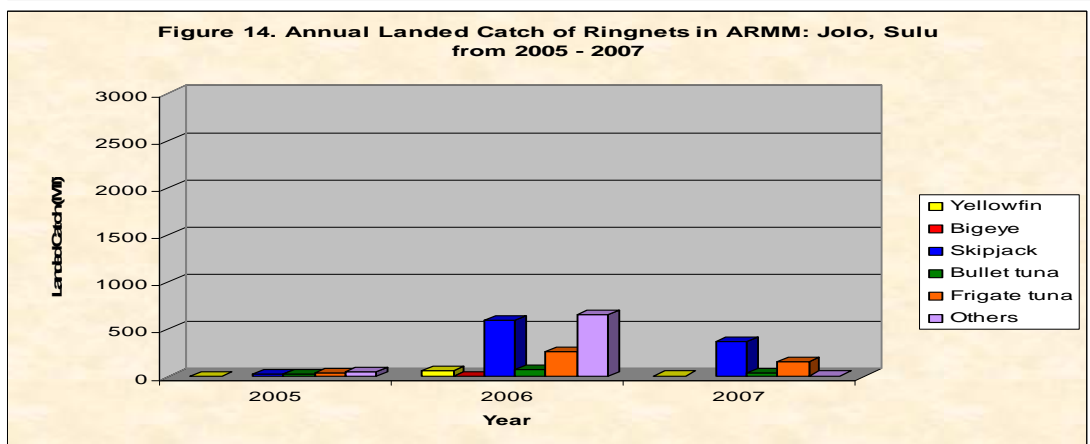
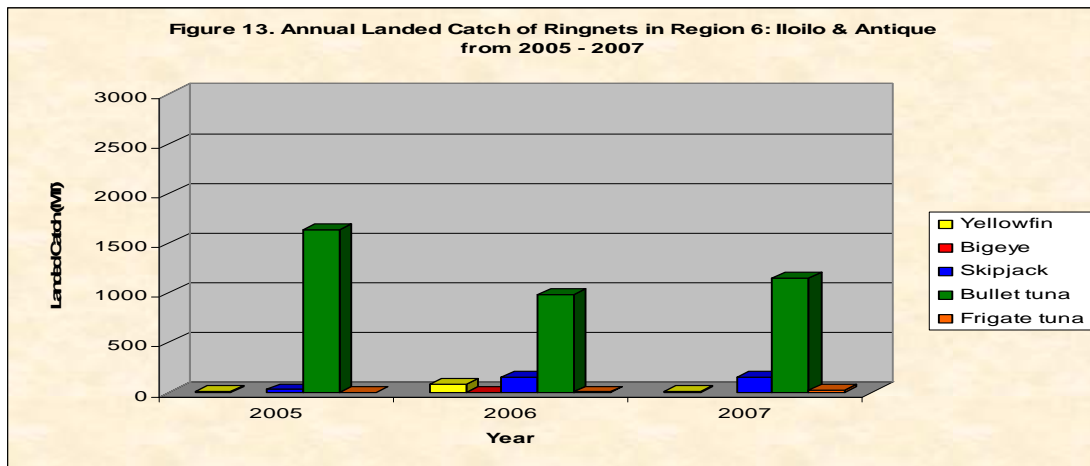


Figure 12. Annual Landed Catch of Purse Seines in Region 6: Iloilo & Antique from 2006 - 2007



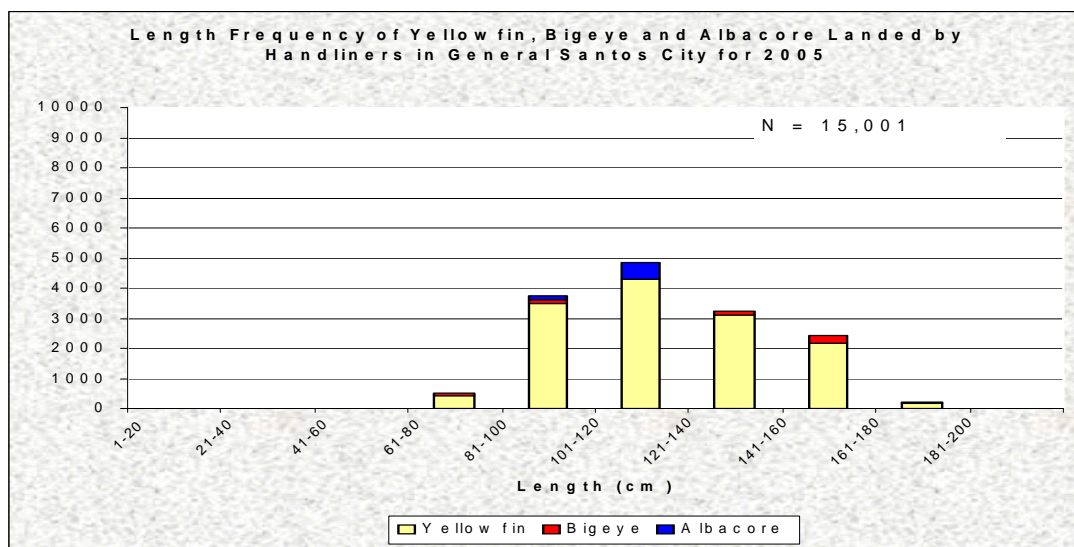


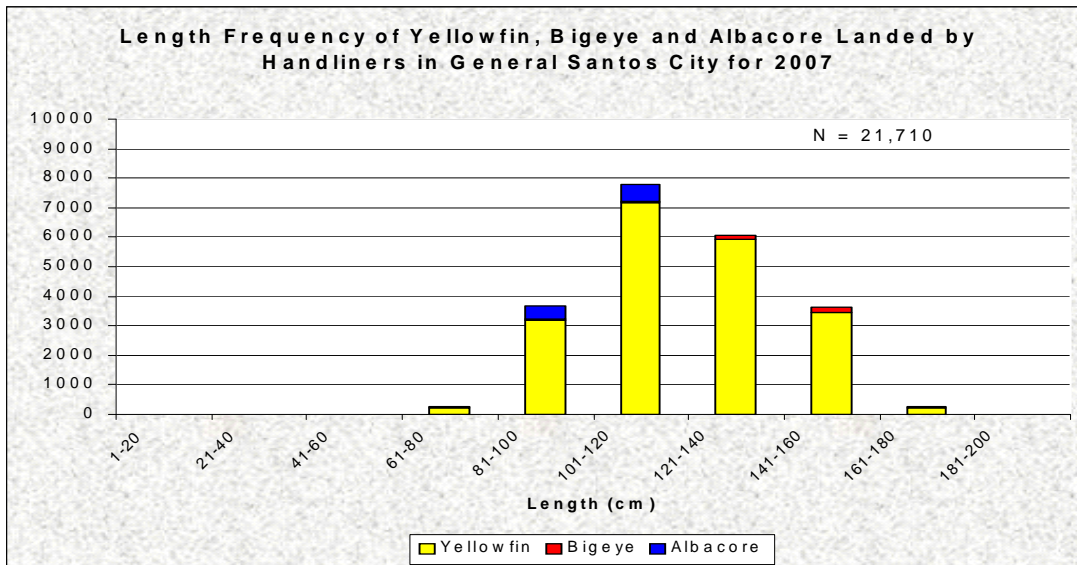
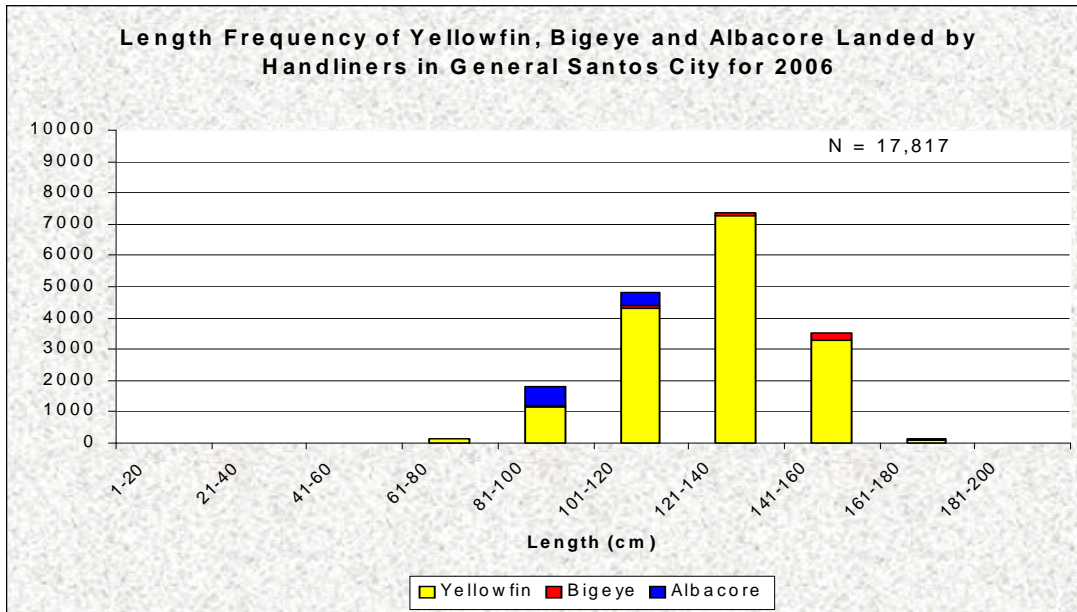
2. Size Composition

Handline

Available length frequency data for 2005 – 2007 handline fishery were compiled into 20-cm size classes (61 – 80 cm to 161 – 180 cm). Length frequency distribution consisted of the actual number of yellowfin tuna, bigeye tuna and albacore measured. The data were taken from encoded and generated reports of NSAP Database system version 4.2. The following are observations and comments that have been drawn from the graph below:

- Handliners based in GSC catch yellowfin and bigeye tunas ranging from 61 – 180 cm while for albacore the length ranges from 81 – 120 cm.
- For 2005 & 2007, the average catch by handliners for yellowfin and albacore ranges from 101 – 120 cm, and 141 – 160 cm for bigeye tuna, while for 2006 the average catch ranges from 121 – 140 cm and 81 – 100 cm for yellowfin and albacore, respectively.



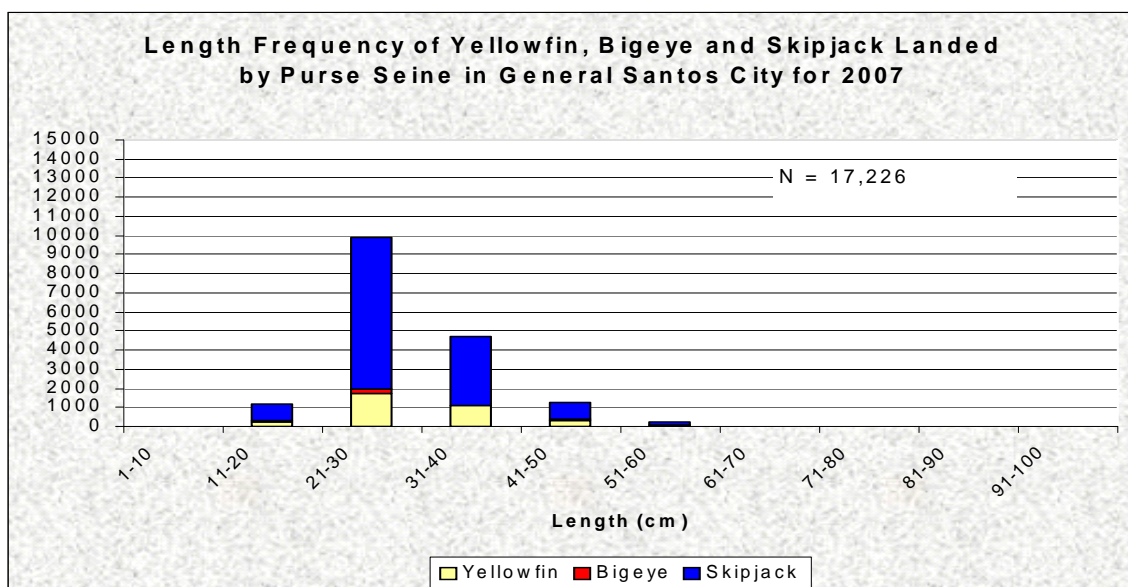
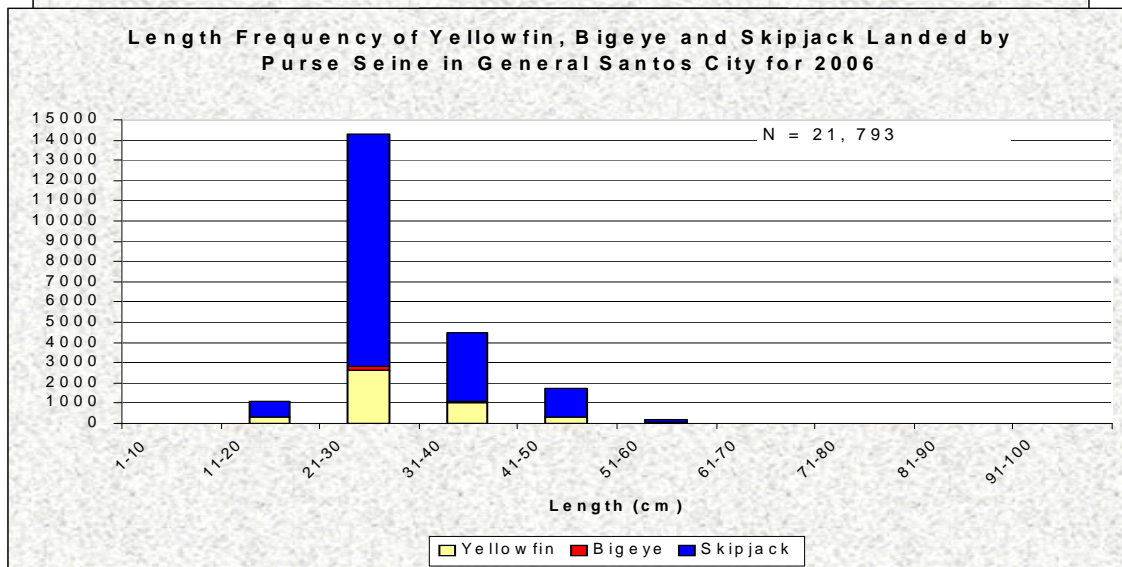
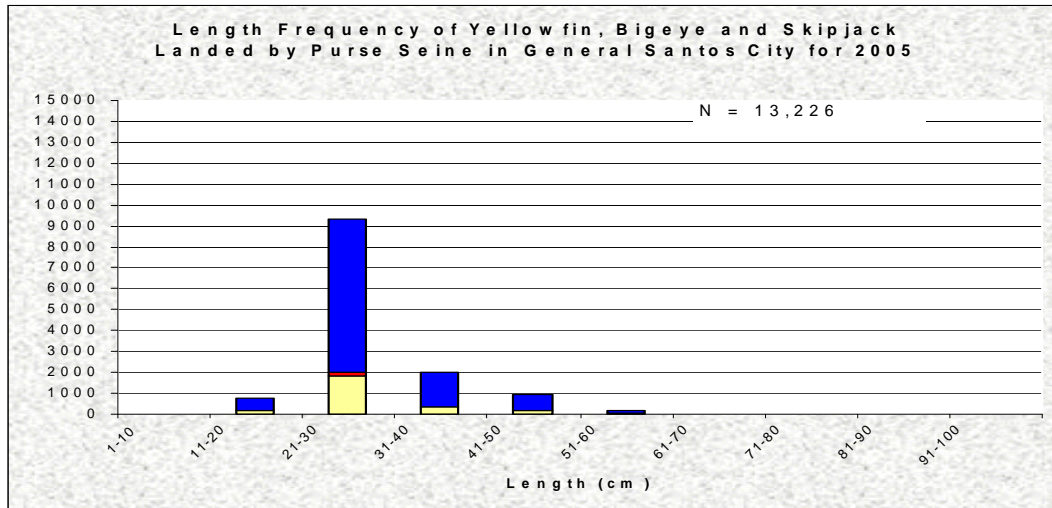


Purse Seine

Available length frequency data for 2005 - 2007 purse seine fishery were compiled into 10-cm size classes (11 – 20 cm to 51 – 60 cm). Length frequency distribution consisted of the actual number of yellowfin tuna, bigeye tuna and skipjack measured. The data were taken from encoded and generated reports of NSAP Database system version 4.2. The following are observations and comments that have been drawn from the graph:

- The average purse seines catch for yellowfin tuna ranged from 11 – 50 cm; 11 – 60 cm for skipjack and 21 – 30 cm for bigeye tuna.

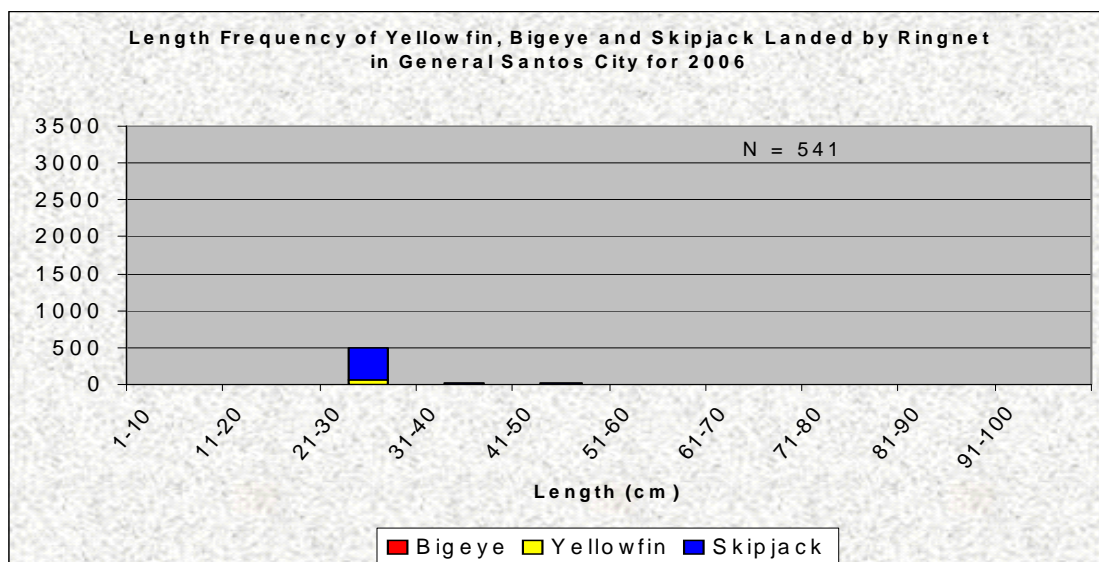
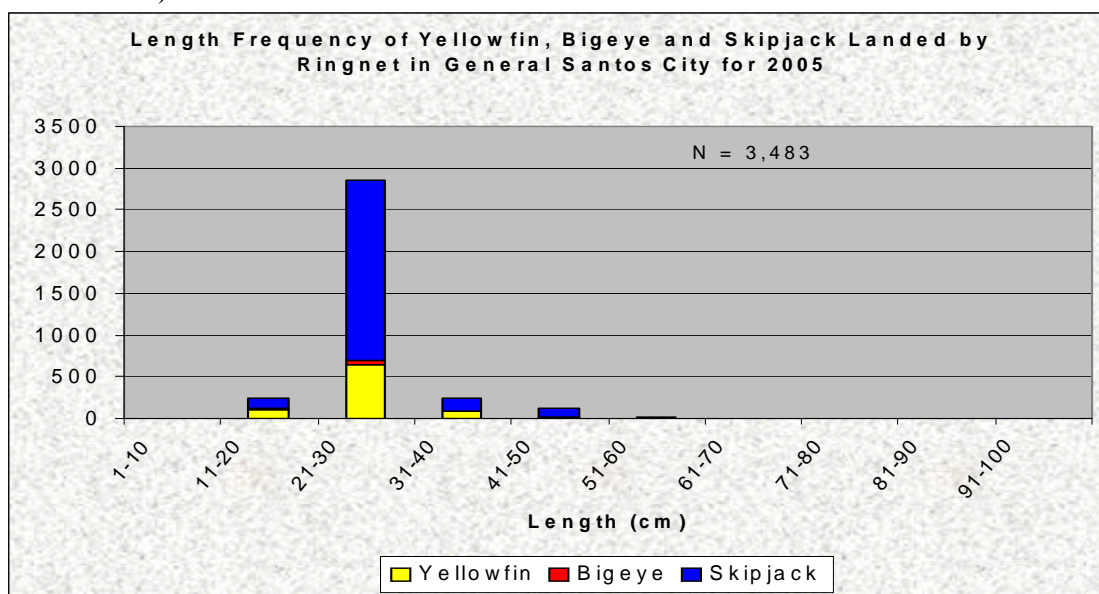
- Although the size composition caught by purse seines, may include small bigeye tunas, the impact may not be significant to the bigeye stocks, since it only comprise a small portion (1 – 2%) of the total purse seine catch. Measures to further reduce incidental catch of small yellowfin and bigeye tunas is now being addressed by having a new Fisheries Administrative Order on mesh size regulation.
- The same size composition was also observed in the previous years (NSAP 2000 – 2004).

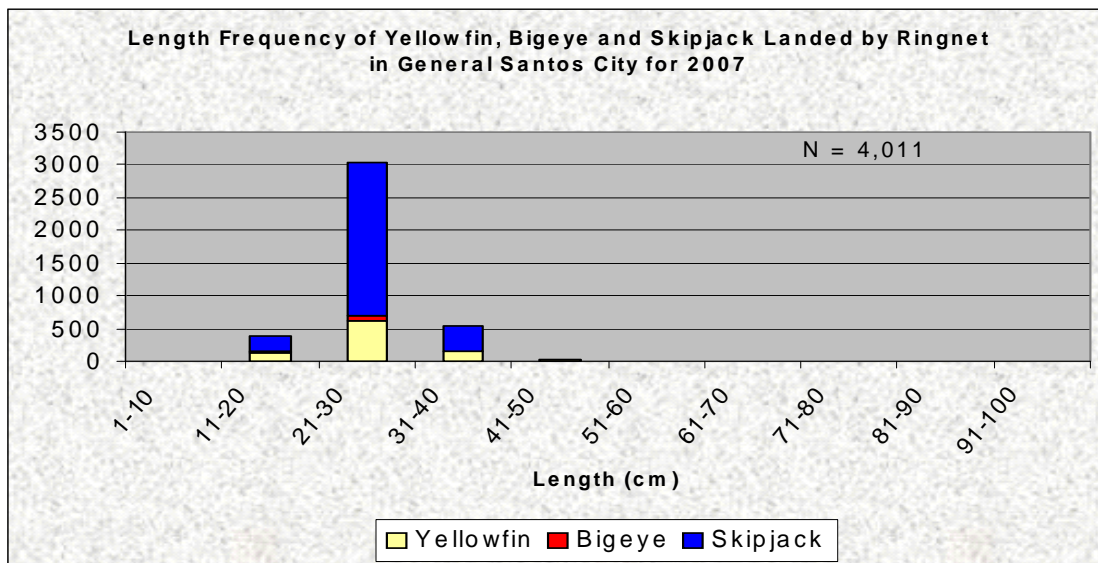


Ringnet

Available length frequency data for 2005 - 2007 ringnet fishery were compiled into 10-cm size classes (11 – 20 cm to 51 – 60 cm). Length frequency distribution consisted of the actual number of yellowfin tuna, bigeye tuna and skipjack measured. The data were taken from encoded and generated reports of NSAP Database system version 4.2. The following are observations and comments that have been drawn from the graph:

- For 2005 - 2007, the average ringnet/s catch for yellowfin tuna ranged from 11 – 60 cm; 11 – 50 cm for skipjack and 21 – 30 cm for bigeye tuna.
- Although the size composition caught by ringnets, may include small bigeye tunas, the impact may not be significant to the bigeye stocks, since it only comprise a small portion (1 – 2%) of the total ringnet catch. Measures to further reduce incidental catch of small yellowfin and bigeye tunas is now being addressed by having a new Fisheries Administrative Order on mesh size regulation.
- The same size composition was also observed in the previous years (NSAP 2000 – 2004).





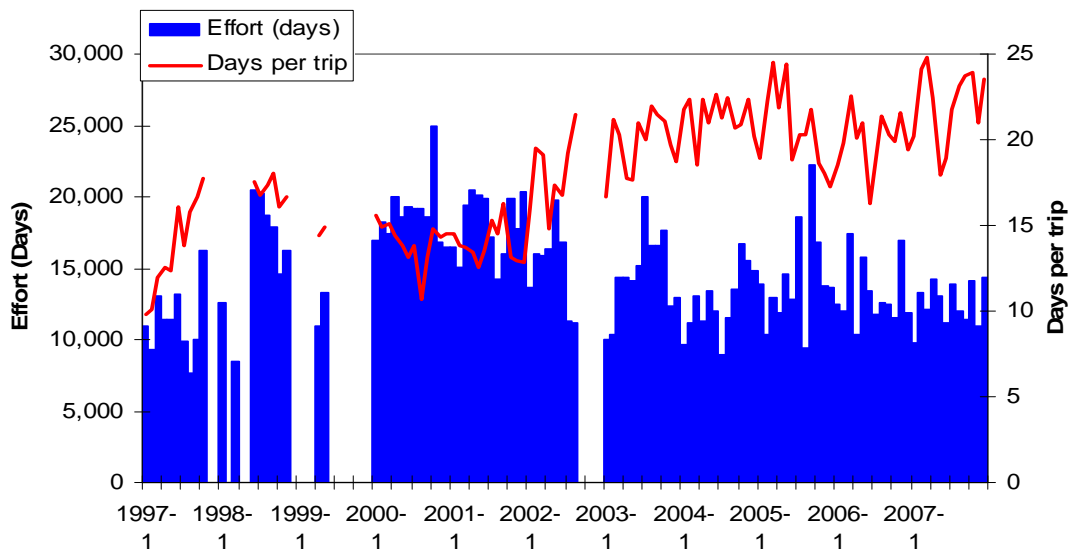
Note: The size data for purse seine (PS) and ringnet (RN) sampled and included in this report are only for fresh tunas unloaded in General Santos City Fish Port Complex (GSCFPC). Frozen tunas unloaded in private wharfs in General Santos City are not represented in this report, which are bigger in size as compared to those fresh tunas unloaded in GSCFPC.

3. Catch and effort data aggregated by time period and geographical area

The handline fishery based in General Santos City (GSC) is one of the major fisheries in the Philippines, targeting adult yellowfin tuna aggregating in sub-surface waters around “payaos”. The commercial ringnet and purse seine fisheries based in General Santos City offer a distinct comparison to the handline fishery as they target schools of small pelagic fish in surface waters.

Time series of nominal catch per unit effort (CPUE) can provide a broad indication of the availability of target species to respective fishing gears, and may provide some indication of relative abundance. It is important to note that the interpretation of nominal CPUE can be confounded by various factors, such as changes in fishing strategies amongst vessels and in the overall fleet over time. These factors change the “effectiveness” of effort and therefore need to be accounted for if the CPUE time series are to be interpreted as indices of relative abundance – time series of effort that have been adjusted to account for these factors are termed ‘standardized’ effort, and where this is applied to catch, ‘standardized’ CPUE.

The following sections provide a description of the available effort data and looks at trends in CPUE for three key fishing gears which have a relatively long time series in the Philippines fishery. At this stage, time series of effort and CPUE are presented, although an attempt has been made to describe those factors that may be influencing the ‘effectiveness’ of effort.

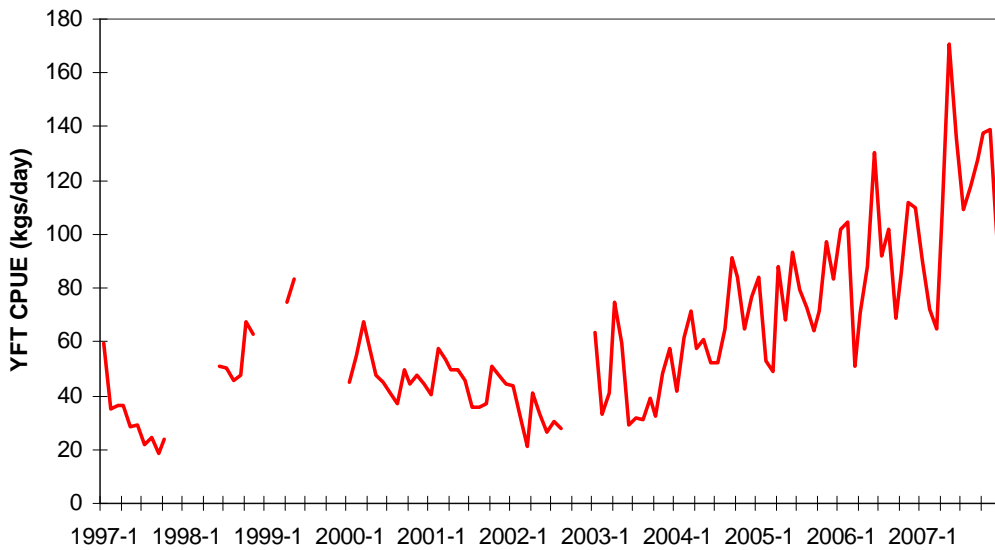


Monthly effort (days) and days/trip for the General Santos City Handline fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur ; values were taken from the reports generated from the NSAP Database version 4.2

The monthly trends in effort and effort rate (days/trip) for the handline fleet based in General Santos City. Here is some information that can be observed from the above graph:

- Total effort is generally in the range of 10,000-20,000 boat days per month. Effort during 2000-2002 appeared to be higher than in more recent years (2005-2007), although anecdotal information from the NSAP port samplers in GSC suggest that some vessels tie up during periods of poor catches and only recommence fishing when catch rates improve (hence the drop in effort in recent years, when catch rates were reported to be lower than usual). In the latter months of 2005, a sharp increase in effort was observed, which was probably related to the news that fishing (i.e. catch rates) had improved.
- Days per trip have gradually increased over this time series (1997-2007) with the highest effort rate (i.e. greater than 20 days per trip) experienced in recent years (2005-2007). This is understood to be due to handline vessels traveling further away from port in the hope of obtaining better catch rates.

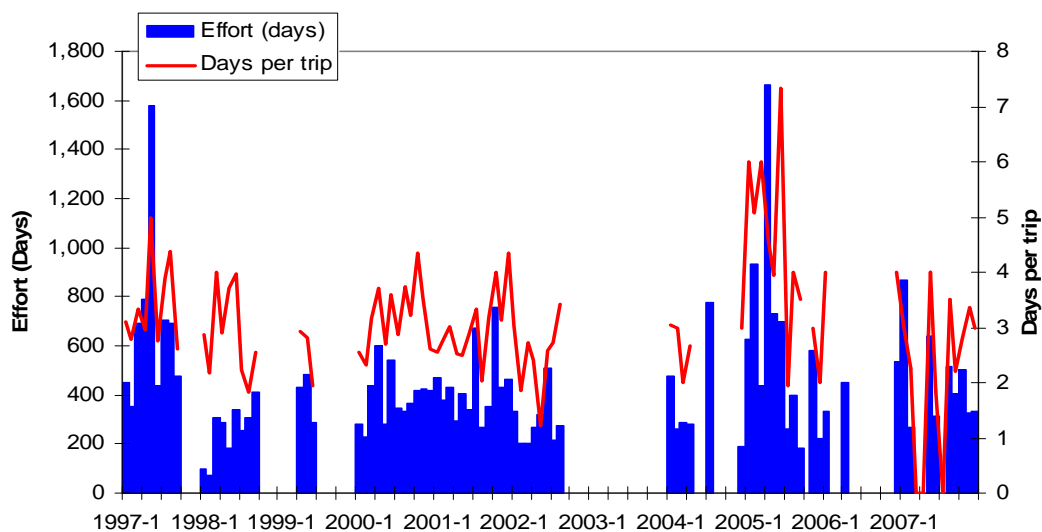


Monthly Yellowfin CPUE for the General Santos City Handline fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2

The monthly trends in yellowfin tuna catch rates (CPUE) for the handline fleet based in General Santos City. Here is some information that can be observed from the above graph:

- Yellowfin CPUE for the GSC handline fleet has fluctuated over the time series, ranging from 20-90 kg/trip day. There were declines in CPUE during 1997 and again from 2000 through 2002, but this fishery has experienced an increase in YFT CPUE over recent years ranging from 100-170 kg/ trip day.
- During 2000 through 2002, the increase in the number of days per trip coincided with lower yellowfin CPUE, suggesting that, while vessels perhaps tended to travel beyond there usual fishing grounds, catch per day did not change that much. In contrast, the increase in catch rate over the past four years (2004-2007) coincides with increases in days per trip, suggesting that a component of the fleet traveled further to an area with very good catch rates (i.e. good enough to sustain a higher than average catch rate, despite the longer trip duration).

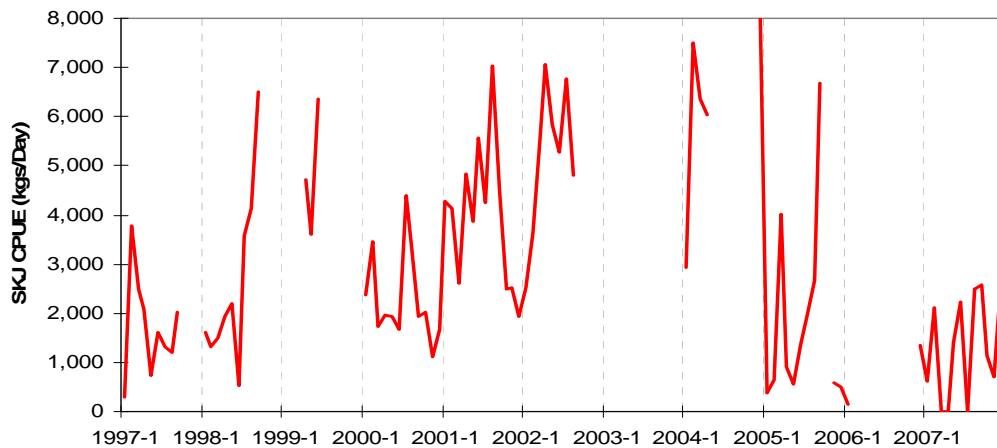


Monthly effort (days) and days/trip for the General Santos City Ringnet fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2

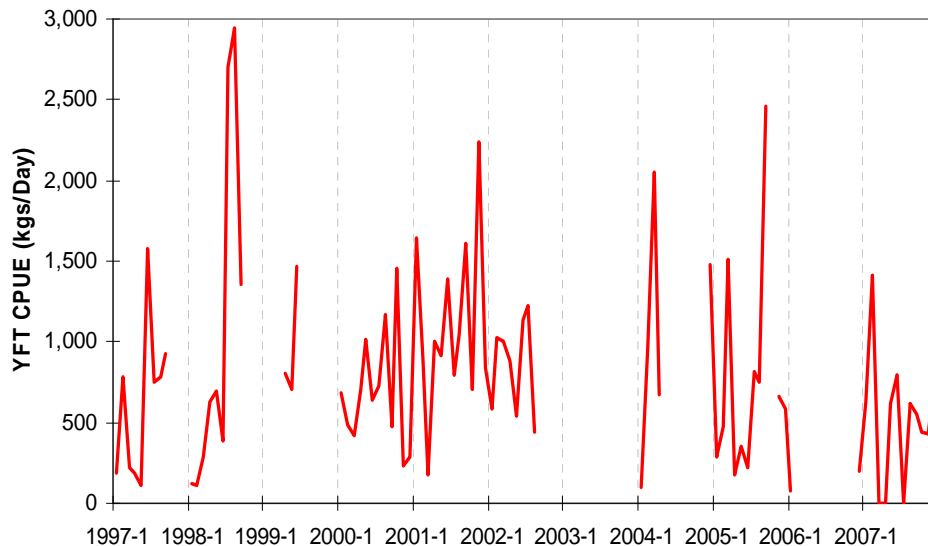
The monthly trends in effort and effort rate (days per trip) for the Ringnet fleet based in General Santos City. Here is some information that can be observed from the above graph:

- Total estimated effort is generally in the range of 200-1,000 boat days per month, although there were at least two months when effort exceeds 1,500 boats days.
- The monthly trip length tends to oscillate around 3 days per trip, although the trip length was in excess of 5 days per trip for several months during 2005; further investigation is required.



Monthly Skipjack CPUE for the General Santos City Ringnet fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2

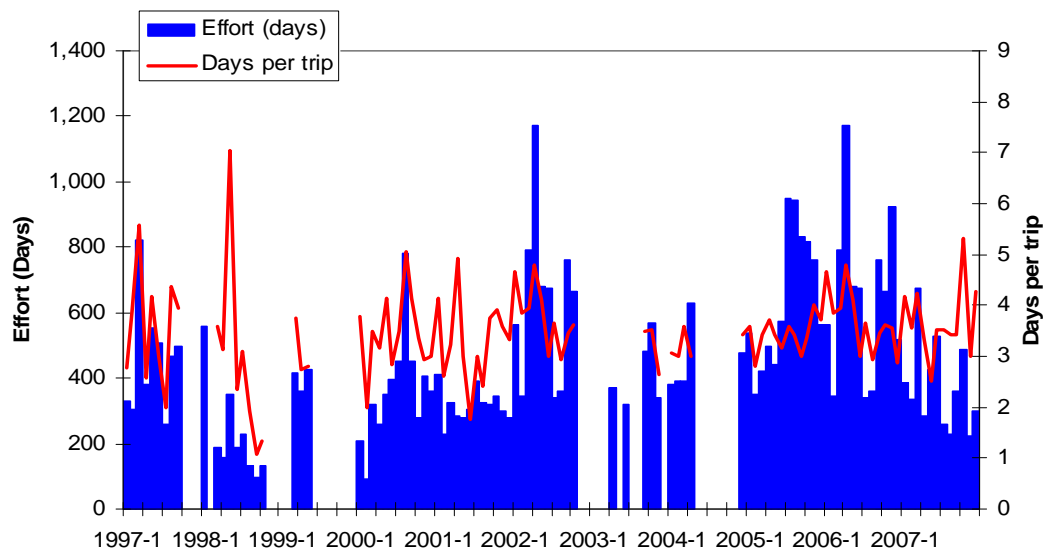


Monthly Yellowfin CPUE for the General Santos City Ringnet fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2

The monthly trends in skipjack and yellowfin tuna catch rates (CPUE) for the Ringnet fleet based in General Santos City. The following are observations and comments have been drawn from the graphs.

- The monthly CPUE of skipjack tuna for the GSC Ringnet fleet has ranged from around 1,000 to 8,000 kg/trip day. The species composition of catch of these vessels can vary depending on the area fished, for example, while skipjack are usually the main species in the catch, sets closer to the coast, or in the Davao Gulf or Sarangani Bay, may comprise more neritic than pelagic species of tuna in the catch. The spatial distribution of the fishing effort therefore has some influence on both the species composition and the CPUE.
- Recently monthly skipjack CPUE was relatively stable ranging from 500 – 2,000 kg/day which also coincides with uniform days/trip.
- The Monthly CPUE of small yellowfin tuna for the GSC Ringnet fleet has fluctuated over the time series, ranging from 100 to nearly 3,000 kg/trip day (the average is around 1,000 kg/day). While YFT CPUE may vary markedly from one month to the next, the overall trend in this time series is relatively stable.

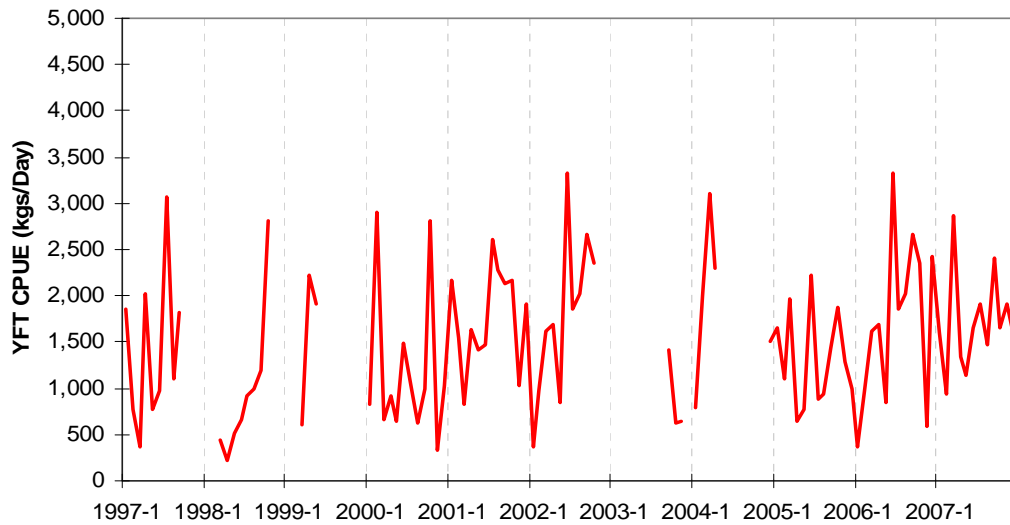


Monthly effort (days) and days/trip for the General Santos City Purse Seine fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2

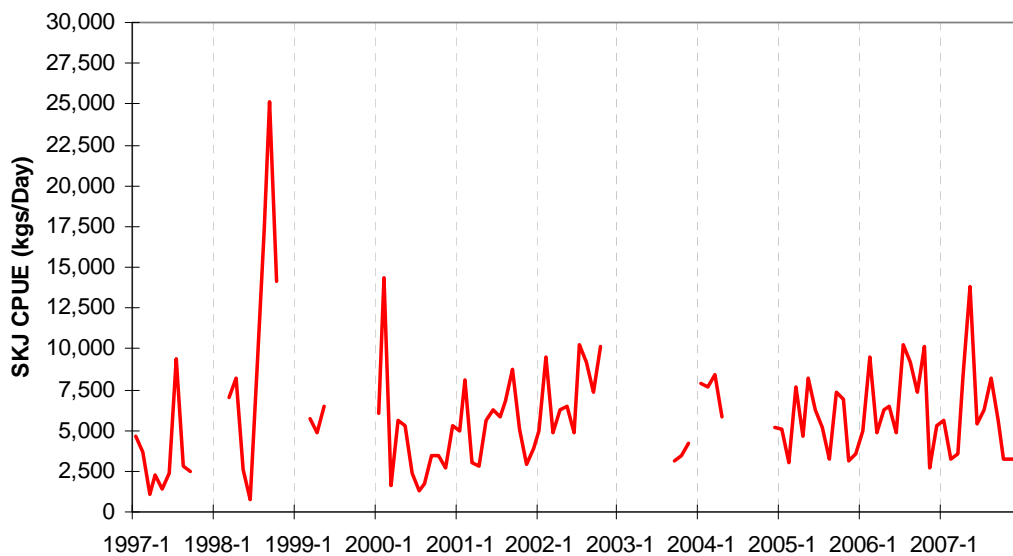
The monthly trends in effort and effort rate (days/trip) for the pure seine fleet based in General Santos City. Here is some information that can be observed from the above graph:

- Total estimated effort is generally in the range of 100- 800 boat days per month, but in 2005 there was an increase in the number of effort which ranges from 400 – 950 boat days per month. There were two months where the effort exceeds 900 boat days per month.
- The average monthly trip length tends to be around 3-4 days per trip, although the trip length was in excess of 5 days per trip for several months in the past years; further investigation is required on this.



Monthly Yellowfin CPUE for the General Santos City Purse Seine fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2



Monthly Skipjack CPUE for the General Santos City Purse Seine fleet, 1997–2007

Note: there are no estimates for months where sampling did not occur; values were taken from the reports generated from the NSAP Database version 4.2

The monthly trends in skipjack and yellowfin tuna catch rates (CPUE) for the purse seine fleet based in General Santos City. Here is some information that can be observed from the above graph:

- The monthly CPUE of skipjack tuna for the GSC purse seine fleet has ranged from around 1,000 to 25,000 kg/trip day. Same as observed in the ringnet, the species composition of catch of these vessels can vary depending on the area fished. The spatial distribution of the fishing effort therefore has some influence on both the species composition and the CPUE.

- The monthly CPUE of small yellowfin tuna for the GSC purse seine fleet has fluctuated over the time series, ranging from 100 to nearly 3,000 kg/trip day (the average is around 1,250 kg/day). While YFT CPUE may vary markedly from one month to the next, the overall trend in this time series is relatively stable.