



National Report – Seychelles 2003

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Introduction

The Seychelles National Report summarises statistics of industrial vessels (purse seiners and longliners) licensed to operate inside the Seychelles EEZ and the activities of the local semi-industrial monofilament longline fishery for the period 2003 compared with previous years. Statistics include licenses issued, catch, effort and fishing ground exploited. Details of research activities conducted or to be conducted in the near future are also highlighted in this report.

1 - PURSE SEINE FISHERY

Purse seining activities began in 1983 when French and Spanish fleets moved from the tropical Atlantic to the Western Indian Ocean. The main fishing nations involved in purse seining in the WIO are those operating under the European Union Agreement (French, Spanish and Italian) taking over 60 percent of the annual licences. Seychelles registered purse seiners (French and Spanish origin) started fishing in 1997 and in 2003, 11 vessels were flying Seychelles flag.

1.1- Licence

Table 1 below lists out the number of vessels licensed to fish in the Seychelles EEZ by country from 1998 to September 2004.

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Table 1. Average number of purse seiners holding licenses to operate in the Seychelles EEZ.

Country / Year	1998	1999	2000	2001	2002	2003	2004
European Union	39	38	34	34	34	33	33
Seychelles	5	5	6	11	9	11	13
Others	12	13	10	7	8	6	6
Total	56	56	50	50	49	49	49
Vessels Active (mean)	51	48	45	46	47	42	42

During the year 2003 the number of vessels licensed per month ranged between 47 and 50, giving a mean of 49 vessels licensed per month, similar to the previous year.

70 % of the licenses issued were to vessels fishing under the EU agreement (Spain, France, Italy). Others includes Panama, Iran, Mayotte, Netherland Antilles and Belize.

The average number of vessels active recorded during 2003 was 42 compared to 47 vessels during 2002.

1.2-Fleet Composition and size

Table 2a. Number of EU purse seiners by category.

Year	50 - 400	401 - 600	601 - 800	801 - 1200	1201 - 2000	> 2000	Total	Supp
1998	0	3	4	14	15	0	36	0
1999	0	2	4	14	15	1	36	6
2000	1	1	3	15	12	1	33	7
2001	1	1	3	17	14	1	37	5
2002	0	1	3	14	15	2	35	8
2003	0	0	2	14	14	3	33	5

Table 2b. Number of Seychelles purse seiners by category.

Year	50 - 400	401 - 600	601 - 800	801 - 1200	1201 - 2000	> 2000	Total	Supp
1998	0	0	0	0	4	1	5	0
1999	0	0	0	0	4	1	5	0
2000	0	0	0	0	5	1	6	0
2001	0	0	0	0	7	4	11	0
2002	0	0	0	0	4	5	9	0
2003	0	0	0	2	4	5	11	0

Table 2c. Number of Other purse seiners by category.

Year	50 - 400	401 - 600	601 - 800	801 - 1200	1201 - 2000	> 2000	Total	Supp
1998	0	0	0	1	10	4	15	0
1999	0	0	0	0	7	4	11	0
2000	0	0	0	0	8	4	12	0
2001	0	0	0	4	7	4	15	0
2002	0	0	0	4	5	1	10	0
2003	0	0	0	0	5	1	6	0
2004	0	0	0	0	3	1	4	0

1.3-Nominal Catch and specific composition

Table 3 below shows the specific composition, total catch and catch rates reported from 1997 to September 2004.

Table 3. Overall Fishing effort, Catches and CPUE reported from 1997 to 2003.

Year	Total Catch (Mt)	Catch Rate Mt/Day	Yellowfin		Skipjack		Others	
			Catch	%	Catch	%	Catch	%
1997	271,100	17.41	71,370	26	171,404	63	28,326	11
1998	252,595	16.35	69,905	28	151,894	60	38,796	12
1999	331,424	23.66	87,659	26	213,182	64	30,583	10
2000	330,340	24.71	118,738	36	191,912	58	19690	6
2001	296,141	21.77	112,097	37	161,107	54	22,937	9
2002	379,253	28.88	127,156	33	218,415	57	33,682	10
2003	408,108	34.95	197,662	48	189,439	46	21,007	5

Based on logbook and transshipment data, the total catch reported for 2003 is estimated at 408,108 Mt, an increase of 7 % compared to the 379,253 Mt recorded for the year 2002. The highest annual CPUE (34.95 Mt/day) so far have been recorded in 2003.

Yellowfin replaced skipjack as the dominant species caught during 2003.

Preliminary analysis of 2004 data (up to September) shows a slight reduction of 12% in overall catch (239,470 Mt compared with 273,628 Mt) reported during the same period of 2003. However an increase of 14 % (19,316 Mt) was recorded in the Yellowfin catches.

A fishing effort of 11,676 days (-10 %) was recorded in 2003 compared to 13,131 fishing days reported during 2002.

1.4- Activities of Seychelles Registered Vessels

Table 4 below shows the fishing effort, total catches and catch rates reported by Seychelles registered purse seiners from 1997 to September 2004.

Table 4. Fishing effort, total catches and catch rates reported by Seychelles registered Purse seiners.

Année	Effort	CPUE	YFT	SKJ	BET	OTH	Total
1997	502	17.11	2,772	4,940	870	0	8,582
1998	1445	14.06	7,405	10,704	2,026	183	20,318
1999	1307	21.93	9,823	15,846	2,972	17	28,657
2000	1106	23.48	11,556	11,604	1,850	952	25,962
2001	2034	20.66	12,924	26,147	2,848	112	42,031
2002	1791	28.14	16,135	31,063	3,087	116	50,401
2003	2249	32.81	33,359	36,822	3,364	235	73,780

The total catch reported by Seychelles registered purse seiners during the year 2003, is estimated at 73,780 Mt, that is, 46% greater than what was reported for the year 2002 (50,401 Mt). An increase of 107 % was recorded in the catch of Yellowfin.

The total catch reported by Seychelles registered vessels up to the 3rd quarter of 2004 is estimated at 55,042 Mt compared with 40,510 Mt for the same period of 2003. An increase of 36% was reported in 2004. The catch of yellowfin increased by a further 105 % in 2004.

The fishing effort recorded for 2003 is 2249 days. This represents an increased of 26% (458 days) compared to the 1791 days reported during the year 2002.

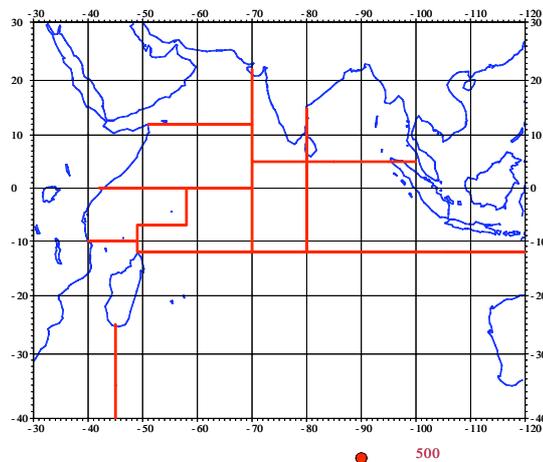
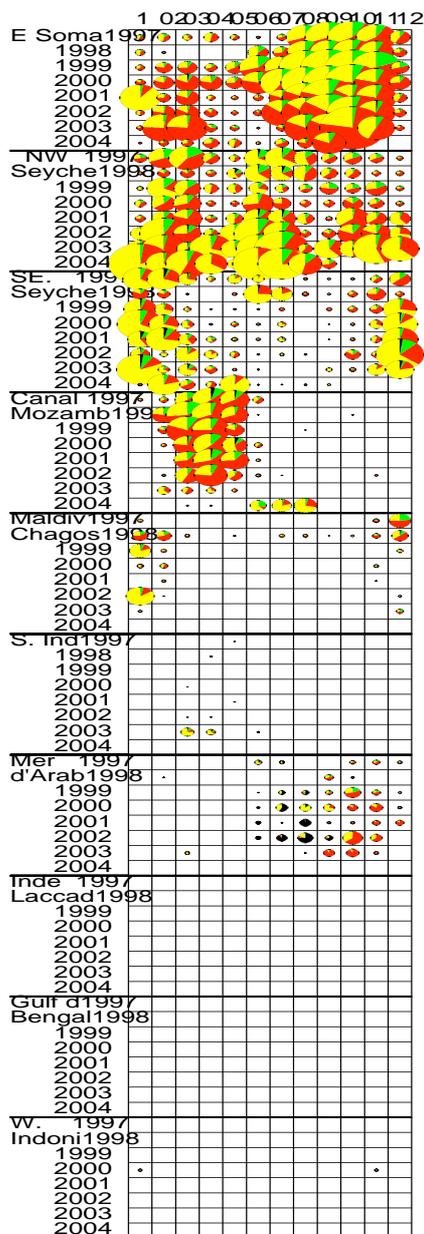
The average catch rate reported was 32.81 Mt/day compared with 28.14 Mt/day recorded in 2002.

1.5 -Fishing grounds exploited

Figure 1 shows the distribution of catch reported by all purse seiners licensed to fish in the Seychelles EEZ by month and Zone ET from 1997 - September 2004. Figure 2 shows the same data for catch reported on FADs and on free schools.

Figure 3 shows the distribution of catch reported by Seychelles registered purse seiners by month and Zone ET from 1997 - September 2004 and Figure 4 shows the same data for catch reported on FADs and on free schools.

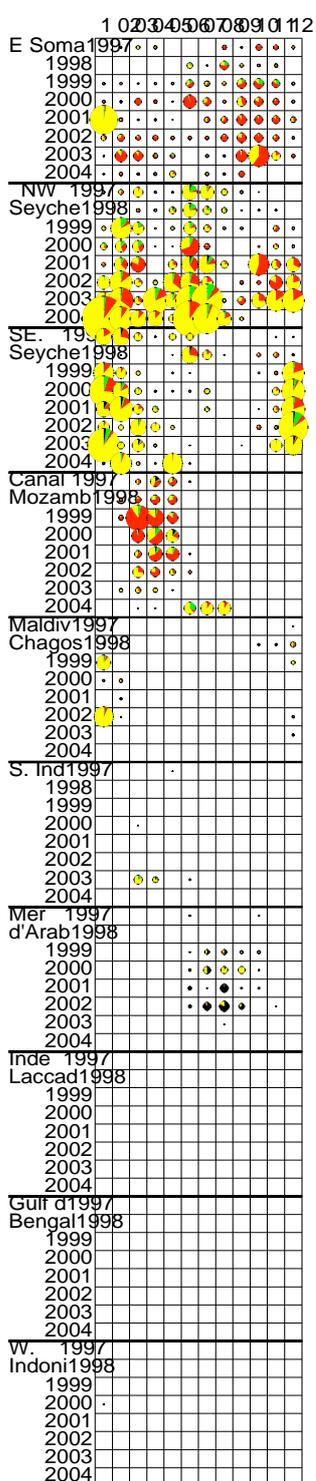
Figure 1. Distribution of catch reported by all purse seiners licensed to fish in the Seychelles EEZ by month and Zone ET from 1997 - September 2004.



YETOTH
SIBET

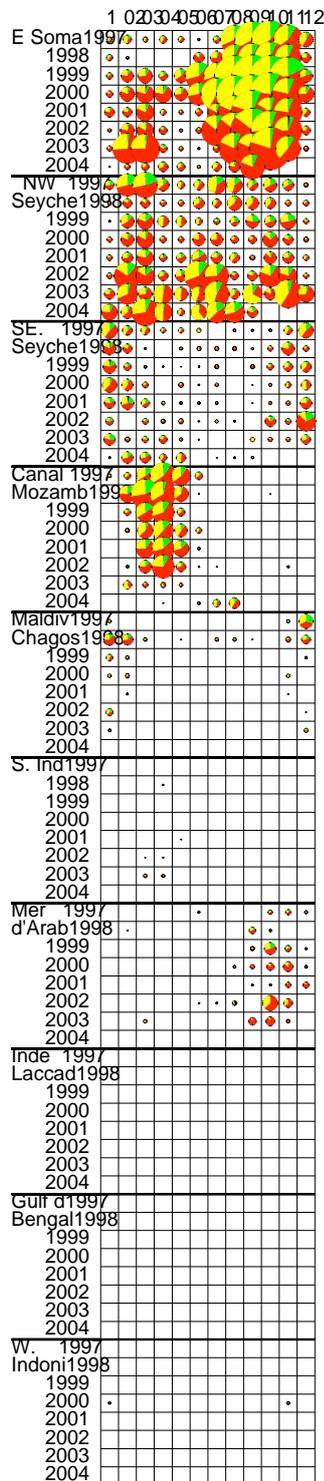
1. Catch TPAYS, TBANC(97

Figure 2. Distribution of catch on FADs and on free swimming schools reported by all purse seiners licensed to fish in the Seychelles EEZ by month and Zone ET from 1997 - September 2004.



YFDTH
SKBET

3.Catch TPAYS BL(97_



YFDTH
SKBET

2.Catch TPAYS BO(97_SEI

Figure 3. Distribution of catch reported by Seychelles registered purse seiners by month and Zone ET from 1997 – September 2004.

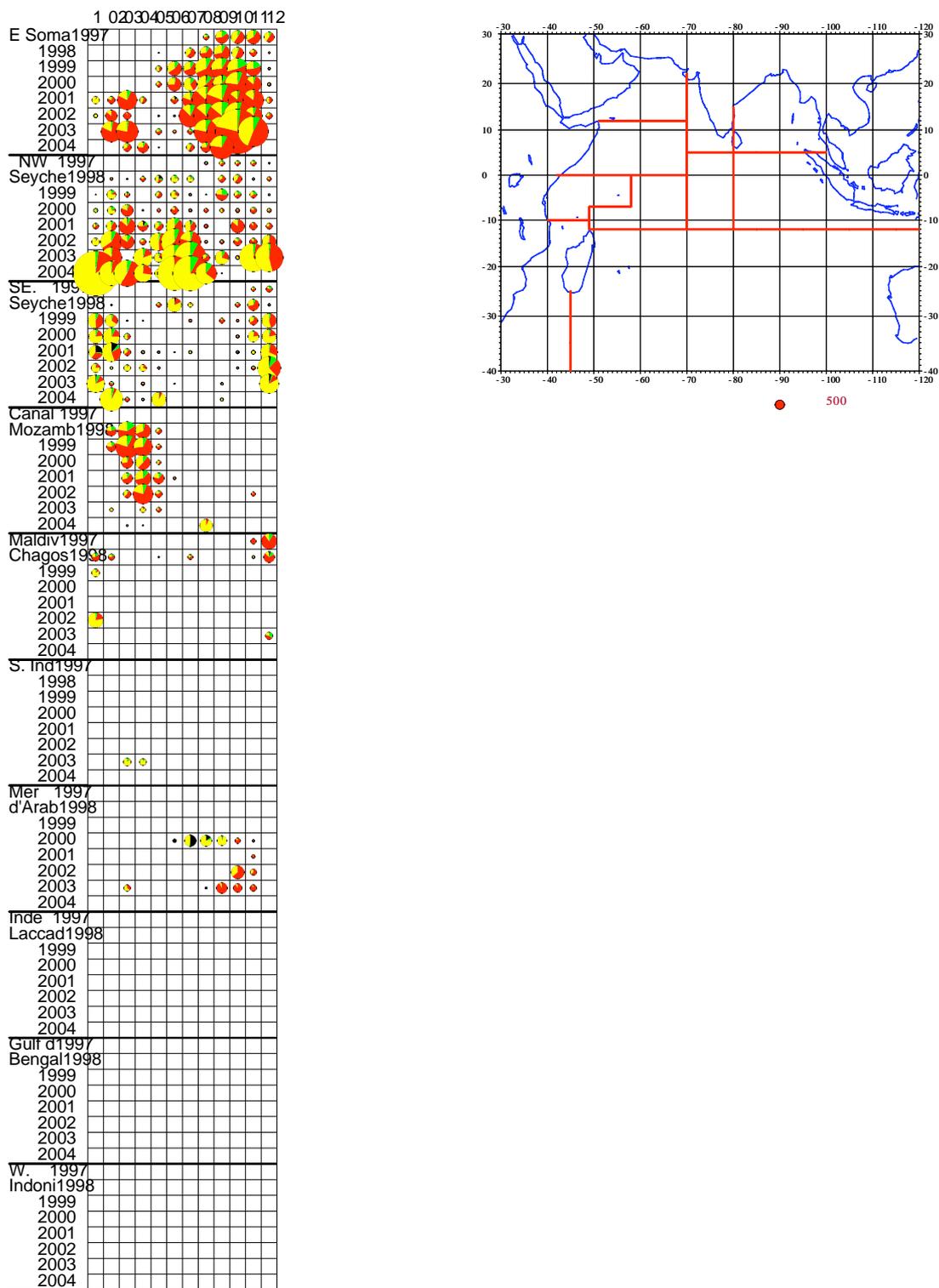
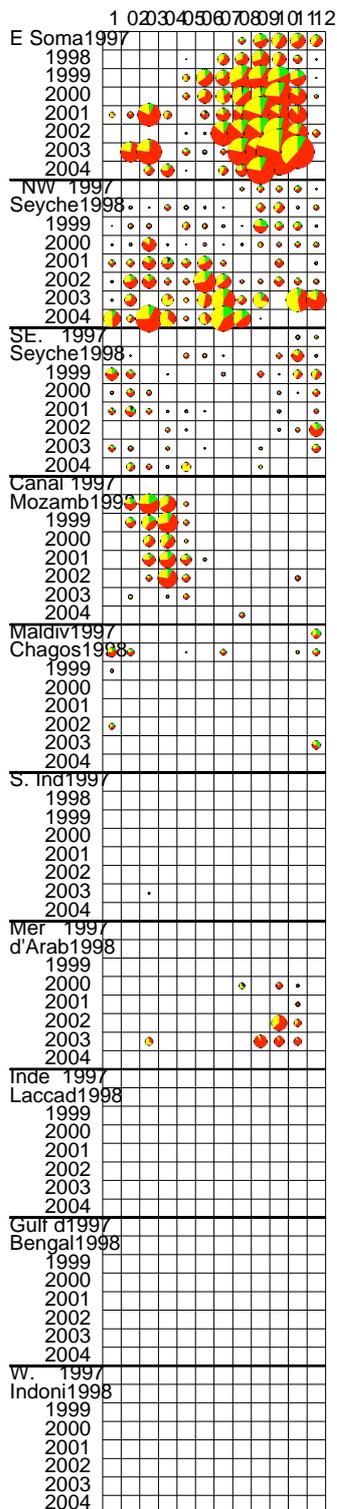


Figure 4. Distribution of catch reported on FADs and on free schools by Seychelles registered purse seiners by month and Zone ET from 1997 – September 2004.



YETOTH
SIBET

2.Catch Seycelles,BO (97_€

1.6 -Transshipment and landings

Port Victoria remained the principal transshipment port during 2003. A total of 359,136 Mt of tuna was transhipped or landed here, representing 88 % of the total catch reported for that year. This represents an increase of 8 % when compared to 2002. Table 5 shows transshipment and landing made in port Victoria from 1997 to 2003.

Preliminary analysis shows a reduction of 20% in transshipment made during the first 3 quarters of 2004 when compared to the same period of the previous year.

Table 5. Transshipment or landings made in port Victoria from 1997 to 2003.

Country / Year	1997	1998	1999	2000	2001	2002	2003
EU	156,907	102,350	183,487	192,497	177,792	238,145	260,952
SEYCHELLES	4,601	14,541	21,650	18,590	34,808	44,940	67,639
OTHERS	38,471	34,701	52,310	58,586	35,854	49,775	30,545
TOTALS	199,979	151,592	257,447	269,673	248,454	332,860	359,136

2 – INDUSTRIAL LONGLINE FISHERY

Industrial fishing activities began in the Seychelles waters in the early 1950's with the Distant Water Fishing Nations (DWFN) longlining for tuna in the Western Indian Ocean (WIO). This was initiated by the Japanese and soon followed by the Taiwanese (1954) and the Koreans (1960). Longliners from European Union countries (Britain, France and Spain) applied for licenses to fish in the Seychelles Exclusive Economic Zone in 1993.

2.1 - Licence issued and logbook returns

A total of 418 licences were issued to 268 longliners during the year 2003, compared to 190 licenses issued to 137 longliners in 2002.

Table 6 shows that the number of licences taken by Taiwanese and Japanese vessels increased by 112 % and 58 % respectively. South Korean vessels took 43 licences during 2003.

Table 6. Licences issued to longliners from 1995 to 2003.

Country / Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
South Korea	50	103	75	3	14	28	4		43
Japan	17	38	61	69	60	43	83	57	90
Taiwan	137	198	208	107	130	69	142	133	282
Spain			11	10	12	13			2
Others	4	3	5	6	12	12	12		1
Total Licences	208	342	360	195	228	165	241	190	418
Individual Vessels	159	202	275	149	170	135	162	137	265
% Log Returned	11	19	31	64	56	36	51	62	56

Table 7 shows the number of Japanese vessels licenced to fish in the Seychelles EEZ and their logbook coverage from 1995 to 2003. After a drop in 2000, the numbers have increased from 23 to 45 vessels in 2003.

Table 7. Japanese longliners licensed to fish in the Seychelles EEZ and their logbook coverage.

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Individual vessels	14	26	43	41	34	23	30	33	45
Log returned	17	26	25	38	35	25	33	37	25
% Coverage	100	68	44	55	58	58	41	65	28

The preliminary analysis of year 2003 data shows that the reported catch is currently 11,450 Mt, obtained from a fishing effort of approximately 17 million hooks. The CPUE reported for that period is 0.67 Mt/1000 hooks. The total reported catch for 2002 is now 11,909 Mt obtained from a total fishing effort of approximately 31 million hooks. The average catch rate reported is now 0.38 Mt/1000hooks.

2.2 - Activities of Japanese Longliners licensed to fish in the Seychelles EEZ.

Figure 5 shows the trend in fishing effort from 1995 to 2003. Fishing effort have remained more or less stable over recent years.

Figure 5. Trend in fishing effort from 1995 to 2003.

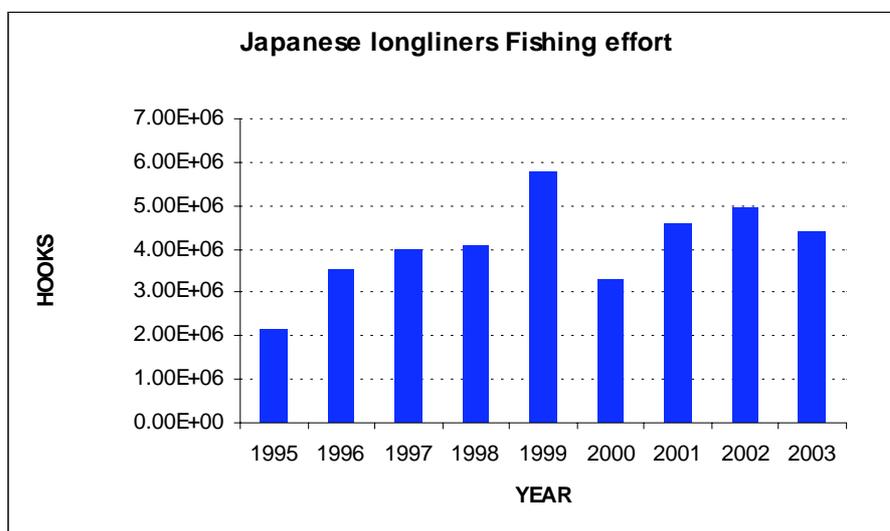
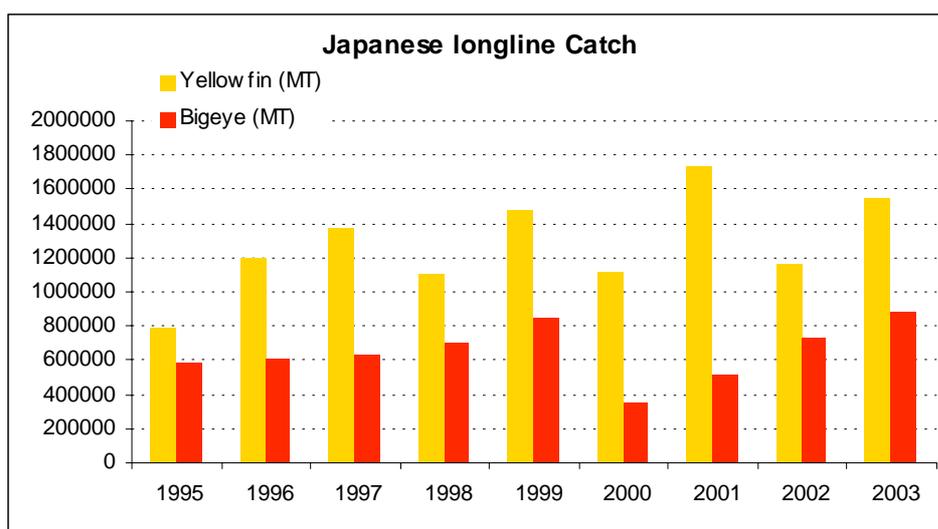


Figure 6 shows the trend in yellowfin and bigeye catches from 1995 to 2003. The catch of yellowfin has increased from 1158 Mt in 2002, to 1551 Mt in 2003.

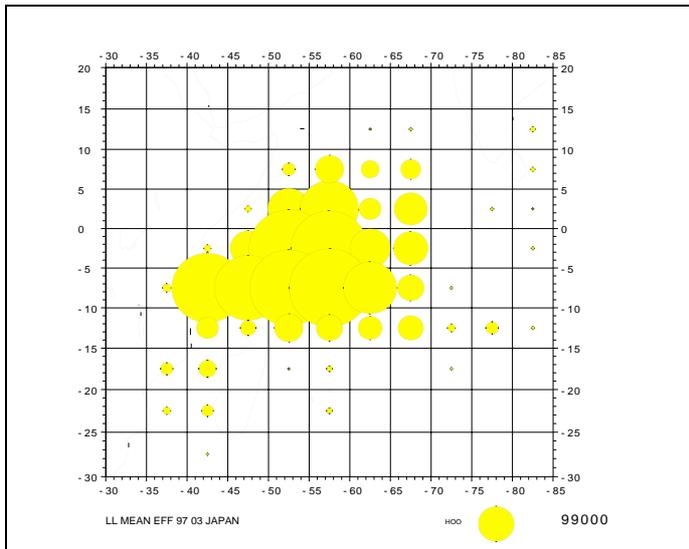
Figure 6. Trend in catches reported by Japanese longliners from 1995 to 2003.



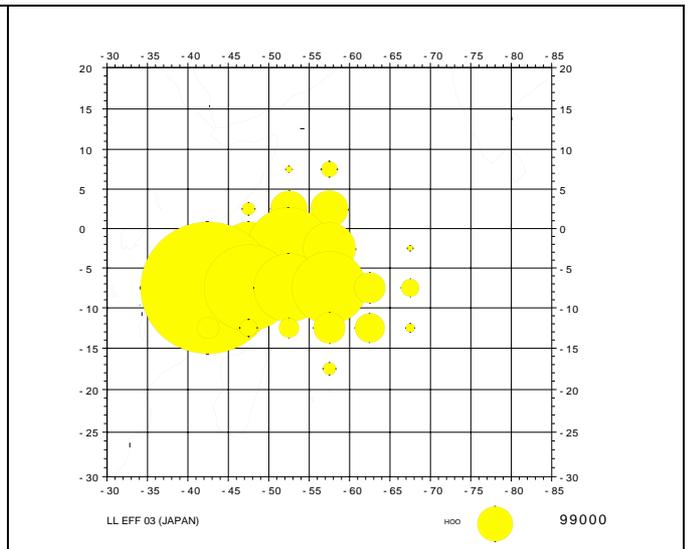
Note: Many of these figures presented here (especially the most recent) are subject to revision as more data becomes available to the SFA.

Maps 1 and 2 shows 5° * 5° distribution of fishing effort reported by Japanese longliners licensed to operate inside the Seychelles EEZ

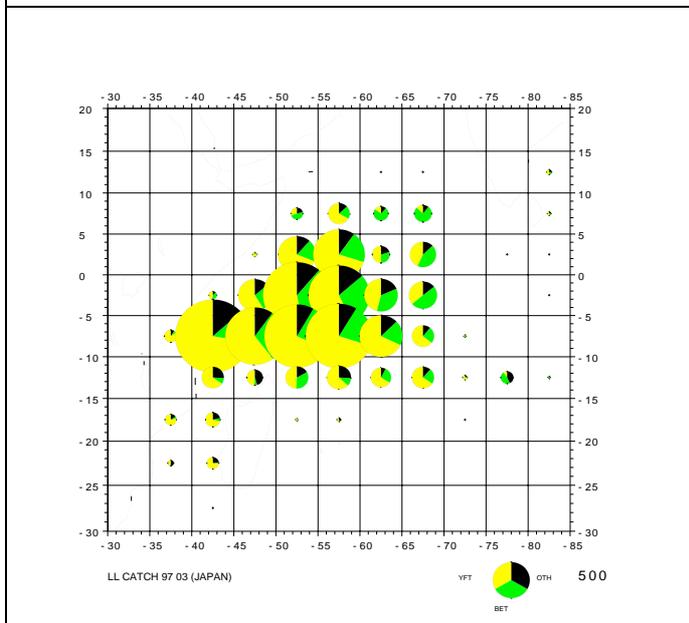
Maps 3 and 4 shows 5° * 5° distribution of catches by species reported by Japanese longliners licensed to operate inside the Seychelles EEZ



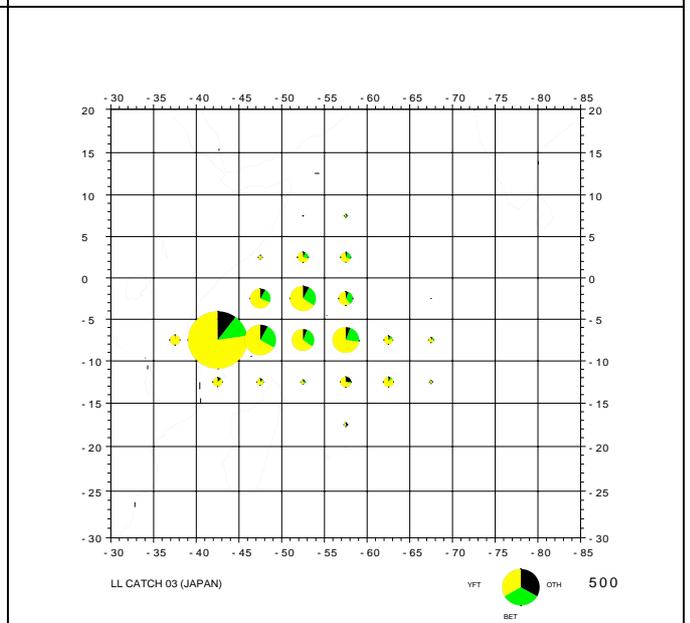
Map 1. Distribution of mean effort reported from 1997-2003.



Map 2. Distribution of effort reported for 2003.



Map 3. Distribution of catch reported from 1997-2003.



Map 4. Distribution of catch reported for 2003.

3.0 THE SEMI-INDUSTRIAL FISHERY

A total of 49 trips were conducted during 2003 by 7 local vessels compared to 111 trips conducted by 9 vessels in 2002. This represents a reduction of 126% in the number of fishing trips conducted.

Table 8 shows the number of vessels active, the total number of trips undertaken and the total catch reported by the local semi-industrial longline vessels.

Table 8. Number of vessels active, the total number of trips undertaken and the total catch reported by the local semi-industrial longline vessels between 1995 and 2003.

Year	Vessels active	Total trips	Catch
1995	1	8	26
1996	4	88	209
1997	5	136	316
1998	6	112	308
1999	8	146	457
2000	9	153	390
2001	10	171	403
2002	9	111	247
2003	7	49	92

The total landed catch for 2002 was 247 Mt compared to only 92 Mt reported during 2003. The reduction in catch reported during 2002 and 2003 is mainly due to the drop in fishing effort. On average only 4 vessels were longlinning for swordfish and tunas during 2003. The importation ban of swordfish to European market, has led fishers to target other species, mainly sharks.

4.0 Research Activities

IOTTP (Live bait)

The Indian Ocean Tuna Commission (IOTC) will initiate a large-scale tuna-tagging programme (IOTTP, Indian Ocean Tuna Tagging Programme) in the Indian Ocean during 2004 through to 2006. One of the prerequisite for the successful implementation of such programme is a supply of live baits. In June 2003 the IOTC in collaboration with the SFA initiated a pilot study to evaluate the potential to aggregate and capture small pelagic around Mahe. Hawaiian type coastal FADs were deployed, however due to vandalisms and based on advice of colleagues from La Reunion, a submerged FAD' was deployed within the bay of Beau-vallon. However recent underwater survey have not shown any large concentration of small pelagic that are suitable for tagging. It has also been concluded that this FAD should be moved in an area where no other object that could also act as aggregating devices are present.

Development of local semi-industrial fishery

Recent difficulties experienced by Seychelles' longline fisheries have led the Seychelles fishing Authority to initiate new research activities. After a regional workshop which was organised in February 2004 addressing issued related to longline activities in the south-west Indian Ocean, two research projects were set up with the sustainable development of the longline fisheries in the region as the common goal.

Amongst the research actions identified, exploratory campaigns will be conducted in collaboration with local professional, scientific teams from IRD and IFREMER where the focus is to study the fishing gear behaviour, to define optimum fishing depth based on associated environmental variables (temperature, oxygen), to target yellowfin and bigeye tunas and to assess the efficiency of various baits.

In the first step of the short-term strategy 17 fishing trips have been planned and will help define the best fishing strategies to optimise the catch of tunas (yellowfin and bigeye). This would be achieved by studying both the fishing gear behaviour and the preferred habitat of both those species.

The reduction in the catch rate of swordfish over recent years have led the local professionals to raise many questions on the possible interaction between the activities of large industrial longliners and their activities.

In order to respond to these questions and to help strengthen the ability of developing countries to develop and manage their pelagic resources, a 4 years project has been submitted to GEF (SWIOFP : South West Indian Ocean Fisheries Project) funded by the World Bank.

The objectives of this project will be :

- increase data collection on pelagic fish habitat and study their characteristics;
- recommend fishing strategies (zones, gear deployment, fishing time, bait used) based on the concept of “responsible fishing activity” to reducing fishing mortality of non targeted species;
- initiate large-scale research activities via multi-lateral efforts between Seychelles and other regional countries (Reunion Island, Mayotte Island, South Africa) for the sustainable development of semi-industrial longline fishery in the region.

The results of this research programme should lead to:

- a reduction of fishing effort on coastal resources through pelagic fisheries development,
- the development of a fishing strategy guide for reducing by-catches
- the development of new habitat based stock assessment models to estimate stock abundance at a local and regional scale
- quantifying the level of interaction between industrial and local semi-industrial fisheries.

Development of a coastal FAD fishery

The SFA is developing a coastal FAD fishery to reduce fishing effort on coastal resources. A number of FAD's have been deployed on the Mahe plateaux with the objective of attracting underutilized pelagic resources such as dolphin fish, wahoo, rainbow runners e.t.c making them available to local fishers.