

**REPORT ON DATA COLLECTION IN BRAZIL -- TASK I AND II**

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1- BAITBOAT NATIONAL FLEET

1.1 - TASK I

Baitboat fishery in Brazil is basically directed to skipjack tuna, which comprise about 90% of total landing. The second species in importance is yellowfin tuna, followed by frigate tuna, blackfin tuna, albacore and atlantic little tuna. Despite the clear dominance of yellowfin among the residual 10% of the landings, the exact composition is uncertain. As the prices are the same for yellowfin and blackfin and for frigate tuna and atlantic little tuna respectively, both fishermen and buyers report the catches for those species together. There also have been problems of misidentification for young yellowfin and blackfin tuna.

The basic data is collected directly at the harbour (normally each cannery and freezing plant has its own harbour):

CPUE - The information on catch and effort is collected by surveys, i.e., interviewing the fishermen to obtain the estimated catch, number of days fishing and total duration of the trip. Despite the fact it is mandatory to fill and submit fishing logs to the Government, only very few fishermen do it.

As the boats stay at sea for ten to twelve days, the information obtained by interview is not very reliable as far as the exact number of fishing, scouting and non-scouting days is concerned. We have detected mistakes even for the total days at sea (overlap of trips) when comparing different surveys for the same boat.

TOTAL LANDINGS - The statistics are accurate and with full coverage. Problems of inadequate species breakdown for other tunas, but skipjack, were stated above.

The information concerning species composition from different sources - buyers and fishermen - are crossed in order to have the best estimate. As always as possible people in charge of surveys and biological data carry out sampling to estimate total species composition.

1.2 - TASK II

Size frequency data for skipjack are collected at the main landing points. We try to get as many samples as possible in order to have a good coverage of the entire fishing zone. This year, still on an experimental basis, we started sampling for yellowfin.

Skipjack is measured with a measuring board and yellowfin with a caliper. The fork length is taken to the 1 cm below.

For each sample the corresponding catch weight is recorded and the sample weight is calculated from the length - weight relationship.

1.3 - ADJUSTMENT OF BASIC DATA

As the statistics correspond to 100% of the landings, only total effort is obtained by raising effort from CPUE forms, using ratio of total landings to those covered by survey. The unit of effort employed is the total number of boats-days, including unsuccessful scouting days.

CPUE data are not raised and the estimate of the coverage is obtained from the ratio of number of trips covered by surveys' to total number of trips made by the entire fleet.

(This last figure is accurate and with full coverage)

#### 1.4 - CONCLUSION

Since the baitboat fishermen have very recently come from other fisheries (sardine, shrimp) which operate near base, they are not used to record catch and effort data in any type of logbook. The information collected by interview are not very' accurate mainly with regard to the exact number of days fishing and scouting.

Despite the fact that the baitboat fishermen are not able to use any navigation system and consequently to define precisely the fishing area, they can roughly estimate their position ' using the compass.

To cope with the species breakdown problem we are encouraging tuna buyers to report catch by species, specially regarding ' to yellowfin and blackfin. We prepared a species identification sheet to help them.

Certainly the problem could be minimized through a program of sistematic sampling of the landings. But, unfortunately, we don't have people enough to cover all the landing points and, furthermore, they are also supposed to interview the fishermen for CPUE data and to collect size frequency data.

As several boats are unloaded at different places at the same time, it is frequently difficult to carry out sampling for species composition. Nevertheless, it is necessary to bear in mind that there is no problem of reporting or misidentification skipjack which comprise about 90% of total catch.

#### 2- BAIT-BOAT LEASED FLEET

The bait-boat fishery started at the end of the year of 1981 with a Japanese flag boat chartered. In the next year a Gran Cayman boat started operating and, in 1983, two other Japanese boats. The Gran Cayman flag boat stopped definitively their activities in the middle of 1983.

Up to 1983 all catches have been unloaded in Itajaí (Santa Catarina State); during the current year some catches were discharged in the city of Rio Grande (Rio Grande do Sul State). Only for the Japanese leased fleet there are reliable information on catch and effort data, by area-time, obtained from logbooks. The restrictions mentioned above about the lack of accuracy on the informations collected don't apply to the Japanese leased fleet, although in the begining of the fishery the fishermen only reported the catches of skipjack, the most important species.

#### 3- PURSE - SEINE LEASED FLEET

The purse seine fishery started in 1982 with a Gran Cayman' flag boat chartered. Two other Spanish chartered boats started operating in 1983. Their activities were discontinued respectively in June 1983 (Gran Cayman) and March 1984 (Spain). The information on catch and effort data by area-time was obtained from the logbooks. Only for the Spanish boats the fish was directly transshipped, without being weighed and therefore the total catch by species was estimated from the logbooks.

#### 4- LONGLINE FLEET

Longline fishery started in 1958 in the Northeastern region of Brazil with Japanese flag boats in Recife (PE). This fisheries' went on until 1964.

National longline boats started their activities in the end of the year of 1968 with three vessels based in Santos (SP). This fleet had a slight growth untill 1981, when there were five boats operating. After 1982 the number of boats had a greater increase.

At the present this fishery is carried out by 9 boats based in Santos (SP) and by two boats based in Rio Grande (RS). In the year of 1977 Brazil government allowed tuna fishing by foreigners boats chartered. Since then Japanese and Korean boats have operated in Brazilian waters. Presently there are 4 Japanese longliners boats based in Rio Grande (RS).

Part of the catches taken by leased fleet are transshipped and another is unloaded at Rio Grande. Transshipments comprises

target species like bigeye tuna, yellowfin and swordfish, that are sent to Japanese Market. Catches of national fleet are sold as fresh fish to intern market, mainly in S. Paulo; minor quantities are delivered to canneries.

#### 4.1. TASK I

Target species in the fisheries are bigeye, yellowfin and albacore that represent around 50% - 60% of the total weight catches. Among the other species swordfish is the most important; In the year of 1980 its catches nearly reached total amount of the target species. There is no problem regarding mistaken identification

Statistics concerning total landings are supplied by fishing Companies; there is full coverage.

CPUE - Data on catch and effort, by area-time, are recorded in logbooks; there is full coverage of the trips; catches are supplied by weight and number of fish and effort by days fishing and number of hooks.

#### 4.2. TASK II

Size frequency data are collected on board and at the landing ports. Sampling on board it is difficult to carry out because we don't have enough people to go on fishing trips frequently. Regarding leased boats, captains have collaborated allowing someone of the crew to measure catches and collect biological material.

Sampling works are applied mainly to bigeye, yellowfin, albacore and swordfish. Size frequency data for billfishes are not enough because catches show seasonal fluctuation. Incidental catches of skipjack are frequently sampled for size.

Tuna and billfishes are measured in fork length to the 1 cm below. For swordfish, on board sampling are taken in fork length (FL) and eye socket-fork length (EYEFORK).

At the landings the swordfish sampled is measured in eye socket-fork length. Conversions to fork length are made from the fork length - eye socket - fork length relationship.

$$L_t = L_o \times 1.0840 + 5.5656$$

For each sample the corresponding catch weight is recorded as well as the number of fish caught. Information on weight is reported as follows:

Albacore= live round weight;

Bigeye, yellowfin, billfishes and swordfish - gilled and gutted weight.

For some of the samples the weight is calculated from length-weight relationships.

#### 4.3. ADJUSTMENT OF BASIC DATA

Statistical information referring to catches (Logbooks) and landings has been reported in live round weight for albacore and gilled and gutted weight for the other species. The only exception is for swordfish caught by Japanese leased fleet, whose weight is measured in flat slices of the fish. The coverage rate of all basic data (catches, effort and landings) corresponds to 100 percent.

#### 4.4. CONCLUSION

Until 1983 basic data (TASK I and TASK II) have been reported to ICCAT without to be converted into round live weight. It is supposed that data related to national longline fleet were known to be reported in other form, because they were showed converted into round live weight at Data Record Volumes published by ICCAT.

At the moment we are carrying out a reviewing on these data and some of them with corrections, relative to Task I, have already been sent to ICCAT.

We to try get size frequency samples for all species and entire fleet, however we have not got success with some species, because they are not present in the fisheries all round year; as well as for others, that show predominance in a period and scarcity in another one, for example, catches taken by national longline fleet during 1st and 4th quarter show higher proportion of yellowfin, while during 2nd and 3th quarter albacore and bigeye are the principal species. Besides this, during periods of lower catch rates, the fleets practically stopped their activities, taking these periods for repairments and maintenance of the boats.

Because fishing trips are longer, sometimes it is difficult to rely on people for taking on board sampling. To cope with this problem we have got collaboration of the captains of the boats, who have agreed to perform this samplings for us.

#### 5. ARTIZANAL FISHERIES (SMALL SCALE FISHERIES)

This fishery is carried out by sailing boats called 'botes' varying from 6 to 9 meters in long, normally carrying a crew of three, operating along the coast of all Northeastern states of Brazil.

The principal species in catches are: king mackerel (Scomberomorus cavalla), Spanish Mackerel (Scomberomorus brasiliensis) and Blackfin tuna (Thunnus atlanticus).

The principal method used for catching blackfin tuna and king mackerel is by trolling with one line; Gillnet is the most used method for catching spanish mackerel, which is also caught with fish traps.

In Southern and Southeastern regions of Brazil there are less important fisheries using these methods, like in Rio de Janeiro and Santa Catarina States.

#### 5.1 TASK I

It is very hard to get reliable data on fish production obtained by these fleets, because of the great number of landing places that make very expensive to maintain collectors to report the catches. In the last years the statistical system for collecting data on these fisheries has been reduced and so the catches reported are below the actual amounts taken.

Another deficiency in these statistics is that misidentification commonly occur among species that belong to the same group.

#### 5.2 CONCLUSION

Having in mind characteristics proper to this fisheries, it's very difficult and would be necessary to dispose of great amount of funds for making improvements in this statistical system.

#### 6. OTHER FISHERIES

Incidental catches of bonitos (Sarda sarda and Auxis thazard) and Cavalas (Scomberomorus spp) are taken commonly by the sardine fishery with purse-seine, in the states of Southern and Southeastern regions of Brasil. As this species are not the target species in the fishery, sometimes they are not reported by the fishermen, on the other hand, when they are, misidentification frequently occur. This statistical data have not been sent to ICCAT up to now.

#### 7. RECREATIONAL FISHERIES

There are no complete statistical data on catches by recreational fishermen, although important quantities of billfishes are caught.

It could be possible to carry out a survey in sportive fishing clubs in order to get data about these fisheries. We think to initiate this work still this year.