COLLECTION AND PROCESSING OF STATISTICAL DATA OF TUNA INDUSTRIAL FISHERY AND SEMI-INDUSTRIAL SWORDFISH FISHERY OF MAURITIUS

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ABSTRACT

This paper provides information about the collection and processing of fishery information in Mauritius regarding thr industrial fleets both domestic and foreign based in that country. Logbooks and landing statistics are usually collected as well as length frequency data obtained through port sampling. Domestic longliners targetting swordfish started operating in 1999 amounting to six vessels in 2000. No purse seiners oprate currently under the Mauritian flag.

1. INTRODUCTION

Commercial purse seine fishery was carried for the first time in the Indian Ocean by a purse seiner owned by a Japanese-Mauritian joint venture. This attempt was made after several successful experimental fishing were carried out by the Japanese Marine Fishery Research Centre (JAMARC). This fishery was further developed around 1984 where French and Spanish vessels started operating in the Indian Ocean. Until recently, three Mauritian purse seiners were operating. However due to financial problems these vessels had to stop their operations.

For more than three decades, Port-Louis has been serving as a transshipment base to the South-east Asian longliners in operation in the Western and Central Indian Ocean. This has been due to a combination of factors including strategical position of Port-Louis in the Indian Ocean, good infrastructure, good communication and cost effectiveness of various facilities and services offered. Each year about 15,000 tonnes of tuna and related species are transshipped at Port-Louis harbour.

Since 1999, commercial swordfish fishery is being developed. Promoters are being encouraged to exploit this fishery.

2. TUNA RESEARCH ACTIVITIES

The Albion Fisheries Reseach Centre has been conducting studies on tuna since 1985 with more emphasis on the collection of catch/effort and length frequency data. A system of data collection and processing has been set up at AFRC by IRD (ex. ORSTOM) scientist in 1987. Mauritian technicians were trained to use the system, to collect tuna data and perform necessary processing to produce various statistical reports.

3. TUNA INDUSTRIAL FISHERY

The tuna fishery is important for Mauritius as it forms the basis of an important canning factory. Three Mauritian purse seiners were in operation until 1997 when two of them were sold off and the only purse seiner in operation had to cease fishing in July 2000 due to financial problems. Presently, the canning factory has to rely on import of raw materials to meet its commitments.

Since 1995, Mauritius is issuing licences to Asian longliners to operate in its waters. Sampling programs are conducted on these vessels to collect length frequency data during the landings. Size frequency data are also collected on EU purse seiners during the unloading of these vessels at Port-Louis.

3.1 DATA SOURCE

3.1.2 Logbook data

Fishing logbooks are regularly distributed to local vessels and licensed longliners. Daily catch statistics are recorded by skippers on fishing logbooks. These catch statistics include fishing positions, catch by species (in tonnes), effort, (hours at sea, fishing hours, number of hooks), sea temperature, association of tuna schools, and wind and current direction in degrees and knots. The fishing logbooks are collected at the arrival of the local purse seiners and foreign longliners at the port or from the representatives of the vessels in Mauritius.

3.1.2 Landing statistics

Landing statistics (or total catch landed) are collected from the tuna canning factory and fishery companies representing longliners in Mauritius. These companies have the responsibility to record the weighed quantity landed by their vessels. Information obtained from the companies also include

total catch landed by species and effort (in terms of days at sea, fishing hours, and number of hooks).

3.1.3 Length frequency data

Length frequency sampling is conducted on the catches of licensed longliners during each landing. During the sampling, 150 - 200 fishes are measured irrespective of species and size of the fish at three different intervals. Length frequency data are also collected during the landing of a licensed purse seiner. About of 150 fishes are measured from each well.

3.1.4 Data entry and processing

The computer system, "Chain Thon" which was installed by IRD (ORSTOM) scientists in 1987, had stopped operating recently as certain problems had cropped up with our mini-computer system. We had approached the IOTC Secretariat who helped us by providing the software, "Wintuna" which is presently being used at AFRC.

The "Wintuna", developed by IOTC, is a FOXPRO executable application which is loaded under Windows. It is designed for storing and processing of data received from purse seine and longline fisheries.

Data is entered directly from the paper forms without pre-coding being needed. The programme contains two major databases for each fishery (longline and purse seine). Each database includes files for trip, logbook and length frequency data. For longline fishery, length frequency data is entered along with logbook data while for purse seiners, it is recorded separately.

The "Wintuna" is designed to generate statistical bulletins, reports and catch made in the EEZ of a country.

4 SEMI-INDUSTRIAL SWORD FIS H FISHERY

The occurrence of the swordfish (Xiphias gladius) in Mauritius waters had been reported by some fishermen a longtime back. In 1996, the feasibility of the swordfish fishery in Mauritian waters was demonstrated by the Regional Tuna project under the aegis of the Indian Ocean Commission by using semi-industrial longline fishing technique.

Commercial fishing of swordfish started in 1999. A 12 meter fishing boat carried out 10 fishing trips and landed 6.3 tons of sword fish and tuna. In 2000, two fishing boats were involved in swordfish fishery. About 51 tons of swordfish and tuna were unloaded by these vessels. The majority of their catch was composed of swordfish (62%).

During the present year, six licences have been issued to local boats to operate in this fishery. Twenty one EU swordfish longliners have also been licensed to operate in the Mauritian EEZ.

4.1 DATA SOURCE

4.1.1 Logbook data

Each licenced local boat is provided with a logbook. The skipper on board has to provide information like daily catch by species, number of hooks used, fishing positions, and environmental parameters. Logbooks returns are submitted after each trip.

4.1.2 Landing data.

Landing weight per species and duration of trips are provided by the fishing companies. This data is used to correct estimated catch provided by the logbook.

4.1.3 Length frequency data:-

Length frequency data are collected during each landing of the vessels. Length as well as the species of the fish measured is noted. As the fish is already headed and gutted on board of the vessels, different type of measurement are taken at the landing site. For swordfish, the pectoral fork length is recorded while for yellowfin, bigeye and albacore, the fork length is noted.

4.1.4 Data entry and processing

The data collected are verified and computerised using the Wintuna.

5. CONCLUSION:-

As the Mauritian purse seiners are not operating, no more purse seine data from local vessels are being collected. However, data received from licensed purse seiners unloading at Port-Louis are processed.

A regular morphometric sampling is organized on the catches on licensed longliners during their landing at Port-Louis. Length frequency data of tuna unloaded by these vessels are recorded.

Since 1996, the swordfish longline fishery is gradually evolving. Being given that it is a new fishery in Mauritius, many promoters are being encouraged to operate in this sector. The development of this fishery continues at a regional scale and thus it meets the objectives set up by the IOC Regional Tuna Project to develop a regional semi-industrial longline fishery. Data from this fishery namely logbook , trip and length frequency are regularly collected.

Presently, we are getting some problems are being encountered with the software "Wintuna", for data processing. The IOTC has been informed and it is expected that the coming "Wintuna 2000" will solve these problems.