

SPC/Fisheries 18/Info.1
3 July 1986

ORIGINAL : ENGLISH

SOUTH PACIFIC COMMISSION

EIGHTEENTH REGIONAL TECHNICAL MEETING ON FISHERIES
(Noumea, New Caledonia, 4-8 August 1986)

SOUTH PACIFIC COMMISSION
FISHERIES OBSERVER MANUAL

Compiled by
Richard S. Farman

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PREFACE

In an effort to assist your country in deriving maximum benefit from its National Observer Programme the South Pacific Commission is proposing this first edition of a standardised observer manual.

This manual describes the duties you will be called to perform as a fisheries observer. Its contents are based on the combined experiences of observers from SPC countries and Tuna Programme staff for the actual conditions encountered in the Pacific, and from observer programmes elsewhere for more general conditions. You should use it as a guideline to help you remember how to proceed. However, conditions will vary over time or from vessel to vessel, and it is your responsibility to adapt to the situation. Know your manual, use it when you can, and suggest possible improvements for future editions.

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1.0 INTRODUCTION

1.1 Fisheries Observer Programme

Your country, like most coastal states around the world, is interested in deriving some benefit from the resources of the seas within 200 miles of its shores. In the South Pacific, the most valuable of these resources are tuna and billfish caught by commercial operations. These operations make up one of the largest fisheries in the world which can bring in major economic benefits to your country in the form of revenues from fish sales, licence fees and employment opportunities. However, this resource is not unlimited and it should be monitored to make sure that there will be enough fish for the years to come. Your Fisheries Division has thus started collecting the biological and statistical information necessary to see to that.

This monitoring is done mostly by having foreign flag and local vessels fill out detailed catch forms. These forms, however, have some limitations, such as in the quality and the detail of the information they contain. One way to get around this problem is to have an observer, you, on board. You will be responsible for identifying problem areas with the catch reporting, as well as updating information about each kind of operation and the biology of the species fished. Your Fisheries Division will use the information you collect to improve the forms and to get a better feel of how the resource behaves under exploitation.

1.2 Duties and Priorities

1.2.1 National

Your priorities will be determined by your National policy. Write them down below in order of importance:

- 1.
- 2.
- 3.

1.2.2 Regional

SPC's regional objectives are 1) to provide a reference for the evaluation of catch reports, 2) to provide a means to adjust the catch statistics for systematic misreporting, 3) to provide biological information on the exploited stocks, and 4) to collect general information about fishing activities (Tuna Programme 1983).

1.3 General Conduct

As an observer, you will experience different contacts with the crew depending on vessel type and nationality. There may be language barriers and cultural differences. Remember what you represent: your performance will be a reflection of your country, and of the entire regional observer programme. Your conduct will influence the success of future trips. Try to be friendly and to adapt to new situations. Always try to keep a tidy appearance and perform your duties without being in the way during the fishing operation.

Your presence on the vessel has been approved at the highest level, but may not be well accepted by the crew. It is your challenge to win their confidence. Always ask for permission before starting any activity and follow the ship's rules carefully. Do not attempt to "spy" information not available upon request, but report any deliberate obstruction to your duties. You are an observer only and your job is simply to observe.

2.0 TRIP PREPARATION

2.1 Instructions from Chief Fisheries Officer

Your Fisheries Officer will thoroughly discuss with you the objectives of your National programme and the duties you will have to perform in relation to each objective. This brief will also tell you the name, size, type and nationality of the vessel, how and where you will go on board and who to contact. Because the crew might expect you to participate in fishing activities during your trip, make sure you know the policy set by your Division Chief regarding working on board. It has been reported that the involvement of observers in regular fishing activities has caused the crew to rely on that extra hand making it difficult to leave the work station to perform observer duties.

2.2 Background Information

Look at reports of trips on vessels of similar types, categories (e.g. Farman 1986; Gillett 1986a, 1986b; Wright 1981). These reports will give you an idea of the type of fishing operation you will be observing if you are not already familiar with it, and how the catch may be sampled. Be aware of any problem or error already noted by previous observers and discuss them with your country's fisheries officer. Discussions with other experienced observers are also very informative and are encouraged.

You should review the parts of your observer manual dealing with the type of fishing vessel you will observe from. Review the sampling procedures and forms to fill out.

2.3 Personal Gear

You should make your own personal checklist, but the items listed below will give you an idea of minimum requirements.

2.3.1 Documents

If you are going to join or leave the vessel in a foreign country, make sure you have a passport with the necessary visas. Also carry a letter accrediting you for this mission (i.e. letter of introduction from your head office). It will be useful when dealing with the company's agent or the ship's captain.

2.3.2 Equipment

If you are going to perform some sampling, a mini tape recorder, plastic bags to protect recorder, extra tapes and extra batteries are essential. Other items include one camera with several rolls of film

(colour/black and white) (ask permission before taking photos), measuring device (board, tape measure, caliper), stationery (private log, paper, pens and pencils, eraser, straight edge). Your personal gear should include toiletries, non skid shoes, boots, rain gear, "entertainment" (books, tapes, cards, etc.), sunglasses, suntan lotion, alarm clock, waterproof watch, warm clothes, medical kit (first aid).

Also carry

- SPC catch forms for each gear type
- SPC observer manual
- Observer daily log sheets for each gear type
- Sampling sheets
- Nautical chart of the area
- Clipboard

2.4 Trip Details

2.4.1 Travel arrangements

If the observer trip originates and ends in your own country, skip to the next section.

When you find out your estimated time and place of departure, study your travel schedule and itinerary to prepare the trip. Find out if the country of destination requires a visa or special arrangements. You should be aware, for instance, that when travelling to Pago Pago, for immigration purposes you probably will need a round-trip ticket, even if you are going to get off elsewhere.

It is a good idea to acquire visas for any country on the probable itinerary home. Visas are required for any American territory, Australia and Papua New Guinea. However, regulations vary with nationality (some nationals need a visa for the French territories) and may change over time so you should do your own checking on the matter. You should also check the possible flight connections from your expected port of return.

Get the names and addresses of your contacts at the port of departure (ship's agent, consulate, foreign office); they will serve as liaisons. Notify your home office of your whereabouts during your trip. You also might want to pay a courtesy visit to the local fisheries division.

Once you have reached your port of departure, arrange to meet the ship's officers. In the case of Asian vessels, the ship's agent who usually speaks English may act as an interpreter. You should then make final arrangements for your accommodation on board, where to put away your gear and additional items that you may need (bed sheets, hard hat, if not provided), and get a confirmation of the departure time.

Explain, or have explained, to the captain and fishing master what your duties are and your activities will be on the vessel. If there are any objections, try to resolve them now while you can still get in touch with your home office. At sea it will be much more difficult and could jeopardise the results of your trip. If you do not speak the crew's

language, it is the time to get all practical questions answered and become aware of the ship's rules. Clarify what is expected of you with regards to work policy, vessel policies, taking photos, eating and bathing schedules.

Should you be accommodated on the vessel while waiting for departure, you may have to contribute to the daily chores, such as galley duty and deck watch. Again, be aware of your Department's work policy.

2.4.2 Financial matters

Enquire on how much of your daily expenses will be met by your office. You should carry only the minimum in cash, enough to pay for snacks and bus fare from the airport to the hotel. Ask for an extra allowance for last minute gear purchases, other transportation or airport tax. The balance of your money for daily expenses and airfare, if you do not have a return ticket, should be carried in traveller's cheques.

3.0 LIFE ON BOARD

3.1 Living Conditions

Living conditions will probably be very different from what you are used to. Once you find out what the daily schedule is, respect it carefully. Your presence should cause the minimum of disturbance to the normal operation of the ship. Observe restricted areas and special customs (i.e. shoes off in certain areas on Asian ships, no smoking areas on all ships) and be courteous.

Food may be the most difficult change. If you foresee a problem, be sure to carry plenty of snacks.

3.2 Safety

Many activities conducted on board a fishing vessel are dangerous and you should therefore carry insurance. Although you may be covered as a regular crew member, it is a good idea to check up on the benefits you are eligible for and get additional coverage through your employer if need be. In addition, you may be several days away from medical care so you should take all precautions in avoiding personal injury:

1. Wear protective gear (non skid shoes, gloves, hard hat)
2. Try to stay inside in rough seas
3. While outside on rough seas, stay within view of crew
4. Do not work around cables under strain
5. If doing ship transfers, wear life jacket
6. Wash carefully and dress small wounds with antiseptic
7. Be aware of safety equipment location (life vests, rafts, fire equipment)

3.3 Communication

You may try to prearrange radio contact with your home base. You will need the call number of the ship and of your base and a listening hour. During communication, do not mention fishing information or position.

3.4 Fishing Operation

Spend the first one or two days just getting familiar with the fishing operation (location and name of machinery are given in Appendices A,B and C). You should spend your time noting the sequence of events, referring to the manual sections when necessary, and filling out the gear checklist form. You should also use this time to plan your work. From the manual and your own observations determine how best to get your samples and information. If you did not have the opportunity to explain your duties to the ship's officers, do so now, especially if this is the first time they have an observer on board.

You should carry out all of the actual sampling; if crew members want to help, allow them to carry your equipment to set up a station. "Helpful" fishermen in other tasks, such as selecting fish, measuring, may introduce sampling errors and should be avoided.

Never carry your logbook outside the cabin as it could get lost or damaged. Data should be recorded on a plastic slate, notebook or tape recorder, and later transcribed to log sheets.

For a description of a typical purse seine, longline or pole-and-line operation, and the associated duties, refer to the appropriate appendix. Remember to make a note of any unusual observations: trust nothing to memory.

3.5 Daily Activities

Once all fishing activity has ceased for the day, you must copy all the information gathered on the appropriate forms. Depending on the gear type, there are several daily activity forms to fill out.

1. SPC catch form (based on your observations), form C
2. Observer daily log form, form D
3. Longline sampling sheets, form E
4. Personal logbook

Examples of filled forms C, D, and E are shown in the respective gear sections, and of the trip detail form at the end of this section.

In your personal log, you should enter a summary of the day's activity in your own words (e.g. time up, time fishing, weather, observations different from other operations, things not covered in the manual, other fishing activity in the area).

3.5.1 Sampling

You may also be asked to collect biological information or perform some sampling, depending on national objectives. Sampling procedures for longliners are presented in the section covering that gear. Sampling procedures have not yet been developed for purse seine and pole-and-line vessels and directives to do so should be included in your brief, together with the guidelines to follow.

In Appendix D you will find a taxonomic key to the major species caught in the Pacific by commercial operations.

4.0 CONCLUSION OF THE TRIP

4.1 Landing

Your duties do not stop when you get off the boat. You should attempt to get some additional information when the vessel is offloading. If possible, try to get the landing records for this trip. They will give you the actual weight and species composition of the catch.

You may also at this point observe other vessels unloading, and you should write down their names to monitor fleet activity, and if possible obtain landing records. However, all this information is often considered highly confidential by vessel owners and you should exercise discretion when making your enquiries. Do not press the matter if you meet with strong opposition.

After confirmation of your travel arrangements, either through the ship's agent or other contact (local Fisheries Officer), inform your home office of your arrival. Because there is a chance that airlines may lose your luggage, always hand carry primary data (filled out log books, catch forms or sample sheets).

4.2 Reporting

4.2.1 Oral Report to the Chief Fisheries Officer

Immediately upon your return, you should give an oral report of your trip to your supervisor. The information is still fresh in your mind and questions from your supervisor will help you remember important details. He will also identify special items he will want to see in the report. These should include:

1. General description of the trip (duration, weather, catch)
2. Differences you noted from other fishing operations
3. Errors made by the crew in reporting catch on log forms
4. Relations with crew
5. Success of fish sampling

4.2.2 Written report

Then you should write up a trip report. This trip report should go over the above remarks, and include a copy of each form you filled on board. Do not hesitate to include unusual details noted in your personal diary (log). Maps, pictures and figures are often clearer to understand than a paragraph of text and are a good way to summarise a lot of information. A typical report table of contents might look like this.

Introduction

General objectives of programme
 Specific objectives of this trip (if any)
 What this report will cover

Summary of Activities

Dates of trip
 Number and type of operations observed
 Fishing area (map with daily or set positions)

Vessel and Gear

Type and tonnage
 No. of crew
 Gear type
 (include gear checklist form and photos)

Operating Procedures

Daily activities (schedule)
 Crew deployment
 Fishing operation
 (include photos, if any)

Catch

Total catch
 Number of fishing days
 Catch/operation
 Species composition
 Discards
 Summary table

Miscellaneous

Noted differences - biological sampling
 Life on board
 Travel
 Items not covered or not well covered in this manual

Conclusion

Important things to remember from trip
 What to look for during next trip

4.3 Suggested Improvements to the Manual

You have just been in the field and we hope this manual has been helpful in helping you plan and carry out your tasks. However, it is not perfect and we need your help to improve on it. Please send your comments and suggestions to

Tuna Programme Co-ordinator
 Tuna and Billfish Assessment Programme
 South Pacific Commission
 B.P. D5
 NOUMEA CEDEX
 New Caledonia

You can include remarks like:

- errors
- missing information that would have been helpful
- insufficient information

Your contribution will make future trips easier for you and other observers.

REFERENCES

- FARMAN, R.S. (1986). An investigation of longlining activities in the waters of Tonga (24 April - 19 May 1985). Tuna and Billfish Assessment Programme Technical Report No.17, South Pacific Commission, Noumea, New Caledonia.
- GILLETT, R.D. (1986a). Observer trip on United States purse seine vessel (November-December 1984). Tuna and Billfish Assessment Programme Technical Report No.16, South Pacific Commission, Noumea, New Caledonia.
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- TUNA PROGRAMME (1983). Observer programmes. SPC/Fisheries 15/WP.10, Noumea, New Caledonia.
- WRIGHT, A. (1980). An investigation of Japanese longline tuna fishing operations in the region of Papua New Guinea. Research Bulletin No.23, Department of Primary Industry, Port Moresby, Papua New Guinea.

INSTRUCTIONS FOR FILLING OUT FORM B (TRIP DETAIL FORM)

- PLEASE PRINT -

1. Name of observer - Print your last name first and your first name last.
2. Vessel type - Two letters designating the type of vessel, e.g. LL for longline, PS for purse seine and PL for pole-and-line.
3. Call sign - The radio identification number of the vessel. You may get it from the agent or the radio operator.
4. Vessel name - The name of the vessel.
5. Nationality - The name of the country of registration.
6. Registration number - The vessel registration number. You may get it from the agent or the ship's specifications.
7. Permit number - The number issued by your country for the permission to fish.
8. Year built - The year the vessel was built. You may get it from the ship's specifications.
9. Gross tonnage - The number of tonnes for which the vessel is registered. You may get it from the ship's specifications.
10. Carrying capacity - The amount of fish that can be carried by the vessel when full. You may get it from the ship's specifications.
11. Horsepower - Power of the engine(s). You may get it from the ship's specifications.
12. Boarding date - Date on which you boarded the vessel, YY/MM/DD, e.g. 86/01/08.
13. Boarding place - Port where you boarded the vessel.
14. Disembarking date - Date on which you left the vessel, YY/MM/DD, e.g. 86/02/15.
15. Disembarking place - Port where you left the vessel.

---NEXT SECTION - ONLY FILL OUT APPROPRIATE GEAR---

I. POLE-AND-LINE

16. Refrigerated bait - Does the vessel carry its own bait - Y/N.
17. Baitfishing - Does the vessel participate in baitfishing activities?
- | | |
|-------------|---------------|
| Bouki-ami | Y/N |
| Beach seine | Y/N |
| Other | explain |
18. Number of crew - How many crew members?
19. Binoculars - Give the total number and power of binoculars used while searching for fish.

II. PURSE SEINE

20. Group seiner - Is the vessel you boarded part of a group seining operation? Y/N.
21. Number of boats - If yes, how many boats make up the group?
22. Aircraft - Is any type of aircraft used in spotting fish? Y/N.
23. Payaos - Does the vessel use any man-made raft for aggregating fish schools? Y/N.
24. Binoculars - Give the total number and power of binoculars used while searching for fish.
25. Net size - Give the length and depth of the net. Indicate which unit, fathoms or metres, you are using. The hang of the net is the length of webbing corresponding to the length of the net. It is usually expressed as a percentage.

III. LOGLINE

26. Refrigeration - What is the cold storage method used on board? Ice - Y/N, freezer - Y/N.
27. Market - What is the destination of the fish caught? Cannery - Y/N, Sashimi - Y/N.
28. Number of crew - How many crew?

29. Line configuration -

The average number of baskets
The average number of branch lines
The average length of the float line
The average length of the branch line
The average distance between floats (i.e. the length
of the line between two floats.

.....

30. Forms completed - How many forms of each category are included in your report?

TRIP DETAIL FORM

NAME OF OBSERVER _____
Surname Christian name
VESSEL TYPE _____ CALL SIGN _____
VESSEL NAME _____ NATIONALITY _____
REGISTRATION NO. _____ PERMIT NO. _____
YEAR BUILT _____ GROSS TONNAGE _____ HORSEPOWER _____
CARRYING CAPACITY _____

BOARDING

Date _____
Place _____

DISEMBARKING

Date _____
Place _____

I. POLE-AND-LINE

Refrigerated bait ☐
Baitfishing - Bouki-ami ☐
Beach seine ☐
Other _____
No. of crew _____
Binoculars
No. _____
Power _____

II. PURSE SEINE

Group Seiner ☐ No. of boats _____
Aircraft ☐
Payaos ☐
Binoculars
No. _____
Power _____
Net size
Length _____
Depth _____
Hang _____

III. LONGLINE

Refrigeration
Ice ☐
Freezer ☐
Market
Canning ☐
Sashimi ☐
No. of crew _____
Line Configuration
Continuous line ☐
Coils or baskets ☐
Line hauler ☐

FORMS COMPLETED

TRIP DETAIL (B) _____
CATCH REPORT (C) _____
DAILY FORM (D) _____

APPENDIX A

OPERATING PROCEDURES ON BOARD A PURSE SEINE VESSEL

Introduction

Fishing Operation

Searching

Setting

Observer Duties

Daily activities

Instructions for filling our Form D2 (purse seine observer log)

Purse seine observer daily log form (Form D2)

Instructions for completing daily tuna catch record

Catch report for purse seine vessels

Specialised terms used aboard United States purse seine vessels

Introduction

Many nations are involved in purse seining in the Pacific. Boats vary in size from only 116 GRT to over 2000 GRT. However, they all use the same basic strategy which is to encircle a school of tuna with a net and then to capture it by closing (pursing) the bottom end. Standard equipment (skiffs, nets, fish finders, airborne search) vary from boat to boat and it is one of your first duties to fill out the gear checklist form describing the gear and its specifications (Form B). Before you do, however, read this chapter carefully to become acquainted with the purse seining operation, the use of each piece of equipment and its name.

Figure A1 shows purse seiners of several different nations. Most differences between types are in the size and construction of their net and whether their searching strategy involves the use of an aircraft. Note that the Japanese have two types: the single and group seiners. Group seiners use the same method for catching fish as single seiners, but have no refrigerating capacity and rely on carrier boats to load the catch.

Fishing Operation

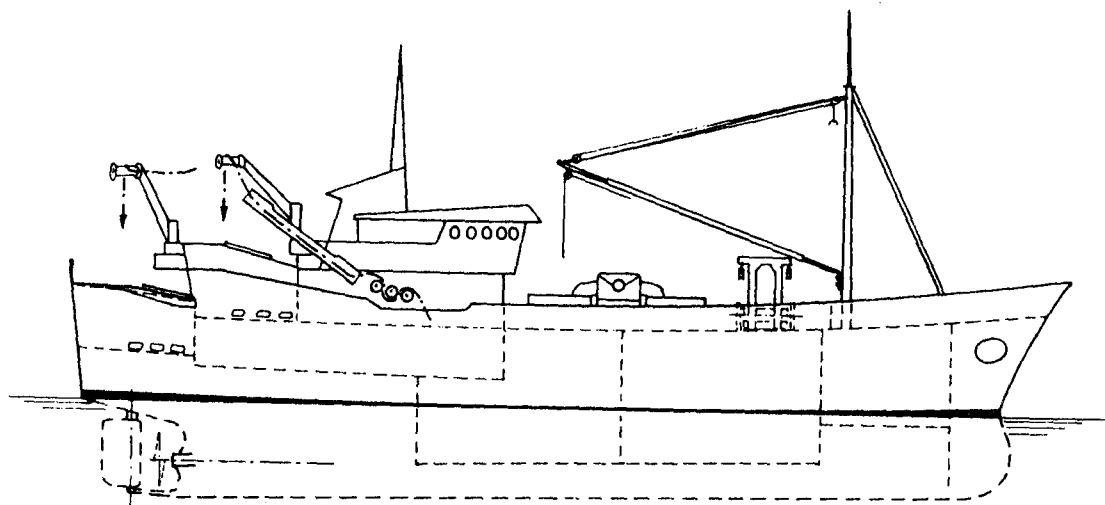
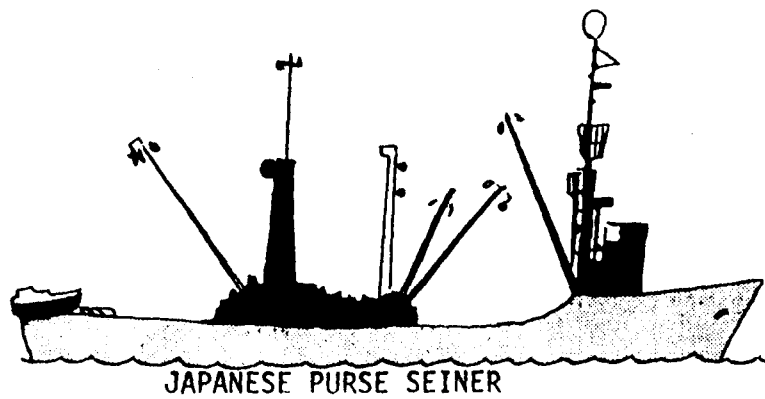
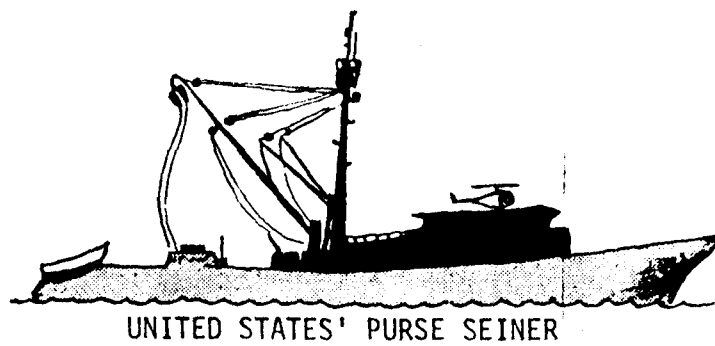
1. Searching

Searching is probably the best indication of a vessel's fishing effort and it is your responsibility to keep a good record of the daily searching activity. Searching is defined as the activity when one or more crew are making an attempt to locate fish. Tuna are found by direct observation when they are feeding at the surface, or in association with a variety of animals and objects such as birds, whales, trees (logs) or other flotsam. Note the starting time and finishing time of all searching activities, the number of people involved and the methods used. Also note the reading on the ship's log, the device keeping track of the distance covered. Some boats (American mostly) use helicopters for spotting schools or flotsam. Record flying time used for searching. Other vessels only search from the boat (crow's nest, flight deck) with binoculars. Make the same observations: crew rotations, investigation of flotsam, when searching starts and ends.

On board group seiners, three and sometimes four (if both carriers are on the fishing grounds) vessels are involved in the search. Try to keep informed of the other vessel's activities, especially when investigating a school or log and make notes of it in your personal diary.

In your narrative diary, note the sequence of events for this day's searching including the number of visits to each flotsam and whether or not the boat is using its own floating object (payaos) to try and attract fish. Successive sets on the same flotsam should receive particular attention and can be identified by assigning a number to each object. Your diary might read like this, "... after this morning's log set, we proceeded to log no.3 (marked yesterday). John and Paul on flight deck with X20 binoculars. One hour steaming time. One school sighted (note type of school according to instructions for form D2, and approximate size from the crew's estimate) - too fast (position 10°00'N-130°00'E). Checked log3 - still not much. Dropped one payao (No.4) with radio marker. Chopper takes off 11.45AM. Serious search. Four spotters, one in crow's nest, all on X20's. Flying

Figure A1



time 3h50min. X schools sighted (position). Promising log - 30 mins steam. Good concentration of fish under the log. OK for dawn set. All activities stop 15.30PM. Drift."

Write in details; it will help you write your report!

2. Setting

If you are not already familiar with the purse seine technique, read the following paragraphs. Each stage is shown in Figure A2 and a list of gear names is given at the end of this appendix.

Free swimming schools may be fished during daylight, but flotsam-associated schools are usually set on just prior to dawn. However, be it on a log, a raft or a surface school, setting procedures always follow the same sequence. Once the fishing master has decided to make the set, he instructs the captain or navigator to position the (net) boat in such a way as to end up with the school in the centre once the net has been set. With two seamen on board, the skiff, attached to the front end of the net, is released (Figure A2(1)). The boat steams 14-16 knots ahead quickly encircling the school or flotsam (Figure A2(2)). Before the net boat recovers the front end of the net, the entire net is in the water (Figure A2(3)). The rear end is then brought on board (Figure A2(4)) and pursing begins (Figure A2(5) and A2(6)). Details of these last stages are shown in Figure A3. Once pursing is finished (rings up = all rings on board), the net is hauled (Figure A2(7)). The vessels use one and sometimes two power blocks, one to take in the net and another to stack it on deck. Another system, seldom used in the Pacific, is the Norwegian Triplex system. It consists of vertical rollers that replace the power block taking in the net in the two block arrangement. Take a note of the system used on your trip.

When the net has been reduced to a small pocket (Figure A2(8)), the fish caught have to be loaded, which is done with a large brailing scoop. On the group seiners, fish are loaded onto the carrier boats.

Observer Duties

1. Daily Activities

Although you may spend long periods at sea, the time you actually have to make your observations can be very short because of the nature of the fishing operation. Therefore you should get organised as to get the most important information first and then go on to the next as time permits.

Your most important duty is to give a detailed account of each days' activity. You have seen above an example on how to write your narrative diary the events of a day searching.

You should also fill out the observer daily log (instructions and example below). It asks for a detailed breakdown of the activities by half-hour intervals or every time something new starts (e.g. chasing, fishing), so try to keep a good watch. You are not expected to stand 12 hours watch every day, so note carefully when you start and stop monitoring the activities each day. If any temperature profile has been measured with an expendable bathythermograph - XBT - note the depth of each one degree interval on the form provided in Appendix C.

Figure A2.

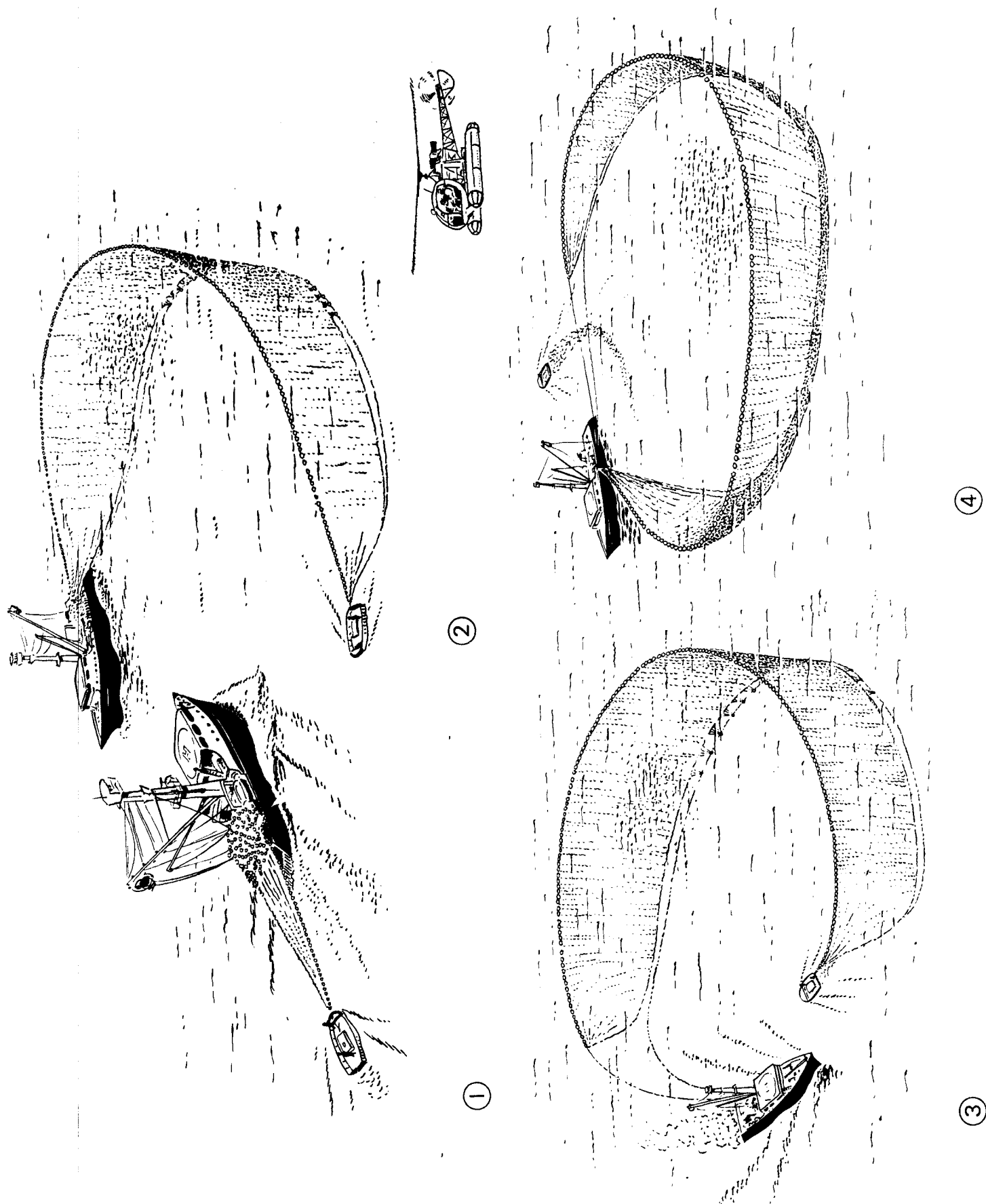
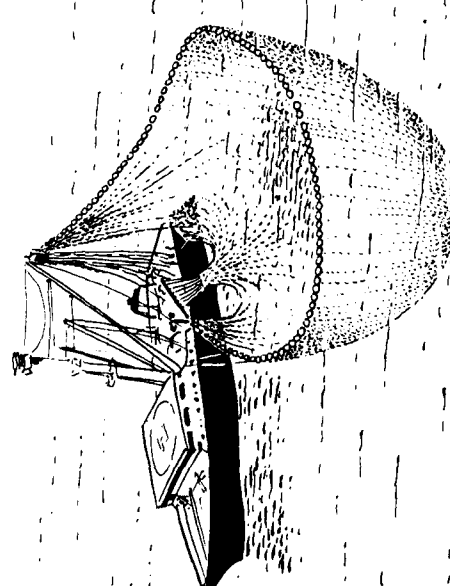
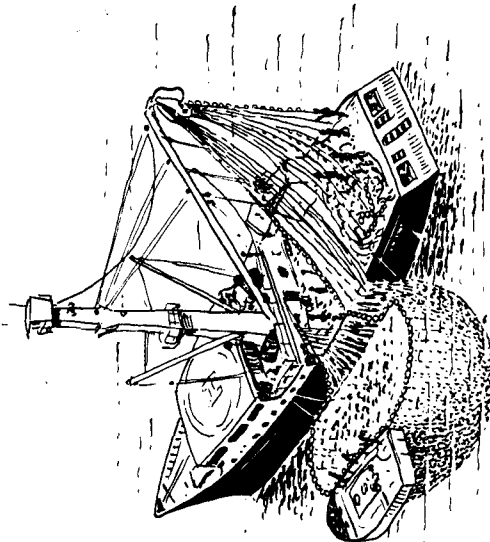
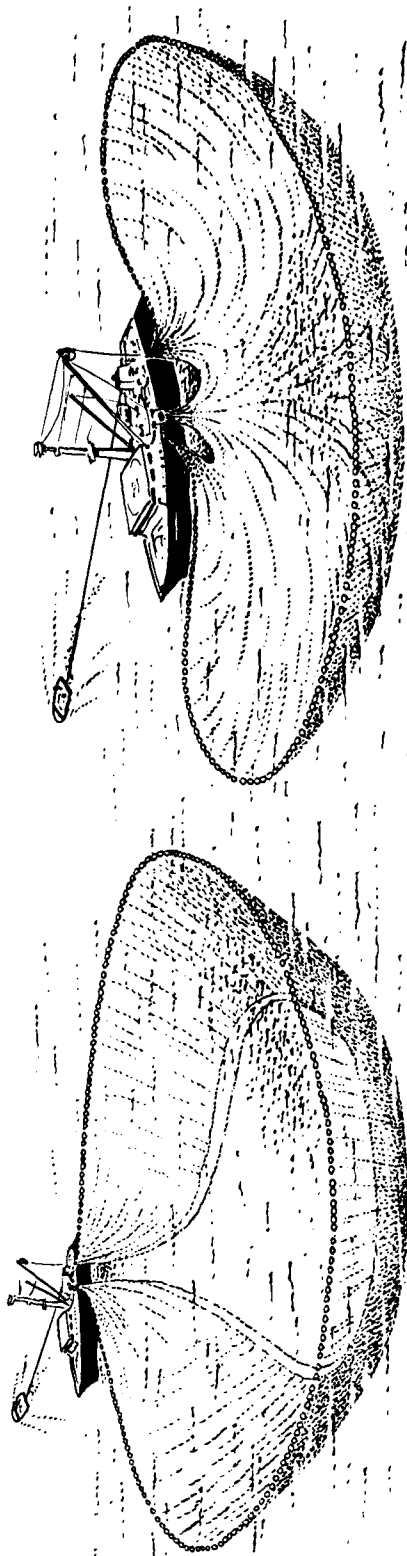
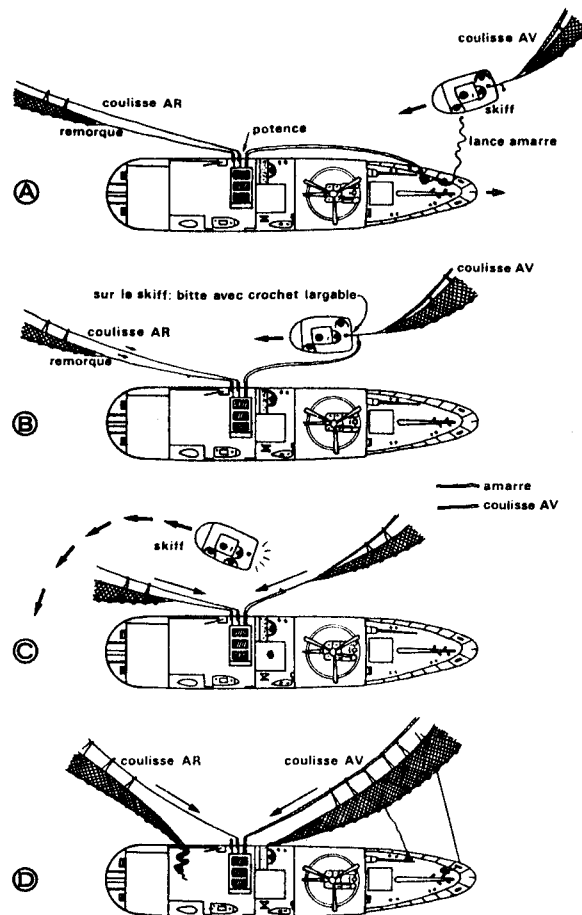


Figure A2 (cont.)



OPIC-82

Figure A3.



You should follow the same format for the catch information. Include any observation of particular interest, such as the occurrence of odd species in the catch (whales, billfish, turtles), mechanical problems resulting in a poor or zero catch, and more importantly, misreporting. Out of curiosity, the crew may leaf through your diary or ask to get a look at it. Therefore should you wish to keep any information confidential, you should think of writing it in your native language.

Remember that we are also asking you to fill out a catch form (like the one filled out by the Captain) from your own observations. This task is especially important if the Captain does not fill his until the end of the trip; it will help, by comparing with your copy, to see if anything was left out or forgotten.

You should thus try to get an estimate of total catch. The most knowledgeable persons to ask are the fishing master and the chief or refrigeration engineer. You should consult them after the catch has been loaded into the fish holds. By keeping a cumulative total, you will find out how close their estimate comes to the actual catch. Your total can also be checked against the carrying capacity of the vessel (either from the licence registration, the FFA Registry or the boat specifications).

The other items on the catch form that you should record are species composition and discards. You should be aware that bigeye are usually under-reported, mainly because the catch form does not specifically ask about the species, but also because they are sold for the same price as yellowfin and the fishermen put them together. Note the occurrence of bigeye, especially when it is not reported and try to make your own estimate of their proportion in the tonnage caught and compare it to the crew's estimate. You can take a percentage of the catch following these classifications:

rare	1-5%
some	up to 10%
many	up to 30%
lots	more than 30%

If you are not familiar with the differences between yellowfin and bigeye refer to Appendix E for some helpful hints.

Discards are also often unreliable reported. Note important species such as billfish, but also any small sized tuna that are discarded. You may get an estimate of total discards by subtracting the estimate of catch at brailing and how much is actually loaded in the holds. However, this is not a sure way, especially if discards are made later when transferring the fish. Also note unusual catches both in numbers (e.g. large quantities of a particular species), in type (e.g. turtles) or in weight. After the day's fishing, you should transcribe the information for each set on separate forms.

Finally, and only if instructed to do so, you may sample the catch for length frequency distribution (i.e. measure fish). Follow the specific instructions that you received during your briefing.

INSTRUCTIONS FOR FILLING OUT FORM D2 (PURSE SEINE OBSERVER DAILY LOG)

- PLEASE PRINT -

1. Vessel name - Print the name of the vessel the observations have been made on.
2. Your name - Print your last name.
3. Date - The date of the observations (YYMMDD), e.g. 860112 for 12 January 1986.

-----FOR THE REMAINDER OF THE FORM, FILL OUT ONE LINE AT EACH CHANGE OF ACTIVITY OR EVERY HOUR-----

4. Time - Hour and minutes at which you observed the change in activity (searching, chasing a school, fishing or no operation) or at which you made this observation. Start and end with the time at which you begin and finish your watch.
5. Position - Longitude and latitude where this observation is taking place (if known).
6. Log - Log reading. The number card on the log dial (if permitted).
7. Activity - Write down the code describing the activity the vessel is engaged in at this time.
 - 1 Searching - At least one member of the crew is actively looking for tuna (or searching from aircraft).
 - 2 Chasing - The vessel is changing course to investigate a school or a sign (e.g. birds).
 - 3 Fishing - The fishing master has decided to make a set. Fishing starts when the skiff is released and finished when the skiff is back on board.
 - 4 No operation - The vessel is not engaged in any of these activities.
8. Lookout - The number of crew members participating in searching activities.
9. Aircraft - If an aircraft is used for searching, indicate how many hours or minutes it spent in the air.
10. School sighted - The number of schools sighted by the crew since the last entry.

11. Log visited - First number = number of logs investigated, second number = logs that have been seen before (e.g. 4.2: 4 logs were visited, 2 of which had been visited previously).
12. School type - Write down one or two codes best describing the school fished.

Unassociated

1. Foamer/boiler
2. Rippler/breezer
3. Birds only

Associated

4. Natural log/debris
5. Free floating raft/payao
6. Anchored raft/payao
7. Animals (whales/sharks, etc.)

13. Catch - For each set write the catch (including zero) and weight range of skipjack, yellowfin and bigeye and write down the total fish catch out of that school, including discards.

Weight ranges are:

SJ (kg)	YF/BE (kg)
<2	<5
>2	5-15
2-4	15-30
2-6	<30
4-6	30-50
4-8	15-50
6-8	>50
>8	>80
?(unknown)	?

14. Broken set - Reasons for unsuccessful sets.
15. Beaufort - A number between 0 and 12 describing the wind and sea condition (see the Beaufort scale attached). This should be carried out only three times a day, e.g. 6h00, 11h00, 14h00, and recorded on a corresponding activity.
16. SST - Sea surface temperature at the time of the observation.
17. XBT - You will be recording the information on a separate sheet; just indicate that the device was used by ticking the box.
18. Comments - Additional information such as animal type in school type 4.

PURSE SEINE OBSERVER DAILY LOG

VESSEL NAME: _____ YOUR NAME: _____ DATE: _____

[illegible]

ACTIVITY:

SCHOOL TYPE:

BROKEN SET:

```

Searching .....1
Chasing .....2
Fishing .....3
No operation .....4

```

Unassociated

Foamer/boiler	1
Rippler/breezer	2
Birds only	3

Associated

Natural log/debris	4
Free floating raft/payao	5
Anchored raft/payao.....	6
Animals (whales/sharks, etc.)	7

Roll up	1
Too much current	2
Fish escaped	3
Breakdown	4
Bad weather	5

INSTRUCTIONS FOR COMPLETING DAILY TUNA CATCH RECORDPurse Seine Vessels

- (1) CATCH REPORT FOR WATERS OF - Give country in whose waters vessel is fishing, e.g. Papua New Guinea.
- (2) VESSEL NAME - Give name in full, e.g. Tokiwa-Mar No.53.
- (3) COUNTRY OF REGISTRATION - e.g. Japan.
- (4) REGISTRATION NUMBER - As registered in country of registration given in (3), e.g. TK1-970.
- (5) GROSS REGISTERED TONNAGE - To nearest tonne, e.g. 254.
- (6) YEAR - Current calendar year, e.g. 1982.
- (7) MONTH - Month to which this catch return refers. Use numbers from 1-12 for January to December, e.g. 9 for September.
- (8) LICENCE/PERMIT NUMBER - Give complete number of permit to fish in the waters of the country given in (1), e.g. PNG 82/1234.
- (9) NAME OF CAPTAIN - Give name in full.
- (10) CAPTAIN'S SIGNATURE - Must be signed by the Captain as the person accepting responsibility for the accuracy of the catch declaration.
- (11a) DEPARTURE FROM PORT - Give full name of port from which this cruise started, e.g. Shimizu.
- (11b) DATE - Give date of departure from (11a) with year, followed by month, followed by day, e.g. 81/8/16 for 16 August 1981.
- (12a) ARRIVAL AT PORT - Give full name of port at which cruise is terminated, e.g. Yaizu.
- (12b) DATE - Give date of arrival at (12a), year/month/day, e.g. 81/10/27 for 27 October 1981.
- (13) NUMBER OF CREW - Give total number of officers and crew on board.
- (14) DAY - Use numbers from 1-31 for days of the month. One line should be used for each set, whether the set is successful or not. If no set was made for a full day when in the waters of the country in (1), give day number and appropriate comment from codes 1 to 5. A new page should be used for each country and for each month, e.g. if vessel commences fishing in Papua New Guinea waters on 23 August and leaves on 4 September, records should be made on one sheet for August, commencing day 23 and continuing to day 31, and a new sheet should then be used for September day 1 to day 4.
- (15) NOON POSITION - Give latitude and longitude to nearest minute and add N or S for north or south latitude and E or W for east or west longitude.
- (16) SCHOOL TYPE - Give appropriate number from 1 to 6 as school type code.
- (17) TIME SET - Give time of commencement of set, e.g. 1420 (hours).
- (18) SKIPJACK - Give catch in metric tonnes to the nearest tonne, e.g. 27, and average size to nearest .1 kg, e.g. 4.2
- (19) YELLOWFIN - As for skipjack.
- (20) OTHER SPECIES - Give name of the dominant species only, e.g. rainbow runner, and give weight and size as for skipjack.
- (21) COMMENTS - Give appropriate number from codes 1 to 7.
- (22) DISCARDS - All fish which are caught but not maintained on board must be declared and a reason given from codes 1 to 4.

The completed form must be signed and a copy posted airmail immediately to the Fisheries Department of the country in whose waters fishing was carried out.

At the same time the original should be airmailed to:

Tuna Programme Co-ordinator,
South Pacific Commission,
Post Box D5,
NOUMEA CEDEX,
New Caledonia.

PURSE SEINE VESSEL - CATCH REPORT FOR WATERS OF

VESSEL NAME _____	LICENSE/PERMIT NUMBER _____
COUNTRY OF REGISTRATION _____	NAME OF CAPTAIN _____
REGISTRATION NUMBER _____	LICENSE/PERMIT _____
GROSS REGISTERED TONNAGE _____	HOLDER'S SIGNATURE _____
NAME(S) OF FISH CARRIER(S) _____	
FOR GROUP PURSE-SEINER _____	YEAR _____ MONTH _____

	NAME		YYMMDD
DEPARTURE FROM PORT		DATE	
ARRIVAL AT PORT		DATE	

NUMBER OF CREW	
----------------	--

[illegible]

SPECIALISED TERMS USED ABOARD UNITED STATES PURSE SEINE VESSELS

Rigging and Deck Machinery

Cherry picker. A reel-type hydraulic winch, cable and hook mounted on an arm which can be extended and rotated. Can be used to launch speedboats or load cargo. Frequently mounted on the bow deck and the starboard side of the speedboat deck.

Choker. Hydraulic reel-type winch and Sampson Braid line mounted on the starboard side of the work deck. The line from the winch is wrapped around a section of the net, and tension from the winch causes the line to draw tightly on the net. During sacking-up, one choker is used to prevent the net from slipping out over the power block, and another is used to prevent mesh of the sack from slipping overboard.

Double hydraulic. Reel type hydraulic winch and cable which is reeved through double blocks and attached to a hook. This winch is used for lifting the heaviest loads and for pulling the skiff onboard. Operation is controlled by a lever on the hydraulic console.

Gooseneck. A steel fitting used to attach a boom to the mast.

Gypsy, "Niggerhead". A revolving winch head around which cable or lines can be wrapped for pulling loads.

Hydraulic console. A control panel at the aft end of the speedboat deck from which the operation of the hydraulic winches is controlled.

Main boom. A large steel spar attached to the mast above the level of the work deck and extending upwards and aft.

Mast. The tall tower centrally located on a purse seine vessel.

Nesting winch-Inhaul winch. A winch and cable mounted on the main boom which is used to control the angle of the power block.

Power block. An hydraulic roller mounted on the upper end of the main boom. Used for retrieving the net from the water.

Purse davit. A davit located on the port side of the work deck, even with the purse winch. Heavy blocks are attached to these davits and guide the purse cables during net setting and pursing.

Purse winch. A large, powerful hydraulic winch mounted in the centre of the work deck aft of the mast. Used to haul in both ends of the purse cable to close the opening at the bottom of the net.

Ring stripper. Hydraulically operated arm located on the port rail just aft of the purse davits on the work deck. The arm of the stripper is raised and collects the rings of the net after they have been raised to the surface by the purse winch and to overhead level by the double hydraulic winch.

Single electric. Reel-type electric winch, cable and hook mounted on a boom over the work deck. Operation is controlled by a switch on a cord.

Single hydraulic. Reel-type hydraulic winch, cable, and hook mounted on a boom over the work deck. Operation is controlled by a lever on the hydraulic console.

Small booms. Two steel spars which are smaller than the main boom and which are attached to the mast to port and to starboard of the main boom attachment. These booms extend upwards; one towards port and aft, the other to starboard and aft.

Speedboat davits. Two sets of arms, usually hydraulically operated and located on the starboard side of the work deck. Used to support and launch speedboats.

Tire. Device resembling an automobile tire which is used to apply pressure on the net as it travels over the power block to ensure that the net does not slip.

Topping lift. A winch and cable used to raise or lower a boom.

Vang. A winch and cable used to move a boom to starboard or to port.

APPENDIX B

OPERATING PROCEDURES ON BOARD A POLE-AND-LINE VESSEL

Introduction

Fishing Operation

Searching

Fishing

Baitfishing

Tuna fishing

Observer Duties

Daily activities

Instructions for filling out Form D1 (pole-and-line observer daily log)

Pole-and-line observer daily log form (D1)

Instructions for completing daily tuna catch record

Catch report for long range pole-and-line vessels

Introduction

Pole-and-line vessels fish the same surface populations as purse seiners but with a lower efficiency that has contributed to their decline in the last five years. However, the better quality of their product brings a higher price and their operation is economical if all the conditions are right (low labour costs, bait availability, proximity of fishing grounds, outlet for the fish ...). The following chapter provides a summarised description of a typical pole-and-line operation.

Fishing Operation

1. Searching

Searching is probably the best indication of a vessel's fishing effort and it is your responsibility to keep a good record of the daily searching activity. Searching is defined as the activity when one or more crew are making an attempt to locate fish by direct observation. Searching is conducted in the same manner as in a purse seine operation. More schools, however, may be suitable for pole-and-line fishing and therefore more time is allocated to the investigation of those schools (trolling, baiting). Note the starting time and finishing time of all searching activities, the number of people involved and the methods used. Also note the reading on the ship's log, the device keeping track of the distance covered. In your narrative diary, note the sequence of events for this day's searching. It might read like this, "... started searching at 6.30 a.m. John and Paul on deck with X20 binoculars. One hour steaming time. One school sighted (note type of school according to instructions for form D2, and approximate size from the crew's estimate) - chummed but no response (position 10°00'N-130°00'E). Tried log - still not much response. Serious search. Four spotters, all on X20's. 5 schools sighted (position, 3 schools fished). Good fishing overall. All activities stop 19.30PM. Drift."

Fishing masters are familiar with the fishing grounds for each season. Note if the vessel steamed straight to these grounds or if they prospected an area. Fishing vessels of the same company or nationality will share information. Note if you re-routed due to information received from other vessels in the fleet. Finally, note any information you may get from the crew on how they select a new fishing ground (e.g. ocean currents, temperature, sea mounts, etc.).

Write in details; it will help you write your report!

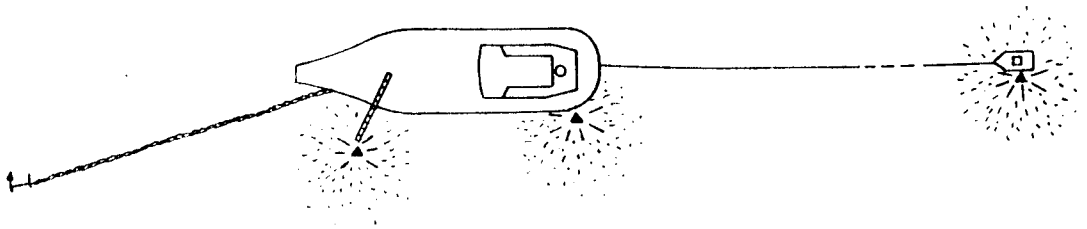
2. Fishing

Baitfishing

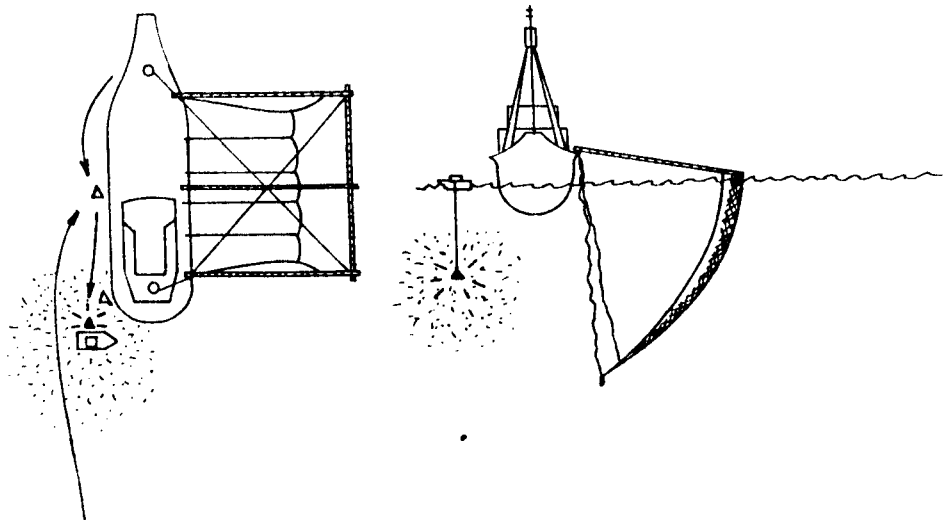
Unless the vessel is carrying bait from foreign sources, it will have to catch bait. It is done at night by setting a lift net with attraction lights. The lights are turned on for several hours or until a sufficient amount of bait is brought together (as shown by echo sounder) before the net is lifted. The net or "bouke-ami" is a rectangular panel set from the vessel by bamboo poles. When lifted, it traps the bait circling near the light forming a rectangular enclosure (Figure B1). By gathering the net from the stern forward, bait are crowded in a smaller pocket from where they can be scooped into plastic buckets and then transferred to the bait

Figure B1

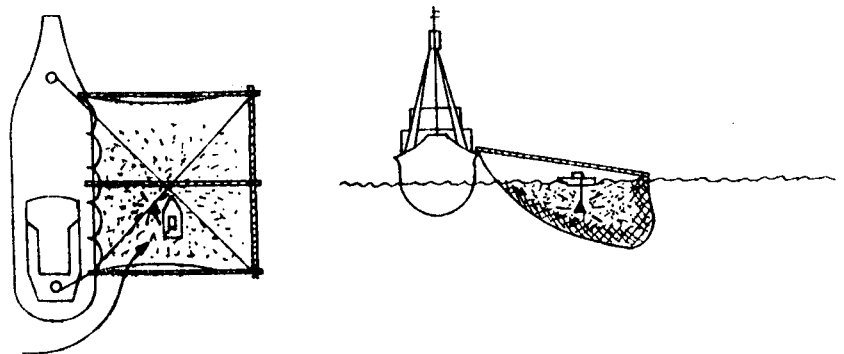
1. Attraction lights on



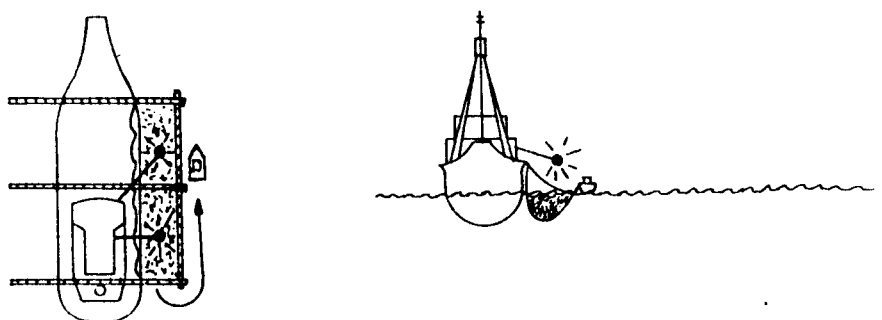
2. Checking the bait and setting the net



3. Concentrating the bait and hauling the net



4. Crowding the bait (see Figure 6)



wells. Note if any other method is used (beach seine, or bait purchased from a local supplier).

Tuna fishing

The typical plan is to approach a school and chum (throw live bait into the water) schools. All hands are on deck and ready for action. The fishermen are stationed all around the stern and on the port side from midship all around the bow.

Fishing starts with either a strike on the trolling lines which are then hauled, or in a particularly active school, with catches on the poles. Water is sprayed from the fishing stations to hide the vessel and entice the fish to bite. The fishing master will then direct the chumming operation, controlling the amount used in function of the biting response. Figure B2 shows a typical bait boat with the fishing stations and Figure B3 shows the pole-and-lines used. Fish will pile up on deck until the school stops biting.

Observer Duties

1. Daily activities

Although you may spend long periods at sea, the time you actually have to make your observations can be very short because of the nature of the fishing operation. Therefore you should get organised as to get the most important information first and then go on to the next as time permits.

Your most important duty is to give a detailed account of each days' activity. You have seen above an example on how to write your narrative diary the events of a day searching.

You should also fill out the observer daily log (instructions and example below). It asks for a detailed breakdown of the activities by half-hour intervals or every time something new starts (e.g. chasing, fishing), so try to keep a good watch. You are not expected to stand 12 hours watch every day, so note carefully when you start and stop monitoring the activities each day.

You should follow the same format for the catch information. Include any observation of particular interest, mechanical problems resulting in a poor or zero catch, and more importantly, misreporting. Out of curiosity, the crew may leaf through your diary or ask to get a look at it. Therefore should you wish to keep any information confidential, you should think of writing it in your native language.

Remember that we are also asking you to fill out a catch form (like the one filled out by the Captain) from your own observations. It is especially important if the Captain does not fill his until the end of the trip; it will help, by comparing with your copy, to see if anything was left out or forgotten.

You should first try to get an estimate of total catch. The most knowledgeable persons to ask are the fishing master and the chief or refrigeration engineer. You should consult them after the catch has been loaded into the fish holds. By keeping a cumulative total, you will find

Figure B2

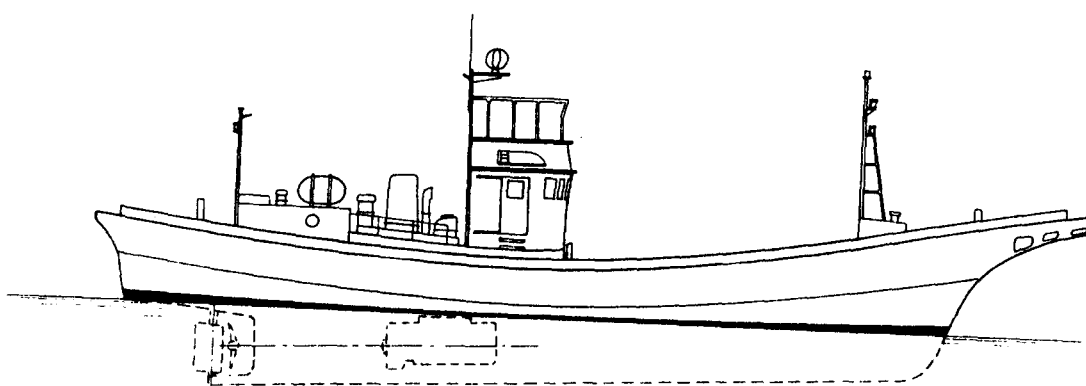
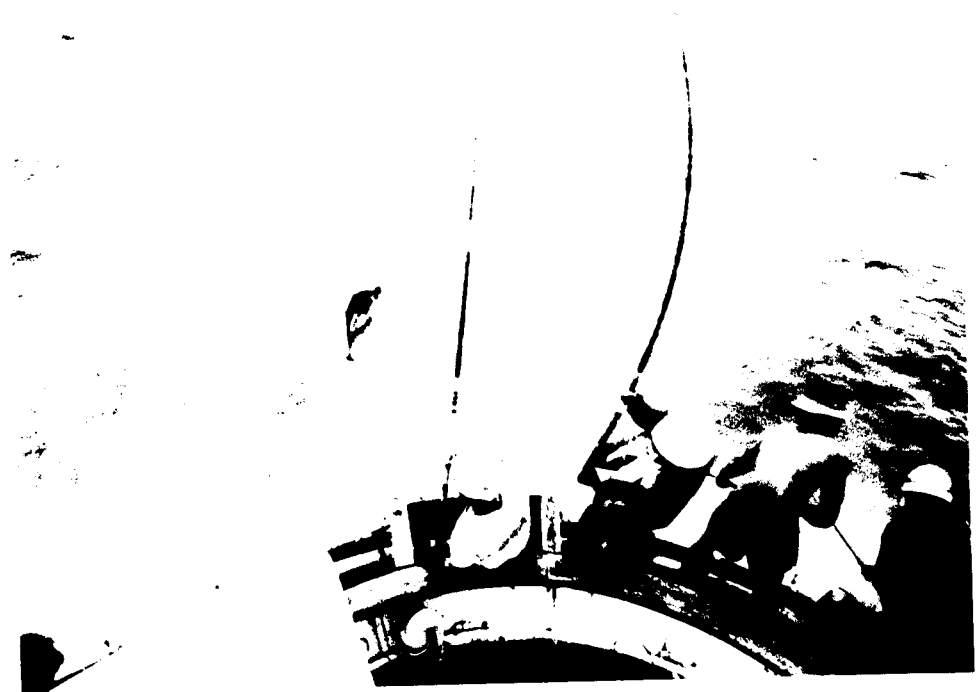


Figure B3



out how close their estimate comes to the actual catch. Your total can also be checked against the carrying capacity of the vessel (either from the licence registration, the FFA Registry or the boat specifications).

The other items on the catch form that you should record are species composition and discards. Unlike purse seine catches, pole-and-line catches are much more selective and comprised mostly of skipjack. We are not recommending any sampling at this time and again you should rely on the crew's estimates.

Discards are also often unreliably reported. Note important species, but also any undersized tuna that are discarded.

Finally, and only if instructed to do so, you may sample the catch for length frequency distribution (i.e. measure fish). Should you have been asked, you should try to take systematic samples (i.e. every 10 or 50th fish) as the fish are being moved from the fishing stations to the holds.

Sampling should only be attempted after all fishing activities have ceased. To do otherwise would expose you to possible injury (falling fish, flying hooks) and hinder fishing operations such as supplying the chumming tanks with bait from the live wells.

INSTRUCTIONS FOR FILLING OUT FORM D1 (POLE-AND-LINE OBSERVER DAILY LOG)

- PLEASE PRINT -

name - Print the name of the vessel the observations have been made on.

2. Your name - Print your last name.

3. Date - The date of the observations (YYMMDD), e.g. 860112.

-----FOR THE REMAINDER OF THE FORM, FILL OUT ONE LINE AT EACH CHANGE OF ACTIVITY OR EVERY HOUR-----

4. Time - Hour and minutes at which you observed the change in activity (searching, chasing a school, fishing or no operation) or at which you made this observation.

5. Position - Longitude and latitude where this observation is taking place.

6. Log - Log reading.

7. Activity - Write down the code describing the activity the vessel is engaged in at this time.

Searching - At least one member of the crew is actively looking for tuna.

Chasing - The vessel is changing course to investigate a school or a sign (e.g. birds).

Fishing - The school chased is being chummed and/or trolling lines are set.

No operation - The vessel is not engaged in any of these activities.

8. Lookout - The number of crew members participating in searching activities.

9. School sighted - The number of schools sighted by the crew since the last entry.

10. Chumming - If the vessel caught up with a school or fish signs (e.g. birds), is bait being used to try to entice the fish to bite? Y/N.

11. Catch - For each school chummed or fished write the catch (including zero) and weight range of skipjack, yellowfin and bigeye and write down the total fish catch out of that school, including discards.

Weight ranges are:

SJ (kg)	YF/BE (kg)
<2	<5
>2	5-15
2-4	15-30
2-6	<30
4-6	30-50
4-8	15-50
6-8	>50
>8	>80
?(unknown) ?	

12. School type - Write down one or two codes best describing the school fished.

Unassociated

1. Foamer/boiler
2. Rippler/breezer
3. Birds only

Associated

4. Natural log/debris
5. Free floating raft/payao
6. Anchored raft/payao
7. Animals (whales/sharks, etc.)

13. SST - Sea surface temperature at the time of the observation.
14. Beaufort - A number between 0 and 12 describing the wind and sea condition (see the Beaufort scale attached). This should be carried out only three times a day, e.g. 6h00, 11h00, 14h00.
15. Comment - The code of the comment describing the reasons for a no operation or a null catch.
1. In port
 2. Bad weather
 3. Breakdown
 4. Transit
 5. Out of bait
 6. Boat full

VESSEL NAME: _____ YOUR NAME: _____ DATE: _____

[illegible]

COMMENT:

In port	1
Bad weather	2
Breakdown	3
Transit	4
Out of bait	5
Boat full	6

INSTRUCTIONS FOR COMPLETING DAILY TUNA CATCH RECORDLong-range Pole-and-Line Vessels

- (1) CATCH REPORT FOR WATERS OF - Give country in whose waters vessel is fishing, e.g. Papua New Guinea.
- (2) VESSEL NAME - Give name in full, e.g. Hatsutori Maru No.5.
- (3) COUNTRY OF REGISTRATION - e.g. Japan.
- (4) REGISTRATION NUMBER - As registered in country of registration given in (3), e.g. TK1-970.
- (5) GROSS REGISTERED TONNAGE - To nearest tonne, e.g. 254.
- (6) YEAR - Give current calendar year, e.g. 1982.
- (7) MONTH - Give month to which this catch return refers. Use numbers from 1-12 for January to December, e.g. 9 for September.
- (8) LICENCE/PERMIT NUMBER - Give complete number of permit to fish in the waters of the country given in (1), e.g. PNG 82/1234.
- (9) NAME OF CAPTAIN - Give name in full.
- (10) CAPTAIN'S SIGNATURE - Must be signed by the Captain as the person accepting responsibility for the accuracy of the catch declaration.
- (11a) DEPARTURE FROM PORT - Give full name of port from which this cruise started, e.g. Shimizu.
- (11b) DATE - Give date of departure from (11a) with year, followed by month, followed by day, e.g. 81/8/16 for 16 August 1981.
- (12a) ARRIVAL AT PORT - Give full name of port at which cruise is terminated, e.g. Yaizu.
- (12b) DATE - Give date of arrival at (12a), year/month/day, e.g. 81/10/27 for 27 October 1981.
- (13) NUMBER OF CREW - Give total number of officers and crew on board.
- (14) DAY - Days are marked 1-31. Details should be entered for each day of the month spent in the waters of the country given in (1), e.g. if vessel commences fishing in Papua New Guinea waters on 23 August and leaves on 4 September, records should be made on one sheet for August, commencing day 23 and continuing to day 31, and a new sheet should then be used for September day 1 to day 4.
- (15) NOON POSITION - Give latitude and longitude to nearest minute and add N or S for north or south latitude and E or W for east or west longitude.
- (16) SKIPJACK - Catch in kilogrammes to the nearest kilogramme, e.g. 2,371 and average weight to the nearest .1 kilogramme, e.g. 4.2
- (17) YELLOWFIN - As for skipjack.
- (18) OTHER SPECIES - Give name of the dominant species only, e.g. rainbow runner, and give weight and size as for Skipjack.
- (19) COMMENTS - If no catch is made, choose from the codes 1 to 6.

The completed form must be signed and a copy posted airmail immediately to the Fisheries Department of the country in whose waters fishing was carried out.

At the same time the original should be airmailed to the:

Tuna Programme Co-ordinator,
South Pacific Commission,
Post Box D5,
NOUMEA CEDEX,
New Caledonia.

LONG RANGE POLE AND LINE VESSEL - CATCH REPORT FOR WATERS OF

VESSEL NAME _____
 COUNTRY OF REGISTRATION _____
 REGISTRATION NUMBER _____
 GROSS REGISTERED TONNAGE _____

LICENSE/PERMIT NUMBER _____
 NAME OF CAPTAIN _____

	NAME	YYMMDD
DEPARTURE FROM PORT		DATE
ARRIVAL AT PORT		DATE

YEAR _____ MONTH _____

LICENSE/PERMIT HOLDER'S SIGNATURE _____

NUMBER OF CREW _____

DAY	NOON POSITION				SKIPJACK		YELLOWFIN		OTHER SPECIES			COMMENTS	NUMERICAL EXPRESSION OF COMMENTS ***** Comments column should be completed using the following numbers:-
	LAT		LONG		CATCH (MT)	AV. WEIGHT (KG)	CATCH (MT)	AV. WEIGHT (KG)	SPECIES NAME	CATCH (MT)	AV. WEIGHT (KG)		
	DDMM	N S	DDMM	E W									
1												()	
2												()	
3												()	1 A full day in transit between fishing grounds or to or from fishing grounds.
4												()	
5												()	
6												()	2 A full day not fishing due to breakdown.
7												()	
8												()	
9												()	3 A full day not fishing due to bad weather.
10												()	
11												()	
12												()	4 A full day carrying no bait or when returning to port.
13												()	
14												()	
15												()	5 A full day searching for fish with bait on board but not in transit.
16												()	
17												()	
18												()	6 Any other reason for no catch. Please specify -
19												()
20												()	
21												()	
22												()	
23												()	
24												()	
25												()	
26												()	
27												()	
28												()	
29												()	
30												()	
31												()	
TOTAL									X				X

OPERATING PROCEDURES AND SAMPLING ON BOARD A LONGLINE VESSEL

Introduction

Fishing Operation

Location of suitable grounds

Fishing

Setting

Hauling

Sampling

Observer Duties

Instructions for filling out Form D3 (longline observer daily log)

Longline observer daily log (Form D3)

Instructions for completing daily tuna catch record

Catch report for longline vessels

Instructions for filling out Form E3 (longline sampling sheet)

Longline sampling sheet (Form E3)

List of common longline gear

Instructions for filling out the XBT observation form

XBT observation form

Introduction

Longlining differs from the other two types of commercial exploitation for tuna seen in this manual in as much that it targets large individuals swimming at great depth. The entire operation is thus a function of the fishing master's knowledge of the fishing grounds. Indeed, the fish are not seen until they come on board.

The emphasis is also of quality versus quantity, in contrast to surface operation. You will therefore see every fish that comes on board. However, working conditions are difficult because of long hours and repetitive work.

Boats vary in size (Figure C1) and refrigeration capacity (i.e. freezing). It will be one of your duties to describe the one that you are on.

Fishing Operation

1. Location of suitable grounds

Searching for a longline operation is limited to steaming to grounds of known productivity. It is your responsibility to try to determine how the fishing master knows where to go. He may make his decision from experience, information from other vessels in the fleet, or from other factors, such as currents or temperature profiles. Patches of plankton concentration, evident on an echo sounder (deep scattering layer) are often associated with good fishing grounds and can be used to locate them. Note if the fishing master used the echo sounder for this purpose.

Deep swimming tuna also exhibit temperature preferences and XBT's (Expendable bathythermographs) are used to measure temperature at different depths. Note any temperature profile measured and the position of the measurement on the XBT form. This is also used to modify the fishing depth by changing the configuration of the gear. Hence note any change in configuration.

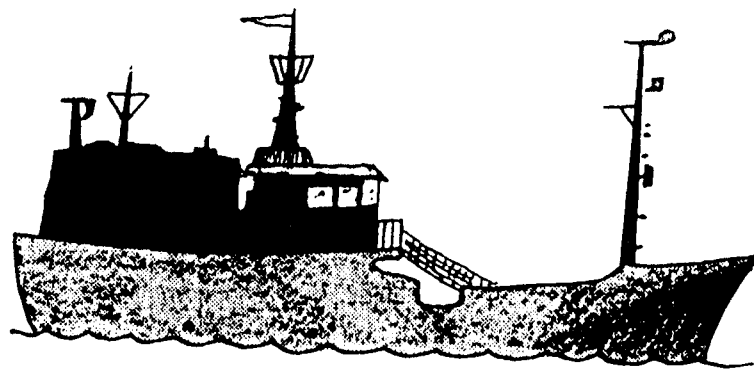
2. Fishing

Fishing consists of two operations: setting the line and hauling it. Two teams of fishermen rotate to ensure a continuous operation.

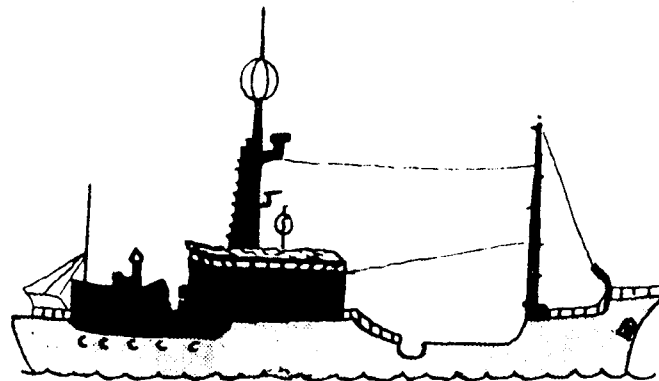
Setting

The longline is a continuous line laid out over about 45 miles of ocean. Note the time and position of the start and finish of each set. The line is supported by floats at fixed intervals and a varying number of hooks are attached on a branchline between these buoys. As the hooks are attached to the mainline, they are baited with frozen bait (saury, mackerel, squid). Figure C2 shows the configuration of a typical longline. By adjusting vessel speed, line throwing speed or intervals between floats, the fishing master changes the fishing depth and thus the target species. Note in which configuration these buoys and branch lines occur (i.e. number of branch lines, length of branch lines, length of float line, distance between the floats or line laid between floats). Also note any known deliberate changes to go for bigeye rather yellowfin.

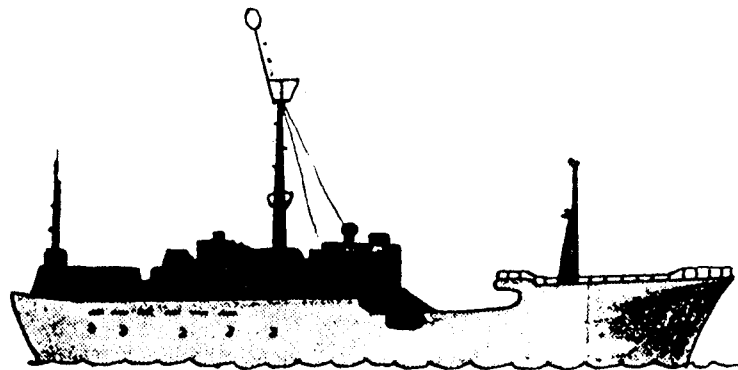
Figure C1



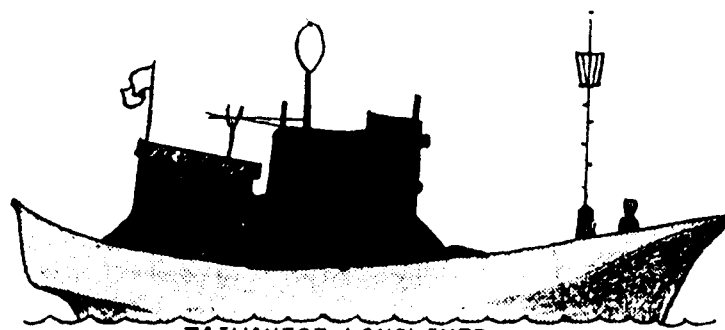
JAPANESE OR KOREAN LONGLINER



JAPANESE LONGLINER



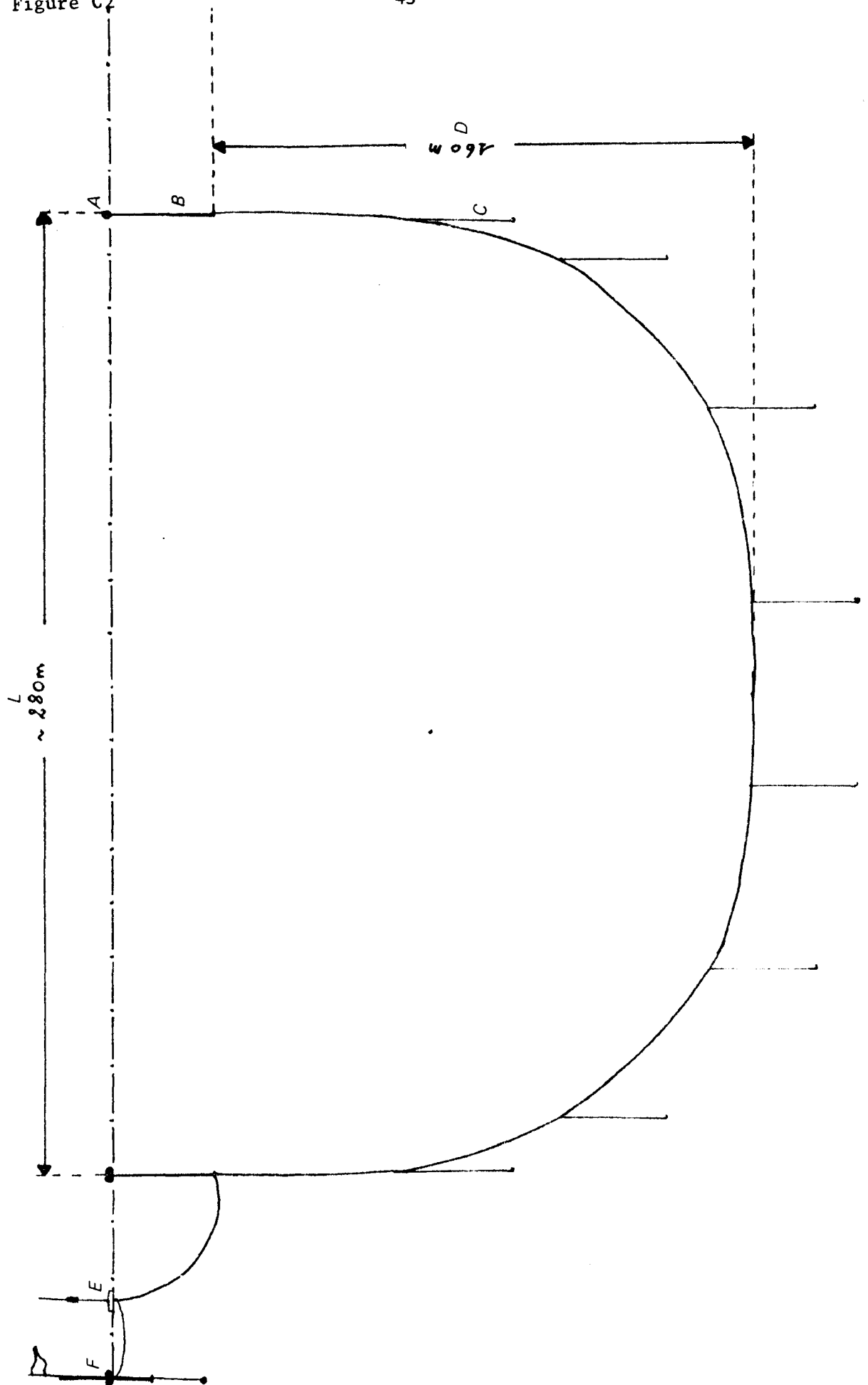
JAPANESE LONGLINER



TAIWANESE LONGLINER

Figure C2

43



Hauling

The hauling operation is obviously the reverse of the setting. The line is picked up and stored in large tanks. Note at what time hauling begins and if there is a relation with the species targeted (i.e. fishing for bigeye, the haul will begin later in the day). As they come up, floats and hooks are taken off and readied for the next set. Any fish caught is gutted on board, cleaned and dressed for the freezer or ice immediately.

Usually, billfish and yellowfin come from rather shallow hooks, then come albacore, and bigeye appear to be the deepest swimming tuna. Many incidental species are caught along with a lot of sharks (Appendix D).

Hauling operations usually last more than twice as long as a set.

Some boats will weigh each piece, usually in various states of evisceration depending on market preferences, e.g.

Albacore - whole
Yellowfin and bigeye - gilled and gutted
Billfish - gilled and gutted - bill and fins removed
Shark and spearfish - fillets

But many rely on visual estimates (usually accurate within 10 per cent!). Note the procedure followed on your vessel.

3. Sampling

Sampling the catch on a longliner can be done systematically. Since typically hauling lasts more than 10 hours straight, we do not ask you to record every fish caught. Instead, we ask you four times during the operation to record the catch for 100 consecutive hooks.

Try to do it about every three hours (4 times in 12 hours). Use a plastic slate and pencil to record the information. Start at one float, recording the time. Then for 100 hooks, which are numbered on your sample sheet, record the hook number in the basket (i.e. the number of hooks since the last float) and if there is either bait left on the hook and which type if more than one type is used (e.g. squid or macherel: record S or M), or a fish caught and which species. Measure the fork length of all tuna and billfish caught. There is a diagram on how to measure a fish on your sample sheet. Finally, if the fish is spoiled for any reason (e.g. shark bite) which will reduce its commercial value, write it down in the comment column. Similarly, discards should be written down (e.g. sharks) in the same column.

Refer to the example below to see what a sample sheet might look like after you have filled it out.

You should repeat the operation four times. Keep track of the time of day, date and the number of samples for that day. Also note any unusual events that occur outside your sampling time (e.g. unusual species, mechanical problems, etc.).

Observer Duties

Observer duties on a longliner may be considered easier than on a purse-seine or pole-and-line vessel because most of the information comes from direct observation with little guesswork. However, because of long working hours there may be less free time to copy the information from your plastic slates to your sample sheets. Your priorities are thus to keep a complete narrative diary and to recopy the daily sample sheets. If time permits, fill out the SPC catch form (1 line per day) and the observer daily log. If not, you should have all the necessary information to do so later.

Then, wash your equipment and get ready for the next day's sampling.

INSTRUCTIONS FOR FILLING OUT FORM D3 (LONGLINE OBSERVER DAILY LOG)

- PLEASE PRINT -

1. Vessel name - The name of the vessel the information has been collected on.
2. Your name - Print your last name.
3. Date - The date of the day the information has been collected on (YYMMDD), eg. 860108.
4. Set - a) Time BEG/END. A set is the operation when the line is laid out. Time when setting starts and time when setting ends.

b) LONG E/W LAT N/S. Write the position of the point where the set started and the position where it ended.
5. Bait - The amount of bait used for the set. The crew usually keeps track of the number of cases used (N). Find out the weight of the case (W) then the amount of bait used is (WXN).
6. XBT - This is a device used to measure temperature at different depths. You will be recording the information on a separate sheet; just indicate if the device was used by ticking the box.
7. No. of coils - The number of units set.
8. No. of br. lines/coil - The number of hooks per unit.
9. Distance between br. lines - Line throwing speed X(No. br. line/coil + 1).
10. Ship speed - Average speed of the ship while setting.
11. Haul - A haul is the operation when the line is picked up.

a) Time BEG/END. Time when hauling starts and hauling ends.

b) LONG E/W LAT N/S - Position where hauling starts and position where hauling ends.
12. Summary of sampling - From your sampling sheet total the number of each species caught at each hook and write the total on this form.

LONGLINE OBSERVER DAILY LOG

VESSEL NAME: _____ YOUR NAME: _____ DATE: _____

	S E T					BAIT (KG)	X B T	NO. OF COILS	NO. OF BR. LINES/ COILS	DISTANCE BETWEEN BR. LINES	SHIP SPEED (KNT)		H A U L				
	TIME	LAT	N/S	LONG	E/W								TIME	LAT	N/S	LONG	E/W
BEG												BEG					
END												END					

SUMMARY OF SAMPLING												
NO. OF FISH CAUGHT AT EACH BRANCHLINE												
BR. LINE NO.	1	2	3	4	5	6	7	8	9	10	11	12
YFT												
BET												
ALB												
STM												
BLM												
BKM												
SAF												
SWF												
SKJ												
SHK												

OBSERVATIONS: _____

INSTRUCTIONS FOR COMPLETING DAILY TUNA CATCH RECORDLongline Vessels

- (1) CATCH REPORT FOR WATERS OF - Give country in whose waters vessel is fishing, e.g. Papua New Guinea.
- (2) VESSEL NAME - Give name in full, e.g. Nankai Maru No.18.
- (3) COUNTRY OF REGISTRATION - e.g. Japan.
- (4) REGISTRATION NUMBER - As registered in country of registration given in (3), e.g. TK1-970.
- (5) GROSS REGISTERED TONNAGE - To nearest tonne, e.g. 254.
- (6) LICENCE/PERMIT NUMBER - Give complete number of permit to fish in the waters of the country given in (1), e.g. PNG 82/1234.
- (7) NAME OF CAPTAIN - Give name in full.
- (8) YEAR - Give current calendar year, e.g. 1982.
- (9) MONTH - Give month to which this catch return refers. Use numbers from 1-12 for January to December, e.g. 9 for September.
- (10) NUMBER OF HOOKS/BASKETS - If the number of hooks per basket varies, the average should be given.
- (11) DISTANCE BETWEEN FLOATS - The average distance between floats should be given in metres.
- (12) LENGTH OF FLOAT LINE - Give average length in metres.
- (13) LENGTH OF BRANCH LINE - Give average length in metres.
- (14) BAIT USED - Give common name - e.g. saury or squid.
- (15) LICENCE/PERMIT HOLDER'S SIGNATURE - Must be signed by the licence/permit holder as the person accepting responsibility for the accuracy of the catch declaration.
- (16a) DEPARTURE FROM PORT - Give full name of port from which this cruise started, e.g. Shimizu.
- (16b) DATE - Give date of departure from (11a) with year, followed by month, followed by day, e.g. 81/8/16 for 16 August 1981.
- (17a) ARRIVAL AT PORT - Give full name of port at which cruise is terminated, e.g. Yaizu.
- (17b) DATE - Give date of arrival at (12a), year/month/day, e.g. 81/10/27 for 27 October 1981.
- (18) NUMBER OF CREW - Give total number of officers and crew on board.
- (19) DAY - Days are marked 1-31. Details should be entered for each day of the month spent in the waters of the country given in (1), e.g. if vessel commences fishing in Papua New Guinea waters on 23 August and leaves on 4 September, records should be made on one sheet for August, commencing day 23 and continuing to day 31, and a new sheet should then be used for September day 1 to day 4.
- (20) NOON POSITION - Give latitude and longitude to nearest minute and add N or S for north or south latitude and E or W for east or west longitude.
- (21) NUMBER OF HOOKS - The total number of hooks set should be given for each day.
- (22) SEA SURFACE TEMPERATURE - e.g. 27.5.
- (23) NUMBERS OF FISH and TOTAL WEIGHTS - The number and total weight for each species. The total weight for each species for that month must also appear at the bottom of the page.
- (24) OTHER SPECIES - Name, number and total weight of the dominant other species should be given.
- (25) DISCARDS - All fish which are caught but not maintained on board must be declared to the nearest kilogramme.
- (26) COMMENTS - Comments are zero (0) when the gear is in the water, one (1) when there is no operation and two (2) when in port.

The completed form must be signed and a copy posted airmail immediately to the Fisheries Department of the country in whose waters fishing was carried out.

At the same time the original should be airmailed to the:

Tuna Programme Co-ordinator,
South Pacific Commission,
Post Box D5.
NOUMEA CEDEX,
New Caledonia.

LONGLINE VESSEL - CATCH REPORT FOR THE WATERS OF

VESSEL NAME _____
COUNTRY OF REGISTRATION _____
REGISTRATION NUMBER _____
GROSS REGISTERED TONNAGE _____
LICENCE/PERMIT NUMBER _____
NAME OF CAPTAIN _____

NUMBER OF HOOKS/BASKETS _____
 DISTANCE BETWEEN FLOATS (M) _____
 LENGTH OF FLOAT LINE (M) _____
 LENGTH OF BRANCH LINES (M) _____

BAIT USED (Species)	1	2
---------------------	---	---

	NAME		YYMMDD
DEPARTURE FROM PORT		DATE	
ARRIVAL AT PORT		DATE	
NUMBER OF CREW			

YEAR _____ MONTH _____

LICENCE/PERMIT HOLDER'S SIGNATURE _____

Comments Code

1. Days not fishing
2. In port

[illegible]

INSTRUCTIONS FOR FILLING OUT FORM E3 (LONGLINE SAMPLING SHEET)

- PLEASE PRINT -

1. Vessel name - The name of the vessel the information has been collected on.
2. Your name - Print your last name.
3. Date - Sampling date (YYMMDD), e.g. 860108.
4. Sample Number - The number of the sample.
5. Hour - Time at which the sample was collected.
6. HK No. - You will have to sample 100 hooks for each sample. Write the number of the branchline.
7. SP - For each branchline there will either be two fish attached or none at all. If there is, write the three-letter code for that species. If not, there may still be bait attached. If so, write down the species of bait. If not, just put a minus (-) sign.
8. L - If there is a fish attached, write an estimate of its size.
9. OBS - If there is a fish attached, write down any marks that would cause the crew to discard it, e.g. shark bite.

LONG LINE SAMPLING SHEET

VESSEL NAME: _____ YOUR NAME: _____ DATE: _____

SAMPLE NO.: _____ HOUR: _____

HK NO.	BR. LINE NO.	SP	LCF	OBS.	HK NO.	BR. LINE NO.	SP	LCF	OBS.	HK NO.	BR. LINE NO.	SP	LCF	OBS.	HK NO.	BR. LINE NO.	SP	LCF	OBS.
1					26					51					76				
2					27					52					77				
3					28					53					78				
4					29					54					79				
5					30					55					80				
6					31					56					81				
7					32					57					82				
8					33					58					83				
9					34					59					84				
10					35					60					85				
11					36					61					86				
12					37					62					87				
13					38					63					88				
14					39					64					89				
15					40					65					90				
16					41					66					91				
17					42					67					92				
18					43					68					93				
19					44					69					94				
20					45					70					95				
21					46					71					96				
22					47					72					97				
23					48					73					98				
24					49					74					99				
25					50					75					100				

LIST OF COMMON LONGLINE GEAR

Basket. The portion of line between two floats, including the branch lines attached to it at regular intervals. Shallow longlines will typically have around 6 branch lines per basket while deep ones may have up to 12 branch lines per basket. May also be called a coil.

Beacon. Radio beacon buoys placed on the line to help relocate it and indicate its orientation.

Branch line. A length of line clipped onto the main line at regular intervals. It is made up of a clip, a length of serving, a wire leader and a baited hook.

Branch reel. Hydraulic winch used to coil the branch lines.

Floats. Buoys supporting the mainline between each basket.

Float line. Line of variable length which attaches the float to the main line.

Hoist. Hydraulic hoist used to haul sharks on board vessel.

Hooking master. A timer which produces acoustic signals and regulates line thrower rpm's to determine the interval between branch lines. It also keeps track of the number of baskets.

Light floats. Floats equipped with a battery-operated light to help locate the longline at night.

Line hauler. Main winch used to haul the lines. Continuously operated, one crew member can slow it down with a brake on upcoming branchlines or floatlines.

Line thrower. A mechanical roller with adjustable rpm's mounted on the stern. It is the gear used to lay the line.

Mainline. A 6 mm braided line which constitutes the main part of the longline. Typically it is more than 100 km in length.

Slow conveyer. Conveyer belt on which the main line piles up before it is sent back to the storage tanks. At this time the line may be untangled, spliced or checked for wear.

Storage tank. The area on the upper deck where the main line is stored.

INSTRUCTIONS FOR FILLING OUT THE XBT OBSERVATION FORM

- PLEASE PRINT -

1. Vessel name - The name of the vessel the observation was made on.
2. Date - The date of the observation.
3. Time of day - The time of the observation.
4. XBT No. - The number of the observation (i.e. how many observations have you recorded so far on this trip).
5. Latitude/Longitude - The position in degrees and minutes (e.g. 2335S, 18022E).

=====

Then if you cannot get the tracing on the chart of the XBT recorder, indicate on this form the sea surface temperature and the depth at each degree (e.g. 28.7 SST, 28° at x metres, 27° at y metres, 26° at z metres, etc.).

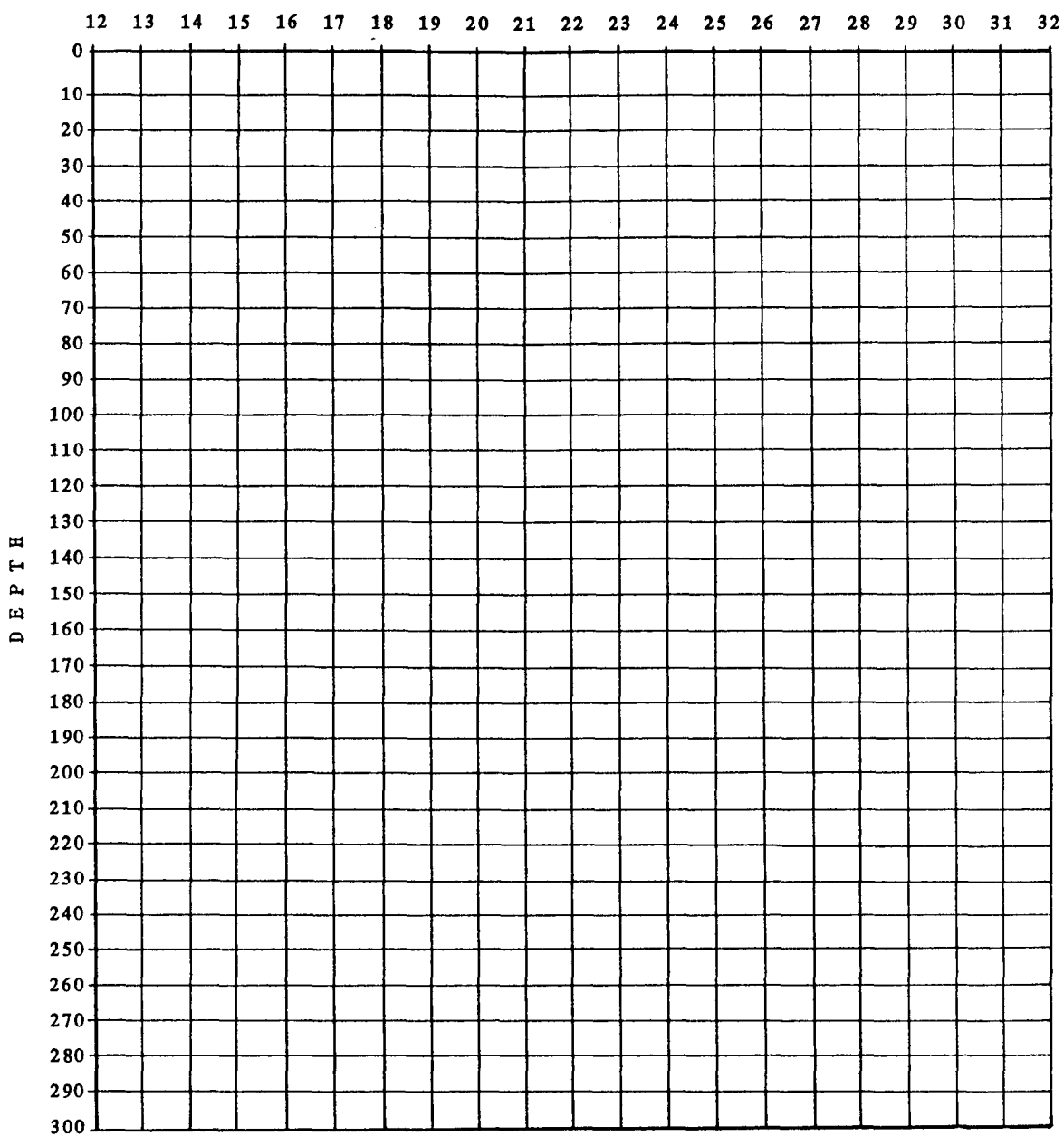
X B T O B S E R V A T I O N F O R M

VESSEL NAME: _____ XBT NO.: _____

DATE: _____ LATITUDE: _____

TIME OF DAY: _____ LONGITUDE: _____

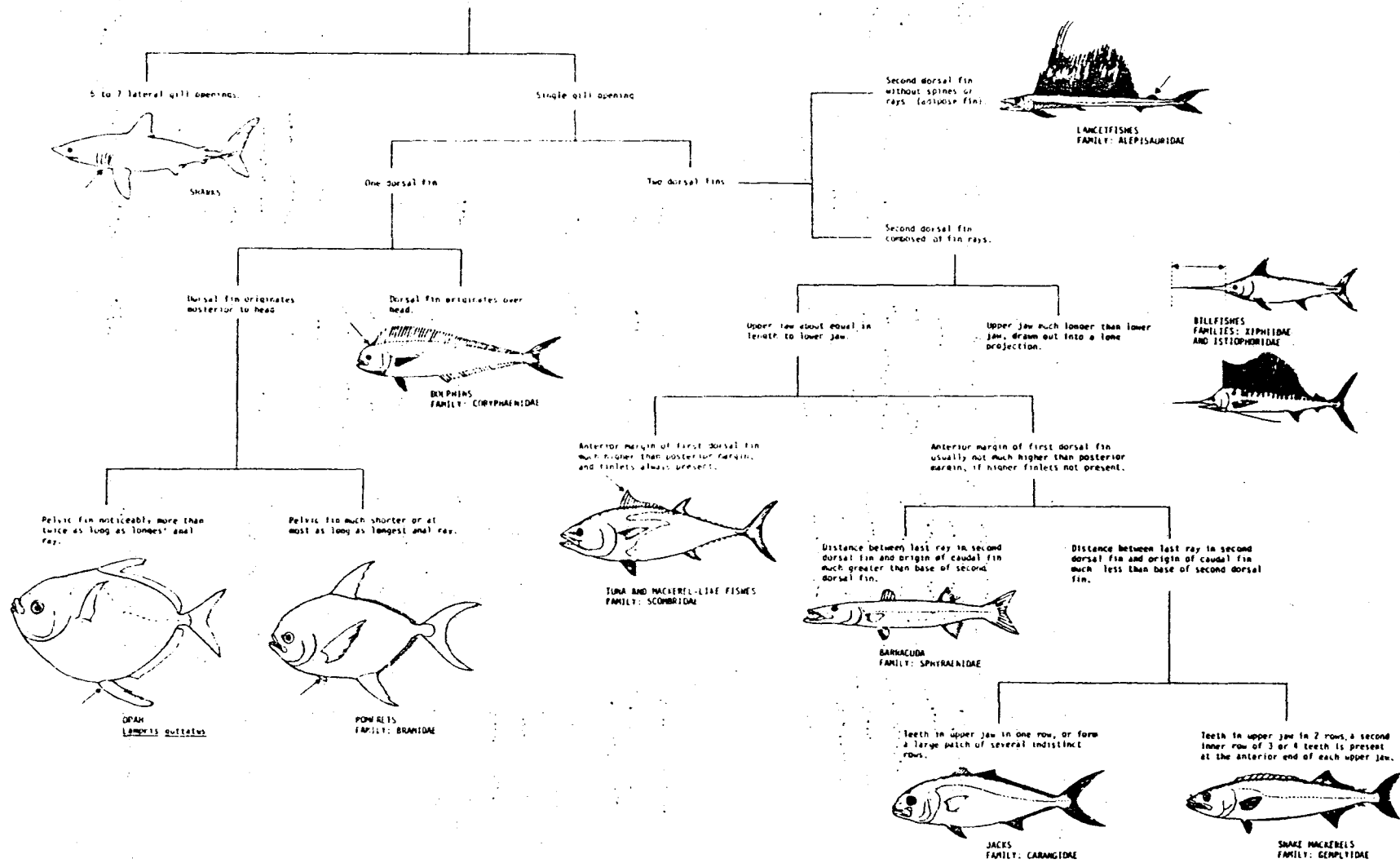
T E M P E R A T U R E



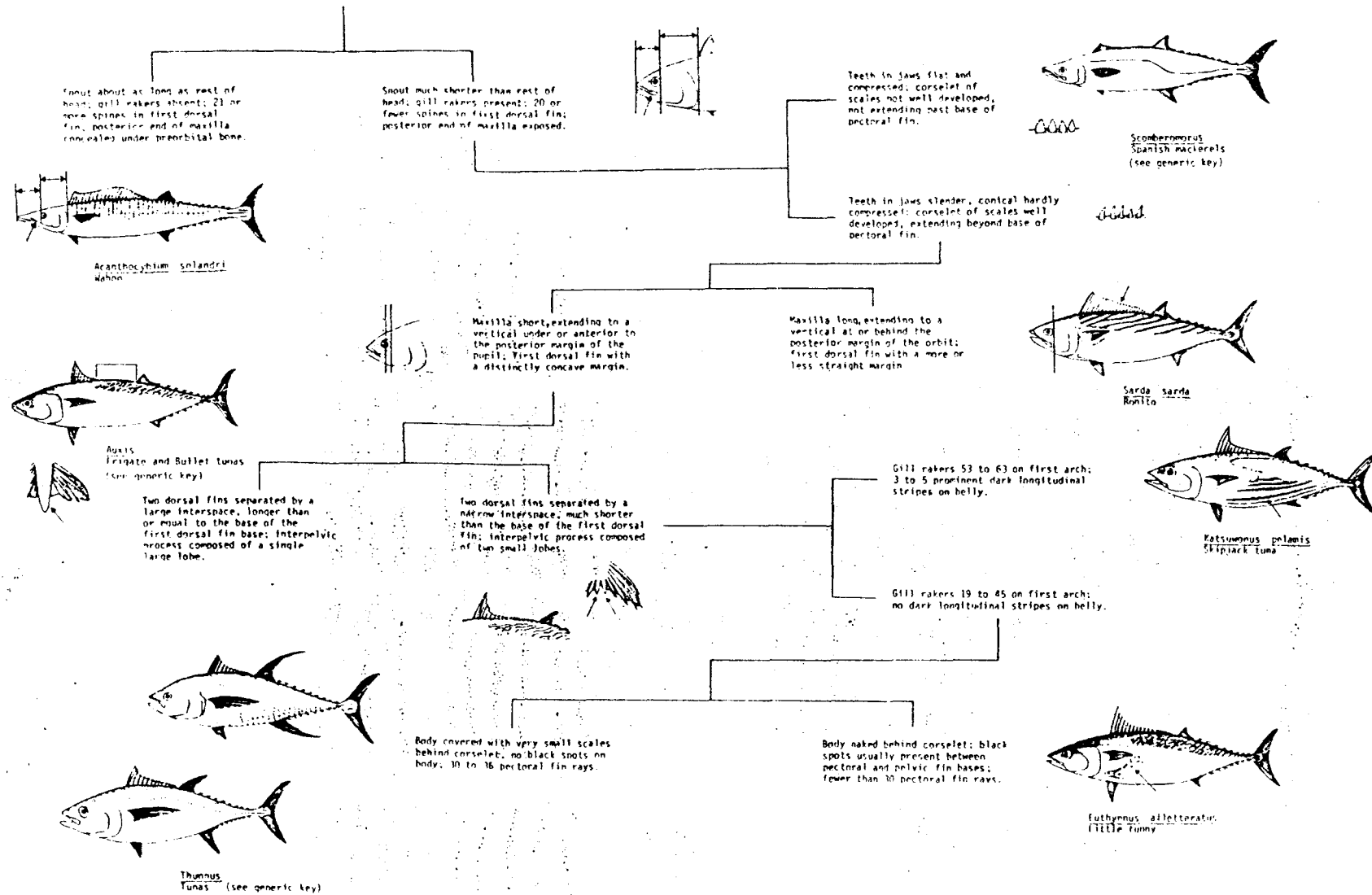
APPENDIX D

KEY TO OCEANIC SPECIES CAUGHT BY PURSE SEINE,
POLE-AND-LINE AND LONGLINE VESSELS

KEY TO THE GROUPS OF FISHES COVERED IN THIS GUIDE



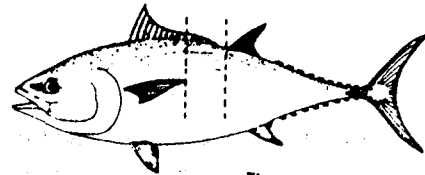
KEY TO THE GENERA OF SCOMBRIDAE COVERED IN THIS GUIDE



KEY TO THE SPECIES OF THUNNUS OCCURRING IN THE AREA

Total gill rakers on first arch 33 or less; pectoral fin long, reaching at least to the space between the first and second dorsal fins.

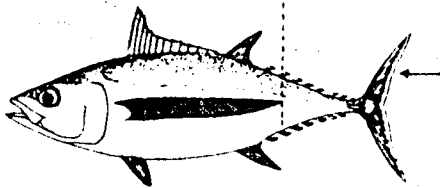
Total gill rakers on first arch 33 to 43; pectoral fin short, not reaching beyond the base of the first dorsal fin.



Thunnus t. thynnus
Bluefin tuna

Posterior margin of caudal fin white; body deepest at a point near the origin of the second dorsal and anal fins; pectoral fin extends beyond the second dorsal fin, usually to a point under the second dorsal finlet.

Caudal fin without a white posterior margin; body deepest at a point anterior to the origin of the second dorsal and anal fins; pectoral fin does not extend past second dorsal fin.



Thunnus alalunga
Albacore

Total gill rakers on first arch more than 25; finlets bright yellow with black margins.

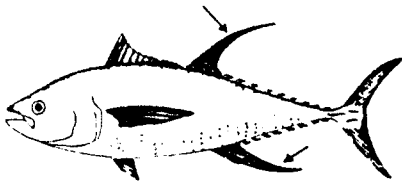
Total gill rakers on first arch 25 or less; finlets dusky with a trace of yellow.



Thunnus atlanticus
Blackfin tuna

Dorsal and anal fins very long in large specimens, becoming well over 20% of fork length; striations not present on ventral surface of liver.

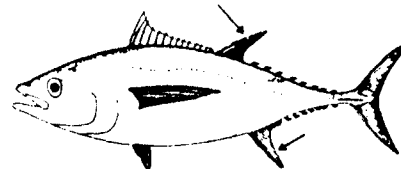
Dorsal and anal fins not very long in large specimens, less than 20% of fork length; striations present on ventral surface of liver.



Thunnus albacares
Yellowfin tuna



liver

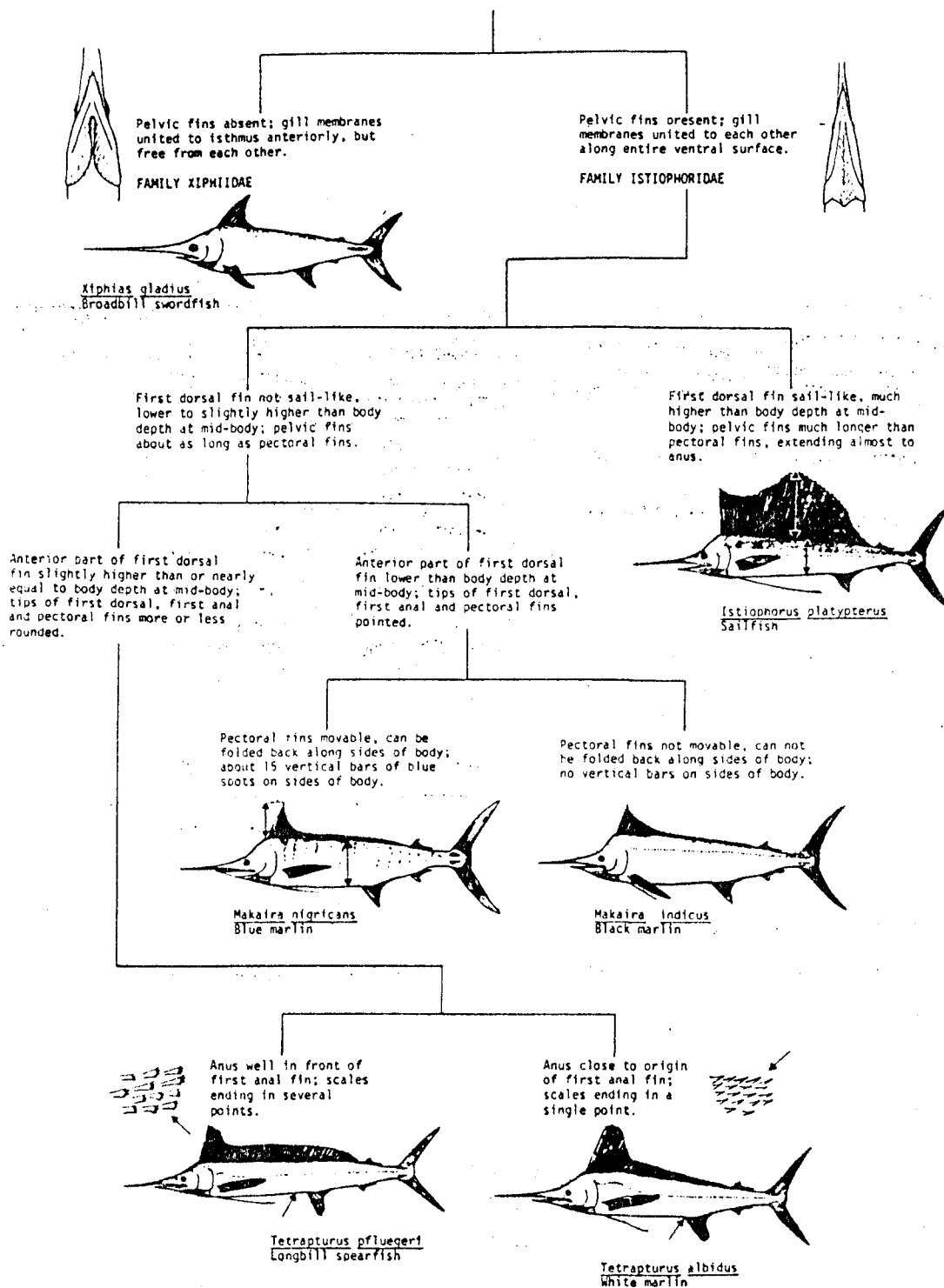


Thunnus obesus
Bigeye tuna



liver

KEY TO THE ADULTS OF SPECIES OF BILLFISHES
(FAMILIES: ISTIOPHORIDAE AND XIPHIIDAE) OCCURRING IN THE AREA

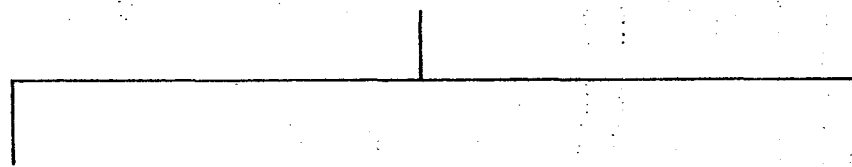


MARLIN CHARACTERISTICS. From A brief guide to the tunas and billfish of Papua New Guinea by A.D. Lewis and B.R. Smith.

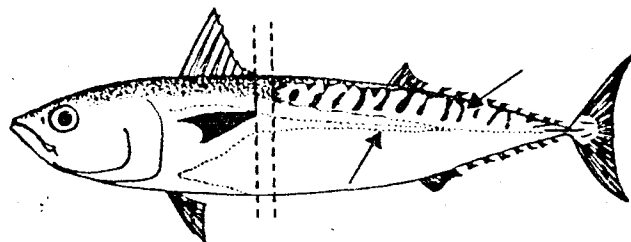
Character	BLACK	BLUE	STRIPED
Lateral line	straight, but not usually visible	two or more large loops; very clear in small fish	straight
Pectoral fin	rigid and not retractable, except in some small fish	retractable	retractable
1st dorsal fin	short, less than half body depth	medium height; 1/2 - 3/4 body depth	high; equal to body depth
2nd dorsal fin	begins in <u>front</u> of 2nd anal fin	begins slightly <u>behind</u> 2nd anal fin	begins slightly behind 2nd anal fin
1st anal fin	short, half body depth	medium, two-thirds body depth	high, 3/4 to equal to body depth
Vertical bars	rarely present; occasionally seen in smaller fish	present; variable in clarity	present

Note: No one character should be used to identify marlin; at least two, and preferably more, should be used together, as there is a certain amount of variation in all characters.

KEY TO THE SPECIES OF AUXIS OCCURRING IN THE AREA

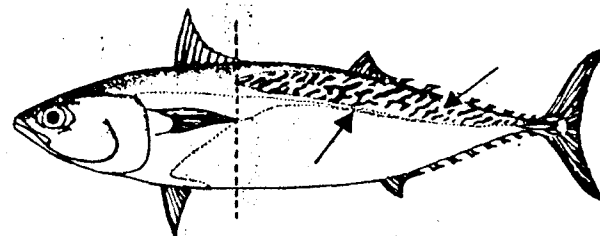


Posterior part of corselet wide, 6 to 20 scales wide under the origin of the second dorsal fin; vertical from scaleless area above corselet not reaching tip of pectoral fin; dark stripes on back nearly vertical.



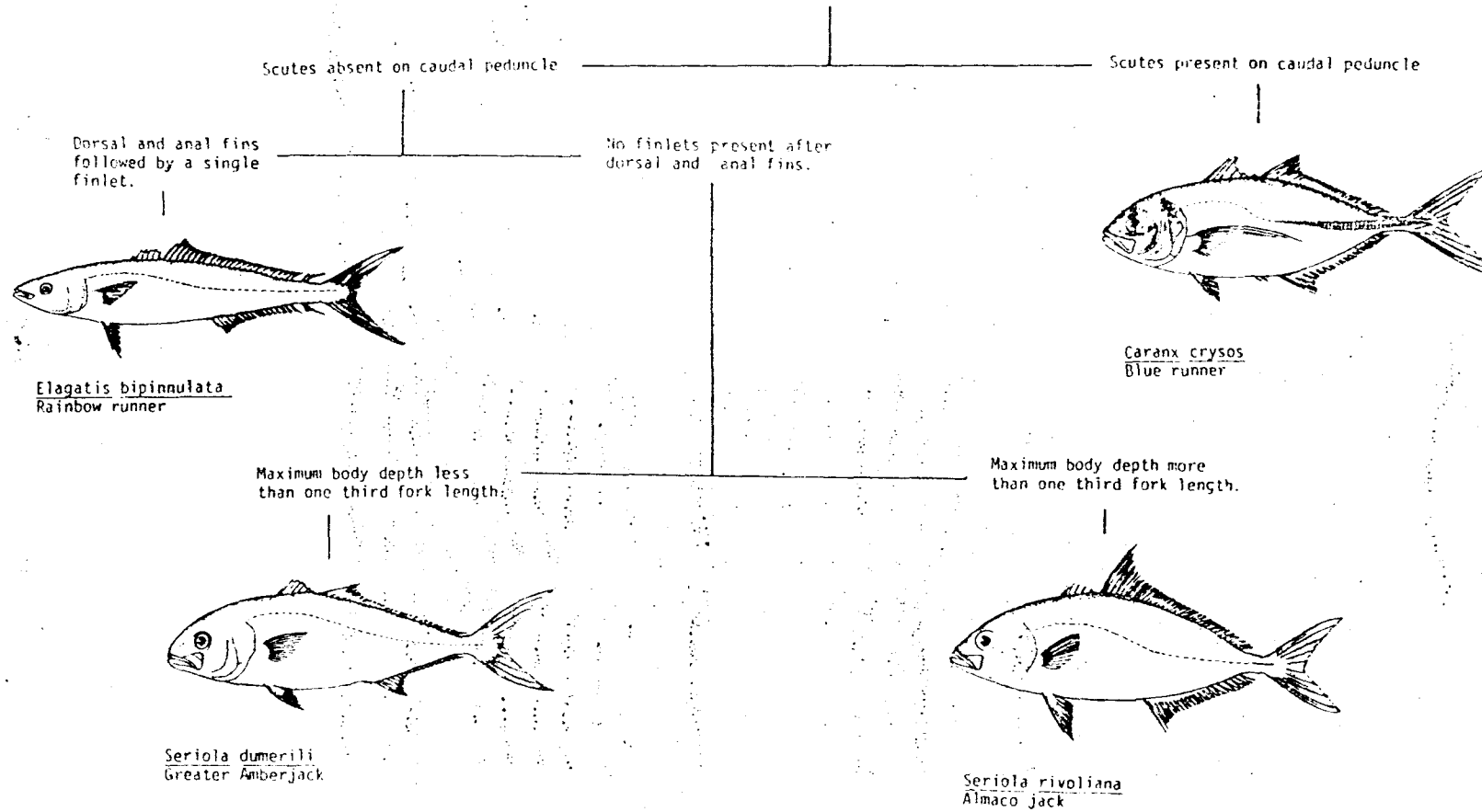
Auxis rochei
Bullet tuna

Posterior part of corselet narrow, not more than 5 scales wide under the origin of the second dorsal fin; vertical from scaleless area above corselet reaching tip of pectoral fin; dark stripes on back oblique, not vertical.

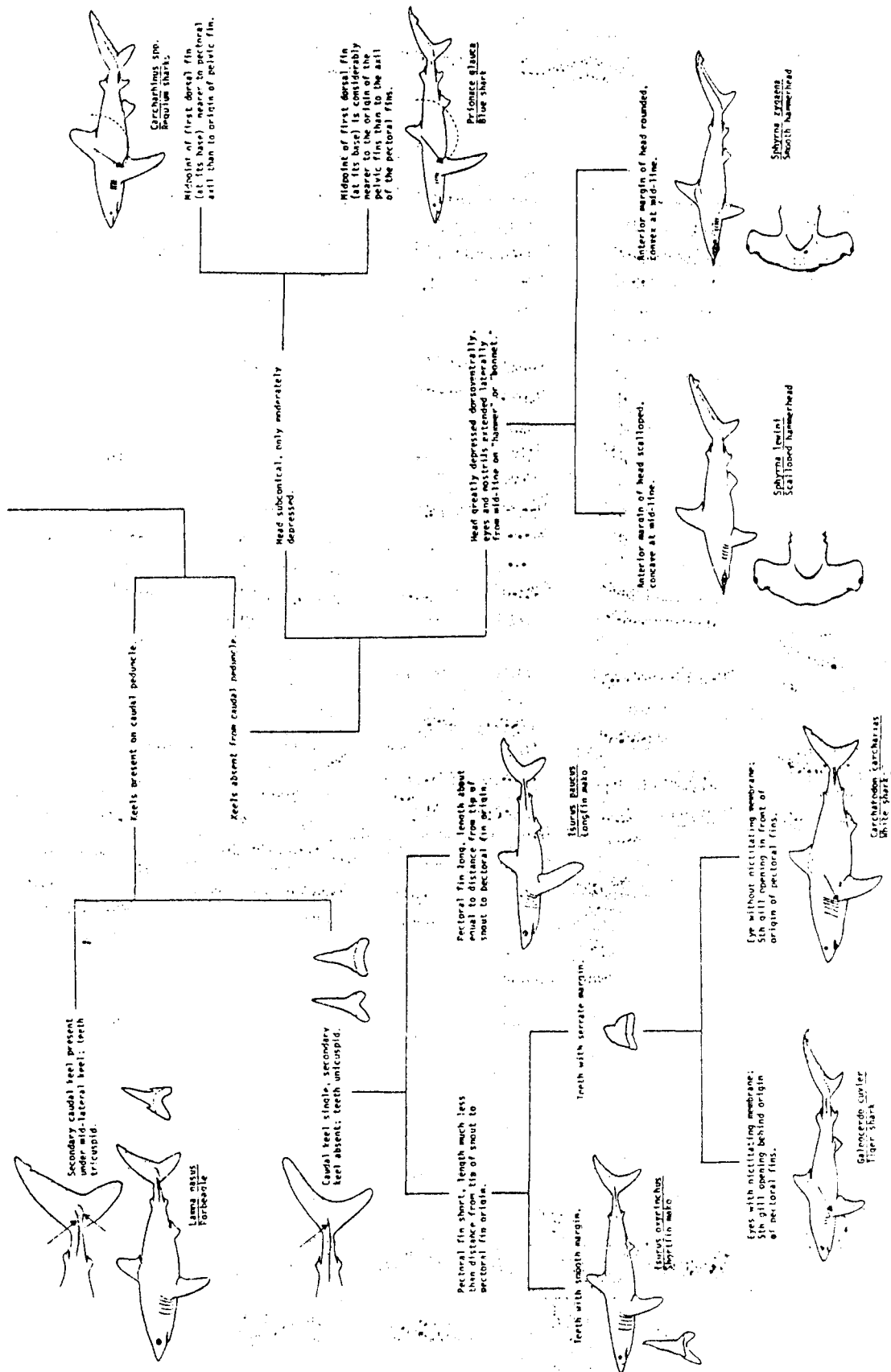


Auxis thazard
Frigate tuna

KEY TO THE SPECIES OF JACKS COVERED IN THIS GUIDE

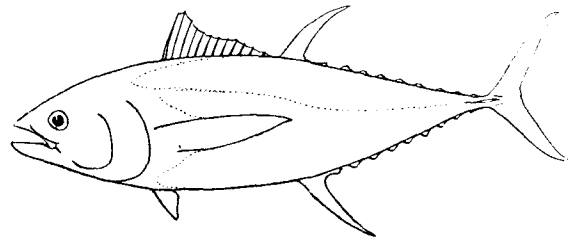
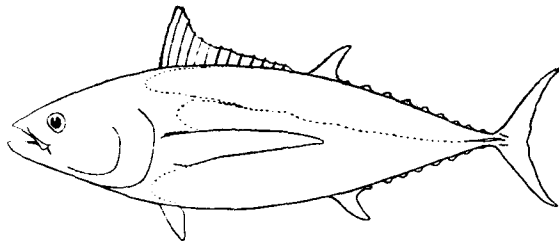


KEY TO THE SHARKS COVERED IN THIS GUIDE



APPENDIX E

DIFFERENCES BETWEEN SMALL YELLOWFIN AND BIGEYE



Character	Bigeye	Yellowfin
Body outline	Dorsal outline from tip of snout to base of caudal peduncle almost a smooth arc; ventral outline from tip of snout to base of caudal peduncle almost a smooth arc.	Dorsal outline from secondary dorsal fin to base of caudal peduncle somewhat flat; ventral outline from anal fin to base of caudal peduncle somewhat flat.
Pectoral fin	Pectoral fin extends to the posterior end (insertion) of anal fin.	Pectoral fin extends to the anterior end (origin) of the anal fin.
Gas bladder	Distended; extends along the roof of body cavity to within 2 cm of anal pore; highly visible.	Deflated or slightly inflated; extends along roof of body cavity to a point more than 6 cm from anal pore; not obvious.

APPENDIX F

ADDITIONAL USEFUL INFORMATION

Beaufort Wind Scale

(For an effective height of 10 metres above sea level)

Beaufort Number	Descriptive Term	Mean wind speed equivalent in knots	Deep Sea Criterion	Probable mean wave height* in metres
0	Calm	0-1	Sea like a mirror	-
1	Light air	1-3	Ripples with the appearance of scales are formed, but without foam crests	0.1 (0.1)
2	Light breeze	4-6	Small wavelets, still short but more pronounced; crests have a glassy appearance and do not break	0.2 (0.3)
3	Gentle breeze	7-10	Large wavelets; crests begin to break; foam of glassy appearance; perhaps scattered white horses	0.6 (1)
4	Moderate breeze	11-16	Small waves, becoming longer; fairly frequent white horses	1 (1.5)
5	Fresh breeze	17-21	Moderate waves, taking a more pronounced long form; many white horses are formed (chance of some spray)	2 (2.5)
6	Strong breeze	22-27	Large waves begin to form; the white foam crests are more extensive everywhere (probably some spray)	3 (4)
7	Near gale	28-33	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind	4 (5.5)
8	Gale	34-40	Moderately high waves of greater length; edges of crests begin to break into spindrift; foam is blown in well-marked streaks along the direction of the wind	5.5 (7.5)
9	Strong gale	41-47	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble and roll over; spray may affect visibility.	7 (10)

Beaufort Number	Descriptive Term	Mean wind speed equivalent in knots	Deep Sea Criterion	Probable mean wave height* in metres
10	Storm	48-55	Very high waves with long overhanging crests; the resulting foam, in great patches, is blown in dense white streaks along the direction of the wind; on the whole, the surface of the sea takes a white appearance; the tumbling of the sea becomes heavy and shock-like; visibility affected	9 (12.5)
11	Violent storm	56-63	Exceptionally high waves (small and medium-sized ships might be for a time lost to view behind the waves); the sea is completely covered with long white patches of foam lying along the direction of the wind; everywhere the edges of the wave crests are blown into froth; visibility affected	11.5 (16)
12	Hurricane	64 and over	The air is filled with foam and spray; sea completely white with driving spray; visibility very seriously affected	14 (-)

* This table is only intended as a guide to show roughly what may be expected in the open sea, remote from land. It should never be used in the reverse way, i.e., for logging or reporting the state of the sea. In enclosed waters, or when near land, with an off-shore wind, wave heights will be smaller and the waves steeper. Figures in brackets indicate the probable maximum height of waves.

A GLOSSARY OF JAPANESE FISHING TERMS

by

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The following glossary is not intended to be definitive or comprehensive, but has been designed as a practical tool to facilitate communication between fisheries workers and Japanese personnel.

English/Anglais	Japanese/Japonais	French/Francais
<u>Fish/Marine Life</u>		<u>Poissons/Faune et flore marines</u>
Fish	- Sakana	Poisson
Skipjack (<u>Katsuwonus pelamis</u>)	- Katsuo	Bonite à ventre rayé
Yellowfin (<u>Thunnus albacares</u>)	- Kihada maguro	Thon jaune
Bigeye (<u>Thunnus obesus</u>)	- Mebachi maguro	Thon obèse
Small bigeye (<u>T. obesus</u>)	- Daruma	Petit thon obèse
Mackerel tuna (<u>Euthynnus affinis</u>)	- Yaito, Suma	Bonite à dos rayé
Bullet tuna (<u>Auxis rochei</u>)	- Marusodakatsuo	Auxide
Frigate tuna (<u>Auxis thazard</u>)	- Hirasodakatsuo	Auxide
Northern bluefin (<u>Thunnus thynnus</u>)	- Kuromaguro	Thon rouge
Southern bluefin (<u>Thunnus maccoyii</u>)	- Minami maguro	Thon rouge austral
Dogtooth tuna (<u>Gymnosarda unicolor</u>)	- Isomaguro	Thon à dents de chien
Longtail tuna (<u>Thunnus tonggol</u>)	- Koshinaga	Pas de nom en Français
Albacore (<u>Thunnus alalunga</u>)	- Tonbo, Bincho	Germon
Rainbow runner (<u>Elegatis bipinnulatus</u>)	- Okiburi, Tsumuburi	Coureur arc-en-ciel
Triggerfish (Fam. <u>Balistidae</u>)	- Kawahagi	Baliste (balistidés)
Common dolphinfish (<u>Coryphaena hippurus</u>)	- Shiira	Coryphène
Barracuda (<u>Sphyræna</u> spp.)	- Onikamasu	Bécune, barracuda (sphyrenidés)
Trevallies, jacks (Fam. <u>Carangidae</u>)	- Aji	Carangues (carangidés)
Shark (Order <u>Lamniformes</u>)	- Same	Requin (ordre des lamniformes)
Wahoo (<u>Acanthocybium solandri</u>)	- Sawara, Okisawara	Thazard du large
Swordfish (<u>Xiphias gladius</u>)	- Mekajiki	Espadon
Sailfish (<u>Istiophorus platypterus</u>)	- Bashokajiki	Voilier
Black marlin (<u>Makaira indica</u>)	- Shiokawa	Marlin noir
Blue marlin (<u>Makaira nigricans</u>)	- Kurokawa	Marlin bleu
Striped marlin (<u>Tetrapturus audax</u>)	- Makajiki	Marlin rayé
Shark mackerel, double - lined mackerel (<u>Grammatorcinus bicarinatus</u>)	- Nijosaba	Maquereau saumon
Whale	- Kujira	Baleine
Flying fish (Fam. <u>Exocoetidae</u>)	- Tobi Uo	Exocet (exocoetidés)
Turtle	- Kame	Tortue marine
Porpoise	- Iruka, Eoto kujira	Marsouin
Bait	- Esa	Appât, boëtte
Jellyfish	- Kurage	Méduse

Saury(Fam. Scomberesocidae)

Sardine(Fam. Clupeidae)

Herring(Fam. Clupeidae)

Seaweed

Seal

Crustacea

- Sanma

- Iwashi

- Nisin

- Wakame

- Azarashi

- Kokakurui

Orphie

(scomberesocidés)

Sardine (clupéidés)

Hareng (clupéidés)

Algues

Phoque

Crustacés

Types of Vessels

Pole-and-liner

Longliner

Purse-seiner

500 tonne seiner

116 tonne seiner

Net boat

Search boat

Carrier boat

Patrol vessel

Mothership

Scientific research ship

- Ippon zurisen

- Haenawasen

- Makiamisen

- Kaigaimakiamisen

- Kinkaimakiamisen

- Amisen

- Gyotansen

- Katsuosen no upansen

- Patrolsen

- Bosen

- Kagukuchosasen

Types de bateaux

Canneur

Palangrier

Senneur

Senneur de 500

tonneaux

Senneur de 116

tonneaux

Bateau à filets

Bateau de recherche

Bateau transporteur

Patrouilleur

Bateau - mère

Navire

océanographique

Types of Schools

School

Log school

Whale school

Rippler

Boiler

Payao school

Porpoise school

- Gyogun no shurui

- Gyogun, Tsumure

- Kizuki

- Kujirazuki

- Mizumochi

- Shirawaki

- Jinkoryuboku

- Irukazuki

Types de Mattes

Matte

Matte sous épave

Matte sous baleine

Balbaya

Brisant

Matte sous payao

Matte sous marsouins

Parts of Purse-Seine Vessel

Cabin

Bathroom

Wheelhouse

Upper deck

Galley

Mess/saloon

Engine room

Forecastle

Fish hold

Power block

Purse winch

Main skiff

No.2 skiff

No.3 skiff

Speedboat

Chart room

Bow

- Shitsu, Heya

- Furoba

- Senkyo, Burizi

- Jokohan

- Makanai shitsu

- Shokudo

- Kikan shitsu

- Kohansoko

- Gyoso

- Ami sabaki,
Pawaburokku

- Pasu uinchi

- Lekko boto, Ichigotei

- Nigotei

- Sangotei

- Speedboto

- Kaizu shitsu

- Omote, Senshu

Cabine

Salle de bains

Timonerie

Pont supérieur

Cuisine

Carré

Chambre des machines

Gaillard

Cale à poisson

Palan mécanique

Treuil à senne

Skiff principal,
annexe

Skiff No.2

Skiff No.3

Vedette, glisseur

Chambre de veille

Proue

Stern
Port
Starboard
Hull
Radio Room
Propeller
Mast
Deck
Tow rope

- Tomo, Sembi
- Torikaji
- Omokaji
- Sentai
- Museinshitsu
- Propera
- Masto
- Kohan
- Ote

Poupe
Bâbord
Tribord
Coque
Central radio
Hélice
Mât
Pont
Câble de remorquage

Parts of Net

Net
Floats
Rings
Wire ring line
Mesh
Net needle

Net twine
Netting
Sinkers, leads

- Ami
- Aba
- Kan
- Kosaku, Wire rope
- Amime
- Abari

- Ito
- Amichi
- Omori

Parties du filet

Filet
Flotteurs
Anneaux
Ralingue
Maillage
Aiguille à filet,
navette
Fil à filet
Filet
Plombs et lests

Mechanics of Setting

Standby
Set
Let go
Rings up
Stacking
Drying up
Brailing
Net roll up
Net mending

- Junbi, Stanbai
- Tomo
- Lekko
- Kanmaki shuryo
- Yomo
- Ami okoshi
- Sakana no torikomi
- Bomaki
- Ami shuri

Opérations de pose des filets

Paré
Pose (coup de senne)
Larguage
Fermeture du filet
Rangement du filet
Virement
Salabardage
Filet emmêlé
Remaillage,
ramendage,
du Filet.

Gear

Gaff
Hook
Rope
Binoculars
Brailing scoop
Boots
Hard hat
Gloves
Oar
Bamboo
Anchor
Payao
Small line

- Kagi
- Tsuribari
- Tsuna
- Sogankyo
- Tamo
- Nagagutsu
- Herumeto
- Tebukuro
- Kai
- Take
- Ikari
- Payao
- Himo

Accessoires

Gaffe
Hameçon
Filin
Jumelles
Puisette à décharger
Bottes
Casque
Gants
Aviron
Bambou
Ancre
Payao
Petite ligne

Oceanography

Current	- Choryu
Seamount	- Yanjin
Current meter	- Choryukei
Sea surface temperature	- Kaisuion, Kaisui no ondo
Salinity	- Enbun
Border between currents	- Shiome

Crew

Vessel Owner	- Senshu
Captain	- Sencho
Fishing Master	- Gyorocho
Chief Engineer	- Kikancho
Bosun	- Bosun
Crew list	- Senin meibo

Navigation

Degree	- Do
Minute	- Fun
Second	- Byo
GMT	- GMT
Speed	- Husoku, Sokuryoku
Fishing port	- Gyoko
Island	- Shoto, Shima
Archipelago	- Gunto
Lighthouse	- Todai
Wharf	- Futo
Territorial sea	- Ryokai
Reef	- Ansho
Course	- Shinro, Cosu
Direction	- Hoko
Noon position	- Shogo ichi
Chart	- Kaizu
Latitude	- Ido
Longitude	- Keido
Radar	- Radar
Satellite navigation	- Eisei koho
Set position	- Tomo ichi
Current	- Choryu
Sonar	- Sonar
Offshore	- Okiai
Steaming	- Kokai
Drifting	- Nagashi
Calm	- Nagi
Rough	- Arai
Storm	- Arashi
Fishing ground	- Gyojo

Océanographie

Courant
Haut-fond
Courantomètre
Température de la mer en surface
Salinité
Frontière entre courants

Equipage

Armateur
Capitaine
Patron de pêche
Chef mécanicien
Mâitre d'équipage
Rôle d'équipage

Navigation

Degré
Minute
Seconde
GMT
Vitesse horaire
Port de pêche
Île
Archipel
Phare
Wharf, quai
Mer territoriale
Récif
Route
Direction
Position à midi
Carte
Latitude
Longitude
Radar
Navigation satellite
Position de pêche
Courant
Sonar
Au large
En route
Dérivant
Bonace, mer calme
Mer houleuse, grosse
Tempête
Lieu de pêche, pêcherie

Scientific Terms

Species	- Shurui
Male	- Os
Female	- Mes
Length	- Nagasa
Weight	- Omosa
Gonads	- Seishokusen
Stomach	- I
Fin	- Hirei
Fish scale	- Uroko
Gill	- Era
Weighing scales	- Hakari
Measuring board	- Monoshashi
Stomach contents	- I no naiyobutsu
To measure lengths	- Nagasa o hakaru
To weigh	- Omosa o hakaru
Biologist	- Kagakusha
Fish tag	- Hyoshiki
Tagged fish	- Hyoshiki-gyo
Otolith	- Jiseki
To estimate	- Mitsumoru
Specimen	- Hyohon

Other

Full moon	- Mangetsu
New moon	- Shingetsu
Too much current for set	- Ami o ireru niwa ahio ga hayai
Too rough for set	- Ami o ireru niwa nami ga arasugiru
Fisheries co-operative	- Gyogyo Kiyodokumia
Fresh fish	- Seigyo
Dried fish	- Kangyo
Canned fish	- Kakogyo utsu
Fishing catch	- Gyokakubutsu
Purse seine fishery	- Makiami gyogyo
Longline fishery	- Haenawa gyogyo
Fishing permit	- Gyogyo kyokasho
Call sign	- Call sain
Base	- Kichi
Vessel name	- Senmei
Incidental catch	- Konkaku

Termes Scientifiques

Espèce
Mâle
Femelle
Longueur
Poids
Gonades
Estomac
Nageoire, aileron
Écailles
Ouïes, Branchies
Balance
Planche graduée
Contenu stomacal
Mesurer la longueur
Peser
Biologiste
Marque à poisson
Poisson marqué
Otolithe
Estimer
Specimen, échantillon

Divers

Pleine lune
Nouvelle lune
Courant trop fort pour larguer le filet
Mer trop grosse pour larguer le filet
Coopérative de pêcheurs
Poisson frais
Poisson séché
Poisson en conserve
Prise de poisson
Pêche à la senne tournante
Pêche à la plangre
Permis de pêche
Indicatif
Base
Nom du bateau
Prises fortuites.