Status Of Seychelles Semi Industrial Longline Fishery

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Abstract

The local pelagic long line fishery targeting swordfish started in the Seychelles in 1995. The number of vessels active has fluctuated over the years. In 2008 and 2009, 9 vessels were active however only 7 were involved in targeting tuna and swordfish in 2008. After remaining constant between 2005 to 2007 the fishing effort increased remarkably from 192,271 hooks to 345,237 hooks in 2008 (80%) coinciding with more vessel switching to targeting swordfish and tuna as a result of an amendment to the Fuel Incentive scheme. In 2009 fishing effort further increased by 40%. *Fishing has traditionally concentrated on the northern part of the EEZ, however piracy activities in the Seychelles EEZ is likely to have disrupted this pattern. The reported total catch of the semi-industrial longline fishery is estimated at* 329 Mt in 2009, an increased of 41% from the previous year. *Swordfish has traditionally dominated that catches making slightly above 50%. In 2009 Swordfish catches in weight represented 52% of total 2009 catch, followed by yellowfin tuna 21%, then bigeye tuna with 17%. The overall annual CPUE has been on a downward trend since 2005 and was at its lowest (0.68 Mt/1000 hooks in 2008 and 2009). Similarly the swordfish CPUE shows a significant decreasing trend from* a peak of 0.87 Mt/1000 hooks in 2005 to 0.28 Mt/1000 hooks in 2008. It then increased slightly in 2009 to 0.35 Mt/1000 hooks. Targeting of shark have reduced significantly in 2009, where only 1 vessel, was targeting sharks and a decrease of 91% in total shark meat landed and a decrease of 90% in the total Shark fins landed was reported .

1. Introduction

The Seychelles billfish report summarizes status of the Seychelles semi industrial fishery which target predominantly swordfish. The report looks at the general catch, effort and species composition reported by the fleet in 2009 in comparison to previous years.

2.0 Overview of the fishery

The semi-industrial sector comprise of the monofilament longline fishery (targeting mainly swordfish and tuna) operated solely by Seychellois fishers. In 2009 all 9 vessels active in the Semi Industrial fishery were all targeting swordfish unlike in 2008 were only 7 vessels of the 9 targeted swordfish. This fleet have

traditionally operated around the Mahe plateaux concentrating their efforts in the North Eastern section of the Seychelles EEZ. However the increasing security threats from piracy in 2009 (expanding inside of the Seychelles waters), is likely to have disrupted their fishing pattern.

2.1. Data Collection

A monitoring program was set up by SFA since 1995 to closely monitor the semi industrial fishery. Several data are collected from logbooks filled by skippers and landing data from fish processors.
Fish are also sampled to collect biometric data. Table 1 below summarises logbook coverage for the last 5 years. Logbook coverage was lower during the 2001-2004 periods when fishing effort was mainly directed towards sharks fishing and skippers were not reporting such activity. However significant improvement in logbook and landings returns has been recorded over the past 5 years. The landing data is first raised from processed weight to round weight and the logbook data is then extrapolated to the raised landing.

Table 1. Logbook coverage of semi Industrial fishery, 2005- 2009

Year	N0. Of Trips	Logbook received (%)	Landing Received (%)
2005	44	95%	100%
2006	41	98%	100%
2007	40	100%	100%
2008	71	90%	100%
2009	113	96%	97%

2.2. Fishing effort

From 2005 to 2007 the fishing effort (number of hooks set) remained more or less constant. However the fishing effort increased remarkably by 80% from 192,271 hooks to 345,237 hooks in 2008 coinciding with an amendment to the Fuel Incentive Act whereby vessels landing in excess of 15% shark (in weight) no longer qualify for concession on fuel. In consequence vessels switched from targeting shark to targeting swordfish and tuna. There was a further increased of 40% in the effort in 2009 (figure 1).

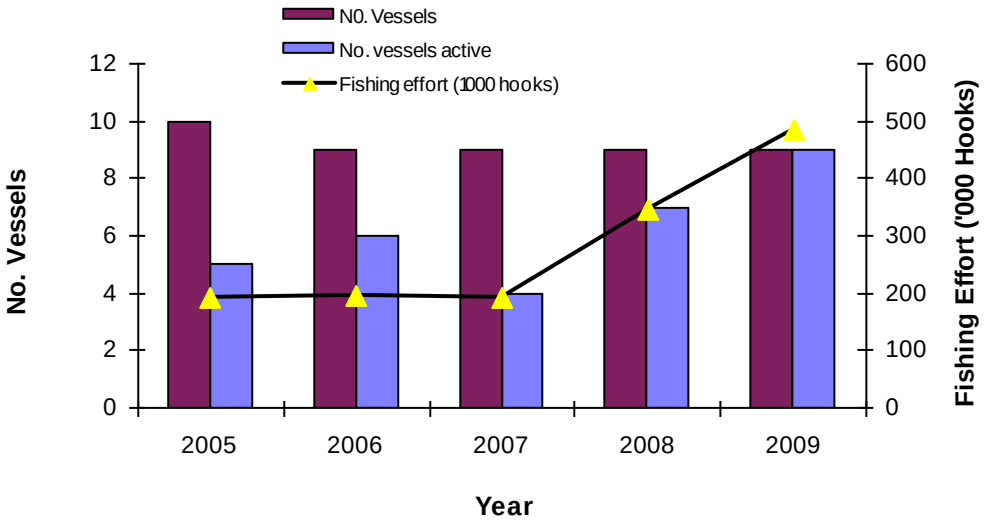

Figure 1. Number of vessels active and fishing effort of the semi Industrial longline fleet, 2005 - 2009

2.3 Catch and Catch rates

Following a 21% decreased in the total catch from 294 Mt in 2005 to 233 Mt in 2006, catches has remained more or less constant through to 2008. In 2009 the total catch by the semi industrial fleet was 329 Mt and increased of 41% from the previous year (Table 2 and figure 2).

Table 2. Catches by species of semi Industrial fishery, 2005 – 2009

Year	SWO	YFT	BET	SFA	MAR	SHK	OTH	Total Catch ((Mt)
2005	168	50	56	5	2	12	2	294
2006	108	40	48	3	2	31	0	233
2007	111	70	55	3	2	5	3	249
2008	98	44	59	7	3	22	1	233
2009	170	68	59	15	5	12	1	329

The CPUE decreased from 1.51 Mt/1000 hooks in 2005 to 1.12 Mt/1000 hooks in 2006, then increased slightly to 1.29 Mt/ 1000 hooks in 2007 . In 2008 and 2009 the CPUE remained constant at 0.68 Mt/1000 hooks, the lowest recorded since the beginning of the fishery (figure 2).

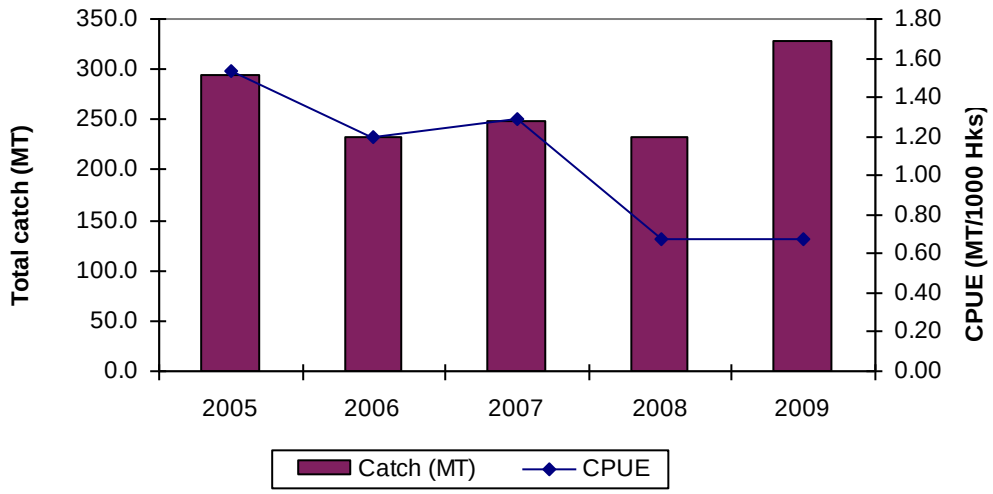

Figure 2. Catch and catch rate estimated for the semi Industrial longline fleet, 2005 - 2009

From 2005 the Swordfish CPUE shows a decreasing trend from a peak of 0.87 Mt/1000 hooks to 0.28 Mt/1000 hooks in 2008. It then increased slightly in 2009 to 0.35 Mt/1000 hooks. For yellowfin and bigeye tuna an increased in both species CPUE was reported from 2005 to 2007 reaching 0.36 Mt/1000 hooks and 0.29 Mt/1000 hooks respectively. The CPUE for both species has since then decreased to a 0.14 Mt/1000 hooks and 0.12 Mt/1000 hooks respectively in 2009. The CPUE for by-catches (marlins, sailfish and other species) has remained less than 0.1 Mt/1000hooks over the past 5 years.

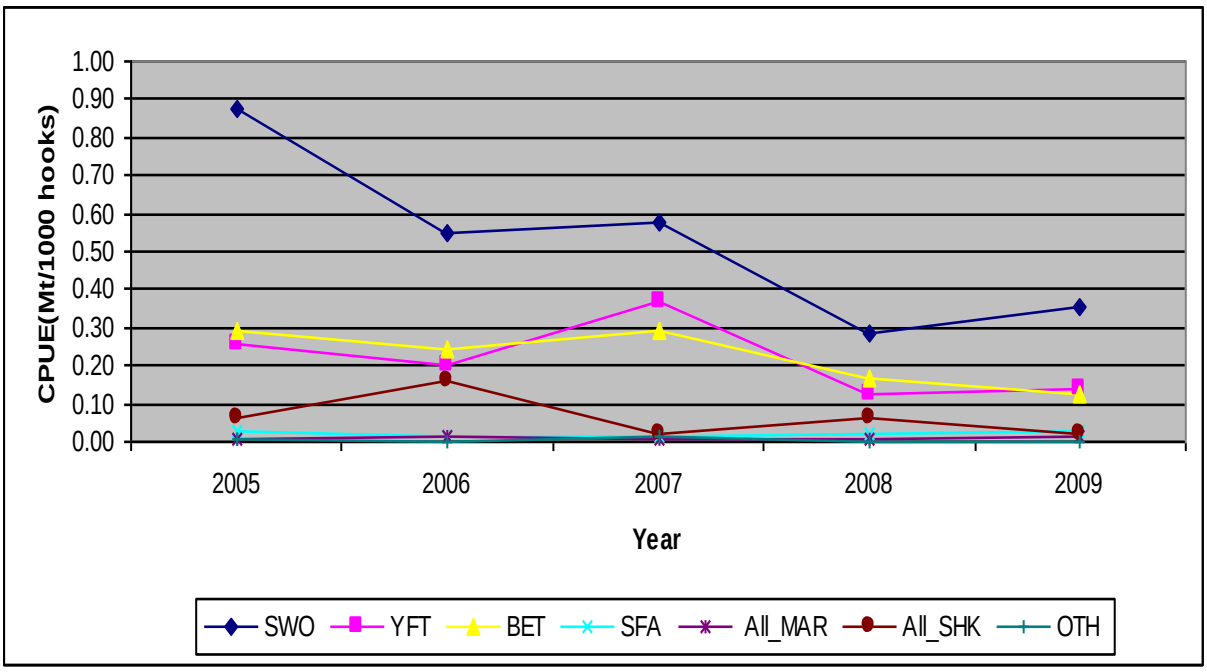

Figure 3. Catch rate (Mt/1000 hooks) by species of semi Industrial fishery, 2005- 2009

2.4 Species composition

The average species composition of the total catch reported over the last 5 years is shown in figure 4. Swordfish the predominant targeted species dominated the catch making up 50% of the total catch followed by bigeye (21%) and yellowfin tuna (20%). It must be noted that since 2005 the proportion of tuna in the semi industrial fishery has been on the increase from 36% of the total catch in 2005 to 44% in 2006. It is still unclear whether switch in targeting (swordfish/ tuna) is occurring, however this is very unlikely given that the setting configuration remains unchanged. In 2007, for the first time since the beginning of the fishery, tuna (125 Mt) dominate the catch accounting for 51% of the total catch whilst swordfish (111 Mt) accounted for 45% of the total catch (table 3). However in 2009 swordfish was once again the dominant species accounting for 52% of the total catch followed by yellowfin (21%) and bigeye (17%). By-catches constituted mainly of sharks (4%), sailfish (4%), marlin and other species (2 %). It must be noted that catches of shark obtained from trips targeting sharks are considered under section 2.6 below

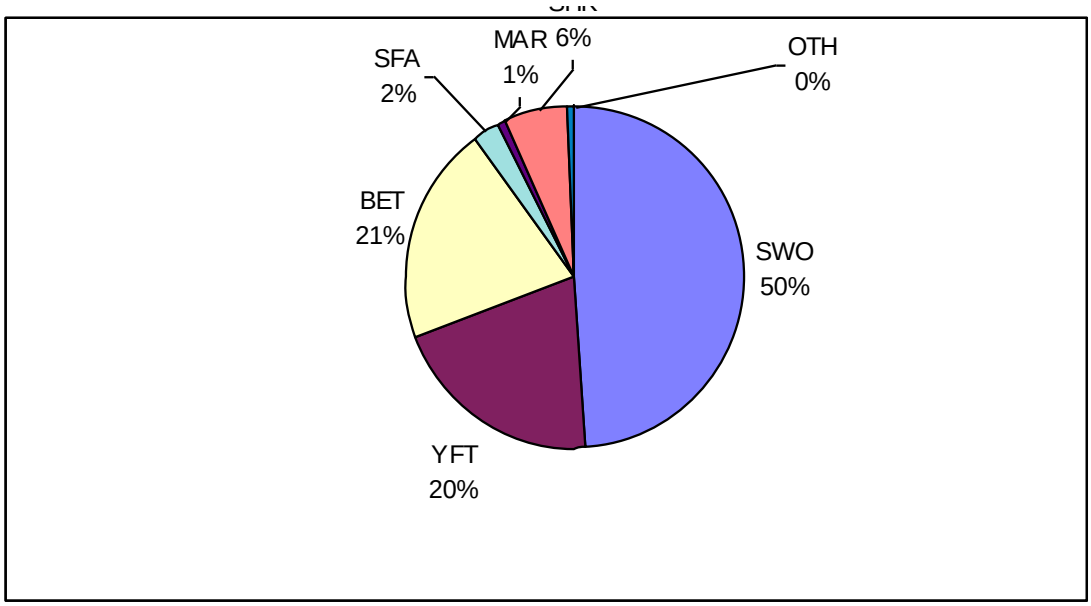

Figure 4. Average Species composition of semi Industrial fishery for the 2005 - 2009 period.

Table 3. Species composition of semi Industrial fishery, 1995 - 2009

Year	SWO	Tuna	Others
1995	64%	30%	6%
1996	57%	40%	3%
1997	57%	32%	10%
1998	61%	29%	10%
1999	50%	31%	18%
2000	52%	21%	27%
2001	50%	29%	21%
2002	59%	29%	13%
2003	72%	27%	1%
2004	79%	16%	5%
2005	58%	36%	6%
2006	52%	44%	4%
2007	45%	51%	5%
2008	42%	44%	14%
2009	52%	39%	10%

2.5. Size Frequency

The monitoring of size frequencies has been carried out by SFA staff since the beginning of the fishery during the landing of fish. Analysis of size frequency were realised from Pectoral Anal Length (PAL) for swordfish. The swordfish size frequency distributions for the last 5 years are presented in figure 5. The size class are in centimetres. A total of 2,544 swordfish were sampled during the past 5 years. The mean PAL of swordfish over the past 5 years was 50 cm. Coverage has dramatically reduced over recent years given that offloading are taking place at 4:30 a.m. and we are not always notified in order to mobilize our technicians.

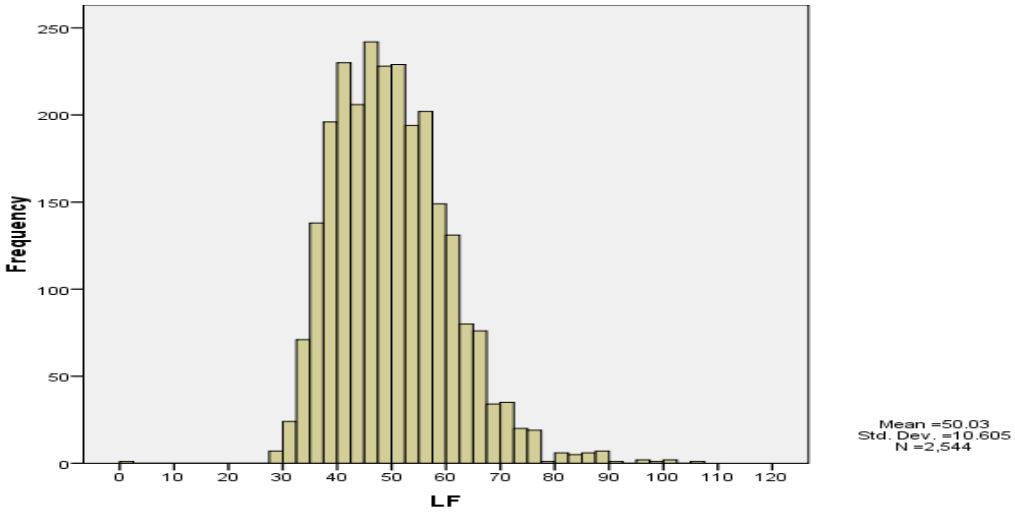

Figure 5. Swordfish size frequency distributions (PAL in cm) from fish landed by Seychelles' longliners in Victoria for the period 2005 - 2009 (n=2,544).

2.6. Shark fishery

During 2009 only 1 vessel, was targeting sharks. It must be noted that only a small proportion of the total catch are landed as shark meat, with a significant percentage of catches finned and the carcases discarded at sea.

In 2009 only 4 sharks fishing trips were conducted compared to 37 trips in 2008. A total of 1.80MT of shark meat and 0.93 MT of shark fins were landed in 2009 compared with 21.02 MT of shark meat and 9.35MT of shark fins which were landed in 2008 (Table 4) This represent a decreased of 91% in total shark meat landed and a decrease of 90% in the total Shark fins landed. However there is a suspicion that shark fins from the semi-industrial fishery are not being declared and are being pass on to artisanal fishers. An analysis of export statistics is necessary.

Table 4. Shark catches of semi Industrial fishery, 2005 -2009

Year	Number of vessels active	Number of Trips	Logbook return (%)	Catch of shark meat (Mt)	Catch of shark fins (Mt)
2005	10	79	97	17.84	16.47
2006	8	75	100	12.34	16.89
2007	6	60	100	20.42	18.57
2008	5	37	100	21.02	9.35
2009	1	4	100	1.80	0.93