



The industrial and semi-industrial fishery monitoring programme in Seychelles

The industrial fishery

Industrial fishing activities started in the Seychelles waters in the early 1950s 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). Since 1993, other European Union, notably French, Spanish and British, longliners have been applying for licenses to fish in the Seychelles Exclusive Economic Zone. Since 1997, Indonesian longliners have been applying for licenses and in 1999 one Portuguese longliner has applied for a one year licence.

The number of licenses issued to industrial longliners has thus continuously increased and actually around 300 licenses are issued per year. The fleets are composed of vessels ranging from 25 to 60 m in overall length and 200 - 800 GRT (Gross Registered Tons).

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

The return rate of logbooks to the SFA from industrial longliners has been quite low, especially from the South Koreans and 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.

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 increased to a maximum of 59 in 1997 (with 50 vessels recorded active). For 1999, 58 vessels hold Seychelles licences and for the first quarter of the year, 49 vessels have been reported to be active.

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

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 return rate of logbooks to SFA by licensed vessels is around 100 % and SFA has detailed reports of over 90 % of their transshipment. Port Victoria is the major tuna transshipment port in the region and actually, around 60 % of the Indian Ocean purse seine catch (around 180,000 t) is transhipped in Port Victoria.

Data handling and analysis

Two programmes are being used at SFA to process the daily catch and effort logbooks and transshipment records collected from the Industrial fishing vessels:

- The NEWTUNA programme and its new Windows version, WINTUNA.

This software was developed by IPTP in close collaboration with SFA. This system is used to generate tables for the SFA monthly confidential report and Tuna quarterly bulletins.

See Manual — WINTUNA — A Windows application for storing and processing data for the industrial tuna fisheries in the Republic of Seychelles.

- The ORSTHON programme developed by ORSTOM which permits further analysis of the data.

For the purse seine fishery, all logbook data and transshipment information are entered through the ORSTHON 1 programme. After verification, the information is imported to WINTUNA. The SFA monthly confidential report and Tuna Bulletin are then compiled through WINTUNA.

The tuna length-frequency data collected through port sampling activity is now being input through AVDTH, ORSTOM's new tuna software. Further analysis of the data is conducted by ORSTOM and IEO scientists.

All logbooks and transshipment data (if available) for the industrial longline fishery are processed through WINTUNA.

The semi-industrial fishery

This monofilament longline fishery targeting swordfish and tuna is practised actually by 6 local vessels of 16 metres and 2 foreign longliners (16 and 38 metres) registered in Seychelles.

The fishing activity is being carried out within 200 miles of Mahé.

Following experimental trips by SFA's research vessel in 1994, commercial trips were considered. The first started in October 1995.

Around 306 t of fish are landed annually and the main species caught are: swordfish (*Xiphias gladius*), 60 %, yellowfin tuna, (*Thunnus albacares*), 19 %, bigeye tuna (*Thunnus obesus*), 13 %, and other species (billfishes, common dolphin fish), 8 %.

Catch and effort data

A logbook system containing catch and effort forms (Appendix, F1) are filled in by the captains. Information concerning the fishing position, physical parameters of the environment, description of the set, estimated catch per species and number of "predated" fish per species are filled in for each set.

Landing weight per species are also recorded (Appendix, F2). This information is provided by the ship owners. These data are used to correct the estimated catch provided from the logbooks. The commercial weight recorded for this fishery in headed and gutted form.

Length-frequency data

Length-frequency data are recorded by fisheries technicians at the landing site. At least 3 trips are sampled every month. As the fish is processed on board (headed and gutted) prior to freezing, different measurements are taken at the landing site (depending on how the fish is dressed) so as to calculate the conversion factors.

The First Dorsal Fork length is recorded for yellowfin and bigeye tuna, and the Pectoral-Anal length for swordfish.

Data handling and analysis

WINTUNA is now being developed by IOTC to integrate processing for this fishery. Four major tables cover vessel specifications, trip information, catch and effort information and length frequency (sampling) data.