EXPERT COMMITTEE ON TROPICAL SKIPJACK

OFFICE DE LA RECHERCHE SCIENTIFIQUE ET TECHNIQUE OUTRE-MER

# THE COLLECTION AND PROCESSING OF DATA ON SKIPJACK (EUTHYNNUS PELAMIS) PROPOSALS FOR STANDARDIZING

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The Sixth SPC Technical Meeting on Fisheries reviewed the probl of skipjack (E. pelamis) fisheries in the Pacific and the research that should be carried out in this connexion. This paper deals with a few pr tical steps that might be taken to standardize the collection, reporting and processing of data.

## 1. Fisheries Statistics

Fisheries statistics should be regularly processed through a computer. The basic data should be presented in identical form in order to be readily comparable.

### 1.1. - Skipjack fishery

We shall deal only with pole-and-line skipjack fishing using live-bait. To simplify matters, such fishing will be referred to as "pole-and-line fishing", and the boats involved as "pole-and-line boats" called "canneurs" in French. The latter term is already in current use in the Atlantic Ocean area. A similar approach may be adopted in the case of seine net boats , should seining develop in this part of the Pacific.

1.1.1. - Basic data to be collected

- For all boats and all trips:

Characteristics of the boat, quantities of fish landed by species and number of fishing days. A fishing day is normally defined as a day in the course of which the boat was taken out for skipjack fishing, with an adequate amount of bait on board.

This data would give the total catch and, once fishing effort is standardized, make it possible to assess total effort over any particular period by any type of boat. All information will be entered in code on "skipjack fishery master cards".

A detailed fishery survey will be made on a representative sample of the various boat categories whose master will fill in a card provided for that purpose or will be interviewed upon his return to port

The survey would provide day-to-day information such as:

- date and position at noon
- number of shoals sighted
- number of schoals chummed
- number of shoals giving catches
- estimated weight by species
- size range of fish caught.

This data would be recorded on a "skipjack catch card". This type of card would be filled in every time a pole-and-line boat spent one or several days fishing in a square of 1 degree in the course of a lunar fortnight or month.

The daily weights assessed by the boat master may be checked, as the sum of total weights should be about the same as the total weight recorded at the port.

The data collected would make it possible to determine, par square of 1 degree, for any boat category and any given period, the yiel or catch per unit of effort (c.u.e.), the catches and the effort involve They would also give an idea of the absolute abundance (number of shoals sighted) and behaviour of the fish (ratio of shoals sighted to shoals chummed and yielding catches).

1.1.2. - Feeding data into the computer

Appended to this text are suggested models for cards. The cod to be adopted in filling in these cards should be agreed upon during the Papeete Meeting.

Lunar fortnights would be numbered consecutively 1 to 25 or 2( from 1 January to 31 December. They would extend from the first quarte inclusive to the last quarter exclusive (period of greater illumination) then from the last quarter inclusive to the first quarter exclusive (period of lesser illumination).

The numbering adopted for squares of 1 degree would be accor- ding to the CWP system, which has been internationally used in the Atla since 1972. This consists in determining each square by the co-ordinat of the corner of this square closest to 0 (0 is the intersection in the Atlantic of the meridian 0 and the equator). Since the earth is divide into four quadrants by the 0 meridian and the equator, each quadrant bearing a number, any point, particularly the reference point of the square under consideration, is determined through the number of the quadrant to which it belongs, its latitude (a maximum of 2 figures) and its longitude (a maximum of 3 figures).

1.2. - Fishing for bait

The gear and methods adopted for catching live-bait vary from one country to another. Even when the method is the same, the equipmen used is different. As a result, it is impossible to compare data on availability.

For purposes of scientific testing, it would be necessary to select 2 or 3 suitable methods for the main survey areas and to specify the particulars of equipment to be used with each method.

Would it be practicable, for instance, to limit the methods to two: fishing with the square dip-net, the fish being attracted by submerged light, which is suitable where the water is deep and the bott rocky; and seining, in shallow water, where the bottom is smooth?

In the case of the dip-net, the dimensions and mesh-size shou be specified, as well as the voltage and positioning of the lamps used. In the case of the seine net, the dimensions and mesh-sizes should be given.

## 2. Biology and dynamics of skipjack

The standardization of data would also appear to be very useful in the case of in-depth studies on skipjack by scientists. We suggest that the results of observations and measurements made should also be recorded on a perforated card called "Skipjack Biology Card" (model attached). The precision of length and weight measurements should make it possible to use the same card for juveniles. A scale for determining the sexual maturity should be agreed upon.

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## Skipjack Fishery Master Card

| | Column | |
|---|---|---|
| | ( 1 - 2 | type of card |
| | ( 3 - 4 | day of unloading |
| Time | ( 5 - 6 | month " |
| and | ( 7 - 8 | year " |
| Place | ( 9 -10 | lunar fortnight |
| | (11 -12 | port of landing |
| | (13 -14-15 | number of the landing in the month (per port) |
| | 16 | /////// s e p a r a t i o n /////// |
| | | ////////////////////////////////// |
| | (17 -18 | nationality of boat |
| | ( 19 | category of boat (gross tonnage) |
| Boat | (20 -21-22 | number of boat |
| | ( 23 | number of men on board |
| | ( 24 | capacity of live-wells (in cubic metres) |
| | 25 | /////// s e p a r a t i o n /////// |
| | | ////////////////////////////////// |
| | (26 -27 | total time at sea (in days) |
| Fishing effort | (28 -29 | time spent fishing for skipjack (in days) |
| | (30 -31 | time spent in port between this tide and the next |
| | | /////// s e p a r a t i o n /////// |
| | | ////////////////////////////////// |
| | (33 : | code of the species fished (Euthynnus pelamis) |
| | (34-35-36-37 | weight landed (in quintals) |
| | (38 | /////// s e p a r a t i o n /////// |
| | ( | ////////////////////////////////// |
| | (39 -44 | 2nd species (Thunnus albacares) |
| Catches | (45 -50 | 3rd species (Euthynnus affinis) |
| | (51 -56 | 4th species (Auxis thazard) |
| | (57 -62 | 5th species (Gymnosarda unicolor) |
| | (63 -68 | 6th species (Scomberosmorus commerson) |
| | (69 -74 | other species |
| | (75 -80 | total weight landed. |

## Skipjack Catch Particulars Card

| | Column | |
|---|---|---|
| | ( 1 - 2 | type of card |
| | ( 3 - 4 | month in which landed |
| | ( 5 - 6 | year |
| | ( 7 - 8 | lunar fortnight in which landed |
| | ( 9 - 10 | port of landing |
| | (11 - 12 - 13 | number of tide (same as on the |
| Reference | ( | corresponding master card) |
| data | (14 - 15 | nationality of the boat |
| | (16 | category |
| | (17 | number of men on board |
| | (18 | capacity of live-wells |
| | (19 | /////// s e p a r a t i o n /////// |
| | | //////////////////////////////// |
| | (20 - 21 | month during which fishing took place |
| | ( | in the square under consideration |
| | (22 - 23 | lunar fortnight during which fishing |
| | ( | was done |
| | (24 | number of the quadrant |
| Fishing | (25 - 26 | latitude |
| data | (27 - 28 - 29 | longitude |
| | (30 - 31 | fishing time (in days) |
| | (32 - 33 | number of shoals sighted |
| | (34 - 35 | " " " chummed |
| | (36 - 37 | " " " from which catches could |
| | ( | be made |
| | (38 | /////// s e p a r a t i o n /////// |
| | | //////////////////////////////// |
| | (39 | code for the first species |
| | (40 | size range of fish |
| | (41 - 42 - 43 | weight of catch (in quintals) |
| | (44 - 48 | 2nd species (ditto first) |
| Catches | (49 - 53 | 3rd species |
| | (54 - 58 | 4th species |
| | (59 - 63 | 5th species |
| | (64 - 68 | 6th species |
| | (69 - 73 | other grouped species |
| | (74 - 78 | total weight caught (in quintals) |

## Skipjack Biology Card

| Column | |
|---|---|
| 1 - 2 | type of card |
| 3 - 4 | organism |
| 5 - 6 | time of catch |
| 7 - 8 | day of catch |
| 9 - 10 | month |
| 11 - 12 | year |
| 13 | fishing gear |
| 14 - 19 | specification of the square of 1 degree in which the catch was made |
| 20 | /////// s e p a r a t i o n /////// ////////////////////////////////// |
| 21 - 24 | reference number of the fish (per year, per organism) |
| 25 - 26 - 27 | fork length (in mm) |
| 28 - 31 | weight (in tens of grammes) |
| 32 | /////// s e p a r a t i o n /////// ////////////////////////////////// |
| 33 | analyzed/not analyzed stomach content |
| 34 | /////// s e p a r a t i o n /////// ////////////////////////////////// |
| 35 | sex |
| 36 | sexual maturity stage |
| 37 - 40 | weight of gonads (in grammes) |
| 41 - 44 | number of eggs (in thousands) |
| 45 | /////// s e p a r a t i o n /////// ////////////////////////////////// |
| 46 | method used for determining age |
| 47 - 48 | age (in months) |

Grandperrin René, Loubens Gérard. (1973).

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