SEYCHELLES NATIONAL REPORT 2006

Prepared by the Fisheries Research Section

Seychelles Fishing Authority

ABSTRACT

In 2006 an increase in number of licences issued, and total carrying capacity of the entire purse seine fleet was observed. The total number of sets made and total catch for the entire fleet have remained more or less stable despite a slight increase in fishing effort. Overall a sharp decline in yellowfin catch rate was observed whilst the catch rate of skipjack shows an increasing trend. This correspond to the reduced catches of yellowfin on free swimming school and the increase catches of skipjack on FAD's associated schools. For the Seychelles purse seine fleet a slight decrease in carrying capacity was observed in 2006 whilst the number of fishing days remained more or less constant. The total catch for the Seychelles fleet decreased by 9% corresponding to a decrease in the number of sets made.

In 2006 a decrease of 22% was observed in number of licenses issued to longliners to fish inside the Seychelles EEZ. Fishing effort and total reported catch for the entire fleet show a decreasing trend in 2005 and 2006 which may be attributed to the low level of logbook returns for these two years. The total reported catches for the Seychelles fleet decreased by 42% in 2006 coinciding with a decrease of 16% in fishing effort resulting in a decrease in catch rate.

During 2006, 6 semi industrial vessels conducted 40 longline fishing trip targeting swordfish compared to 43 trisp in 2005. A decrease of 25% in catches was reported although the fishing effort decreased by only 1%. In 2006 8 semi industrial vessels continued to target sharks and landed a total of 17.91 Mt of shark meat and 22.15 MT of shark fins represnting a decrease of 20% in shark meat landed over the 21.81 MT of shark meat landed in 2005.

1. INTRODUCTION

The Seychelles Fishing Authority (SFA) was incorporated in August 1984, coinciding with the immense expansion of industrial fishing activities in the Western Indian Ocean, to coordinate and manage the development of the fisheries sector. Since it was set up, the SFA has been collecting catch and effort information via a logbook system as a result of licensing requirements agreed under the various fishing agreements with foreign fishing fleets. The fishing activities of purse seiners in the western Indian Ocean are covered 100% whereas the coverage of longliners activities is restricted to the Seychelles EEZ, unless they are Seychelles registered vessels. Those Distant water longline vessels do not use Port Victoria as their port of transhipment making it difficult to obtain good logbook coverage and landings data as well as size frequency data. Collection of size frequency data for purse seiners are conducted in close collaboration with scientist from the Spanish Fishing Agency through Instituto Español de Oceanografia (IEO) and French Scientists from IRD (Institut de Recherche pour le Développement). A fisheries data collection and sampling programme for the semi-industrial longline fishery has also been in place since this fishery started in 1995. In 2007 the SFA came to an agreement with the representative of Seychelles flagged longliners, whereby the first 20 fish on each set is sampled for length frequency, by the crew, and the data made available to the Seychelles Fishing Authority.

The Seychelles National Report summarizes activities of the industrial purse seine and longline fleet licensed to operate inside the Seychelles EEZ paying particular attention to Seychelles registered vessels as well as activities of the local “semi industrial’’ longline fleet, targeting swordfish. The report looks at the number of licences issued, fleet composition, general catch trend and species composition as well as the temporal and spatial variability’s in fishing effort and catches.

2.0 PURSE SEINE FISHERY

The main fishing nations involved in purse seining in the WIO, licensed to operate inside of the Seychelles Exclusive Economic zone, are those from European Union member countries (France, Spain and Italy) taking over 70 percent of the annual licences. Seychelles registered purse seiners (French and Spanish origin) started operating in 1997 and represents about 20% of the purse seine fleet. The remaining 80 % operate under fisheries partnership agreement between Seychelles and EU.

2-1. Licences issued and fleet composition

Table 1a shows the number of licences issued and number of individual purse seiners licensed to operate inside of the Seychelles EEZ that were active over the past five years. It must be noted that the number of vessels active may be more than the number of licences issued as some licences can overlap between years. There are currently 10 Seychelles flagged purse seiners (all of Spanish origin) fishing in the Indian Ocean compared to 11 in 2005. An increase of approximately 11% in the total number of licenses issued to purse seiners was observed for the year 2006. Figure 1 shows the trend

in the number of purse seiners and their corresponding carrying capacity from 2002 to 2006 with the latter showing a slight gradual increasing trend.

Tables 1b to 1e show the number of purse seiners according to their category of carrying capacity by fleet. The same information is shown in Figures 2 and 3 for the whole fleet and the Seychelles' fleet respectively. There are no major changes for the general fleet in 2006, however for the Seychelles fleet a decrease in the number of vessels in the 801 – 1200 size category (4 vessels in 2005 to 2 vessels in 2006) was observed. In 2005 the number of vessel in the 1201-2000 size category were reduced by one but in 2006 it returned to the pre 2005 level of 5 vessels.

2-2. Fishing effort

Table 2a shows the carrying capacity and the nominal fishing effort (fishing days) for the whole purse seine fleet and the Seychelles' fleet. This is also illustrated in figure 4 and figure 5. In 2006 there was a slight increase of 7% and 14% in the size (carrying capacity) and fishing effort (fishing days) of the general purse seine fleet respectively over the previous year. A slight decrease in carrying capacity was observed in the Seychelles fleet whilst the number of fishing days remained more or less constant.

Table 2b shows the number of purse seine sets according to school types. The increasing trend in number of sets on both free school and FAD's associated school observed for the whole fleet during the 2002 to 2005 period leveled off in 2006 (figure 6). A decrease of 11% and 30% was reported in the number of sets made by the Seychelles fleet on free school and FAD's associated school respectively in 2006 (figure 7). The proportion of positive and null sets have remained relatively constant over the past 5 years (figure 8 and 9).

2-3. Catch

Table 3a shows the total yearly catches by species for the entire fleet and for the Seychelles' fleet. The total catch for the entire fleet has remained more or less stable over the past 5 years period (figure 10), whilst the catch reported by the Seychelles' fleet decreased slightly (by 9%) in 2006 (figure 11).

Figures 12 to 15 illustrate catches by fishing mode for the whole purse seine fleet and for the Seychelles' fleet. A sharp decline in yellowfin tuna catches on free-swimming schools can be observed from 2004 onward (figure 12 and 13), whereas skipjack tuna catches on FAD's associated schools have continued to increase over that period (figure 14 and 15).

2-4. Yield

Table 4a shows the different catch rates by species and table 4b and 4c show that same information by fishing mode. Overall a sharp decline in yellowfin catch rate can be observed for 2005 and 2006 (figure 16 and 17) whilst the catch rate of skipjack shows an increasing trend over the same period.

This correspond to the reduced catches of yellowfin on free swimming school (figure 12 – 13) and the increase catches of skipjack on FAD's associated schools (figure 14 – 16).The overall catch rate has since 2003 been on a decreasing trend (figures 16 and 17).

2-5 Fishing grounds

Maps 1 and 2 show the distribution of catches reported by the whole purse seine fleet for the year 2006 and the mean catches reported for the 2002 - 2005 period respectively. Maps 3 and 4 show the same information for the Seychelles' fleet. The year 2006 experience a decrease in reported catches activities in the Mozambique Channel and along the East African coast. An increase in catches on FAD's associated schools can however be observed beyond 5º North. The Seychelles flagged purse seiners also recorded increase catches North of 5º North in 2006.

Table 1a. Number of licences issued by country to fish inside the Seychelles EEZ.

Year	Spain	France	Seychelles	Others	Total Licences	Number of vessels active
2002	18	16	7	9	50	49
2003	18	14	11	4	47	47
2004	19	15	11	3	48	48
2005	20	16	9	2	47	49
2006	22	18	10	2	52	52

Table 1.b. Spanish purse seiners by size category (carrying capacity) licensed to fish inside the Seychelles EEZ.

Year	50 -400	401-600	601-800	801-1200	1201-2000	>2000	Total
2002	0	0	1	6	10	1	18
2003	0	0	1	6	9	2	18
2004	0	0	1	4	10	5	20
2005	0	0	1	4	10	5	20
2006	0	0	1	5	11	5	22

Table 1.c. French purse seiners by size category (carrying capacity) licensed to fish inside the Seychelles EEZ.

Year	50 -400	401-600	601-800	801-1200	1201-2000	>2000	Total
2002	0	1	2	8	5	0	16
2003	0	0	1	8	5	0	14
2004	0	0	2	8	5	0	15
2005	0	0	2	9	5	0	16
2006	0	0	2	10	5	0	17

Table 1.d. Seychelles purse seiners by size category (carrying capacity) licensed to fish inside the Seychelles EEZ.

Year	50 -400	401-600	601-800	801-1200	1201-2000	>2000	Total
2002	0	0	0	2	5	0	7
2003	0	0	0	5	5	1	11
2004	0	0	0	5	5	3	13
2005	0	0	0	4	4	3	11
2006	0	0	0	2	5	3	10

Table 1.e. NEI purse seiners by size category (carrying capacity) licensed to fish inside the Seychelles EEZ.

Year	50 -400	401-600	601-800	801-1200	1201-2000	>2000	Total
2002	0	0	1	6	2	2	11
2003	0	0	1	4	2	2	9
2004	0	0	0	2	1	1	4
2005	0	0	0	1	1	0	2
2006	0	0	0	2	1	0	3

Table 2a. Purse seine carrying capacity and fishing effort (fishing days) reported for all school type

CARRYING CAPACITY AND FISHING EFFORT (WHOLE FLEET)		
YEAR	**C.CAPACITY**	**FISHING DAYS**
2002	55775	13152
2003	52888	11708
2004	54174	11928
2005	61494	13347
2006	65829	15225
CARRYING CAPACITY AND FISHING EFFORT (SEYCHELLES' FLEET)		
YEAR	**C.CAPACITY**	**FISHING DAYS**
2002	8837	1791
2003	10949	2249
2004	13574	2677
2005	16291	3091
2006	15877	3094

Table 2b. Purse seine fishing effort (number of sets by school type)

SETS BY SCHOOL TYPE (ALL COUNTRIES)												
	COMBINED			**LOGS**			**FREE SCHOOL**			**UNSPECIFIED**		
YEAR	**Total**	**Positives**	**Null**	**Total**	**Positives**	**Null**	**Total**	**Positives**	**Null**	**Total**	**Positives**	**Null**
2002	10269	8329	1940	5861	5620	241	4191	2521	1670	217	188	29
2003	10131	7515	2616	4518	4223	295	5317	3022	2295	296	270	26
2004	11042	7642	3400	4467	4177	290	6507	3407	3100	68	58	10
2005	13360	9643	3717	5742	5418	324	7573	4201	3372	45	24	21
2006	13418	9807	3611	6371	6068	303	6991	3718	3273	56	21	35
SETS BY SCHOOL TYPE (SEYCHELLES)												
	COMBINED			**LOGS**			**FREE SCHOOL**			**UNSPECIFIED**		
YEAR	**Total**	**Positives**	**Null**	**Total**	**Positives**	**Null**	**Total**	**Positives**	**Null**	**Total**	**Positives**	**Null**
2002	1226	1020	206	655	616	39	449	288	161	122	116	6
2003	1512	1224	288	785	749	36	712	462	250	15	13	2
2004	2212	1695	517	1010	964	46	1202	731	471	0	0	0
2005	2683	2064	619	1323	1260	63	1359	803	556	1	1	0
2006	2124	1672	452	1175	1106	69	949	566	383	0	0	0

Table 3a. Purse seine species composition of total catch

TOTAL CATCH BY SPECIES (ALL COUNTRIES)					
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	128206	217847	25826	789	378027
2003	197782	189566	19026	1583	408366
2004	201727	137103	18848	242	358258
2005	176322	190053	21848	145	389256
2006	145596	224065	18106	1199	389935
TOTAL CATCH BY SPECIES (SEYCHELLES)					
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	15746	31583	3075	102	50522
2003	33360	36822	3364	174	73780
2004	48797	29960	4395	59	83305
2005	36479	46038	4794	18	87537
2006	28054	47515	3496	46	79342

Table 3b. Purse seine species composition of catch reported on free-swimming schools

CATCH ON FREE SCHOOLS BY SPECIES (ALL COUNTRIES)					
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	73149	24233	3774	684	105877
2003	128807	32380	7030	1541	169859
2004	155976	19813	3457	232	179483
2005	118962	46050	8444	143	173801
2006	79625	36988	6304	1180	124206
CATCH ON FREE SCHOOL BY SPECIES (SEYCHELLES)					
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	8194	2865	447	101	11607
2003	20216	7806	1015	174	29255
2004	37693	3355	654	57	41762
2005	23469	10668	1733	18	35910
2006	13246	5143	1072	46	19511

Table 3c. Purse seine species composition of catch reported on FADs associated schools

CATCH ON FLOATING OBJECTS BY SPECIES (ALL COUNTRIES)					
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	53748	185639	21820	104	262636
2003	66324	144087	11805	41	222557
2004	44879	115396	15375	10	175994
2005	57152	143422	13388	2	214649
2006	65478	186867	11790	20	265012
CATCH ON FLOATING OBJECTS BY SPECIES (SEYCHELLES)					
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	6648	22352	2456	1	31474
2003	12909	28628	2335	0	43889
2004	11104	26605	3741	2	41543
2005	13008	35350	3061	0	51605
2006	14808	42372	2424	0	59831

Table 4a. Purse seine catch rate (MT/fishing day and MT/positive set) by species reported by all school type

	Overall CPUE, MT/fishing day (ALL COUNTRIES)					Overall CPUE, MT/positive set (ALL COUNTRIES)				
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	9.75	16.56	1.96	0.06	28.74	15.39	26.16	3.10	0.09	45.39
2003	16.89	16.19	1.62	0.14	34.87	26.32	25.22	2.53	0.21	54.34
2004	16.91	11.49	1.58	0.02	30.03	26.40	17.94	2.47	0.03	46.88
2005	13.21	14.23	1.64	0.01	29.16	18.28	19.71	2.27	0.02	40.37
2006	9.56	14.72	1.19	0.08	25.61	14.85	22.85	1.85	0.12	39.76
	Overall CPUE, MT/fishing day (SEYCHELLES)					**Overall CPUE, MT/positive set (SEYCHELLES)**				
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	8.79	17.64	1.72	0.06	28.21	15.44	30.96	3.01	0.10	49.53
2003	14.83	16.37	1.50	0.08	32.80	27.25	30.08	2.75	0.14	60.28
2004	18.23	11.19	1.64	0.02	31.12	28.79	17.68	2.59	0.03	49.15
2005	11.80	14.89	1.55	0.01	28.32	17.67	22.31	2.32	0.01	42.41
2006	9.07	15.36	1.13	0.01	25.64	16.78	28.42	2.09	0.03	47.45

Table 4b. Purse seine catch rate (MT/fishing day and MT/positive set) by species reported for free-swimming schools

	CPUE FREE SCHOOLS, MT/fishing day (ALL COUNTRIES)					CPUE FREE SCHOOLS, MT/positive sets (ALL COUNTRIES)				
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	5.56	1.84	0.29	0.05	8.05	29.02	9.61	1.50	0.27	42.00
2003	11.00	2.77	0.60	0.13	14.50	42.62	10.71	2.33	0.51	56.21
2004	13.08	1.66	0.29	0.02	15.05	45.78	5.82	1.01	0.07	52.68
2005	8.91	3.45	0.63	0.01	13.02	28.32	10.96	2.01	0.03	41.37
2006	5.23	2.43	0.41	0.08	8.16	21.42	9.95	1.70	0.32	33.41
	CPUE FREE SCHOOLS, MT/fishing day (SEYCHELLES)					**CPUE FREE SCHOOLS, MT/positive sets (SEYCHELLES)**				
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	4.58	1.60	0.25	0.06	6.48	28.45	9.95	1.55	0.35	40.30
2003	8.99	3.47	0.45	0.08	13.01	43.76	16.90	2.20	0.38	63.32
2004	14.08	1.25	0.24	0.02	15.60	51.56	4.59	0.89	0.08	57.13
2005	7.59	3.45	0.56	0.01	11.62	29.23	13.29	2.16	0.02	44.72
2006	4.28	1.66	0.35	0.01	6.31	23.40	9.09	1.89	0.08	34.47

Table 4c. Purse seine catch rate (MT/fishing day and MT/positive set) by species reported for FAD's associated schools

	CPUE FADS, MT/fishing day (ALL COUNTRIES)					CPUE FADS, MT/positive sets (ALL COUNTRIES)				
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	4.09	14.12	1.66	0.01	19.97	9.56	33.03	3.88	0.02	46.73
2003	5.66	12.30	1.01	0.00	19.00	15.71	34.12	2.80	0.01	52.70
2004	3.76	9.67	1.29	0.00	14.75	10.74	27.63	3.68	0.00	42.13
2005	4.28	10.74	1.00	0.00	16.08	10.55	26.47	2.47	0.00	39.62
2006	4.30	12.27	0.77	0.00	17.41	10.79	30.80	1.94	0.00	43.67
	CPUE FADS, MT/fishing day (SEYCHELLES)					**CPUE FADS, MT/positive sets (SEYCHELLES)**				
YEAR	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**	**YFT**	**SKJ**	**BET**	**ALB**	**TOTAL**
2002	3.71	12.48	1.37	0.00	17.57	10.79	36.29	3.99	0.00	51.09
2003	5.74	12.73	1.04	0.00	19.51	17.24	38.22	3.12	0.00	58.60
2004	4.15	9.94	1.40	0.00	15.52	11.52	27.60	3.88	0.00	43.09
2005	4.21	11.44	0.99	0.00	16.69	10.32	28.06	2.43	0.00	40.96
2006	4.79	13.69	0.78	0.00	19.34	13.39	38.31	2.19	0.00	54.10

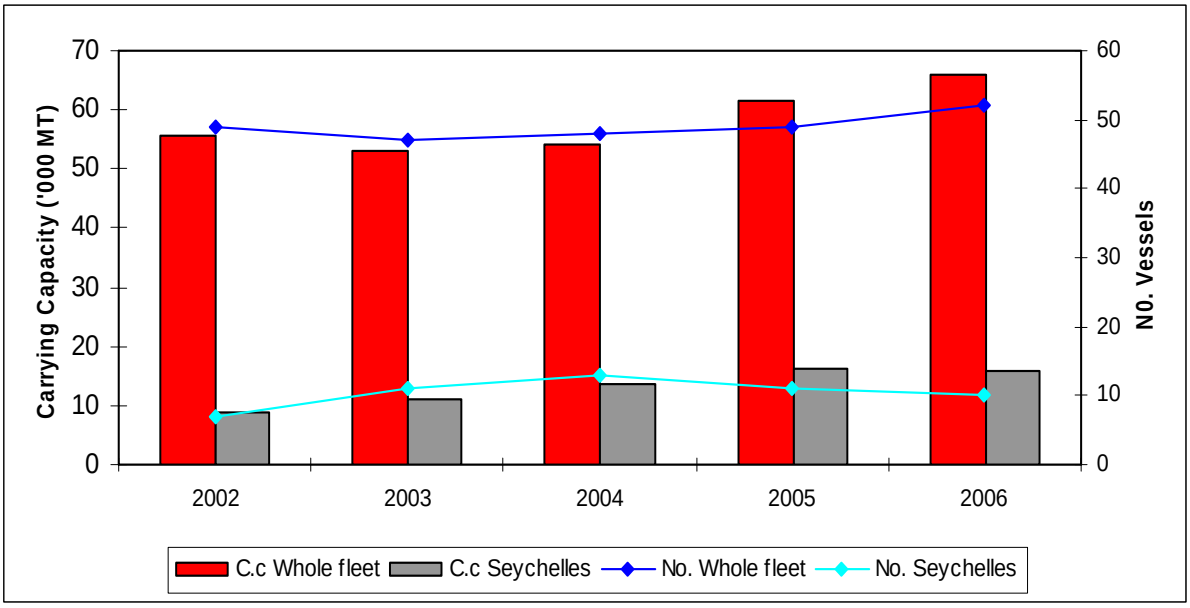


Figure 1. Trend in number seiners and corresponding carrying capacity of purse (licensed to operate inside the Seychelles EEZ) active in the WIO.

Fig 2. Number of purse seiners by carrying capacity

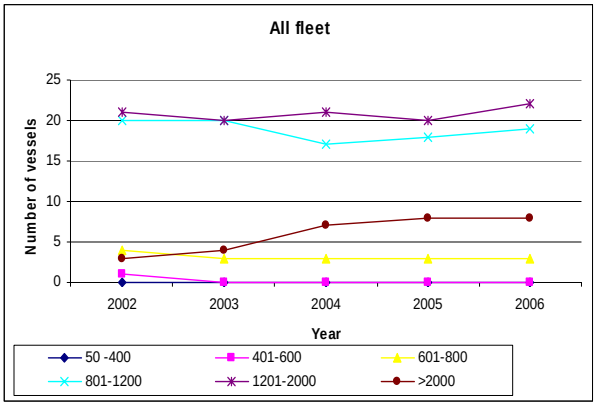


Fig 3. Number of purse seiners by carrying capacity

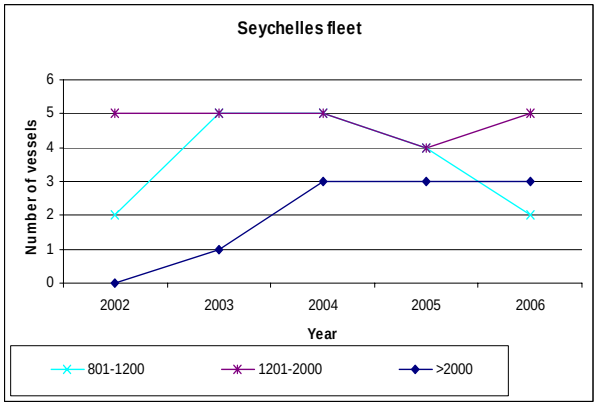


Fig 4. Fishing effort and carrying capacity

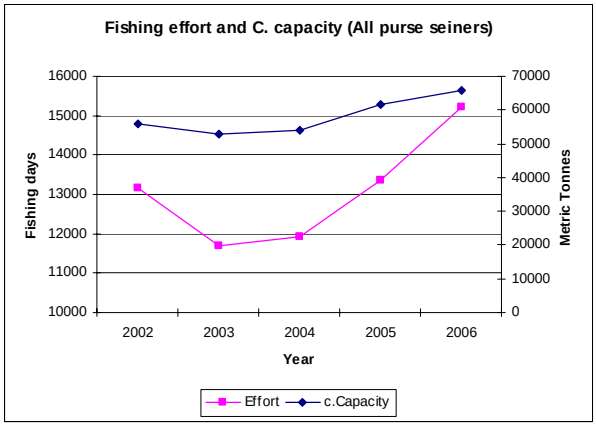


Fig 5. Fishing effort and carrying capacity

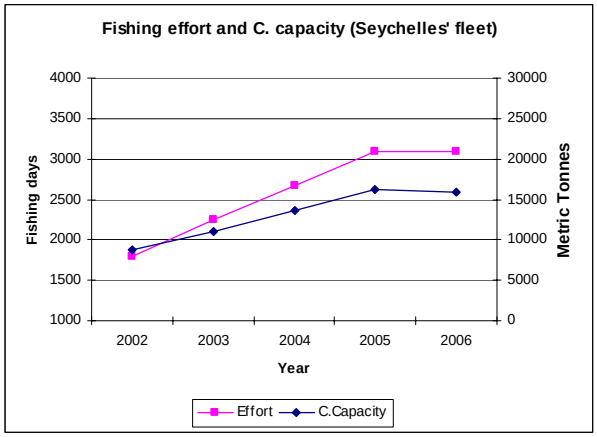


Fig 6. Total number of sets by fishing mode

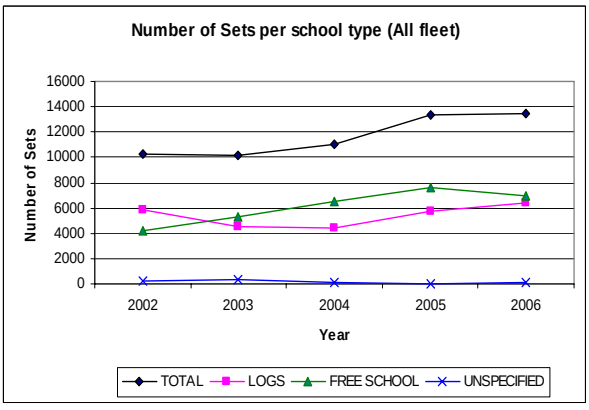


Fig 7. Total number of sets by fishing mode

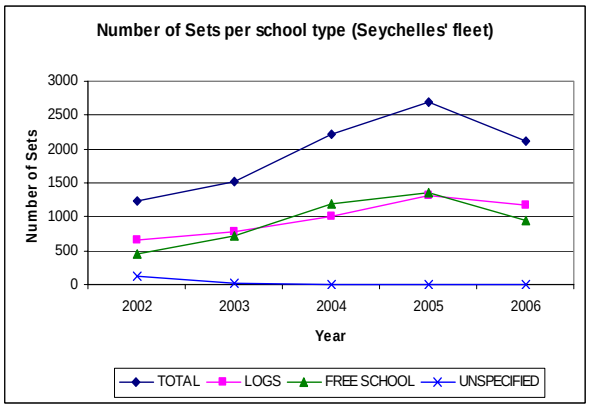


Fig 8. Proportion of positive and null sets

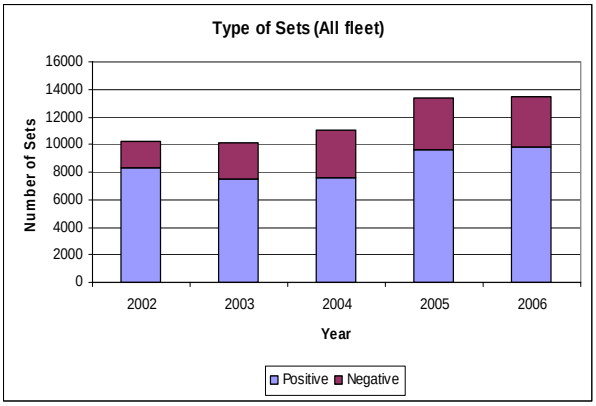


Fig 9. Proportion of positive and null sets

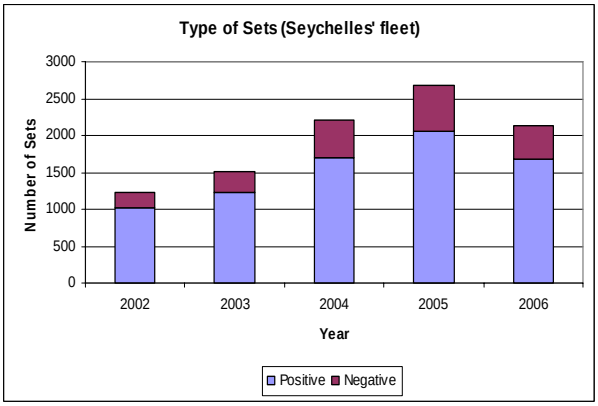


Fig 10. Species composition of total reported catch

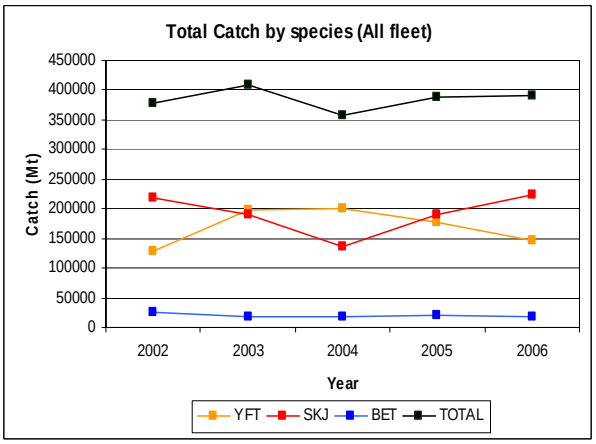


Fig 11. Species composition of total reported catch.

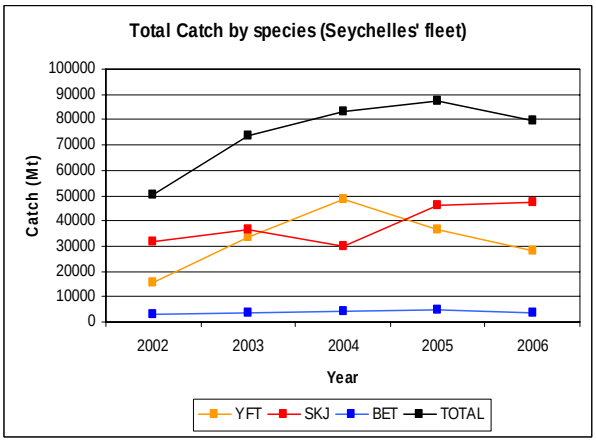


Fig 12. Species composition of reported catch on free swimming schools

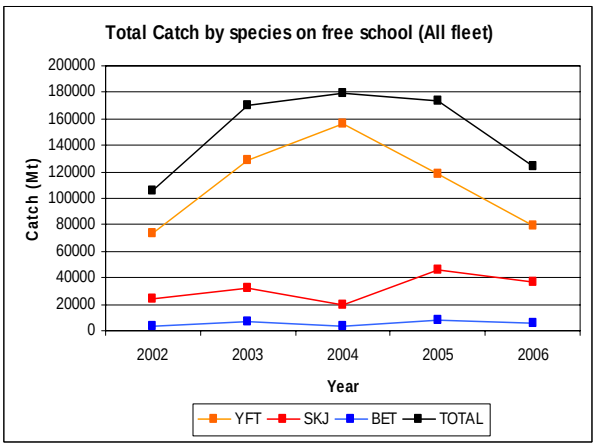


Fig 13. Species composition of reported catch on free swimming schools

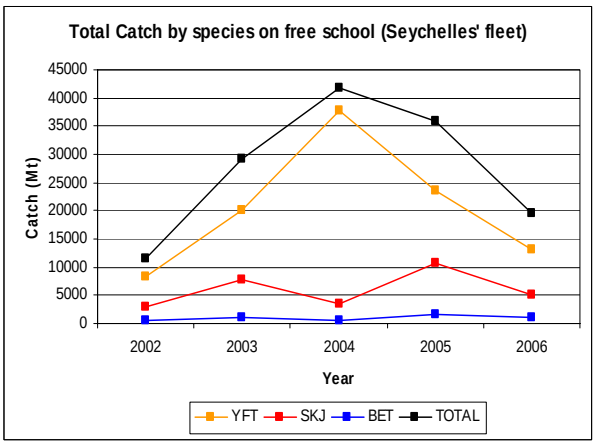


Fig 14. Species composition of reported catch on FAD's associated schools

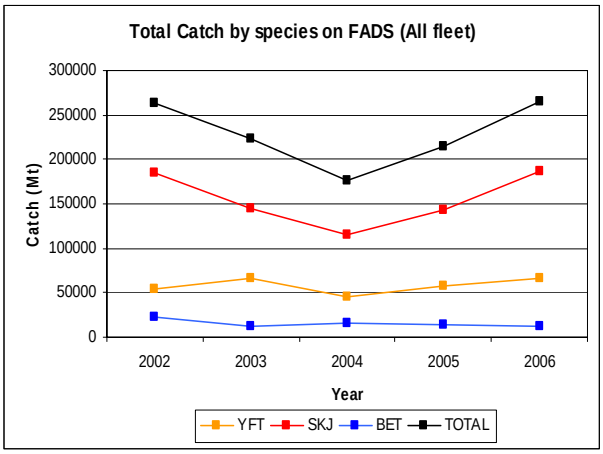


Fig 15. Species composition of reported catch on FAD's associated schools

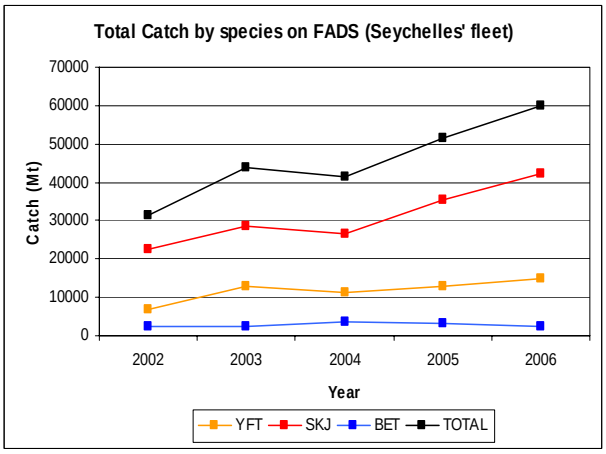


Fig 16. Overall CPUE by species

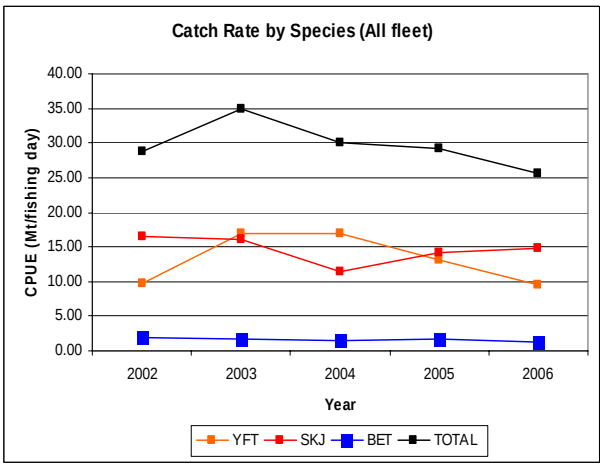
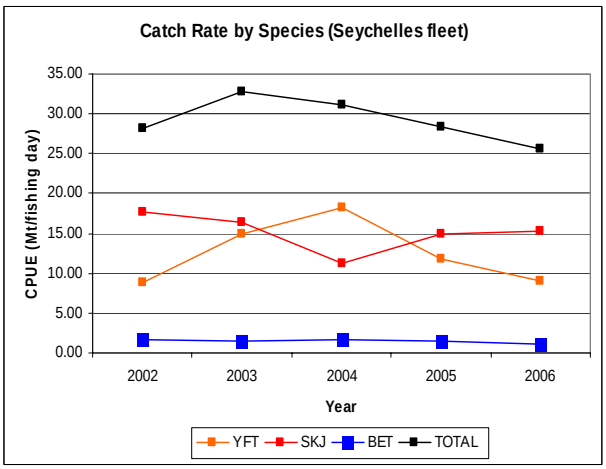
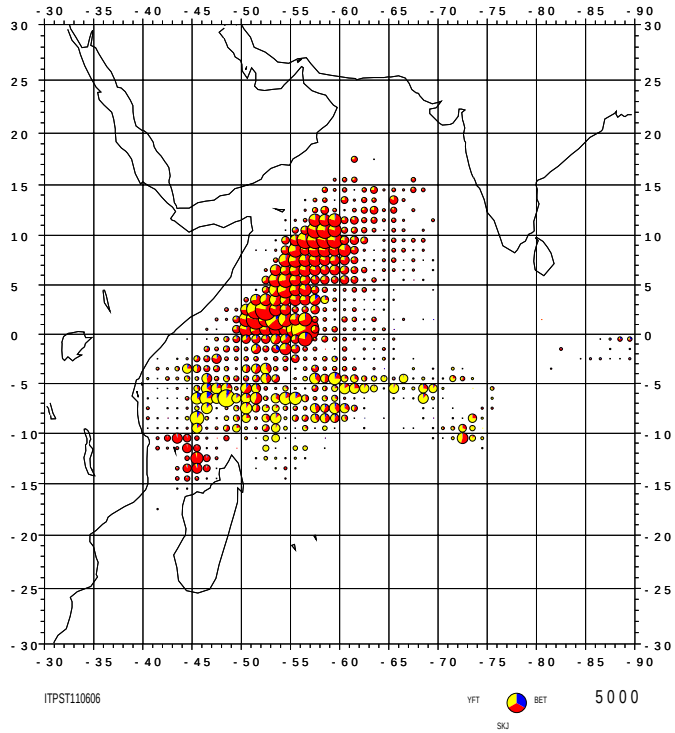


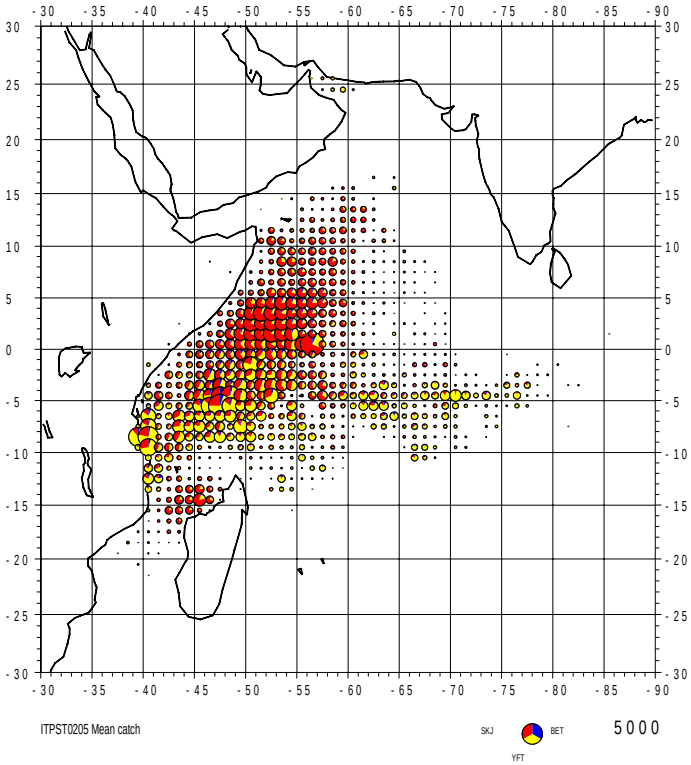
Fig 17. CPUE by species.



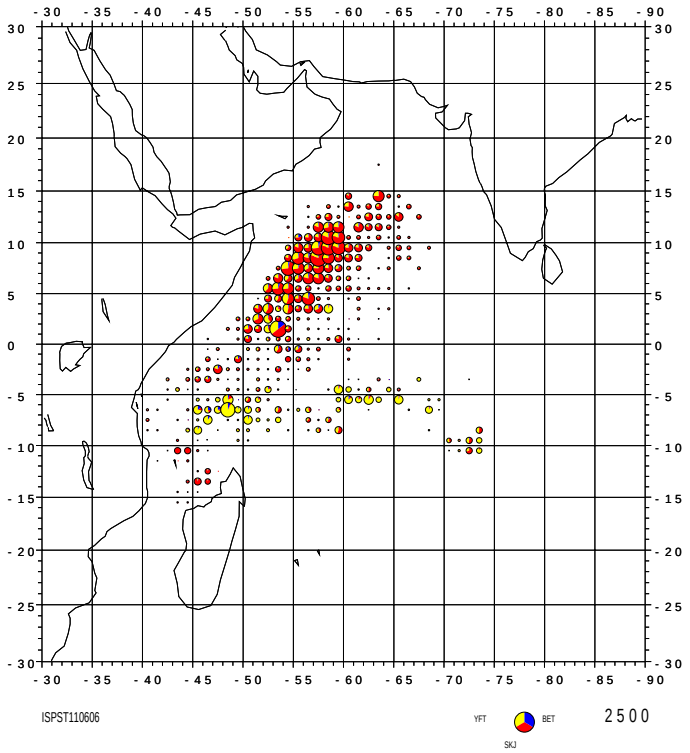
Map 1. Distribution of catches (MT) by 1° square for the year 2006 reported by the whole purse seine fleet



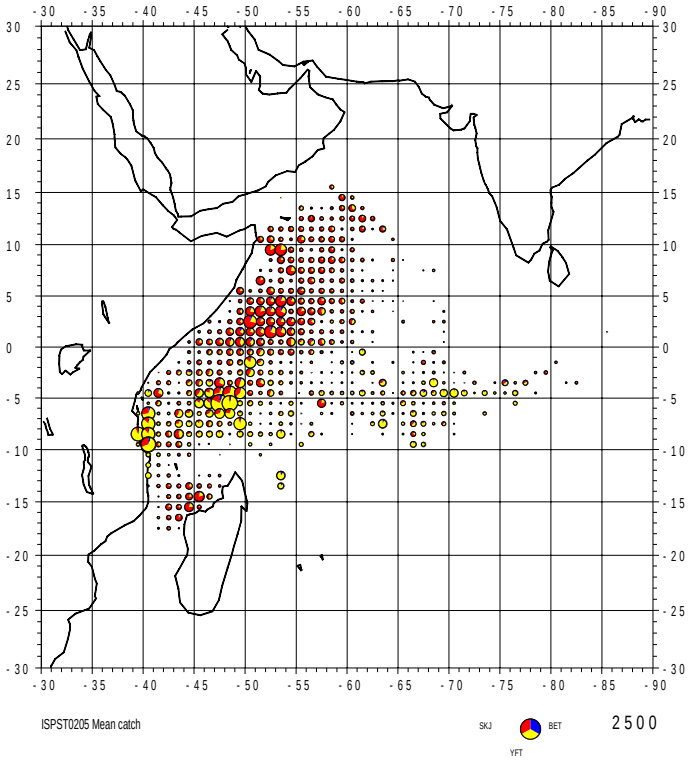
Map 2. Distribution of mean catches (MT) for the period 2002– 2005 by 1° square reported by the whole purse seine fleet.



Map 3. Distribution of catches (MT) by 1° square for the year 2006 reported by the Seychelles' purse seine fleet



Map 4. Distribution of mean catches (MT) for the period 2002– 2005 by 1° square reported by the Seychelles' purse seine fleet.



3.0 LONGLINE FISHERY

This section summarises the activities of longliners licensed to operate inside the Seychelles EEZ for the years 2002 to 2005. It must be noted that these statistics only represent a small sample of longliners' activity in the Western Indian Ocean because not all longliners fishing in that region have a license to operate in the Seychelles EEZ and therefore are under no obligation to report to SFA unless they are Seychelles registered vessels. The Seychelles registered vessels (mostly of Taiwanese origin) which started operating in 1999 are obliged to report all their activities to the SFA.

3-1 Licenses issued and fleet composition

Table 5a and 5b show the number of licences issued and the number of vessel the licences were issued to by country respectively, including the number of Seychelles registered vessels. It must be noted that a vessel may be registered in Seychelles but may not have a licence, as licences are required only if the vessel wishes to operate inside the Seychelles EEZ.

In 2006 a total of 301 licences were taken by longliners to fish inside the Seychelles EEZ, representing a decrease of 22% from the 386 licences taken in 2005. In 2006 46% of the licences were taken by Japanese longliners followed by Taiwanese longliners (31%) and Koreans longliners (11%). Only 13 out of 28 Seychelles registered longliners took licences to fish inside the Seychelles EEZ.

3-2 Logbook coverage

There has been a remarkable increase in logbooks return from Seychelles flagged vessels since 2003 (Table 6). Overall a considerable decline can be observed in the level of logbook return after a great improvement during the 2003 – 2004 period. It must be noted that although logbook returns for the year 2005 and 2006 was low (35% and 21% respectively) at the close of the database for production of this report, the statistics unit of SFA has recently received a considerable number of logbooks for these two years which are yet to be entered and processed.

3-3 Fishing effort

The fishing effort by all fleets show an increasing trend for the 2002 - 2004 period(Table 7 and figure 18). The decline in fishing effort for the years 2005 and 2006 may be attributed to the low level of logbook return to SFA. It must be noted that the figures for 2004 is base on 71% of logbooks returned to SFA whilst for 2005 and 2006, the figures are base only on 35% and 21% level of logbooks returned respectively.

The fishing effort (fishing days) for the Seychelles registered longliners has remained more or less stable over the 2003 – 2006 period. However a decrease of 16% was observed in number of hooks set in 2006 over the previous year.

3-4 Catch

The total catch reported by all fleet has increased steadily from 2002 to 2004 followed by a decreasing trend over the 2005 - 2006 (Table 8 and figure 19). A low logbook return is one reason behind this drop.

Catches for the Seychelles fleet which reported an increasing trend over the 2002 to 2005 period, experience a sharp drop of 42% in 2006, which coincide with the decrease of 16% in fishing effort (number of hooks) also recorded during that year.

3-5 Species Composition

Between 2002 and 2004, bigeye tuna was the dominant species caught by the longline fleet that operated in the Seychelles EEZ. Bigeye tuna represent on average 42% of the total catch followed by Yellowfin tuna (35%). In 2005 yellowfin tuna took the top spot accounting for 54% of the total catch whilst bigeye tuna represented only 36% of the total catch. In 2006 bigeye tuna regained its position as the dominant species caught by all longline fleet licensed to operate inside the Seychelles EEZ.

The species composition for the Seychelles fleet for the 2002 – 2004 period consisted on average of 44% bigeye tuna, 19% yellowfin tuna and 15% albacore. Similar to the entire fleet yellowfin tuna replaced bigeye tuna as the dominant species caught in 2005, accounting for 51% of the total catch. The dominance of Bigeye tuna was re-established in 2006 when it accounted for 46% of the total catch. Albacore catches decreased by 91% in 2004 and has since then represented only about 1% of the total catches of the Seychelles fleet (figure 20).

3-6 Yield

The overall Catch per Unit Effort (CPUE) reported by the entire fleet operated inside the Seychelles EEZ show a general increasing trend since 2002, reaching a peak of 0.59 MT/1000 hooks in 2005. In 2006 the catch rate stands at 0.45 MT/1000 hooks (Table 9 and figure 21). Catch rates calculated by species has remained more or less stable over the 5 year period with the exceptions of higher catch rate for yellowfin tuna in 2005.

The Catch per Unit Effort reported by the Seychelles fleet have experience an increasing trend from the year 2002 to reach a record of 0.69MT/1000 hooks in 2005. A slight drop to 0.48MT/1000 hooks was then observed in 2006. Species wise, the catch rate for yellowfin tuna has shown a general increasing trend reaching a peak of 0.36 MT/1000 hooks in 2005. Likewise a drop of approximately 50% (0.17MT/1000 hooks) was recorded in 2006. The catch rate for other species has remained more or less constant in 2006.

3-7 Fishing grounds

Maps 5 and 6 show the distribution of catches reported by the longline fleet licenced to operate inside the Seychelles waters, for the year 2006 and the mean catches reported for the 2002 - 2005 respectively. Map 7 and 8 show the same distribution of catches reported by the Seychelles fleet. The overall catch distribution pattern for 2006 is relatively similar to that of previous years. However it can be observed that there was a decrease in yellowfin catches in the Arabian Sea and below 15º south for the Seychelles' fleet in 2006.

Table 5a. Number of licenses to fish inside of the Seychelles EEZ issued by fleet.

Year	CHINA	JAPAN	REPUBLIC OF KOREA	SEYCHELLES	TAIWAN ROC	OTHERS	TOTAL LICENCES
2002	5	58	0	3	116	4	186
2003	16	90	43	15	243	11	418
2004	12	111	29	24	156	2	334
2005	7	164	29	20	162	4	386
2006	11	138	33	16	93	10	301

Table 5b. Number of vessels issued with licenses to fish inside of the Seychelles EEZ by fleet.

Country Year	CHINA	JAPAN	REPUBLIC OF KOREA	SEYCHELLES*	TAIWAN ROC	OTHERS	TOTAL VESSELS LICENSED
2002	5	32	0	3 (28)	83	17	140
2003	12	44	27	13 (32)	139	23	258
2004	12	56	27	17 (32)	130	2	244
2005	7	66	20	19 (26)	143	4	259
2006	11	62	17	13 (28)	68	8	179

*The number in bracket indicates the total number of Seychelles Registered vessels. It must be noted that not all Seychelles registered vessels take licences to fish inside of the Seychelles EEZ

Table 6. Logbooks (%) returned to Seychelles authority by fleet.

Country Year	CHINA	JAPAN	REPUBLIC OF KOREA	SEYCHELLES	TAIWAN ROC	OTHERS	TOTAL
2002	38	46	0	29	49	25	42
2003	36	49	60	68	57	10	56
2004	72	56	79	76	73	55	71
2005	0	58	39	96	15	0	35
2006	4	24	54	94	1	0	21

Table 7. Fishing effort (Million hooks, fishing days and mean hooks per set) reported by the longline fleet.

TOTAL EFFORT (ALL COUNTRIES)			
YEAR	**HOOKS (Million)**	**FISHING DAYS**	**MEAN HOOKS PER SET**
2002	30	10,990	2,723
2003	47	14,604	3,206
2004	49	15,357	3,215
2005	37	11,118	3,319
2006	23	7,117	3,202
TOTAL EFFORT (SEYCHELLES)			
YEAR	**HOOKS (Million)**	**FISHING DAYS**	**MEAN HOOKS PER SET**
2002	10	3,238	3,100
2003	21	5,784	3,617
2004	19	5,796	3,275
2005	21	6,310	3,277
2006	17	5,567	3,125

Table 8. Species composition of total catch reported by the longline fleet

TOTAL CATCH BY SPECIES (ALL COUNTRIES)						
YEAR	**YFT**	**BET**	**SWO**	**ALB**	**OTH**	**TOTAL**
2002	4215	5537	1588	1148	1165	13653
2003	7991	8767	2340	2878	1382	23357
2004	9213	11328	1880	254	1101	23777
2005	11740	7752	1246	245	756	21739
2006	3663	4562	817	111	1070	10222
TOTAL CATCH BY SPECIES (SEYCHELLES)						
YEAR	**YFT**	**BET**	**SWO**	**ALB**	**OTH**	**TOTAL**
2002	589	1992	822	923	511	4836
2003	1361	3918	1695	2,542	791	10307
2004	3322	5612	1234	62	559	10789
2005	7373	5366	980	132	485	14336
2006	2763	3834	722	92	963	8374

Table 9. Catch rate (MT/1000 hooks) by species reported by the longline fleet.

CPUE (MT/1000 HOOKS) (ALL COUNTRIES)						
YEAR	**YFT**	**BET**	**SWO**	**ALB**	**OTH**	**TOTAL**
2002	0.14	0.19	0.05	0.04	0.04	0.46
2003	0.17	0.19	0.05	0.06	0.03	0.50
2004	0.19	0.23	0.04	0.01	0.02	0.48
2005	0.32	0.21	0.03	0.01	0.02	0.59
2006	0.16	0.20	0.04	0.00	0.05	0.45
CPUE (MT/1000 HOOKS) (SEYCHELLES)						
YEAR	**YFT**	**BET**	**SWO**	**ALB**	**OTH**	**TOTAL**
2002	0.06	0.20	0.08	0.09	0.05	0.48
2003	0.07	0.19	0.08	0.12	0.04	0.49
2004	0.17	0.30	0.07	0.00	0.03	0.57
2005	0.36	0.26	0.05	0.01	0.02	0.69
2006	0.16	0.22	0.04	0.01	0.06	0.48

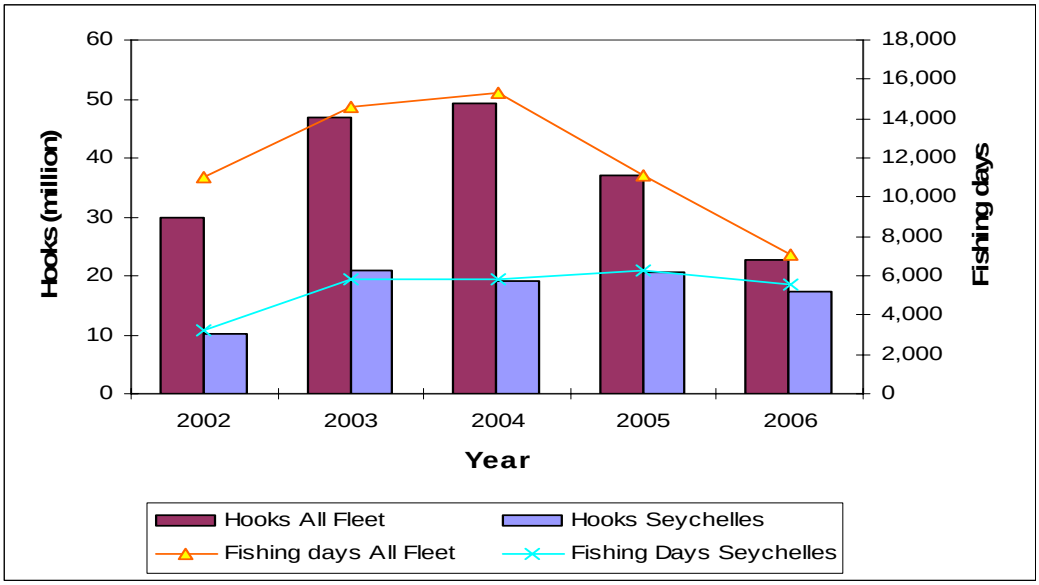


Figure 18. Fishing effort (million hooks and fishing days) reported by the longline fleet

Fig 19. All longliners catch by species.

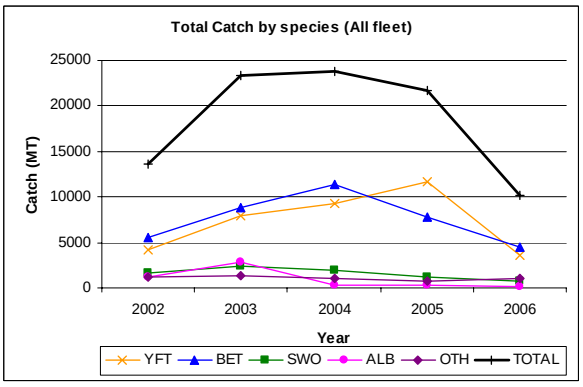


Fig 20. Seychelles longliners catch by species

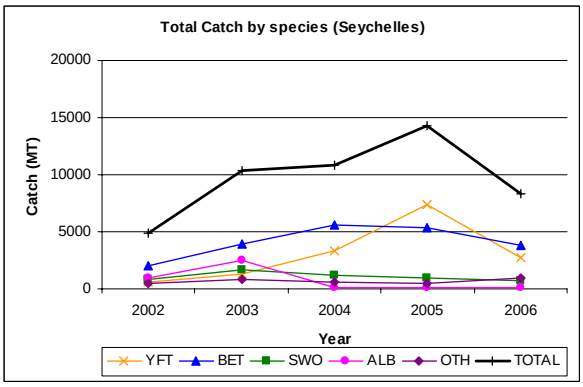


Fig 21. All longliners CPUE by species.

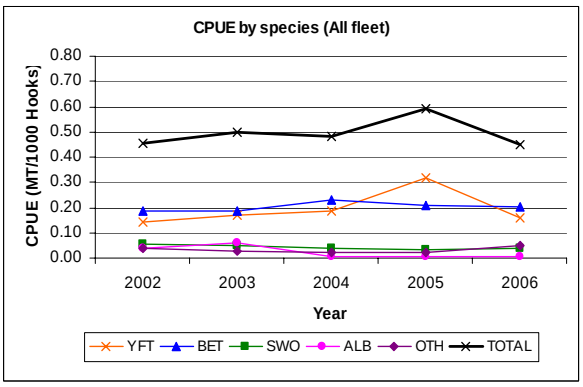
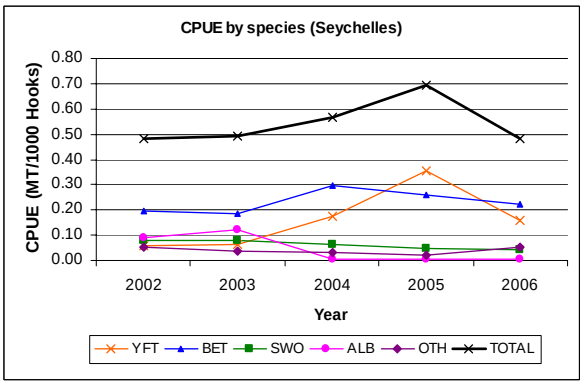
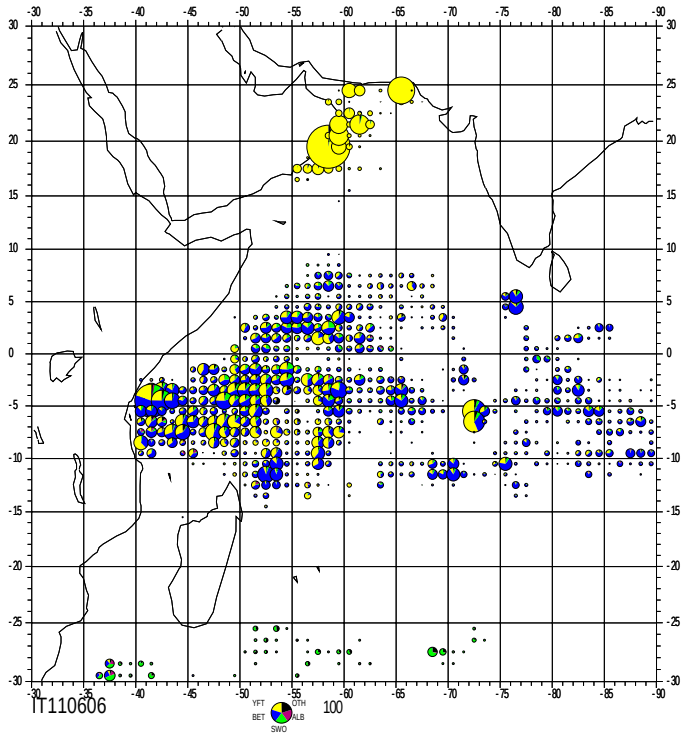


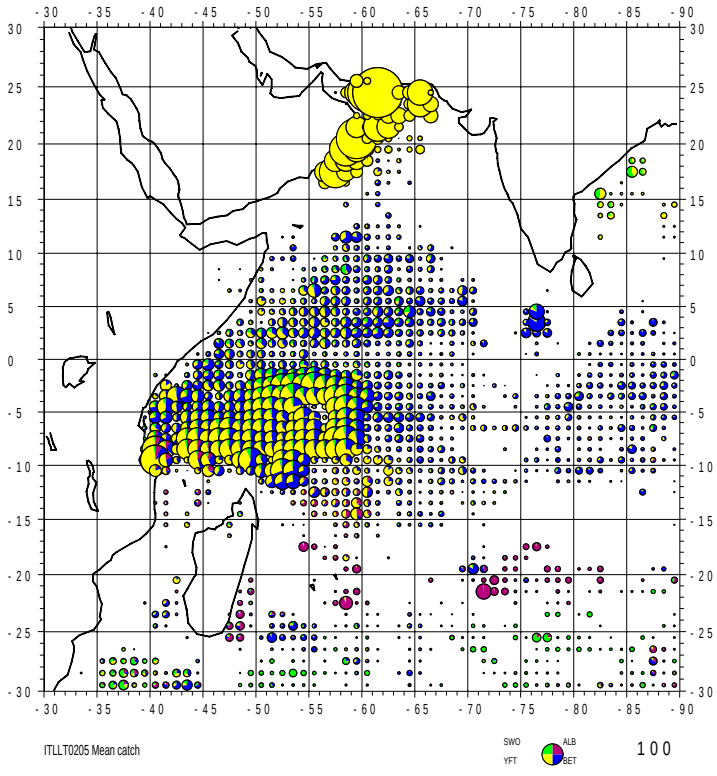
Fig 22. Seychelles longliners CPUE by species



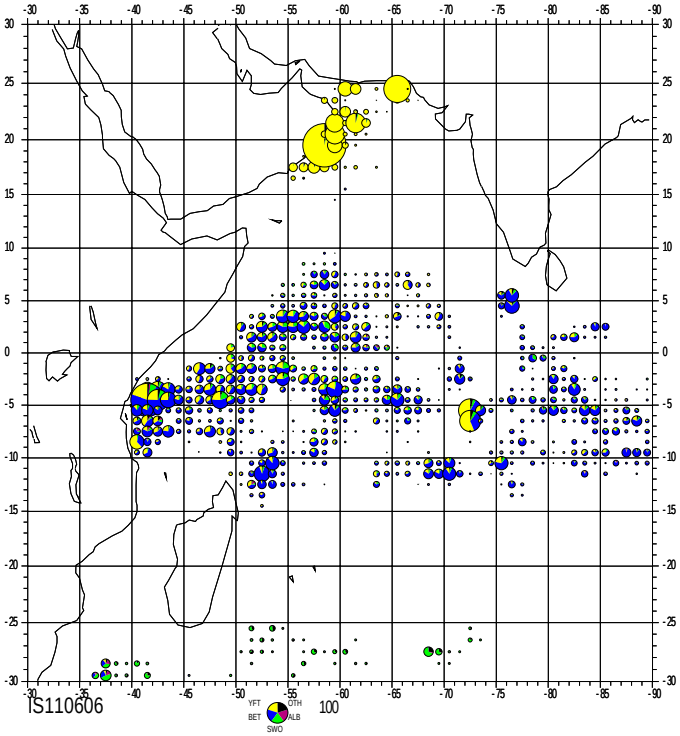
Map 5. Distribution of catches (MT) for the year 2006 by 1° square reported by all longline fleets.



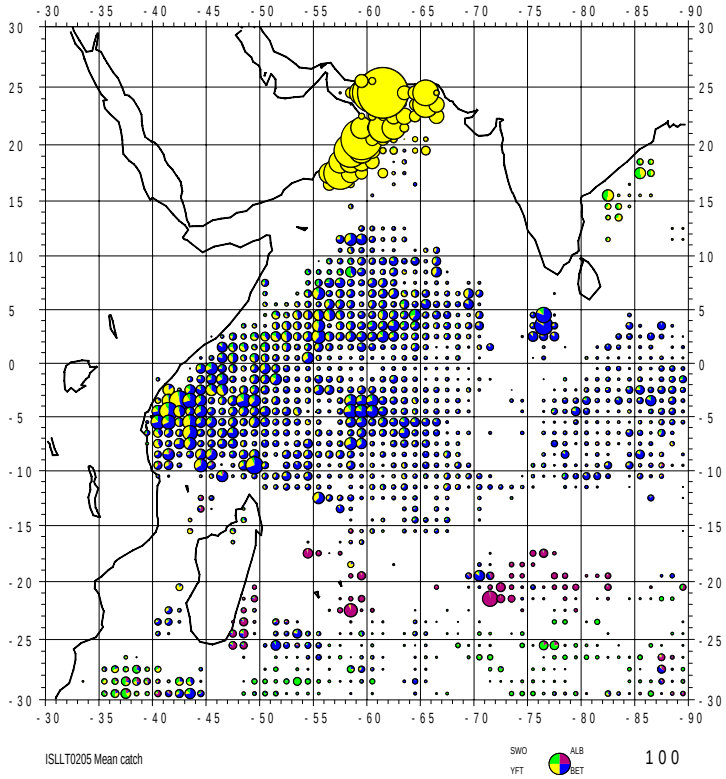
Map 6. Distribution of mean catches (MT) for the years 2002– 2005 by 1° square reported all longline fleet.



Map 7. Distribution of catches (MT) for the year 2006 by 1° square reported by the Seychelles longline fleet.



Map 8. Distribution of mean catches (MT) for the years 2002– 2006 by 1° square reported by the Seychelles longline fleet.



4.0 SEMI-INDUSTRIAL FISHERY

It must be noted that figures presented in this report might differ from previously presented figures. In the current report the data have been raised to take into consideration situations where a logbook where obtained but no landings data were available, or landings data were available without any logbook data. Furthermore the catch data have been raised to round weights.

4-1 Vessels active and fishing effort

Table 10 summarises the fishing activities of the semi-industrial fleet over a 5 years period from 2002 to 2006. During 2006, 6 semi-industrial vessels conducted a total of 40 longline fishing trips (for tuna and swordfish) compared with 43 trips conducted by 5 local vessels during the previous year. This represents a slight decrease of 7% in the number of fishing trips. The corresponding fishing effort (number of hooks) has also decreased slightly in 2006 (figure 23).

4-2 Catch

The estimated catch reported by the local semi-industrial fleet for 2006 is estimated at 219 MT compared to 290 MT in 2005 (Table 10). This represents a decrease of 25% in catches although the effort decreased by only 1%.

The species composition of the total catch reported since the beginning of the fishery is given below in table 11. Swordfish, the targeted species, has dominated catches over the past five years making up between 50 – 79% of the catches. The percentages of tuna in the total catch increased from 36% in 2005 to 44% in 2006. Catches of sharks decreased by nearly 50% in 2006 compared to 2005 (Table 11). It should however be pointed out that only trip targeting swordfish and tuna are considered here. Trips that target sharks are considered in section 4-4

4-3 Yield

The catch rate estimated for 2006 is 1.13 MT/1000 hooks compared to 1.48 MT/1000 hooks in 2005 (Table 12 and figure 23). The swordfish CPUE decreased from 0.86MT/1000 hooks in 2005 to 0.59MT/1000hooks in 2006. The CPUE of tuna (yellowfin and bigeye) also decreased slightly from 0.25 MT/1000 hooks and 0.28 MT/1000 hooks in 2005 to 0.22 MT/1000 hooks and 0.27 MT/1000 hooks respectively. The high CPUE reported over recent years (2002 onwards) can be partly attributed to the fact that mostly vessels with better historical performance were operating on a regular basis over this period, whilst the historically less efficient vessels were involved in other activities (notably fishing for sharks)

4-5 Shark fishing activities.

During 2006 a total of 8 semi-industrial longline vessels continued to target sharks although the restriction on the exportation of swordfish on the European market was lifted in February 2005. 10 vessels targeted sharks in 2005.

In 2006 a total of 97 sharks fishing trips were conducted compared to 103 trips in 2005. A total of 17.91 MT of shark meat and 22.33 MT of shark fins were landed in 2006 compared with 21.81 MT of

shark meat and 22.15 MT of shark fins which were landed in 2005. This represents a decrease of 20% in the shark meat landed, which may suggest an increase in discard of shark meat as the amount of shark fins landed were very similar for both years

Sharks' catches consisted mainly of the blue shark (*Prionace glauca),* oceanic whitetip shark *(Carcharinus longimanus),* silky shark *(Carcharinus falciformis),* hammerhead shark *(Sphyrna spp),* mako shark *(Isurus oxyrinchus),* thresher shark *(Alopia sp)* and tiger shark (*Galeocerdo cuvieri)*.

Table 10. Summary of fishing activities of the semi-industrial fleet.

	2002	2003	2004	2005	2006
Number of vessels active	12	6	4	5	6
Number of Trips	101	42	22	43	40
Number of set	437	165	139	341	293
Gross Catch (MT)	230	91	90	290	219
Effort (1000' Hooks)	268	112	88	197	195
Catch Rate (MT/1000Hooks)	1.05	0.86	0.81	1.02	1.48

Table 11. Catch (MT) reported by the semi industrial fleet from 2002 to 2006.

SPECIES	2002	2003	2004	2005	2006
SWORDFISH	135.12	65.51	71.06	168.11	114.58
YELLOWFIN TUNA	41.94	13.13	7.43	49.82	43.17
BIGEYE TUNA	24.08	11.44	7.24	55.75	52.47
OTHER MARLIN	0.12	0.00	0.05	0.23	0.91
BLACK MARLIN	2.45	0.00	0.00	0.92	0.83
BLUE MARLIN	0.48	0.28	0.35	0.53	0.14
STRIPED MARLIN	0.87	0.00	0.00	0.27	0.00
SHARKS	14.79	0.07	3.21	8.36	4.44
SAILFISH	7.56	0.43	0.65	4.76	1.99
OTHER SPECIES	2.92	0.00	0.19	1.54	0.57
GRAND TOTAL	**230.34**	**90.87**	**90.16**	**290.27**	**219.09**

Table 12. Catch rate (MT/1000 hooks) by species reported by the semi industrial fleet from 2002 to 2006

SPECIES	2002	2003	2004	2005	2006
SWORDFISH	0.50	0.59	0.80	0.86	0.59
TUNA	0.25	0.22	0.17	0.54	0.49
OTHER SPECIES	0.11	0.01	0.05	0.08	0.05
GRAND TOTAL	**0.86**	**0.81**	**1.02**	**1.48**	**1.13**

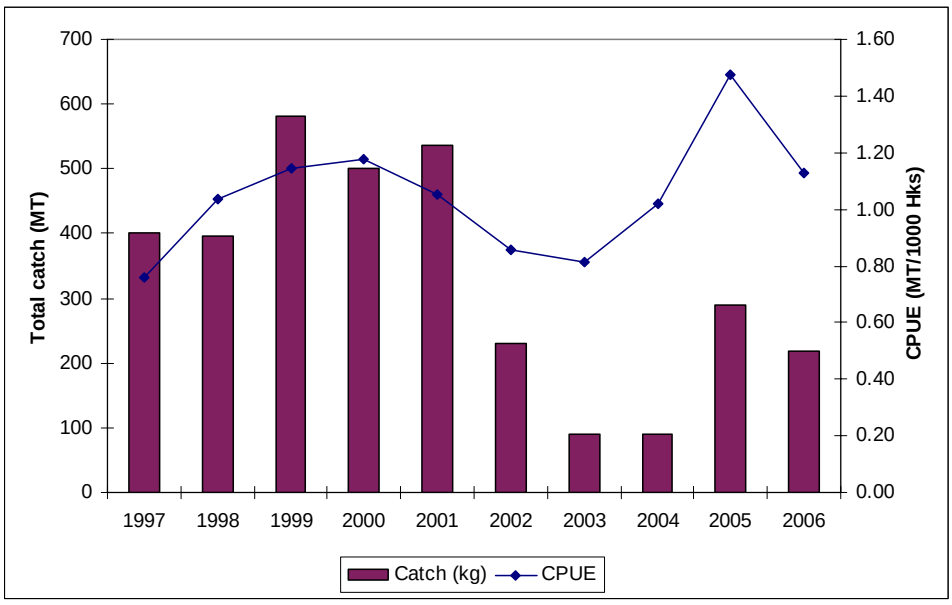


Figure 23. Evolution of total catches and catches rates reported since the beginning of the fishery