

SOUTH PACIFIC COMMISSION

AD HOC MEETING OF THE EXPERT COMMITTEE
ON TROPICAL SKIPJACK
(4 - 8 December 1978)

REPORT

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South Pacific Commission
Noumea, New Caledonia
January 1979

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ON TROPICAL SKIPJACK

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1. Introduction

At the Tenth Regional Technical Meeting on Fisheries held in Noumea, New Caledonia, from 13 - 17 March 1978, it was recommended (Recommendation No.3) that:

"Recognising the great interest of all countries and territories in skipjack and skipjack fisheries and the value of having the meeting of the Expert Committee on Tropical Skipjack during the Tenth Regional Technical Meeting on Fisheries, the Meeting recommended that the Expert Committee on Tropical Skipjack have a regular session together with the annual Technical Meeting on Fisheries and be available for special meetings during the year if required to assist with any specific problems which might be encountered by the Skipjack Survey and Assessment Programme."

In accordance with this recommendation and appreciating:

- (a) the urgent need for the Skipjack Survey and Assessment Programme to obtain regional catch and effort statistics to facilitate the analysis of tag release and recapture information;
- (b) the need for the countries and territories of the South Pacific Commission to consider the adoption of uniform skipjack catch and effort recording systems;

a special *Ad Hoc* Meeting of the Expert Committee on Tropical Skipjack was convened.

In accordance with Recommendation No.8 of the Sixth Regional Technical Meeting on Fisheries held in Suva, Fiji, 23 - 27 July 1973, concerning the membership of the Expert Committee on Tropical Skipjack:

"..... ; such Committee to include tuna specialists from SPC territories and countries and other outside specialists as needed. The Commission should determine the composition of the Committee with an SPC Officer serving as Executive Secretary",

and in view of the limited finances available for this *Ad Hoc* Meeting, participants from four countries were invited. As the primary aim of the Meeting was to review the regional data requirements in the light of experience gained in those countries in which significant skipjack fisheries have been operational, the technical experts invited were conversant with the recent developments in the major skipjack fisheries in the SPC region.

2. Procedure and Agenda

The Secretary-General of the South Pacific Commission, Dr E. Macu Salato, addressed the Meeting and welcome the participants to Noumea. He expressed his pleasure that the Expert Committee on Tropical Skipjack was again meeting even if on an *Ad Hoc* basis, endorsing the Commission's continuing interest in skipjack fisheries and their development. He pointed out that the Commission had had a

substantial involvement in this field since the Sixth Regional Technical Meeting on Fisheries in 1973 and the First Meeting of the Expert Committee on Tropical Skipjack in 1974, and that the success of the Skipjack Survey and Assessment Programme vindicated the Commission's previous efforts. He expressed his understanding of the importance of the present meeting to all of the countries and territories of the SPC, but particularly to those which were contemplating substantial changes to their policies on skipjack fisheries as a result of the recent responses to the changing impact of the Law of the Sea on this region.

Mr B.R. Smith from Papua New Guinea was elected Chairman of the Meeting and the Skipjack Programme Co-ordinator, Dr R.E. Kearney, served as the Executive Secretary. For list of participants see Appendix 1.

A list of points of discussion (Appendix 2) was circulated by the Secretariat and after consideration of these the Meeting agreed that the tasks of the Committee could best be served if each of the major types of fisheries were considered as a separate entity.

The Meeting considered that at the present time there was a need to devise separate catch statistics forms for each of the major oceanic fisheries operating in the South Pacific Commission area. It was felt that it would be impossible to draw up a standard form to cover such diverse activities as the skipjack pole and line, the purse seine and the longline fisheries. Further consideration of the nature of the fisheries currently operating suggested that the pole and line fishery needed to be considered in two parts, firstly the locally-based, predominantly joint venture fisheries, which normally operate in comparatively restricted areas, and secondly those of distant water foreign vessels operating in the region. On the basis of the experience of the representatives at the Meeting, a proposed format for each of these vessels was then devised.

3. Coastal Pole and Line Fisheries

The Meeting used as a basis for its discussions the standardized catch/effort data format proposed by the First Meeting of the Expert Committee on Tropical Skipjack and the forms presently used in Fiji, Papua New Guinea and Solomon Islands.

After lengthy discussion the format depicted in Appendix 3 was adopted. The major modifications proposed by the Meeting to the original format from the First Meeting of the Expert Committee on Tropical Skipjack, involved suggested improvements to the baitfish catch data. It was felt that more detail was required in defining the effort used in baitfishing. To this end the number of hauls used in baiting was added. It was also felt that accurate descriptions of baiting positions were required in addition to the description of the area in which the skipjack fishing was carried out. The group considered that little of the environmental information previously collected in existing joint venture fisheries in the region had been of value for analytical purposes. It therefore recommended that collection of this information should not be encouraged, except in instances where it is specifically required for hypotheses testing.

Discussion on the relative advantages of numerous units of fishing effort and of fishing area concluded with agreement that a day fished by each boat represented the most realistic unit of effort and that there was no real value in further refining this definition to take account of parts of days. There was unanimous agreement that the one degree square system was the most reasonable for consideration of regional catch and effort, but that consideration of smaller units of area could be advantageous for specific coastal fisheries.

The Meeting suggested that in order to facilitate the use of grid systems in each of the countries and territories for which the Commission works, the Commission should attempt to compile a series of grids covering countries and territories for which grids are presently not available. It was suggested that copies of these proposed grids should be forwarded to the respective countries and territories as soon as practicable.

To facilitate data processing, and particularly for the regional compilation of coastal catch and effort information, a coded data box for computer purposes was included in the basic data format given in Appendix 3.

4. Pole and Line Operations by Foreign Vessels

The only foreign pole and line fleet presently operating in this region is that of Japan. It was therefore felt that the present catch form submitted by Japanese pole and line vessels would form a useful basis from which to develop a common form for use throughout the region. It was stressed that major changes in format in the Japanese form would necessitate changing what the fishermen currently reported, and that this would be detrimental to obtaining consistent data. Furthermore it was considered that the data presently supplied on the Japanese form was adequate for most purposes and it would probably be unreasonable to expect more of the fishermen than presently reported.

As a result of the Meeting's deliberations the format given in Appendix 4 was adopted. The Meeting appreciated that this form would not cover all of the data requirements of all of the countries in the region, and considered that specific modifications to the form should be made where warranted, but that the basic format should be maintained as far as possible. It was pointed out that acceptance of this common format at the present time would facilitate the collection of statistics from fleets of other nationalities which could reasonably be expected to operate in this region at some time in the future.

The Meeting considered that where additional information such as size frequency data was required, it should be covered by separate data sheets rather than by additions to the present format.

The Meeting considered that one of the major problems facing the compilation of regional statistics based on data collected on this common format could be that of double reporting. It was pointed out that great care should be taken to avoid over-estimation of catches based on the recording of statistics by the flag country and again by the country in whose waters the fish was taken. It was felt that if statistics are to be compiled on a regional basis, it should be the responsibility of the compiling organisation to ensure that double reporting did not occur.

5. Purse Seine Fishery

As the purse seine fishery in the area of the South Pacific Commission is still in its infancy, the Meeting suggested that the requirements for statistical data are likely to change as the fishery develops. It was pointed out that at the present time there are several different purse seine fishing techniques used by different vessels, and that it may be necessary to alter the data format at a later stage to take account of divergent fishing styles. The Meeting considered it most important that all information relevant to the operational efficiency of the vessel, such as whether it carries a helicopter, an airplane, sonar or additional visual or telecommunication advantages, should be recorded. It suggested that this information, together with the characteristics of the vessel's net, could be included on the licence application and need not be recorded on the data format sheet.

After consideration of purse seine log sheets used by the Inter-American Tropical Tuna Commission, the United States and Japan, the format depicted in Appendix 5 was adopted. One noticeable difference between the format adopted by the present Meeting and those previously suggested is the provision for the declaration of average size of tuna species taken in each set. The Meeting considered this information highly desirable, but again pointed out that the collection of detailed length frequency data would require the establishment of some form of sampling programme.

The Committee was mindful of the important part that purse seine fishing could play in this region and appreciated possible competition between purse seine and live bait fishing vessels. It felt that the collection of average size information in addition to the routine catch statistics could help in ascertaining the degree of competition or interaction between the two fishing techniques.

It was felt that the problem of differentiating between total catch and landed catch would be greater for purse seine vessels than for the pole and line fleet, largely because of the greater potential for purse seine vessels to take incidental, and often undesirable, catches of smaller tuna or non-target species. The Meeting suggested that an observer programme of some form would be required to monitor dumping of undesirable catches in areas where this was known to occur.

6. Longline Fishing by Foreign Vessels

This *Ad Hoc* Meeting of the Expert Committee on Tropical Skipjack appreciated that the drawing up of a format for longline fishing vessels was outside its terms of reference. However, it felt that there was merit in devising a suggested common format which would hopefully be of benefit to the countries and territories of the South Pacific Commission which had previously not collected such information, but were at this time contemplating doing so. The Meeting felt that the suggested common format could be useful to countries collecting information from foreign vessels, but that countries with joint venture longline fisheries could have additional specific data requirements.

As is the case for foreign pole and line vessels, there are advantages in keeping the format for longline vessels approximately equivalent to that presently used by Japanese and Korean vessels. It was pointed out that the format of the data presently supplied by Japanese longline vessels operating in the region appeared to be adequate for most statistical purposes, and that the main deficiency in the available statistics arose from the paucity of information available from vessels of other nationalities. It was therefore felt that the data format used by the Japanese fleet could form a basis for the suggested format for the area as a whole. Obviously the necessity to ensure that all vessels operating in the region complied with the suggested format would remain the responsibility of the numerous national governments and administrations.

One suggested modification to the Japanese format was the provision of space to record the average size of each species taken each day. The Meeting appreciated that because of the wide range of sizes of each species taken, this data could only be approximate, but still considered it desirable. Without any estimate of average size it is difficult to determine the absolute catch and the relative value of each species taken on each day. Without accurate daily catch data it would be difficult to apportion the weight of catches to the respective fishing zones of different countries in whose waters any vessel might have fished during a single cruise. It was appreciated that a sampling programme would probably be required to determine average weights or size frequency

accurately, and the Meeting suggested that the South Pacific Commission should canvass the opinions of other international fisheries organisations, particularly ICCAT, regarding the design of a subsampling programme and the prospect that the fishermen themselves collect the additional information.

Appendix 6 shows the format agreed upon for regional longline statistics.

7. Compilation of a Regional Data File

The Meeting unanimously agreed that there was a great need to compile a regional file of skipjack catch and effort data which would provide essential data to all of the countries and territories of the region and at the same time facilitate the analyses of the SPC Skipjack Programme tag release and recapture information. Bearing in mind the need to protect the interests of the individual fishing ventures operating in each of the countries and territories of the region, the Meeting felt that this file need not contain information on the fishing performance of individual vessels or companies. The Meeting considered that the economic interests of vessels, companies, countries and territories could be safeguarded and the scientific interests of the countries be served by compiling a regional master file which contained catch and effort data by one degree square per 10-day period.

The Meeting recognized the need to have statistics compiled which differentiated between the various types of fishery, e.g. between the purse seine and pole and line fisheries for skipjack, but considered that there was no need to record statistics by vessel size within each of these categories. It was suggested that the SPC should approach the Governments and Territorial Administrations of the region, indicating the need to compile regional statistics for scientific purposes and seeking their approval for the release of the relevant catch/effort summaries on a three-monthly basis. It was hoped that the SPC would assist those countries with inadequate data processing facilities and provide timely summaries of this catch/effort data to all countries in the area. It was stressed that this data should be compiled on a three-monthly basis if possible and summaries distributed as soon as practicable after receipt of the relevant information from each country or territory.

LIST OF PARTICIPANTS

<u>Chairman</u>	Mr B.R. Smith, Kanudi Fisheries Research Laboratory, Fisheries Division, Department of Primary Industry, P.O. Box 2417, <u>KONEDOBU</u> , Papua New Guinea.
<u>Fiji</u>	Dr Ian W. Brown, Fisheries Division, Ministry of Agriculture, Fisheries and Forests, <u>SUVA</u> .
<u>Japan</u>	Dr Sigiety Hayasi, Tohoku Regional Fisheries Research Laboratory, Shinhama-cho 3-27, <u>SHIOGAMA 985</u> .
<u>Papua New Guinea</u>	Mr R. Lindholm, Kanudi Fisheries Research Laboratory, Fisheries Division, Department of Primary Industry, P.O. Box 2417, <u>KONEDOBU</u> .
<u>Solomon Islands</u>	Miss C. Mansfield, Fisheries Management Officer, Fisheries Division, Ministry of Natural Resources, <u>HONIARA</u> .
<u>Secretariat</u>	Dr R.E. Kearney, Skipjack Programme Co-ordinator. Mr J. Crossland, Fisheries Assistant. Dr P. Kleiber, Senior Fisheries Scientist.

POINTS OF DISCUSSION

1. Decide on requirements for fishery data needed to analyse tagging returns and to do other population dynamics analyses:
 - (a) choice of parameters (catch, effort, size distribution, other?);
 - (b) operational definition of parameters (e.g. "catch" = "gross catch", "retained catch", other? "effort" = boat days?);
 - (c) operational resolution of parameters (e.g. is effort to be lumped or split into gear types, vessel classes, etc?);
 - (d) temporal and spatial resolution (one degree squares and 10-day intervals or something else?).

2. Review present state and availability of skipjack fishery data relative to the requirements decided above.

3. Mechanisms for obtaining and compiling required data:
 - (a) content and format of log books;
 - (b) content and format of regional data file(s).

Form Type	Month	Year	Comp	Boat	GRT	Crew	No. of Days

DAILY TUNA CATCH RECORD - COASTAL POLE & LINE BOATS

COUNTRY _____ COMPANY _____ MONTH _____ YEAR _____
 NAME OF BOAT _____ LICENCE NO. _____ NUMBER OF CREW _____

Day	BAITING INFORMATION					FISHING INFORMATION							Comments	
	Baiting Position (chart coordinates)		Day or night	No. of hauls	Total bait catch (buckets)	Grid(s) fished	SKIPJACK		YELLOWFIN		OTHERS			Total Weight
	Lat.	Long.					Number	Weight (kg)	Number	Weight (kg)	Species	Number		
01														
02														
03														
04														
05														
06														
07														
08														
09														
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30														
31														
TOTAL														

RECOMMENDATIONS FOR COMPLETING DAILY TUNA CATCH RECORDSCoastal Pole and Line BoatsHeader Information

As standard catch forms will be used in many countries, it is important that the country to which each catch form refers is accurately recorded. Similarly for the name of the boat, company, licence number, etc.

The boxes in the top left hand corner of the form are there to facilitate the computerisation of the catch/effort data and should be filled out only by the person entering the data on to the computer system.

Day

Any day of the month can be recorded as a fishing day. The inclusion of information in the line opposite each day confirms that baiting or skipjack fishing was carried out on that day. Days on which no baiting or fishing was done should be left blank and the reason for the inactivity given in the comments column.

As information on the amount of bait captured is most relevant to the next day's fishing activities, it is important to assign night bait catch data to the following day's tuna fishing. For this reason a day's activities should really be considered as commencing at dark (approximately 1900 hours) on one day to dark on the following day. For example a catch of 100 buckets of bait made at 2200 hours on 10 June should appear on the form as being made on 11 June.

Baiting Position

The recording of the location of baiting areas should be done as accurately as possible and some countries will probably find a grid system of the main bait grounds to be more useful than the chart co-ordinates as listed.

Day or Night Baiting

As the type of baiting operation is of prime importance to the whole tuna fishing operation, it is important that this data be accurately reported.

Number of Hauls

To obtain an accurate estimate of the effort expended on baiting it is important that the number of lifts of a "bouki-ami" net, and/or the number of sets of a beach seine, lampara or other net be recorded.

Total Bait Catch

As the fishermen normally measure their catch in buckets, the bucket will remain the best unit in which to record basic data. Periodical sampling of the average content of a bucket of bait will probably be required to enable comparison of bait catches made by different vessels, companies, or countries.

When baiting is carried out, but no catch taken, a zero catch should be recorded.

Grid(s) Fished

Normally a one degree grid square system would be used in most countries, but smaller units may be used in special cases. Provided a copy of the grid pattern used is held by the person(s) compiling the data no problems should arise. It would, however, be advisable for all countries to use similar systems.

Skipjack and Yellowfin Number

In some countries the number of individual fish is counted while in others it is estimated from the total weight and the knowledge of the average size; obviously this data should be as accurate as possible.

It is extremely desirable to differentiate between skipjack and yellowfin or other species when these occur in catches.

When fishing is carried out but no fish are taken, zeros should be recorded.

Skipjack and Yellowfin Weight

This should be recorded in kilogrammes, preferably to the nearest kilogramme.

Other Species

Definition of the catch by species is obviously desirable, particularly for those species which may be of economic significance.

DAILY TUNA CATCH RECORD - LONG RANGE POLE & LINE VESSELS

COUNTRY _____

PERMIT NUMBER _____

Date of departure from port _____

VESSEL NAME _____

GROSS REGISTERED TONNAGE _____

Date of arrival at port _____

COUNTRY OF REGISTRATION _____

LICENCE NUMBER _____

NAME OF CAPTAIN _____

VESSEL OWNER: Name _____

Number of fishing days _____

Address _____

Number of crew members _____

DATE OF OPERATION			NOON POSITION		SKIPJACK		ALBACORE		YELLOWFIN		OTHER SPECIES					TOTAL	
Year	Month	Day	Lat.	Long.	Catch (kg)	Av. size (kg)	Catch (kg)	Av. size (kg)	Catch (kg)	Av. size (kg)	Species name	Catch (kg)	Av. size (kg)	Species name	Catch (kg)		Av. size (kg)
TOTAL																	

RECOMMENDATIONS FOR COMPLETING DAILY TUNA CATCH RECORDS

Long Range Pole and Line Boats

Header Information

As standard catch forms will be used in many countries, it is important that the country to which each catch form refers is accurately recorded; similarly for the name of the vessel, the country of registration and the name of the captain. The permit number refers to the local fishing permit granted by the country in whose waters the vessel is fishing. It should not be confused with the licence number which refers to the licence for the particular vessel in its flag country. The remainder of the header information is self-explanatory.

Date of Operation

The year, month and day are given in that order for uniformity between countries and for ease in data processing.

Noon Position

An accurate noon position, latitude and longitude to the nearest minute, should be given each day. In order to allow differentiation between fishing days and days on which fishing is not possible, a noon position should be recorded for all days on which bait was carried. A check of this information against the captain's estimate of the number of fishing days can be done by examining the completed header information.

Skipjack, Albacore and Yellowfin Catch and Average Size

The catch should be recorded to the nearest kilogramme if possible and the average size to the nearest .1 of a kilogramme.

Other Species

It is recommended that all incidental catches be identified and recorded. This is particularly important if these catches are substantial or are likely to be of value to the country in whose waters the vessel was fishing even though they may be of little value in the flag country of the fishing vessel.

RECOMMENDATIONS FOR COMPLETING DAILY TUNA CATCH RECORDS

Purse Seine Vessels

Header Information

As standard catch forms will be used in many countries, it is important that the country to which each catch form refers is accurately recorded; similarly for the name of the vessel, the country of registration and the name of the captain. The permit number refers to the local fishing permit granted by the country in whose waters the vessel is fishing. It should not be confused with the licence number which refers to the licence for the particular vessel in its flag country. The remainder of the header information is self-explanatory.

Date

The year, month and day are given in that order for uniformity between countries and for ease in data processing.

Noon Position

An accurate noon position, latitude and longitude to the nearest minute, should be given each day. In order to allow differentiation between fishing days and days on which fishing is not possible, a noon position should be recorded for all days on which fishing or scouting takes place. For days on which no fishing occurred a reason should be entered in the comments column.

Set Position

An accurate position to the nearest minute should be given for every set of the purse seine net, even if the set is unsuccessful.

School Type

An indication of the type of school set on should be given for every set, for example a log school, breezing school or porpoise associated school.

Time Set

This should be recorded for every set given to the nearest five minutes.

Spotter Aircraft Used

If spotter aircraft is used the type, for example helicopter or fixed wing, should be recorded. The column should be left blank when aircraft are not used for detecting fish or assisting with the set.

Skipjack and Yellowfin Catch and Average Size

The catch should be recorded to the nearest tonne and the average size to the nearest .1 of a kilogramme.

Other Species

It is recommended that all incidental catches be identified and recorded. This is particularly important if these catches are substantial or are likely to be of value to the country in whose waters the vessel is fishing even though they may be of little value in the flag country of the fishing vessel. If catches of incidental species, or small size individuals, are dumped, this should be recorded as discarded.

DAILY TUNA CATCH RECORD - LONG LINE VESSELS

COUNTRY _____
 VESSEL NAME _____
 COUNTRY OF REGISTRATION _____
 NAME OF CAPTAIN _____

PERMIT NUMBER _____
 GROSS REGISTERED TONNAGE _____
 LICENCE NUMBER _____
 VESSEL OWNER: Name _____
 Address _____

Date of departure from port	
Date of arrival at port	
Number of fishing days	
Number of crew	
Bait used (species)	1. _____ 2. _____

Date			Noon Position		Number of Baskets	Number of Hooks	Albacore		Bigeye		Yellowfin		B.B. Swordfish		Striped Marlin		Blue Marlin		Black Marlin		Sailfish etc.		Shark		Other Species												
Yr	Mth	Day	Lat.	Long.			No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	No.	Av. Wt.	Sp. name	No.	Av. Wt.								
TOTAL																																					

APPENDIX

RECOMMENDATIONS FOR COMPLETING DAILY TUNA CATCH RECORDS

Longline Vessels

Header Information

As standard catch forms will be used in many countries, it is important that the country to which each catch form refers is accurately recorded; similarly for the name of the vessel, the country of registration and the name of the captain. The permit number refers to the local fishing permit granted by the country in whose waters the vessel is fishing. It should not be confused with the licence number which refers to the licence for the particular vessel in its flag country. The remainder of the header information is self-explanatory.

Date

The year, month and day are given in that order for uniformity between countries and for ease of data processing.

Noon Position

An accurate noon position, latitude and longitude to the nearest minute, should be given daily.

Number of Baskets and Number of Hooks

This information should be recorded accurately each day.

Catch by Species

The number of species should be recorded accurately and an estimate of the average weight of each species should be given even though it may be impossible to determine the average weight accurately.