



## SEYCHELLES INDUSTRIAL FISHERY STATISTICAL SYSTEM

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This background paper documents the Tuna Statistical Systems of the Seychelles Fishing Authority.

### 1. INTRODUCTION

#### INDUSTRIAL LONGLINING

Industrial fishing activities started in the Seychelles waters since early 1950 when the Distant Water Fishing Nations started longline tuna fishing. This was initiated by the Japanese and soon followed by the Taiwanese (1954) and the Koreans (1960).

From 1993, European Union longliners applied for licenses to fish in the Seychelles Exclusive Economic Zone, (French followed by the Spanish and British longliners).

In 1998, Indonesian longliners applied for licenses and in 1999, one Portuguese longliner applied for a one year licence.

The number of licenses issued to industrial longliners has continuously increased, a peak of 360 licences issued was observed in 1997 and this number has decreased to 166 in the year 2000.

Seychellois flag of convenience vessels (Taiwanese origin) started operating in 1999.

The industrial longline fleets are composed of vessels ranging from 25 to 60m in overall length and 200 - 800 GRT(Gross Registered Tonnage).

The Japanese licences are valid on average 2.5 months, the Taiwanese and South Korean, on average 1 month, the Indonesians, 6 months and the European Union, 1 year.

The returning rate of logbooks to the SFA from the industrial longliners has been quite low, especially from the South Koreans and the Taiwanese and almost none of the vessels tranship in Seychelles. This makes it quite difficult for SFA to monitor and document this fishery in a proper way.

#### PURSE SEINING

Intense purse seining activities started in 1983 when the European Union purse seine fleet moved from the tropical Atlantic to the Western Indian Ocean. From 30 purse seiners licensed and active in 1984, the licences have increased to 55 in 2000 and 45 vessels were recorded active.

Seychellois flagged purse seiners (Flag of convenience of French and Spanish origin) started fishing in 1991. From 1 vessel this number has increased to 6 in 2000.

Four categories of purse seiners have fished in the Seychelles EEZ:

*Table 1. Categories of purse seiners.*

Class	Length	Carrying capacity
5	36 – 54m	400 – 600t
6	54 – 56m	600 – 800t
7	56 – 70m	800 – 1200t
8	>70m	>1200t

Most of the purse seiners apply for a one-year licence. The returning rate of logbooks to SFA by licensed vessels is around 100% and SFA has detailed reports of over 90% of their transhipment.

Port Victoria is the major tuna transhipment port in the region and actually, around 60% of the Indian Ocean purse seine catch (around 180,000mt) is transhipped in Port Victoria.

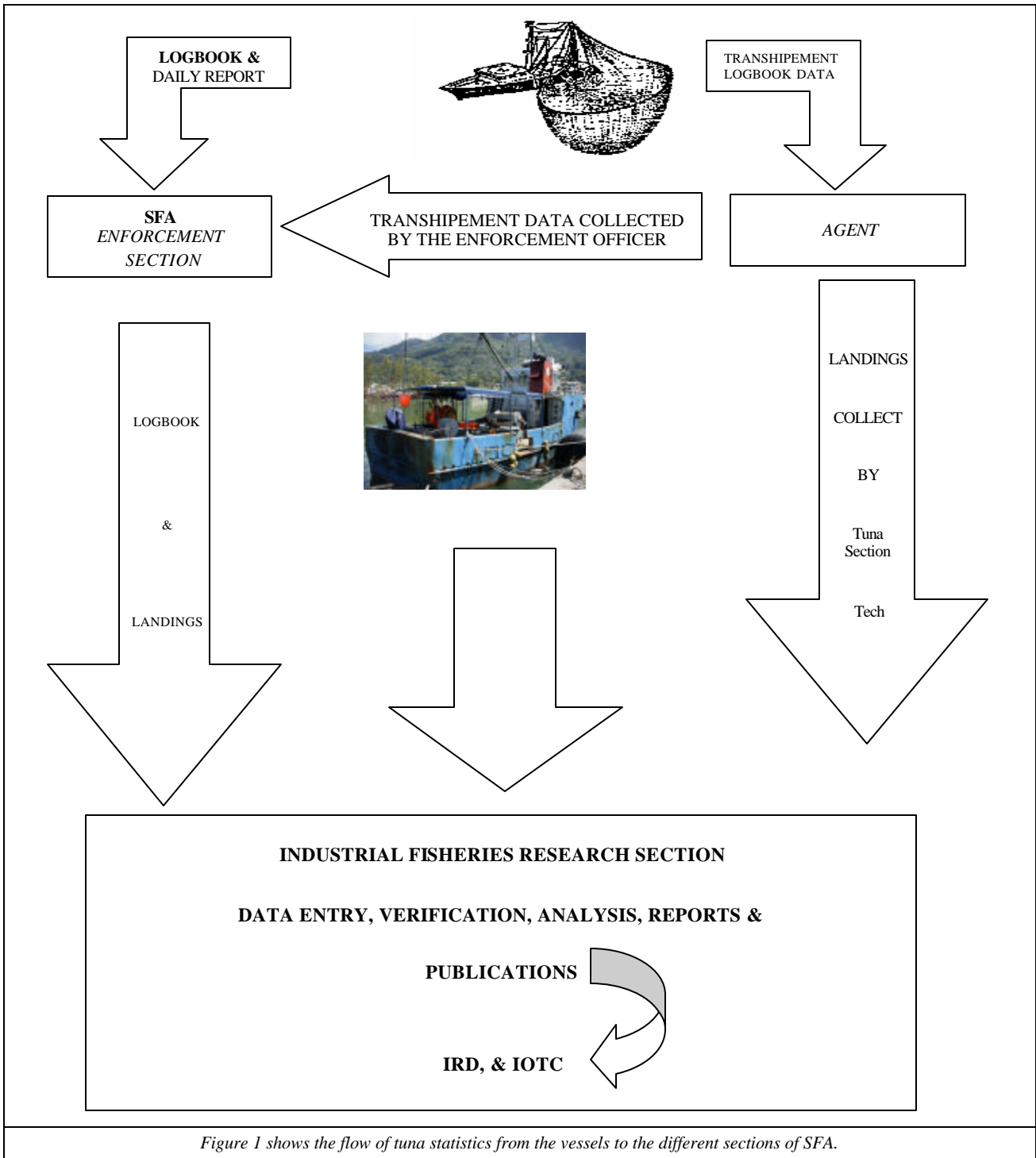
#### Semi- Industrial Fishery

Actually, 10 Seychellois longliners (from 16 to 23 m) are fishing for swordfish. Their capacity varies from 10 to 50 m.

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**11. DATA FLOW, HANDLING AND PROCESSING**

**INFORMATION FLOW**



*Figure 1 shows the flow of tuna statistics from the vessels to the different sections of SFA.*

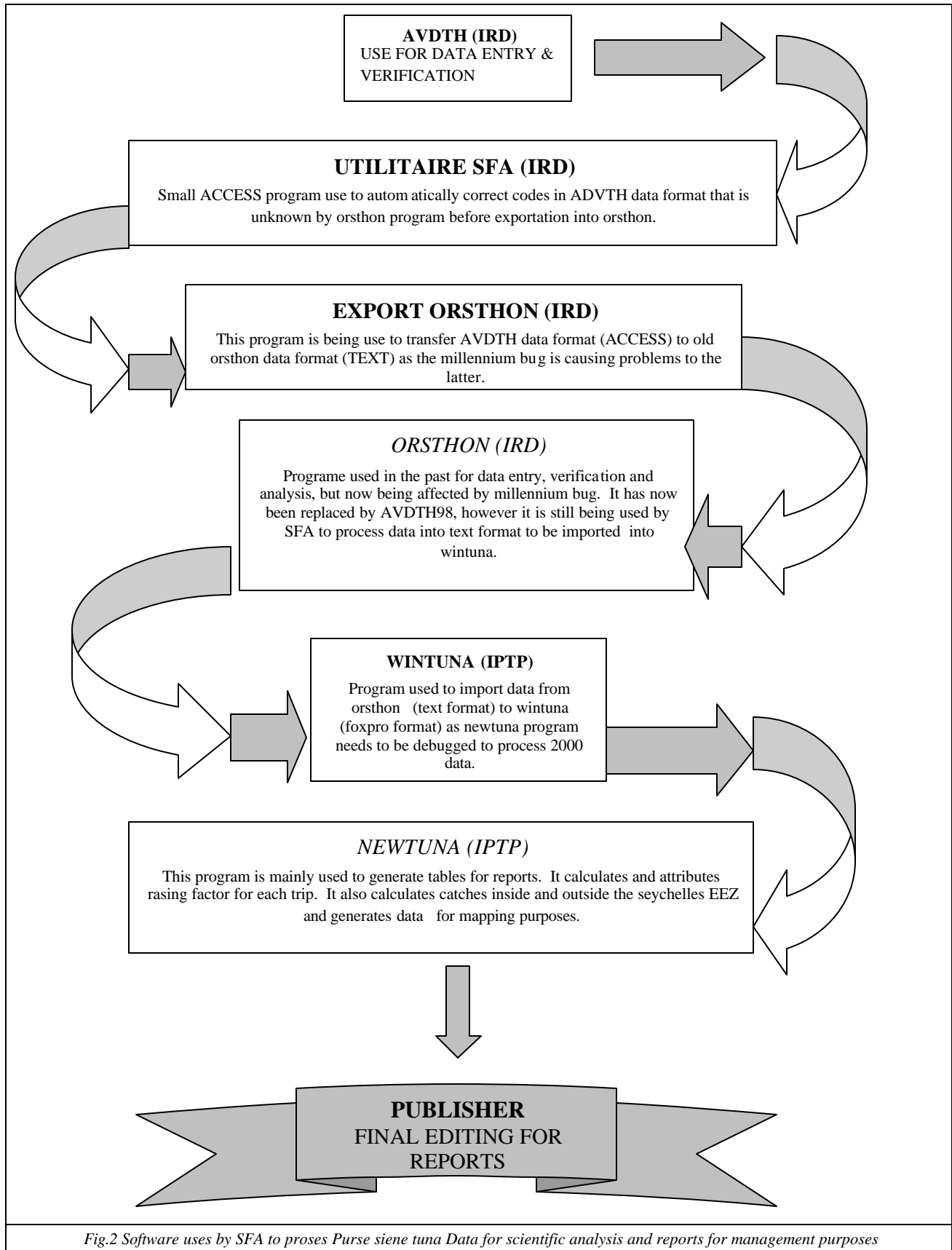


Fig.2 Software uses by SFA to proses Purse siene tuna Data for scientific analysis and reports for management purposes

## Data handling

Three programmes are actually being used at SFA to process the vessel specifications, daily catch and effort logbooks, and transshipment and landing records.

- The old OSTHON programme developed by ORSTOM
- AVDTH developed by IRD
- The NEWTUNA programme and its new window version, the WINTUNA developed by IPTP in close collaboration with SFA. The latter programme has been further developed by SFA to process the semi-industrial fishery data.

## 111. VESSELS ACTIVE, REPORTING AND RELIABILITY OF DATA

### 1. PURSE SEINERS

#### VESSELS LICENSED

Table 2 illustrates the number of purse seiners licensed in Seychelles for the last 11 years by Flag state (and country of origin).

PURSE SEINERS LICENCED IN THE SEYCHELLES BY COUNTRY AND BY YEAR													
COUNTRY ORIGIN	FLAG	90	91	92	93	94	95	96	97	98	99	0	1
Spain	Belize	0	0	1	3	6	4	4	5	4	4	5	2
Ivory Coast	Ivory Coast	5	0	0	0	0	0	0	0	0	0	0	0
Spain	Spain Private	0	0	1	1	0	0	0	0	0	0	0	0
Spain	Spain	11	0	2	19	18	19	22	23	22	24	20	17
France	France Private	0	0	1	1	0	0	0	0	0	0	0	2
France	France	18	0	0	17	17	17	17	19	16	17	15	17
India	India	1	0	0	0	0	0	0	0	0	0	0	0
Iran	Iran	0	0	0	0	2	0	0	0	0	1	1	0
Italy	Italy	0	0	0	0	0	0	0	1	1	1	1	1
Japan	Japan	1	4	15	12	2	0	0	0	0	0	0	0
Russia	Liberian	10	0	3	6	8	20	3	3	0	0	0	0
Mauritius	Mauritius	1	0	3	3	4	3	3	2	1	1	1	0
Spain	Netherland Antilles	0	0	0	0	0	0	0	4	4	5	5	4
Spain & Russia	Panama	0	0	3	3	3	3	3	5	6	6	1	1
Spain & Seychelles	Seychelles	0	1	1	1	0	0	0	5	5	5	6	9
France	St Vin. Grenadines	0	0	0	0	0	0	0	4	0	0	0	0
<b>TOTAL</b>		<b>47</b>	<b>5</b>	<b>30</b>	<b>66</b>	<b>60</b>	<b>66</b>	<b>52</b>	<b>71</b>	<b>59</b>	<b>64</b>	<b>55</b>	<b>53</b>

## REPORTING

### EU owned Purse seiners

The reporting rate of the above vessels has been very good, around 99%, (logbook and transshipment data). The information is compiled and disseminated in the internal SFA's Confidential Reports and external Tuna Bulletins.

### Other purse seiners

Tables 3 to 6 below illustrates the number of Mauritian, Japanese, and Russian vessels active, according to logbook returns to SFA.

*Table 3. Mauritian purse seiners active by year and by month*

	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	0
<b>Jan</b>	1	1	1	1	2	3	2	2	3	3	1	2	2	2	1	1	1
<b>Feb</b>	1	1	1	1	2	3	1	2	3	3	1	2	2	2	1	1	1
<b>Mar</b>	1	1	1	2	2	3	2	2	3	3	2	2	2	2	1	1	
<b>Apr</b>	1	1	1	2	2	3	2	3	3	3	2	2	2	2	1	1	
<b>May</b>	1	1	1	2	2	3	2	3	2	3	2	2	2	2	1	1	
<b>Jun</b>	1	1	1	2	2	3	2	3	2	3	2	2	2	2	1	1	
<b>Jul</b>	1	1	1	2	3	3	2	3	2	3	2	2	2	2	1	1	
<b>Aug</b>	1	1	1	2	3	2	2	3	2	3	3	2	2	2	1	1	
<b>Sep</b>	1	1	1	2	3	2	2	3	2	3	3	2	2	2	1	1	
<b>Oct</b>	1	1	1	2	3	2	2	3	2	2	2	2	2	2	1	1	
<b>Nov</b>	1	1	1	2	3	2	1	3	3	3	1	2	2	2	1	1	
<b>Dec</b>	1	1	1	2	3	2	2	3	3	2	2	2	2	2	1	1	
<b>Avrg</b>	1	1	1	2	3	3	2	3	3	3	2	2	2	2	1	1	1

*Table 4. Japanese purse seiners active by year and by month*

	1988	1989	1990	1991	1992	1993	1994
<b>Jan</b>	1	1	4		11	11	1
<b>Feb</b>	1	1	4		11	11	
<b>Mar</b>	1		3		11	10	
<b>Apr</b>			3		11	10	
<b>May</b>			3		11	10	
<b>Jun</b>			3		10	9	
<b>Jul</b>	1	1	3		10	9	
<b>Aug</b>	1	2	2		10	9	
<b>Sep</b>	1	3	3		9	7	
<b>Oct</b>	1	3	2		10	6	
<b>Nov</b>	1	3	2	1	11	5	
<b>Dec</b>	1	3	2	9	11	5	
<b>Avrg</b>	1	2	3	5	11	9	1

Table 5. Russian Purse seiners active by year and by month

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Jan		4	4	2	4	3	3	3	7	5		2	2
Feb		2	4	8	3	5	3	3	9	1	1	2	2
Mar			3	8	1	5	4	3	9	2	2	2	2
Apr		2	3	8		5	4	3	11	2	2	2	2
May		3	3	9		4	3	3	9	1	2	2	2
Jun		3	4	1		3	2		4		2	2	2
Jul		3	4	4		2	3		1			2	1
Aug		3	3	4		3	2	1	4		1	1	
Sep	1	3	3	3		2	3	4	8		1	1	
Oct	4	1	3	3	2	3	2	4	8		1	1	
Nov	4	3	3	3	2	3	2	6	7		1	1	
Dec	4	4	3	3	3	3	3	6	6		1	1	
Avrg	3	3	3	5	3	3	3	3	7	2	1	2	2

Table 6. Iran Purse seiners active by year and by month

	1999	2000
Jan	1	1
Feb	1	1
Mar	1	1
Apr	1	1
May	1	
Jun	1	
Jul	1	
Aug	1	
Sep	1	
Oct	1	
Nov	1	
Dec		
AVERAGE	1	1

## 2. SUPPLY VESSELS

Table 7 below shows the number of supply vessels licensed in Seychelles from 1997 - 2001

Year	Nationalities		Total
	French	Spanish	
1997	1	4	5
1998	2	7	9
1999	1	8	9
2000	1	8	9
2001	1	8	9

## 3. LONGLINERS

Table 8a illustrates the number of individual longliners licensed in Seychelles for the last 11 year by flag state and by country of origin. Table 8 b shows the number of licenses issued to different countries from 1990 to 2001.

### Licenses Issued

Table 8a. Licenses taken by individual vessels.

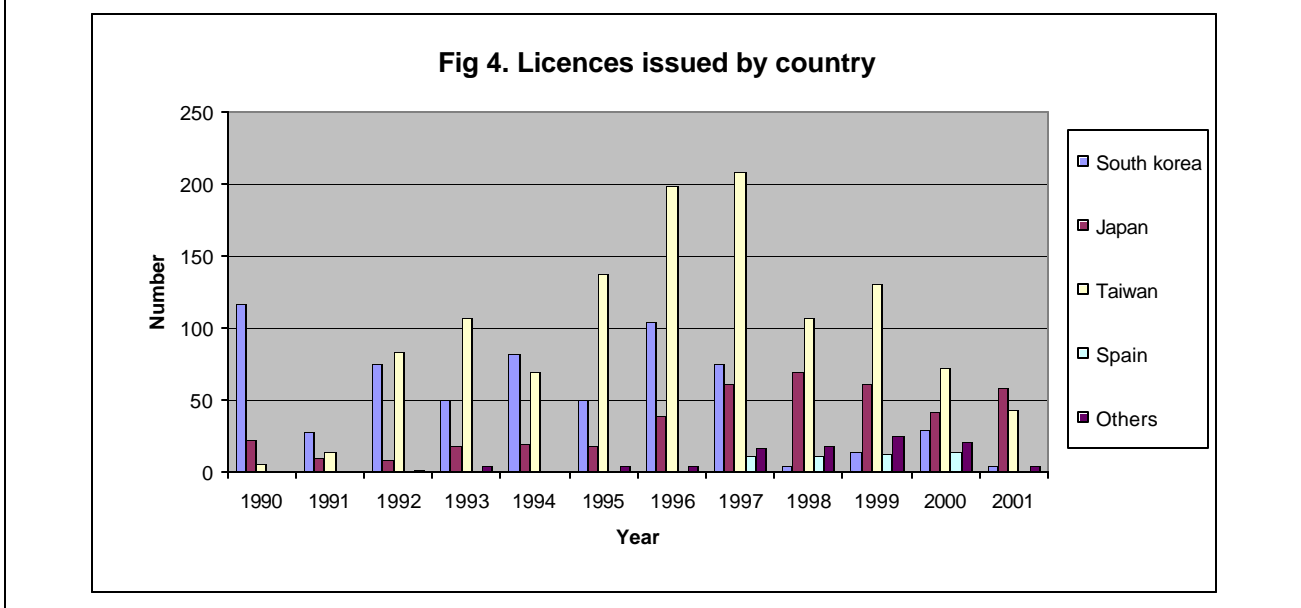
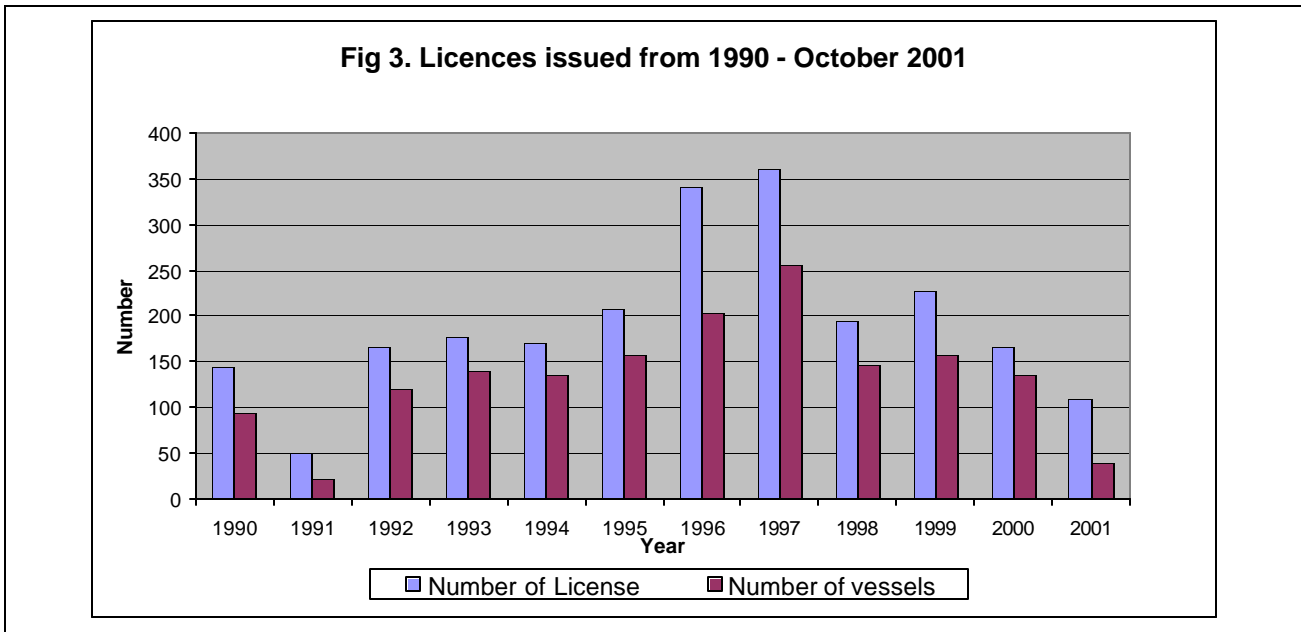
COUNTRY ORIGIN	FLAG	90	91	92	93	94	95	96	97	98	99	00	01
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Cambodia													2
China												1	
France				1			3	5	1	1	1		
Indonesia										4	7	8	1
Japan	Belize							3					
Japan	Honduras	3	2	2	2	2	4	6	3	9	11	3	
Japan	Other	19	7	5	15	17	13	32	55	60	49	38	58
Kenya							3						
Mauritius			1	2		1							1
Portugal											1	2	
Scotland										1			
South Korea	Belize						1						
South Korea	Honduras	14	1	3	4	6	5				1		
South Korea	Panama	15		12	8	2	1	9	1				
South Korea	Others	87	26	59	37	74	43	94	74	3	13	28	4
Spain									11	10	12	13	
Taiwan	Belize									2	1	3	3
Taiwan	Honduras				1	4	9	8	8	3	6	3	
Taiwan	Panama								1				2
Taiwan	Seychelles										3	1	
Taiwan	Others	5	14	83	106	65	128	190	199	102	120	64	38
	Total	143	50	165	176	170	208	342	360	195	225	165	109

Table 8b. Licenses taken by countries.

Country / Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Cambodia</b>												2
<b>China</b>											1	
<b>France</b>				1			3		1	1	1	
<b>Indonesia</b>									4		8	
<b>Japan</b>	19	8	7	16	17	14	26	42	41	33	21	14
<b>Kenya</b>						3						
<b>Mauritius</b>			1	1		1						1
<b>Portugal</b>										1		
<b>Scotland</b>									1			
<b>Seychelles</b>										3	1	
<b>South Korea</b>	69		42	38	59	36	52	50	3	14	21	4
<b>Spain</b>									10		13	
<b>Taiwan</b>	5	13	70	83	60	104	121	164	84	105	69	18
<b>Total</b>	93	21	120	139	136	158	202	256	144	157	135	39

**Trend in Licenses Issued**



**Logbook Return**

*Table 9. Overall logbook returned.*

Country / Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Licenses Issued</b>	143	50	165	176	170	208	342	360	195	228	166	109
<b>Logbooks Returned</b>	79	16	46	144	89	22	65	110	125	127	59	25
<b>% Returned</b>	55	32	28	80	52	11	19	31	64	56	36	23



## Seychelles Registered Vessels

Country of origin: Taiwan

*Table 10. Vessels licensed to fish in Seychelles EEZ.*

Vessels Name	License Period	License No:	Logbook Returned	Fishing Location
<b>Develop 001</b>	25.09.99-24.03.2000	441	25.09.99-06.03.2000	Indian Ocean
<b>Bright 001</b>	25.09.99-24.03.2000	442	22.02.200-28.02.200	Indian Ocean
<b>Great 001</b>	01.10.99-31.10.99	765	01.10.99-25.10.99	Indian Ocean
<b>Sea-Wise</b>	18.10.00 – 17.11.00			Indian Ocean

*Table 11. Vessels not licensed to fish in Seychelles EEZ (2000).*

VesselsName	License Period	License No:	Logbook Returned	Remarks
<b>Bright 001</b>	NA	NA	18.01.00 - 30.12.00	Indian Ocean
<b>Develop 001</b>	"	"	21.02.00 - 05.03.00	Indian Ocean
<b>Green 001</b>	"	"	01.10.00 - 30.12.00	Indian Ocean
<b>Jupiter</b>	"	"	17.01.00 - 28.02.01	Paci/Atlan / Indian
<b>Mars</b>	"	"	20.06.00 - 28.02.01	Paci/Atlan / Indian
<b>Venus</b>	"	"	17.01.00 - 23.04.00	Paci/Atlan / Indian

*Table 12. Vessels not licensed to fish in Seychelles EEZ(2001).*

Vessels Name	License Period	License No:	Logbook Returned	Remarks
<b>Bright 001</b>	NA	NA	06.04.01 - 31.08.01	Indian Ocean
<b>Chun Ying 323</b>	"	"	11.04.01- 23.08.01	Pacific
<b>Evergold 001</b>	"	"	21.01.01 - 23.04.01	Pacific
<b>Sey Star (ex Jupiter)</b>	"	"	25.04.01 - 10.08.01	Pacific
<b>Sey Gem (ex Mars)</b>	"	"	26.04.01 - 10.08.01	Pacific
<b>Ping Shin 201</b>	"	"	01.07.01 - 31.08.01	Indian Ocean
<b>Shuenn Man 232</b>	"	"	04.02.01 - 23.04.01	Pacific
<b>Sey Pearl (ex Venus)</b>	"	"	01.05.01 - 10.08.01	Pacific
<b>Venus</b>	"	"	22.01.01 - 26.02.01	Atlantic
<b>Victory 001</b>	"	"	16.03.01 - 31.08.01	Indian Ocean

*Table 13. Catch Statistics of Seychelles Registered Longline Vessels*

LOCATION	YEAR	Vessels	YFT	BEY	ALB	Bluefin	SWF	Others	Total
<b>Indian Ocean</b>	1999	3	26	41				3	70
<b>Indian Ocean</b>	2000	3	158	146				63	367
<b>Paci/Indian/ Atlan</b>	2000	3	223	522				122	868
<b>Indian Ocean</b>	2001	3	160	373	247	82	115	105	1082
<b>Pacific</b>	2001	6	103	273	62		81	58	577
<b>Atlantic</b>	2001	1	17	59			7	3	86

#### 4. SEMI-INDUSTRIAL FISHERY

*Table 14 below summarises the returning rate of logbooks and sampling frequencies from the Seychelles semi-industrial longliners.*

<b>Year</b>	<b>Number of trips</b>	<b>Logbook coverage</b>	<b>Landing data coverage</b>	<b>Frequency of trips sampled</b>
<b>1995</b>	8	100%	100%	52%
<b>1996</b>	88	83 %	88 %	57%
<b>1997</b>	136	61 %	93%	22%
<b>1998</b>	112	74 %	88 %	23%
<b>1999</b>	146	84 %	99 %	13%
<b>2000</b>	153	75 %	96 %	16%