

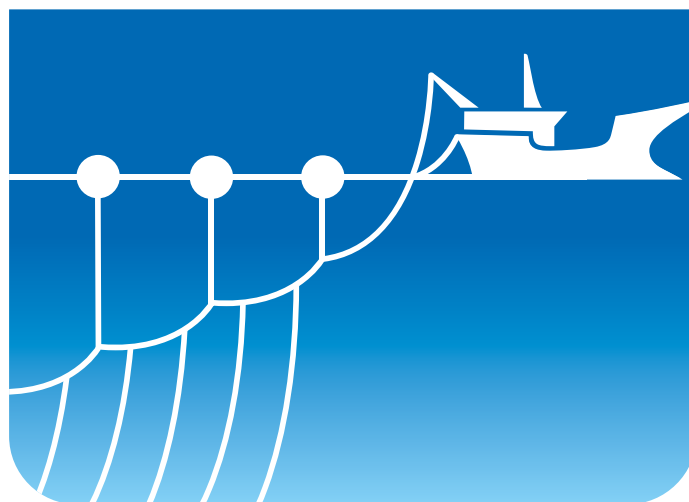


Pacific  
Community  
Communauté  
du Pacifique

# Longline Observer Guide

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## 2021



Revised by Siosifa Fukofuka, Timothy Park and Caroline Sanchez



SPC Oceanic Fisheries Programme



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Revised by Siosifa Fukofuka, Timothy Park and Caroline Sanchez  
SPC Oceanic Fisheries Programme



Noumea, New Caledonia, 2021

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## Abbreviations

EEZ	exclusive economic zone
EPIRBS	emergency position indicating radio beacons
FAO	Food and Agriculture Organization of the United Nations
FFA	Pacific Islands Forum Fisheries Agency
FSMA	Federated States of Micronesia Arrangement for Regional Fisheries Access
GPS	global positioning system
IMO	International Maritime Organization
IRCS	international radio call sign
IUU	illegal, unreported, unregulated
MARPOL	International Convention for the Prevention of Pollution from Ships
PIRFO	Pacific Islands Regional Fisheries Observer
PNA	Parties to the Nauru Agreement
SPC	Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SSI	species of special interest
USMLT	United States Multilateral Treaty
UTC	Coordinated Universal Time
UVI	unique vessel identifier
VMS	vessel monitoring system
VSC	vessel safety check
WCPFC	Western and Central Pacific Fisheries Commission

# Revision of the Longline Observer Guide

In the past 10 years, observer data collection forms have been through many changes because new measures have been introduced. Fishing is becoming more advanced and longline vessels are using new fishing gear and electronic equipment.

The Longline Observer Guide has been revised to match the latest versions of the longline observer forms, which are updated by the Data Collection Committee every two years.

The aim of the guide is to make sure observers know the correct way, and also the most practical way, to collect fisheries information and data.

There has already been a focus on species of special interest (SSI) and how they interact with primary gear, non-primary gear and the vessel. These interactions, and sightings of SSI, are all recorded on each separate form (LL-4, Gen 2 interaction and Gen 2 sightings).

This revised guide includes:

- illustrations showing mitigation of seabird catch, and
- requirements for observers to
  - record offal discharge and systems of strategic offal disposal
  - describe changes to hook size and type at set level
  - calibrate the callipers they use to measure fish, from time to time.

**This guide refers to the 2018 versions of the observer forms.**

**Do not use the information in this guide to fill in other versions of the longline observer forms.**

This could result in data errors.

Always check for the latest versions of the longline forms.

# Introduction

Pacific Island Regional Fisheries Observers (PIRFO) collect valuable and independent data and information onboard tuna longliners. They provide much of the information needed to understand and manage the fishery and help enforce legislation. The data is expensive to gather in terms of both funding and work hours. It is therefore important that observers fill in the forms accurately to ensure the data they collect is high quality and can be used for the intended purposes.

Follow the instructions in this section to ensure good, clear data is collected every time.

## Form filling

### Observer workbook

Each *Longline Fisheries Observer Workbook* covers **15 days** at sea. Observers must take enough workbooks to cover the expected duration of the trip, plus at least one spare workbook.

Observers are responsible for ensuring they take enough forms to sea. They also need to make sure that they take the most current edition of the observer forms to sea (see Form edition below). Observers should check the forms before departure to make sure they have been given the correct ones. Observer coordinators should ensure there are enough of the correct forms available for all departing observers.



**"I only did a short trip of 10 days. Now I am going out to do another trip. Can I use the same workbook?"**

**No. Always start new trips in new workbooks.** Only use the same workbook more than once if there is an emergency. If more than one trip is recorded in the same workbook, things can get mixed up. Starting a second trip in a workbook to save paper may seem a good idea, but observer data is too valuable to risk the problems this can cause.

### Form edition

The form edition is marked on the upper left-hand corner of all observer forms. The year indicates when the form was last reviewed.

The diagram shows a form header with three main sections. On the left, there is a box labeled 'OBSERVER PROGRAMME:' with 'REV. DEC. 2018' written below it. In the center, the text reads 'SPC/FFA REGIONAL LONGLINE OBSERVER GENERAL INFORMATION'. On the right, it says 'FORM LL-1 (pg1)'. A black arrow originates from the 'REV. DEC. 2018' text and points diagonally upwards and to the right towards the center of the form header.

Observer forms are usually revised every two years by the Data Collection Committee (DCC). This committee is composed of staff from SPC, FFA, PNA Office and invited members. The DCC report outlines the recent changes that have been made to observer forms and other tuna data collection forms. The report is available on SPC's website:

<https://oceanfish.spc.int/en/data-collection/241-data-collection-forms>

It is also available on:

<https://www.pirfo.org/>

The observer forms used in this Guide are marked **2018**.



### **"Which form edition do I use?"**

It is important to use the most current forms. The current forms also should be debriefed using the *2018 Longline Debriefing, Evaluation form and Scoresheet*. Keep using the current form edition until the new form edition is introduced. Do not go back to using any of the older editions from that point on. Take time before departing to check that no old form editions have been picked up by mistake. If there are old editions in the office, talk to the observer coordinator about it. No old editions should be used.



### **"I can't find any current editions of the forms. Can I use some of the old ones?"**

No. Old forms should be thrown out and observers should not have access to them. If no current forms are available at the observer office, photocopy the most current forms. Remember to get a copy of the instructions for each type of form. The current observer forms are available from the SPC and PIRFO websites.



### **"Help! I'm at sea and I've got the old forms."**

If you do find that you have some of the old observer forms with you, don't panic. Fill in the forms exactly as they appear. Follow the format and codes outlined on the form. Don't try to reformat old forms so they look like new forms, and don't use new codes on old forms. For example, the basket tally was added to the bottom of the LL-4 form for the 2000 form edition. If you find that you have an old form edition, then there is no need to record a basket tally on your form. Just fill in the form as it is. Use the instructions on the back of the form to guide you.



### **"I'm at sea and I have run out of forms. What do I do now?"**

First, try to avoid this problem. Observers should make sure they have enough forms with them for the duration of the trip, plus at least one extra workbook. However, if you do run out of forms, you can use ordinary paper to 'make up' forms and use these to fill the information in. But the data from the made-up forms must still be submitted on the standard observer forms. You will have to spend time back on shore transferring the data from the made-up forms to the standard forms. Observer coordinators are requested to only accept observer data on standard forms.

**Caution:** In case of potential compliance issues, any made-up forms used to record data should be given to the observer coordinator for safekeeping.

**Caution:** Normally observers are warned against re-writing data 'Do not re-write data', page 7.

## Mixed form editions

Observers should avoid mixing forms from different editions (or revision dates) during one trip.

Be careful not to carry waterproof LL-4 forms that are marked with a different form edition from the workbook forms.

Data collected using mixed forms is difficult to analyse. Some data collected using mixed editions of forms may not be used by data users, and the observer's efforts will be wasted. However, if the worst happens and an observer is at sea with mixed editions of forms, they should fill in the forms as they find them, using the format and codes marked on the form.

Do not attempt to re-format the forms and do not use new codes on old forms. Some data fields may not make sense when mixed editions of forms are used. In this case, just put a dash in the data field if there is no information for it. Make a comment on the form or in the trip report mentioning why the information was not filled in.

## Instructions for filling in forms

On the back of every observer form, there are detailed instructions about what information should be recorded for each data field.

Read these instructions carefully to find out exactly what data to collect. Always check the instructions thoroughly when new forms are issued because there may be changes to the type of data to be collected or the way it needs to be collected.

Each small box on a form is called a **data field**.

The information collected in each data field is defined by the data field header, which is written inside the data field itself, or at the start of the row or column.

## Fill in forms only when onboard the host vessel

Observers should start filling in their journal and forms as soon as they get onboard their host (or catcher) vessel. The first data fields to be filled in will be the departure port, date and time on the LL-1 form. Form filling will then continue until the trip ends and the observer leaves the host vessel. The last data fields to be filled in will be the return port, date and time.

*Onboard a transit vessel* – **Observers are not required to fill in forms when onboard a transit vessel.** The only exception to this is the ***Trip Reconciliation form***, which is at the back of the observer workbook. Observers should start this form from the time they leave their home port to travel to the host vessel. (This guide does not explain how to fill in the support forms (SUP), but the workbook itself includes a simple explanation.)

However, **observers should start their journal once they are onboard the transit vessel**, or when travelling to board in another port, on the day they start their travel (day of flight).

## Fill in all forms

All the forms required during the trip are supplied in the longline forms booklet, or as a waterproof pad. **At least one of each type of form** must be filled in during every trip. If there is no relevant information to fill in for a particular form, make a comment on the first page of that form stating the reason. For instance, if no pollution is observed, make a comment such as *'No pollution observed this trip'* on the first GEN-6 form in the first workbook. Fill in the header of one of the forms.

This guide includes sections explaining each form and the total number of each form type that the observer needs to fill in.

## Fill in all required data fields

Observers must fill in every data field, or put a dash in the field. Leaving data fields blank does not tell us if the information was unavailable, or if the observer was unable to get it. *A dash in the data field means the observer tried to get the information but could not.* The information might not have been available, the language barrier may have made it difficult to get, or the observer may need extra guidance on how to collect the data.

Whatever the reason, if a dash is inserted in a data field, always make a note in the comments section of the form, or in the trip report to explain why the information was not filled in. If the debriefer can see why the data field was dashed, they can confirm that the observer has completed the work or, if necessary, give them further help on filling in the forms.

Dashes are only required on lines / rows that have other information on them. Totally blank lines / rows do not need dashes.

This also applies to the comments column next to the data field – if the data field is dashed, the comments column is left blank.

## Pick the best or most informative code when choosing between codes

Each data field should have only one answer (except for the comments data fields). Sometimes observers might think there are two possible answers. Pick the best or most informative code when choosing between codes.

For instance, if a shark-damaged yellowfin was retained onboard and then eaten by the crew, which fate code should be recorded: RSD – (Retained shark damage), or RCC – (Retained crew consumption)?

In this example, it might be better to record the RSD fate code, and note the RCC fate code in the comments section as the yellowfin was probably only eaten by the crew because it was shark damaged. Therefore, the RSD code is the most informative code.

## Only record directly observed information

All information recorded on data forms should be information that has been directly observed by the observer. Do not copy information from the vessel's records on to the observer forms unless this is clearly requested on the observer form. If observers do want to record information that they did not personally witness (they missed a set position, for instance) they must make a comment on the form, stating where the information came from.

**Caution:** Experience shows that vessels sometimes give an observer incorrect data. Such faulty data can harm all of the observer's data. Also, if data looks falsified, the observer could lose further contracts.

Avoid this by **always** commenting if the information recorded was not directly observed. However, observers are best placed to record data as they see it onboard and not from the vessel record.

## Record repeating values fully

Do not use the ditto symbol (") in forms when recording the same repeating values. There should be enough time to fill in every data field properly, which will help improve the clarity and readability of the form. Observers on longline vessels may be tempted to use the ditto symbol on the LL-4 form when the same species is landed, one after the other. At times, things might get busy with a run of fish, but there will be enough quiet times to make sure every data field is properly filled in.

## Use 2B pencils to fill in your forms

We recommend using 2B pencils to fill in all the forms. 2B pencils are darker than normal HB pencils, especially on waterproof paper. This makes the work clearer and helps when the forms are photocopied or scanned. However, 2B pencils may be difficult to find in the local store. Observers should know where they can get supplies. Usually, the observer programme will provide them. Take good care of the 2B pencils as they are expensive and not easily replaced.

**Never use a pen** to fill in observer forms, especially the waterproof forms. Pen can be used to fill in the observer journal and the trip report at the back of the workbook. However, it is still better to use 2B pencils for the trip report in case something needs to be erased.

## Write clearly

Observers need good, clear handwriting. Aim to write clearly and to print everything that is written. Keep pencils sharpened and use a clean eraser to rub out errors.

## Fixing errors

If a mistake is made, simply erase it and write in the correct information. However, if a mistake is noticed after the day it was made, then draw a neat circle around the mistake and note in the comments: *Mistake – correct entry is ‘.....’* and refer to the page number of the observer journal where an explanation of the mistake can be found. Make a note in the daily journal about the mistake and how it was discovered.

## Missed page

If a form is missed or skipped by accident, don't go back and fill it in later. Put a line through it and mark *'Missed this page'*.

## Do not re-write data

Fill in the observer forms when the event occurs, directly on to the form. The format of the observer forms makes this possible at all times. There is no need to write the data into a notebook and then copy it on to the observer forms later. If observers are using a notebook for recording, the data must be transferred to the workbook as soon as possible on the same day. The LL-4 forms are printed on waterproof paper so there is no need to re-write this data either. *Re-writing data has been found to be a source of errors and can weaken the validity of data that is used for compliance purposes.* Don't worry if the LL-4 forms get a bit dirty. We expect this, but observers can spend some time cleaning them up as much as possible before handing them in.

## Lightly clean waterproof forms

Waterproof forms are specially designed to be used on deck. It is not a clean environment, so nobody expects observers to bring back clean waterproof forms. However, observers should make an effort to keep these forms as readable as possible. Watch out for fish scales sticking to waterproof forms. If data is written on top of the scales, the pencil marks (and the data) will be lost when the scales fall off. Blood stains can be washed off waterproof forms under a light flow of running water. Avoid strong blasts of water from the deck hose as the forms might be lost overboard. Light cleaning will remove blood stains without removing pencil marks. Don't try to remove tougher stains like oil, grease, etc. as this may remove the pencil marks as well. Leave the forms in a safe area to dry out. Don't leave forms on deck to dry out. They may blow away. Work towards cleaning and drying the waterproof forms before the end of the haul. Catch up on this work during rest days.

## Fill in the header details on every form

It is important to fill in the header details on every form used. The header details are the first block of data fields at the top of each form. Forms can easily become separated during photocopying, scanning or filing, or while the observer is travelling to and from their boat. Without the header details, there is a risk that some of these separated forms will not be identifiable and the work the observer has done to collect the data will be wasted.

**Caution:** Do not fill in the header details on forms before they are used. Some observers have been known to 'prepare' their forms by filling in the header details for several days ahead. This creates problems if the vessel returns to port a few days later. Debriefers may ask for the information for all forms with the header details filled in.

### ❖ Carry a notebook

Carry a small notebook and pencil at all times. Use the notebook to write down any extra information that is picked up during the day, or to make notes for journal entries. The notebook can also be used if the observer is under pressure to record information quickly and the relevant data form is not handy. For instance, if a marine mammal is sighted from the deck, the notebook can be used to record as much information as possible about the sighting before getting the GEN-2 sighting form and filling in all the required data fields. Use the notes to help complete the form. *Under no circumstances should the notebook be used to collect standard data to fill in forms later on a continual basis.* Notebooks should be handed into the observer programme at the end of the trip.



**"Can I show my data to the captain or crew?"**

It is best to keep data and forms to yourself, and to always store them in a safe secure place. The type of information observers collect is not a secret. All observer forms are available on the SPC website (<https://oceanfish.spc.int/en/data-collection/241-data-collection-forms>) and the PIRFO website (<https://www.pirfo.org/>).

However, do not leave your data forms lying around. Forms should be stored away in a secure area when they are not being used. If the captain or a crew member asks to see the data sheets, they should be told politely but firmly that you are not allowed to provide the data. If you feel you are under constant pressure to hand over your data sheets, be careful to make a report of these incidents in your journal. Make a full report of which officer or crew member asked to see your data forms and the date and time when this happened. This should also be done if the captain or another crew member changes anything on the data form, or requests that changes are made. Record these incidents in detail. Fill in your GEN-3 form and make a full report of the incident in your journal or written report.

For increased security, reports on serious incidents can first be made in your journal in your own language, although the final written report should always be in English so it can be read by different coordinators, managers, compliance or legal personnel, if necessary.

#### ❖ **Comments**

Observers are encouraged to write comments on their forms. These should be written in the comments area of the forms only. Comments by new observers can help to clarify any misunderstandings or mistakes they may have made with their data, while comments by experienced observers can draw attention to new fishing practices or highlight areas where changes in the form may be helpful, etc.

#### ❖ **Continue comments in the journal**

When there are a lot of comments to make and there is no more space on the data forms, continue the comments in the **daily journal**. In the comments section, note the journal page number where the rest of the comments can be found (for example, '*see (a) page 12 of 50 in daily journal*').

#### ❖ **Fill in the observer journal**

Refer to the note on the term 'journal' (page 5).

All observers are expected to keep a journal and to make an entry in it **at least once every day**. A journal entry is required even if very little happens during the day, or if the observer is tired at the end of the day. The entry should give a general idea of what happened on the vessel during the day. The journal can be used to note down any pieces of information that are picked up. This will help observers fill in their trip report later.

As explained elsewhere in this guide, the observer journal is used to:

1. clarify any mistakes that were made on the form and changed after the day they were recorded;
2. provide details of unusual events or incidents that occurred during the day;
3. continue comments from the comments section of the forms;
4. cover detailed information on any activity when there is no space on the form;
5. cover referrals from LL-2/3 on 'Gen-3 events observed today';
6. write a full explanation of an incident recorded on Gen-3, page 2.

All journal entries should be made on the day they happen, and not on a later date. If more information is discovered later on, fill it in under the date that it was first discovered.

Observers can also use their journal to keep a list of photos taken during the trip. Label each photo so it can be located easily.

#### ❖ **Report all infringements in your journal**

It is very important that any critical incidents or infringements made by the vessel during the day are reported in detail in the journal, even if these incidents seem to be minor – such as failing to record bycatch on the logsheet. For increased security, reports on critical incidents can be made in the observer's own language, but the final trip report must be in English so it can be read by different coordinators, managers, compliance or legal personnel, if necessary.

Start all reports on infringements with the letter code and heading on the GEN-3 form that refers to the type of infringement being reported. For instance, if the observer was denied access to the GPS at any stage during the trip, the most appropriate infringement header for the diary from GEN-3 would be: RA-a. Did the operator or any crew member assault, obstruct, resist, delay, refuse boarding to, intimidate or interfere with observers in the performance of their duties?

In cases where exactly the same issue occurs every day, one full description in the journal is sufficient at the start. Future daily reports can refer to this description but should include the time and position of the latest occurrence. New information on the issue, or further developments, can be recorded on the day they are discovered. One idea is to draw up a table on a spare page of the daily journal (or spare page attached to the trip report) to record daily times, positions, etc. in one place.

(See 'Connecting the GEN-3 form to the journal' on page 103.)

#### ❖ **At the end of the day**

Get into the habit of checking forms at the end of the day. Check through them again when there is more spare time, for instance, on a rest day.

Take time to make sure:

1. the header details are filled in and the page numbers are up to date;
2. all data fields on any forms that have been used are completely filled in, or dashes have been inserted;
3. the set start times that refer to the same fishing operations are the same on all forms (LL-2/3, LL-4 and other GEN forms).

#### ❖ **At the end of the trip**

Take the time to check:

1. the page numbering is complete, and the total number of pages used for each form type is filled in;
2. the return port, date and time are filled in. Observers who pack their forms into their bags before they have this information often forget to fill in these details.

#### ❖ **Fill in the observer's written trip report**

Try to fill in every section of the trip report. If a section is not relevant to the trip (for instance, no species of special interest were interacted with or sighted during the trip), complete these sections by writing something like 'not encountered during this trip'.

Experience will help observers write better trip reports as other trips or different fishing strategies can be compared to the most recent trip.

#### ❖ **Timely reporting**

Complete the trip report, check through the data forms, and submit all the information that has been collected during the trip as quickly as possible. The longer it takes to fill in the written report, the more likely it is that information will be forgotten. **The written report should always be completed within seven days of returning to the home port.**

## ❖ Debriefing

Most observers will benefit from a full debriefing at the end of their trip. For every trip, there should be a pre-debriefing before the full debriefing. Pre-debriefing and full debriefing can be carried out one after the other, or separately. This is up to the debriefer and the observer to decide.

Debriefing gives observers a chance to learn about any mistakes they have made and to improve their observer skills.

The purpose of debriefing is to:

- quickly report, and take action if necessary, on critical incidents that took place on the trip;
- give observers timely direct feedback on how they can improve their data;
- flag data that does not meet the specific quality requirements of data users;
- give Observer Coordinators feedback on their observer's performance;
- verify data forms before distributing them to other agencies (FFA, PNA, SPC, SPREP AND WCPFC);
- assure data quality;
- explore, through questioning, whether additional information can be gathered about the trip;
- judge whether the quality of the data has suffered because of harassment of the observer;
- assess the observer's skills and experience for pay and promotion purposes;
- find out if special consideration is necessary for future placements on the same vessel or similar vessels.

## ❖ Falsified data

NO DATA IS BETTER THAN FALSE DATA

**Observers found falsifying data will not be given further contracts.**

# Basic data collection

## Header details

### Observer's name

Observers must write their name in full, as it appears in their passport, on every single form. Put the first name first and the last name or family name last. Do not abbreviate the name on any of the forms.

### Observer trip ID number

Fill in the complete *observer trip identification number* as issued by the observer programme and the providers who have authorised the placement, or as determined by the number of trips done by the observer during the year.

Observer trip identification numbers are individual trip codes, so each observer trip can be uniquely identified. A personal 3-letter staff ID code (or observer ID code) is assigned to all observers when they graduate from basic training. This code identifies the observer in all observer databases and is used to generate the observer trip ID number. For instance, the 3-letter ID code for Benaia Bauro is 'BEB'. (Note: Some observers who were trained in earlier years may have a 2-letter ID code. One example is SF for Siosifa Fukofuka.)

Observer trip identification numbers are generated in different ways, but they keep the same basic structure.

#### ❖ **National Observer Programme trip identification numbers**

Most national observer programmes use the personal observer trip ID numbering system:

**Observer ID code**, space, **two digits indicating the year of the trip**, dash, **trip number** (i.e. the current trip number based on the number of trips (1, 2, 3, 4, etc.) completed by the observer during the calendar year).

The advantage of using this system is that the observer can always create their own observer trip number, even if they have not received any advice from their coordinator.

Observer generated ID number

Example: BEB 2020-03

This is the third trip made by the observer 'Benaia Bauro' during 2020.



**"My last trip was with a subregional observer programme (for example, FFA) and my next trip is for my national observer programme. I am not sure how to create my observer trip ID number."**

You should be given your trip ID number by your coordinator before you board for your trip. You should not make up your own except in unusual circumstances when you are unable to contact your coordinator.

The personal observer trip ID numbering system (as outlined above) will always indicate the total number of trips the observer has taken during the calendar year.

In the example below, Benaia Bauro did two trips early on in the year on longline vessels (LL), and was then asked to board a purse-seine vessel (PS) for his national observer programme. After these trips were completed, he was selected for a trip with the USMLT (United States Multilateral Treaty) subregional observer programme. He also did one trip under the PNA Observer Agency (POA) after the US Treaty trip. On his return he did a short LL trip before the end of the year for his national observer programme. Since his national observer programme was using the personal observer trip ID numbering system, his trip numbers for the year would look like this:

Example of *Observer trip ID numbers for Benaia Bauro*:

1. BEB 20-01 (National programme trip, first trip during the year 2020, done on a LL)
2. BEB 20-02 (National programme trip, second trip during the year 2020, done on a LL)
3. BEB 20-03 (National programme trip, third trip during the year 2020, done on a PS)
4. 33 LP/15 (USMLT observer programme trip, 15th trip during the 33rd Licensing Treaty Period, done on a PS)
5. FSMA/POA/27/137 (POA trip. The 27 stands for the year of the FSMA and the 137 is a sequential number issued throughout the year.)
6. BEB 20-06 (National programme trip, fifth trip during the year 2020, done on a LL)

**Caution:** With both of these national observer programme trip numbering systems, be careful not to put the trip number before the year the trip was undertaken.

**Caution:** If you find after returning from your trip that you have used an incorrect observer trip ID code (perhaps you were given the wrong code by your observer programme), **correct your observer trip ID number on every single form before handing in the data.**

## Vessel name

It is best to agree on the vessel's correct name during the placement meeting. The name of the vessel is the name written on the fishing license or permit, which is issued by the country to licensed vessels.

## Page numbering

### *LL-1 page 1 and 2*

**Total page numbers are not required for this form as only one form is filled in per trip.**

### *LL-2/3*

For LL-2/3 forms, page numbers start at page 1, 2, 3, and so on. Total pages for the trip are recorded on each LL-2/3 form. If there are 25 pages in total of the LL-2/3 form for the trip, each page should be recorded as page 1 of 25, page 2 of 25, page 3 of 25 and so on till the last page is page 25 of 25. Total pages for the trip are usually the same as the total number of sets in a trip.

### *LL-4*

LL-4 forms are filled depending on the number of fish caught, landed or escaped in a set. A set may require filling in up to five LL-4 forms. For example:

**Set 1** – The first page number is set no. 1 page 1, page 2, page 3, page 4 and page 5.

**Set 2** – The second set starts at set no. 2 page 6, page 7, page 8 and page 9, with four LL-4 forms filled for set no. 2.

**Set 3** – The next set, set no. 3 starts at page 10, page 11, page 12, page 13 and page 14, with five LL-4 forms filled for set no. 3

The total number of pages of LL-4 forms for the trip is recorded in every LL-4 form filled in. In the example above, there are only three sets made for the trip. The page numbers will be page 1 of 14, page 2 of 14, page 3 of 14 and so on, until the last page is page 14 of 14.

## Time and date records

### Ship's time

Longline vessels choose to use the time zone of their home port. This makes communications easier for them, especially if they are in continuous contact with their home port. Other vessels may choose to follow the local time zone of the last port they visited, while some will choose to follow the time zone of the area they are actually fishing in.

Observers should record the ship's time on all forms. Ship's time is the time that is normally used onboard the vessel. Observers should change their own watches to ship's time as soon as they board the vessel. They can check one of the ship's clocks in the galley or wheelhouse, or ask the captain or crew for the current ship's time.

### UTC time and date

Since vessels use a variety of times, observers are asked to collect the Coordinated Universal Time (UTC) time and date. The UTC date and time can be obtained from the vessel's global positioning system (GPS). **This is done once a day at the start of the set on the LL-2/3 forms.**

The UTC time is available on the GPS. However, it may not be displayed on the first screen, so observers may have to ask the captain or a crew member to help them locate the UTC time on the GPS. Observers should not use the vessel's electronic systems without permission. (During the placement meeting, the captain will be asked to show the observer how to obtain the UTC time.) Keep in mind that the GPS may have two or three different times on it, so look for the time and date marked **UTC time and date**.

If you cannot locate the UTC time on the GPS (due to communication problems, for instance) then calculate the UTC time from the ship's time.

Make sure you adjust the date, if necessary.

- ❖ If the ship's time is the local time of Taiwan, then subtract 8 hours from the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of Japan or Palau, then subtract 9 hours from the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of Chuuk, Yap, Guam or Papua New Guinea, then subtract 10 hours from the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of Pohnpei, Solomon Islands, Vanuatu or New Caledonia, then subtract 11 hours from the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of Kiribati (Gilberts), Marshall Islands, Nauru, Fiji or Tuvalu, then subtract 12 hours from the ship's time to get the UTC time.

- ❖ If the ship's time is the local time of Kiribati (Phoenix Islands) or Tonga, then subtract 13 hours from the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of Kiribati (Line Islands), then subtract 14 hours from the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of American Samoa, Samoa or Niue, then add 11 hours to the ship's time to get the UTC time.
- ❖ If the ship's time is the local time of Cook Islands or French Polynesia, then add 10 hours to the ship's time to get the UTC time.

Refer to Pacific time zones in the map below (Figure 1).

**Hint:** Purchasing a dual-time watch with dual-time capabilities can give you personal access to the UTC time. Many watches of this type are cheap and readily available around the Pacific. If you set the second time to UTC time, you will always have UTC time on your watch.

If you are using your phone to keep time, set up the dual-time facility.

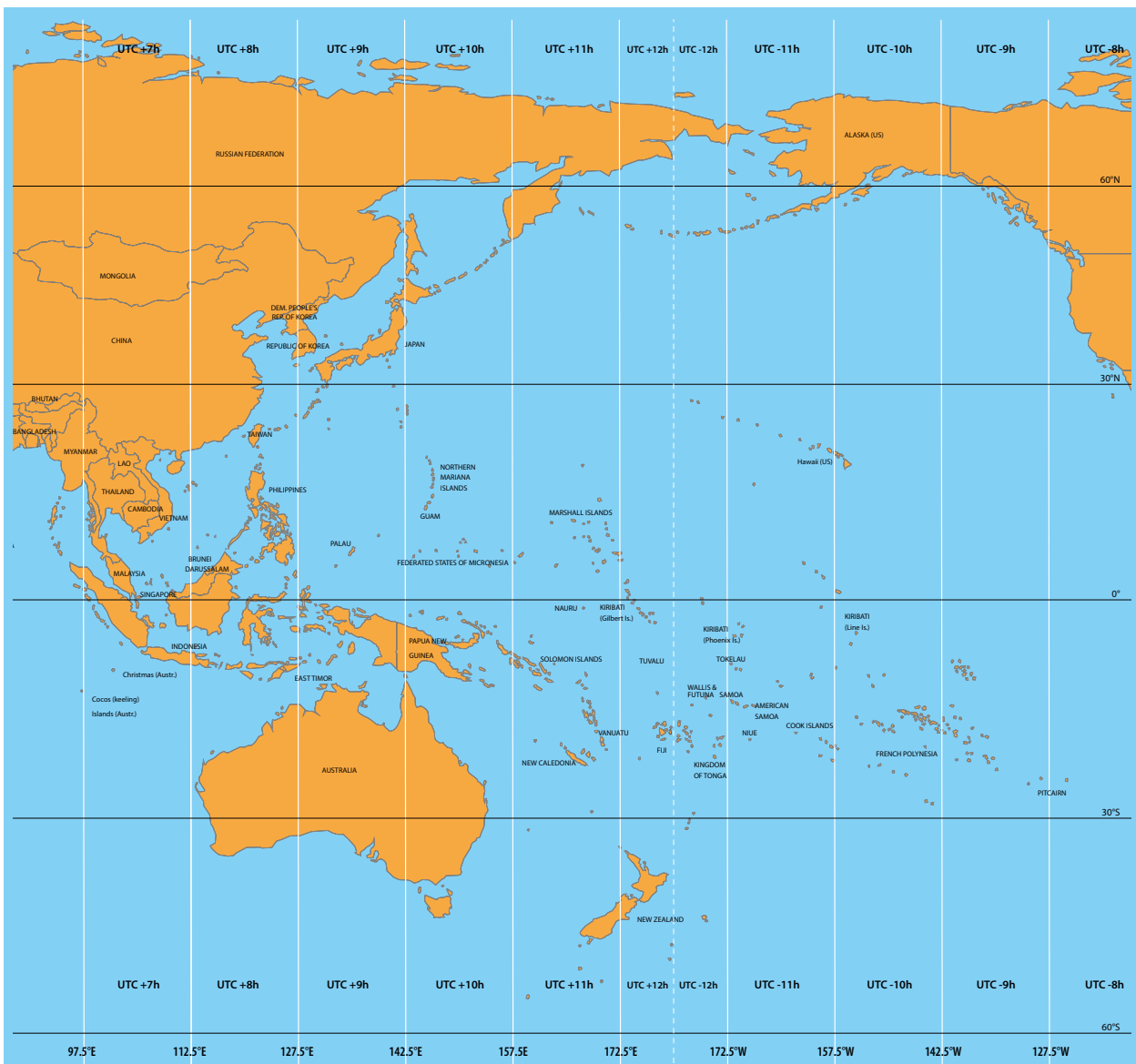


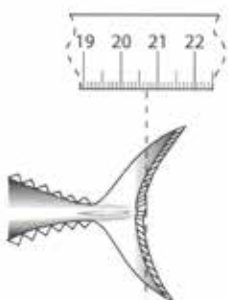
Figure 1. Nautical time zones in the Western and Central Pacific Ocean.

## Measuring lengths

Length measurements are always **rounded down** to the nearest whole centimetre.

- If the length of the fish is 71.1 cm, record 71 cm on the data sheet.
- If the length of the fish is 71.5 cm, record 71 cm on the data sheet.
- If the length of the fish is 71.8 cm, record 71 cm on the data sheet.

*The length of this fish will be recorded as 20 cm.*



## Always use your callipers

Always aim to measure fish using callipers. Callipers give the most accurate and reliable results.

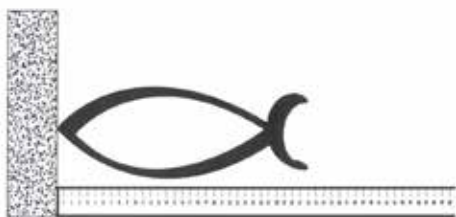
If a deck tape is used, make sure it is placed under the fish and that the start of the deck tape is placed up against a vertical edge on a raised hard object. This will ensure that the nose of the fish is aligned with the zero mark on the deck tape. If this is not done, the fish can easily slip down the deck tape when it is being measured, giving an incorrect measurement.

Understand how to use callipers correctly. Callipers are designed so that the groove on the fixed leg is normally placed on the snout/upper jaw of the fish, and not on the fork of the fish tail.

If necessary, use a deck tape, but with caution

*Always place the deck tape up against a straight (90 degrees) vertical object (see below).*

Pay attention to collecting the true measurement when using a deck tape. The observer's eye must be directly above the tail of the fish to ensure the correct measurement is recorded. If the measurement is taken when the eye is not directly above the tail of the fish, the measurement will be read at an angle, possibly giving an incorrect result.



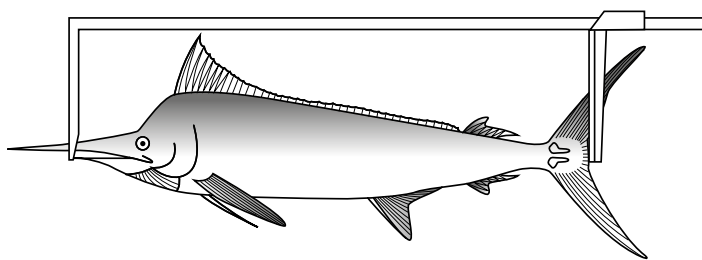
## Do not measure damaged fish

Do not measure damaged fish. The fish can be recorded with the 'NM – not measured' length code

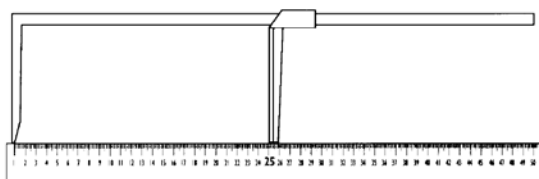
## Large species

When a fish is longer than the 1.5 metre callipers, measure it by taking two or more measurements. One method is to first measure as much of the fish as possible and then use the callipers to make a light mark on the fish at the point where the measurement stops. Take a second measurement from that point. Add the two measurements together to get the length of the fish.

Another method is to take the first measurement at 100 cm, lightly mark the fish at this point, and then take a second measurement from the point. It is then easy to add the two measurements together to get the total length.



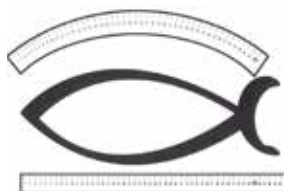
## Calibrate the callipers



Callipers must be calibrated for each set to ensure they measure accurately. To calibrate them, measure a section of a deck tape or ruler with the callipers. Measure 25 cm on the deck tape, then check that the callipers read 25 cm exactly. If a deck tape or a ruler is not available, use the ruler on the callipers to mark out a length (for example, 80 cm) on the deck. Then calibrate the callipers against this length.

## Do not use a tape measure to measure any species

Measurements taken with tape measures are known to give incorrect results. Samplers often place the tape measure above the fish, resulting in a curved tape measure, which may add extra centimetres to the true length. Also, tape measures made of fabric may stretch in a wet environment. This can also add extra centimetres to the true length.



Observers who do not have callipers are reminded that callipers are necessary to record the straight carapace length of turtles. **Never use a deck tape or tape measure to measure turtles.** If no callipers are available, just mark the turtle down as 'NM – not measured'.



**“I have forgotten my callipers/deck tape. I can’t measure any fish.  
What can I do?”**

A fisheries observer is not an observer without a measuring instrument. It is the observer’s responsibility to ensure they have their work tools with them and that the tools are in good working order. *However, sometimes things go wrong* – callipers may be lost overboard or badly damaged. Explain why the problem happened in the trip report. It is not a good idea to ‘make up’ a measuring instrument from a piece of wood or string, etc. as it is likely that incorrect length measurements will be recorded. Continue to collect all other information.

Under NO CIRCUMSTANCES should length measurements be made up.

If for some reason the observer is unable to get length measurements, record ‘NM – not measured’. For any other data, simply dash the data field and make a comment stating why the information was not recorded.

NO DATA IS BETTER THAN FALSE DATA

**Observers found falsifying their data will be suspended.**

## ***Recording***

The LL-4 form does not have weights and the weight code. Observers are required to use GEN-4 forms to record the weight and weight code.

Weights are recorded in kilograms to the **nearest kilogram (kg)**.

For instance:

If the weight of the species is 34.23 kg, **round down** the kilogram value to 34 kg.

If the weight of the species is 34.68 kg, **round up** the kilogram value to 35 kg.

If the decimal place is .5 (that is, exactly half a kilogram), it should be **rounded up**. This means if the weight of the species is 35.5 kg, it will be rounded up to 36 kg.

## ***Rounding off to the nearest value***

Most data fields are formatted to accept whole values only. Occasionally, some data fields will accept values written to one decimal place. Check the relevant section in this document for further guidance on the accepted final format for values in data fields.

**Length measurements should always be rounded down** to the nearest centimetre, but **weights and other values should be rounded to the nearest whole number** or to the **nearest one decimal place** figure as required.

### **Examples of lengths rounded down**

Rounding down 13.0 cm            13 cm

Rounding down 5.5 cm            5 cm

Rounding down 27.9 cm           27 cm

Examples of numbers rounded to the nearest whole number and the nearest one decimal place

#### **Rounding to the nearest whole number**

Rounding off 23.1	→	23
Rounding off 04.7	→	5
Rounding off 10.5	→	11*

#### **Rounding to the nearest one decimal place**

Rounding off 38.12	→	38.1
Rounding off 05.87	→	5.9
Rounding off 13.55	→	13.6*

\*If the last figure you need to round off ends in a 5, round the value up to the nearest larger value.

## **Placement support forms**

Support forms (SUP) have a placement checklist (SUP-1, page 1) and vessel safety check (VSC) (SUP-1, page 2). These forms are used during formal placement meetings when the observer first boards the vessel. The purpose of an onboard briefing and the SUP form are to ensure the well-being of the observer during a trip. The SUP-1 placement checklist should be done at the placement meeting by the placement officer in the presence of the observer and captain. Its purpose is to ensure that the captain and observer fully understand their roles. These meetings also help observers verify some of the information they need to collect before they depart.

The VSC (SUP-1 page 2) is a compulsory Regional Observer Programme form.

Placement meetings cover the following items:

- Verify the vessel's name
- Check the vessel's licence, its validity and any associated permit or licence numbers
- Observer duties and obligations
- Obligations of the vessel operators to the observer
- Vessel safety check
- Locate the GPS
- Locate the latitude and longitude to 3 decimal places on the GPS display
- Locate the UTC date and time on the GPS display

At the placement meeting, the observer should also be informed about the safety equipment and safety drills, the location of a lifejacket for the observer, and any unsafe areas of the deck or other parts of the vessel.

Not all placement meetings can be attended by a PIRFO debriefer or the coordinator from the observer's own programme. Where the placement begins in a foreign port, the observer programme should arrange with another PIRFO programme or with an agent to take this necessary role.

When an observer boards the vessel at sea, the programme coordinator should ensure the vessel owners or operators provide this information to the captain.

If there is no placement meeting, or the observer has difficulty getting some of the information outlined above, they should inform their coordinator or debriefer and ensure future placement meetings are made for the vessel/fleet concerned.

## Observer journal

Observers are required to maintain a journal with a detailed daily record of activities, events and information during their trip out at sea.

The purpose of the journal is to provide both general information, and information about specific events that is not captured on the forms, or a better description than can be included on the forms. The journal is used by debriefers to verify information, and by compliance officers to assess incidents and compile case reports. As such, the journal is a very important document and record of the trip.

The journal is a freestyle document, giving observers freedom to describe the operation of the vessel and other oceanographic or social features of the trip. The journal should include personal observations and information relevant to the daily operation of the vessel, as well as more sensitive information about possible vessel operational non-compliance. The journal is different from the trip report because it is a chronological record – that is, it is used to record events in a time sequence of hours and days. The trip report, on the other hand, is a summary of events under various subject headings.

The journal is a legal document and is often used as evidence in prosecutions, so observers must be careful to keep to the facts in their entries. Observers must not show any prejudice or bias against the crew. The credibility or honesty of observers is important, and they must be honest in their entries. Remember the journal is confidential and keep it secure.

While the journal is meant to be freestyle, there are some **standards** to follow, as described below:

### *Consistent*

#### *Maintain regular daily entries*

You should make an entry every day, with some details of what happened or why nothing happened. There are no weekends on a fishing vessel so write a description of what happens each day. Your journal must be daily from the day you board. You may also include your days travelling to the vessel if relevant. It is important to get into the habit of writing in your journal from the start. A daily weather report is one way of developing this habit.

Start a new page each day even if there is still space on the page for the previous day. If using the pre-printed journal template, use at least one half-page section and start a new section for each day. You may use more than one page or section if you need.

## *Readable / Legible*

### Be neat

#### ***Handwriting***

Try to keep your handwriting clear and tidy – remember you are writing for someone else to read.

#### ***Thought process***

When writing, keep your sentences clear and short to focus your descriptions on what is important. Your thought process should be logical and easy to follow for the readers of your journal.

#### ***Use paragraphs***

Separate your writing into subject paragraphs. Each event or incident should be separated by line spaces into a paragraph. This makes it easier to read and find events or incidents.

#### ***Use headings***

Use headings to identify important events or incidents.

A heading is just a couple of words that describe the subject. Underline each heading and place it immediately above the start of the first paragraph about an event. Headings make it easier for the debriefer or other officers to find an event when reading the journal.

## *Relevant*

#### ***Keep to the facts***

Focus your writing on reporting the relevant facts. You can include descriptions of events or incidents that happened during the day, or general descriptions of the operation or weather, etc. In particular, be clear about what you saw. If you were told some information you think is relevant, then indicate that you were told this but did not witness it yourself.

#### ***Event***

An event, or occurrence, is something that happens or is regarded as happening, especially something important. An event may be planned, such as 'start of haul', or unusual, such as 'whale interaction'.

#### ***Incident***

An incident is a unique event that is unexpected. It may affect a normal operation and often has a negative sense, such as 'breakage of mainline' or 'bunkering at sea'.

Incidents can also be given a ranking of further significance where they are described as *critical incidents* or *infringements*. These are generally recorded on the GEN-3 form.

A critical incident is an incident that is serious and should be reported to your debriefer as soon as possible after you disembark, preferably before the vessel departs or another placement is made. Critical incidents can include poor hygiene or safety issues.

Some incidents may be infringements, such as a breach of fisheries regulations, or criminal offences. For example, the fishing operation may breach regulations by fishing in areas where it is not allowed. Serious incidents include attempts to harass or intimidate you (or even offer you gifts).

All incidents are events, but not all events are incidents.

### ***Description***

Your descriptions of events and incidents should be clear, concise and factual. This is particularly important if the incident is critical, or if you are describing an infringement, as your journal entry may be used for a prosecution.

If you report an event or incident, it is important that you describe what happened. You may not be able to remember all the details if asked after the trip, so it is important to record details that you think are significant as soon as possible. You can take notes on a pad to record facts/details such as time or location, etc.

The main purpose of the journal is so that you can record facts/details that you need to remember and that may not be recorded elsewhere on your forms. If you report a critical incident, you **MUST** provide a description. Think of it as being evidence you witnessed the incident. It is no good saying that the boat did something bad today, then not continuing to say exactly what it did (unless reporting it while onboard might be dangerous for you).

### ***Implication***

An implication is what you predict to have been the outcome of an event or incident without actually seeing the outcome. This should be based on what you have seen. You should make it clear that this is what you think might have happened, but you did not see it. For example, if you see an interaction of an albatross feeding on the bait and then it suddenly disappears, you may suggest you think it was hooked during the interaction.

### ***Use prescribed formats***

Journals must keep to a standardised format. The reason for this format is that the journal is a legal statement and is probably going to be read by your debriefer and possibly by compliance officers or scientists to verify the information you report. To make sure it includes details they need, and that your journal is clear, you must include the following information:

#### **Date**

The date in the standard format should be written at the **top of every page**, and include the day of the week

e.g. 2020/07/23 Thursday

#### **Record times of events**

Since the journal is a time sequence of events that happen during the fishing operation, it is essential to record the times when events start and end (or their duration), if possible. Always keep 'time' in mind when observing anything that is going on onboard.

Times can be recorded in a left-hand column on each journal page, or in the first sentence of a paragraph. If you are using a lined exercise book, the simplest way is to record the time of an event to the left of the margin on the left side of each page beside the relevant paragraph.

## Page numbers

Every journal page must be numbered. It is best to put the page number at the bottom margin of the page. The reason for this is to check that all the pages are there. Sometimes pages fall out of books, or pages may be missed in the scanning when sent to SPC.

Journal page numbers are referred to in your forms, so you need to keep them up to date as you go so you can refer to them.

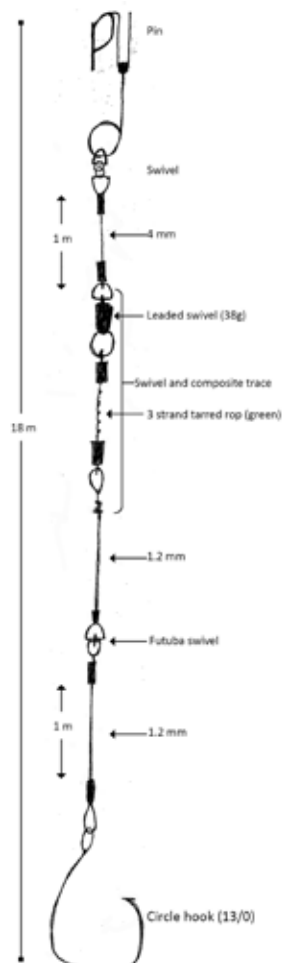
## Signature

Your journal is a legal record, so you should sign every page. Signing verifies your record is a true statement. Put your signature at the bottom of each page.

## *Extra detail, relevant diagrams and illustrations*

The old phrase says 'A picture is worth a thousand words'. Drawings or diagrams can often describe an object or layout better and more clearly than describing it in words.

If you can explain something better by drawing it – then do so, with a brief explanation of what it is, or what it is used for.



As you can see, the drawing is easy to understand compared to a written description.

(When you are describing something, do not include too many unimportant details. These can make it difficult to find the important information and can be boring to read.)

### ***A typical day at sea***

Describing one typical day at sea with all the little things that normally happen during a day can give readers a feel for life onboard. You might do this after you have been at sea for a little while, when you have a good idea what a typical day really is.

On the day you choose to write about, you could start on a fresh page and make a heading at the top of the page like *'A typical day onboard the F/V Neptune 103'*.

During the rest of the time covered by your daily journal, there will be no more need to write about things that are part of the typical schedule (more or less). However, it may be useful sometimes to write about a typical thing when it happens in a not-so-typical way. For example, there is mostly no need to write what time you have lunch every day. However, if for some reason, you have lunch an hour or two late or early, it might be worth mentioning this and giving the reason, depending on the circumstances.

### ***Special sections***

Special sections in the daily journal can be used to keep a few pages for writing about particular subjects. Usually these sections will be towards the back of the journal so they do not get in the way of the normal daily notes.

To create a 'special section', make a bold heading at the top of the first page of the part of your journal you plan to use for your special section. The heading should clearly state what the section is about.

*Some examples of special sections:*

- **'Photos'** – for notes about photos you have taken while onboard.
- Repeated events that you do not have sufficient forms or space for. For example, **'Pollution events'**, such as throwing out plastics, may occur often. You are only given a few GEN-6 forms and these will quickly run out if the vessel is polluting frequently.
- **'Quality of life onboard'** – for notes about how good or bad life is onboard, including notes about food, accommodation, how the crew treat you, etc.
- **'Crew'** – for notes about different crew members and to build up a profile of the crew. You might want to keep a half or full page for each crew member so you can add to it during your trip if need be.
- **'Biological sampling'** – for notes about any sampling issues onboard and anything else that you might think about.
- **'Tag seeding'** – for notes on when, where and why you did seeded tags, if you have been asked to do this.

When writing your trip report, you can also keep notes about the same topics together in special sections to help the reader find information quickly.

## Journal examples

Typical observer journal (first three days) written by observer Kaiea Eritaia from Kiritimati Islands during his longline observer trip in 2008. In this example, the times of events are in the text of the daily record.

**Thursday, 15 November 2008**

**Page 1**

My vessel departed port of Majuro at 0630 hrs. Sea was calm, 3 knots with south easterly wind. We headed north after passing the passage. Captain revealed that it will take a day to reach the fishing ground.

I went to bed late in the evening at 2130 hrs and we were still transiting to the fishing ground. I have my own bunk, but there is only a thin straw mat. Observers should bring their own pillow. Two crew members were on watch, but the rest including the Captain were all asleep. Sea conditions remain the same.

Signature\_\_\_\_\_

**Friday, 16 November 2008**

**Page 2**

We arrived at the fishing ground at 0700 hrs. We drifted in the area for the rest of the day before our first set started at 1900 hrs – first radio buoy dropped in the water. I started filling LL-1 with a number of data fields left vacant to be filled later in the trip.

### LL-1 comment continued

Life-rafts: I tried to get information about the life-rafts but couldn't cause the writing on the stickers has worn away. There are other stickers below, so it looks like they have been serviced before. I tried to ask the Captain about the no. of people and the inspection date, but he was no help. I might try to ask him later.

LL-2/3 was filled as soon as the first radio buoy is dropped in the water. There is no line shooter on-board; I did not record the line setting speed and some of the specifications details because there is no line shooter onboard. Setting completed at 2335 hrs. I went straight to bed after completing the LL-2/3.

### No GEN-3 incidents.

No incidents observed today. No other General forms required to fill during first setting.

Set finished at 2335 hrs. Using Basket type gear. Monofilament line tied together in pieces. Hope to learn more about this tomorrow. 135 baskets of gear. A radio buoy at the start and the end of the line. Crew very helpful, when I was trying to count the buoys. Otherwise they have 360 mm red fishing buoy at the end of the floatlines.

Signature\_\_\_\_\_

Our first hauling started at 0530 hrs. Sea condition was very calm, not an ideal condition for longlining, too calm, perhaps. First fish was on hook number 5 – huge BET, 167 cm, good sign after no fish caught for the first hour of hauling. I filled up 4 LL-4 forms and lots of YFT and BET (Target species) retained. They were all gilled, gutted, retained and preserved under ice. Also I noted down (for my trip report) that large YFT and BET were stored under Slurry/Chilled sea water as part of proper fish handling and fish quality. The number of baskets set (during setting) and number of total baskets observed (I observed all baskets) were the same - 156 baskets altogether. I also took 5 photos (DSCN 0001 to DSCN 0005) of a shark (FAL??) for further identification when I get back to shore. Hauling completed at 1540 hrs. Baits were taken out after hauling for the next set. Line was set again at 1915 hrs. We finished the set at 2245 hrs. The same number of hooks were set today and we are in the same area.

GEN-3 incident.

E) Not record bycatch and discards.

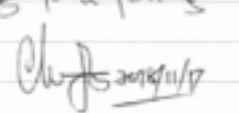
When I checked the logsheet after the set the Captain had not filled in a lot of the bycatch species. He only recorded the fish he kept onboard, like mahi mahi, but not the pelagic rays or other fish that were discarded. Still the number of target catch that he recorded looked correct.

K) Breach MARPOL Regulations

The plastic wrapping from the bait boxes was thrown straight overboard.

Signature\_\_\_\_\_

In the journal example below, the times of events are kept in a column to the left of the margin. Note the correct formats for the date, day of the week, trip ID, and page number (of total pages) at the top of the page. The page also includes headings for paragraphs and a signature.

	<div> SATURDAY 2018/11/17 JOC18-01 PAGE 46 OF 127 </div>
	<div>FISHING SET NO. 24 DETAILS</div>
0600hrs	<p>Early this Morning, I observed Vessel deploying of fishing Set no. 24 at Latitude <math>06^{\circ}20.010'S</math> Longitude <math>158^{\circ}44.007'E</math> of Solomon Islands Exclusive Economic zone. There were a total of 155 baskets. Consisting of 3410 hooks having being deployed that uses a total amount of 370kg of Sardine bait fish. There was no any Encountered of Unusual Set observed during Setting Activities.</p> <p>Fine weather and slight seas conditions encountered this Morning in the Area fished. Sky Cloudy and haze with little Sunshine.</p>
1310hrs	<p>Set ends Sometimes after mid-day, at Latitude <math>06^{\circ}20.180'S</math> Longitude <math>158^{\circ}48.006'E</math>. At the End of Set, The vessel resume Searching to start of Set position to drift at Soak time.</p>
1350hrs	<p>Vessel stopped and was drifting at Soak time at Latitude <math>06^{\circ}20.992'S</math> Longitude <math>158^{\circ}43.898'E</math> of the fishing Area, at about a mile from the Set position.</p>
	<div>HAULING ACTIVITY DETAILS</div>
1700hrs	<p>Began Hauling Activities at Latitude <math>06^{\circ}20.589'S</math> Longitude <math>158^{\circ}43.259'E</math> of Solomon Islands fishing areas. Total baskets monitored during hauling is 151 Consisting of 3322 hooks along with some catch retained by the vessel and were all recorded on U-4 forms page 28 and 29. There was no problems encountered during hauling and/or monitoring activity. Baskets not monitored were retrieved onboard while hauling dinner and Teabreak.</p>
0404hrs	<p>Hauling Activities End at early in the morning, at Latitude <math>06^{\circ}21.657'S</math> Longitude <math>158^{\circ}48.495'E</math>. At End of hauling the Captain Navigates the vessel to Searching to a fishing position.</p> <p style="text-align: right;">  </p>

Here is another example with a slightly different style and reporting of incidents during the haul.

Pg 13		TUESDAY		19.09.17		DAY 9	
TIME	SET 7: OPERATION STARTED.						
0345hrs	AT position <sup>22° 13.39'S</sup> 173° 46.60'W first radio beacon was deployed, Captain set its line towards north as vessel heading pointed as we still at the east Tonga and Lau waters, wind direction south east as wind is on our starboard quarter. Sea - slight 7-10 kts.						
1005hrs	Last radio beacon deployed <sup>21° 32.53'S</sup> 173° 54.90'W, Vessel headed towards wind direction and drift to the last radio beacon as it soaking time.						
HAULING OPERATION.							
1420hrs	first radio beacon retrieve at position <sup>21° 33.69'S</sup> 173° 56.76'W and the wind direction south east as the wind is at our Port bow, wind speed 10-15 kts, it was windy as the hauling started. Sea slight.						
GEN-3 Pollution AND SSI INTERACT.							
1757hrs	PW-0: one of the crew dump some branchline overboard as he finished repairing the branchline. about 50 meters usually they collect it for being Baited fish.						
2017hrs	SL-6: An oceanic white tips (OCS) was caught by hook #6 (1H1) it was 40, crew as always hurried and cut the branchline at the joint as the 'OCS' was free with inmeter branchline still attach.						
0130hrs	One silky shark (FAL) also was caught by hook #19 (1H1) it was 40 their condition codes, crew cut free at join of branchline as the "Fal" swam away with inmeter still attached.						
HAULING OPERATION FINISHED.							
0245hrs	RETRIEVE our last radio beacon at the position <sup>22° 17.04'S</sup> 173° 38.70'W The wind direction was north west as it at our astern. wind speed - 10-15 kts, sea slight						
CATCH RESULT TARGET & BYCATCH							
YFT-22 ALB-13-TARGET				BYCATCH - SSP-10 ALB-2-BIM-1 SWD-1 LEC-1			
Mdufui				SKJ-1			

## Connecting the journal to the GEN-3 form

Any infringements that happen during the day should be recorded in the journal first. At the end of the trip, sum up all infringements on the GEN-3 form. See page 105 where the incidents that were captured in this journal example are recorded on the GEN-3 form.

# Form LL-1: General information

## Data submitted

### LL-1 forms

Observers must fill in one LL-1 form per trip. Every workbook will have two LL-1 forms inside. Fill in the first form. The second form is only a backup. If second or third workbooks are filled in, there is no need to fill in another LL-1 form.

Observers can start filling in the LL-1 form shortly after boarding the vessel. This is a good way to start building a relationship with a new captain and crew before the fishing starts. If observers cannot get the information for some of the data fields at the beginning, they may find they can get the answers later on.

*Fill in all data fields:* Fill in all data fields on the LL-1 form or insert a dash if necessary. If a dash is inserted in a data field that should normally be filled in, give the reason in the comments area or in the trip report (e.g. 'information was not available', or 'communication problems').

## Trip details

OBSERVER PROGRAMME:		SPC/FFA REGIONAL LONGLINE OBSERVER GENERAL INFORMATION				FORM LL-1 (pg1)			
TRIP DETAILS									
OBSERVER	NAME		TRIP START (SHIP DATE AND TIME)			TRIP START LOCATION			
			YY	MM	DD	hh	mm		
OBSERVER	NATIONALITY		TRIP ID No.		TRIP END (SHIP DATE AND TIME)			TRIP END LOCATION	
					YY	MM	DD	hh	mm
VESSEL NAME			VESSEL DEPARTURE (SHIP DATE)			VESSEL DEPARTURE PORT		CREW NATIONALITY	
			YY MM DD					CAPTAIN FISHING MASTER	

A complete fishing trip is defined as follows: *from one full or partial unloading to the next full or partial unloading*. If the longline vessel comes into port but does not unload fish, the observer should, in normal circumstances, remain with the vessel until the trip is complete and the vessel makes the next port call to unload its fish. If an observer trip does not cover a complete fishing trip, give the reasons in the 'General vessel information' section of the trip report.

## Observer programme

Record the observer programme, or the provider that placed the observer on the longline vessel. Use the country code and add OB. Fiji is FJOB, Samoa is WSOB, Tonga is TOOB, Solomon Islands is SBOB, FSM is FMOB, FFA is TTOB, PNA (FSM Arrangement) is FAOB.

## Observer name

Observers must write their full name as it appears in their passport. The full name should be written on all forms.

## Observer trip ID number

Write in the complete observer trip identification number as issued by the placement observer programme, or as determined by the number of trips made by the observer during the calendar year.

### Trip start (ship date and time)

Use the ship's time to record the date and time that the trip begins. If the longline vessel is boarded in port, record the date and time the vessel first threw off its ropes or started its engines to return to the fishing ground. If the longline vessel is boarded by means of another transit vessel, then the departure date and time is the time that the observer first boards (joins) the longline vessel.

### Trip end (ship date and time)

Use the ship's time to record the time and date the trip ends. If the observer returns to port onboard the catcher\* vessel, then record the return date and time as the time the catcher vessel comes alongside the wharf or drops its anchor. If the observer returns to port onboard a transit vessel, then the return date and time will be the time that the observer leaves the catcher vessel.

*\*The catcher vessel is the observer's assigned vessel on which they will monitor fish catching. If the observer travels to and from the catcher vessel onboard another vessel, this vessel is called the transit vessel. The transit vessel may or may not be involved in fishing while the observer is onboard.*

### Vessel departure (ship date)

It is a WCPFC requirement for the observer to record the date of the vessel's departure from its last port where an observer boards the vessel at sea.

### Vessel departure port

It is also a WCPFC requirement for the observer to record the vessel's departure port where an observer boards the vessel at sea. **Record the last port the vessel departed from.**

### Trip start location

Write in the name of the departure port in full. If observers board the longline vessel, not in port but by means of another transit vessel, then the departure port will be 'At sea'. Record the latitude and longitude of the vessel position during boarding.

### Trip end location

Record the name of the port where you disembarked from the vessel at the end of the trip. If you disembarked at sea onto a transit vessel to return to port, then record 'At sea' and the latitude and longitude.

### Return port

Write in the name of the return port in full. If the observer disembarks from the catcher vessel at sea and returns to port onboard another transit vessel, then the return port will be 'At sea'.

**Caution:** Remember to fill in the return date and time at the end of the trip. Many observers pack their forms away before filling in this data field.

## Vessel

VESSEL OWNER		COUNTRY REGISTRATION NO.		UVI		OTHER : How many ?
						CREW: :
VESSEL CAPTAIN		ID document	No.	FLAG	IRCS	OTHER : How many ?
						CREW: :
FISHING MASTER		ID document	No.	FISH HOLD CAPACITY: mT		OTHER : How many ?
						CREW: :
FISHING PERMIT or LICENSE Nos.			LENGTH OVERALL Metres	GT circle one	OTHER : How many ?	
			(Circle one unit) Feet	GRT mT	CREW: :	

Much of the vessel information can be found by looking at the country registration certificate or the vessel's licence, both of which may be displayed in the wheelhouse. Observers can also ask the captain for this information. If they are not able to get some of the vessel details, they may be able to get them at their Fisheries Department at the end of the trip.

## Vessel name

Fill in the full name of the vessel as written on the country registration certificate or on the vessel licence. Do not abbreviate the name. Include all numbers associated with the name.

## Country registration number

Fill in the *country registration number* as written on the country registration certificate or on the vessel's licence. The country registration number is issued by the country where the vessel is registered.

## Vessel owner

Fill in the name of the owner of the vessel as written on the country registration certificate or vessel licence.

## Flag

Fill in the nationality of the vessel as recorded on the country registration certificate or vessel licence. The flag (country) of the vessel is always the same as the country issuing the country registration certificate. Do not be confused by the nationality of the captain or crew onboard the vessel. Their nationality may not be the same as the flag of the vessel.

## IRCS (international radio call sign)

The IRCS is a unique radio frequency for amateur and sometimes military use. Call signs are issued by the national telecommunications agency. The IRCS sign should be displayed on the vessel's licence and clearly on the sides of the vessel (port and starboard). The IRCS must be 1 metre high and either in black letters on a white background, or white letters on a dark background.

If the vessel does not have an IRCS number, the flag State must create and issue a 'WCPFC identification number' or WIN number. This number is used as the vessel identifier. In most cases, the IRCS number and WIN number are the same.

## Vessel captain

On larger longline vessels, there may be a vessel captain and a fishing master. The vessel captain will have a formal qualification and will be responsible for the navigation and safety of the vessel when there is no fishing activity. On smaller longline vessels, the vessel captain is also the fishing master. If this is the case, observers can insert a dash in the 'Vessel captain' data field and just fill in the name of the fishing master.

## Fishing master

As noted above, there may be a vessel captain and a fishing master on larger longline vessels. The fishing master may not have a formal qualification but will usually be in control of the vessel during fishing operations. On smaller longline vessels, the vessel captain is also the fishing master. Again, in this case, observers can insert a dash in the 'Vessel captain' data field and fill in the name of the fishing master.

## Fishing permit or licence number(s)

The fishing permit/licence number that the vessel is operating under during the time the observer is onboard should always be recorded. It may be displayed in the wheelhouse or observers may have to ask the captain to provide these documents/licence number(s). However, all other current fishing permits/licenses issued to the vessel should also be recorded by the observer. The vessel will have more than one fishing permit or licence number if it has paid to fish in more than one EEZ or in more than one fishery.

## UVI (unique vessel identifier)

Since 1 January 2016, the WCPFC has required all vessels over 100 gross tonnage to have a UVI. The number may appear on certificates before 2016. Generally, the UVI is the International Maritime Organization number or the Lloyd's Register (LR) number, or a specific WCPFC number. If there is no UVI, just make a dash in the data field.

## Fish hold capacity

Record the fish hold capacity in metric tonnes (t). This information can usually be found in deck plans and engineer's logs.

Record the total space for all holds that can carry fish, regardless of whether they are used to carry fish on this trip.

## Length overall

Length overall (LOA) is the maximum length of a vessel's hull measured parallel to the waterline. LOA is measured from the tip of the bow in a straight line to the stern of the vessel, including any rear deck extensions (platforms). The place to find the vessel's LOA and gross tonnage is on its license/permit papers.

## GT / GRT (gross tonnage/gross register tonnage)

Record GT for older vessels. If there is no GT, then record GRT. This can be found on the licence papers.

*Gross tonnage* is calculated based on 'the moulded volume of all enclosed spaces of the ship' and is used to determine things such as a ship's manning regulations, safety rules, registration fees, and port dues.

*Gross register tonnage* uses the total permanently enclosed capacity of the vessel as the basis for volume. Typically, the GRT is used for dockage fees, canal transit fees, and similar purposes where it is appropriate to charge based on the size of the entire vessel.

## *Crew nationality*

Note the name of the country that the crew or captain comes from. If there is any confusion about their nationality, write down the country marked on their passports. The country codes in the code sheet inside the workbook can be used in these data fields.

## Captain

Fill in the nationality of the captain (vessel captain). On smaller vessels, there will be no designated captain onboard. Simply put a dash in this data field (see the paragraph on the vessel captain above).

## Fishing master

Fill in the nationality of the fishing master. On smaller longline vessels, the captain is also the fishing master (see the paragraph on the fishing master above).

CREW NATIONALITY	
CAPTAIN	FISHING MASTER
FJ	FJ
OTHER CREW: FJ	: How many ? : 6 :
OTHER CREW: -----	: How many ? : ----- :
OTHER CREW: -----	: How many ? : ----- :
OTHER CREW: -----	: How many ? : ----- :

## Other crew: Number and nationality

Fill in all the nationalities represented by the crew. Then, mark down the number of crew members of each nationality.

**Caution:** The LL-1 form is not set up to record any crew members that join or leave the vessel during the trip as this is very unusual. If it does happen, record the crew information that will best represent the number of crew that were onboard during the trip. For instance, if extra crew members only stay with the vessel for a few days, you may decide not to record them under these data fields. Or a crew member may leave the vessel after having been counted earlier. Explain any temporary differences in the crew numbers that were recorded on the form in the 'Crew nationality' section of the trip report and journal.

## Electronics

Please circle 'Y' or 'N' for every item.

Indicate if each piece of electronic equipment listed is onboard by first circling either 'Y' (yes) or 'N' (no).

Remember 'N' must also be circled if no new piece of electronic equipment is seen onboard (see the '\*and\* New' paragraph below).

## Usage codes

- ALL – always used in fishing
- TRA – used only in transit
- OIF – used often in fishing
- SIF – used sometimes in fishing
- RAR – rarely used
- BRO – broken now, but used normally
- NOL – never used
- OTH – other, please specify

Usage codes have been introduced to better show how vessels use their equipment. Knowing what equipment is onboard is useful, but it is also important to know if the equipment is being used and at what times it is used. Use the codes above to describe how each piece of electronic equipment is used during the trip. For instance, there may be some pieces of equipment (e.g. certain radars) that are only used during transiting and are deliberately switched off during fishing. These can be recorded with the TRA code (used only in transit). Watch carefully during the trip to get a good idea of how each piece of equipment is used, especially when fishing. It is important to know that the codes ALL, OIF and SIF only refer to the use of the equipment when the boat is fishing.

When choosing between two codes, **choose the best or most informative code**. Sometimes two usage codes may seem possible for one piece of electronic equipment. If this happens, record the usage code that best describes how that equipment was used during the trip and record the other code in the comments section (page 2) whenever possible. Otherwise, make a note about it in the written report.

Unlike other information that is collected on the LL-1 form, it may be best if the observer waits before filling in the usage codes. Spend some time finding out how each piece of equipment is used. Observers are advised to spend some time checking how the electronics are used. This can be done during any rest days they take.

If there is insufficient information on how each piece of equipment is used, put a dash in the data field and state the reason the information was not available in the page comments and trip report.

**The following section will help observers identify the electronic equipment requested on the LL-1 form.**

Most of the vessel's electronic equipment will be found in the wheelhouse or in a room off the wheelhouse. This section also outlines how the equipment is used.

## 1. Electronic equipment for which make and model numbers are NOT required

ELECTRONICS													
		USAGE								USAGE			
	GPS	<div><div>Y</div><div>N</div></div>	ALL							DEPTH SOUNDER	<div><div>Y</div><div>N</div></div>	OIF	
	TRACK PLOTTER	<div><div>Y</div><div>N</div></div>	OIF							SST GAUGE	<div><div>Y</div><div>N</div></div>	----	
			USAGE			MAKE		MODEL		COMMENTS			

## Depth sounder



The depth sounder searches for and displays objects below the vessel. It may show the presence of fish and can be used to help navigate, especially when travelling in shallow waters or entering the harbour area.

## SST gauge



The SST (sea-surface temperature) gauge displays the temperature on the surface of the water/ocean. Sometimes, observers will not be able to see the SST gauge itself, but the sea-surface temperature will be displayed on the track plotter or on another piece of electronic equipment. In these cases, the 'Y' (yes) for SST gauge should still be circled.

## 2. Electronic equipment for which make and model numbers ARE required

ADVANCES IN TECHNOLOGY		USAGE	MAKE	MODEL		COMMENTS		
		Y / N						
	SONAR	Y / N						
	RADIO BEACON DIRECTION FINDER	Y / N						
	GPS BUOYS	Y / N					How many ?	
	DOPPLER CURRENT METER	Y / N						
	XBT (BATHY THERMOGRAPH)	Y / N						
VMS SYSTEMS	VMS-1	Y / N						
	VMS-2	Y / N						
COMMUNICATION SERVICES	PHONES	SATELLITE:	Y / N	Phone #		MOBILE/CELL PHONE	Y / N	Phone #
	OTHER	FACSIMILE:	Y / N	Fax #				
INFORMATION SERVICES	WEATHER	WEATHER FAX	Y / N	SATELLITE WEATHER MONITOR	Y / N	EMAIL:	Y / N	Email address:
	WEBSITES	Phytoplankton	Y / N	SST	Y / N	Sea Height	Y / N	
		WWW:		WWW:		WWW:		

Fishers adopt technology to improve catches. Observers are asked to record the technology onboard and how it is used.

Observers are the first fisheries staff to see these developments and report the associated use and catches directly. Scientists use observer data to look at the 'fishing power' of vessels through time. This fishing power is often linked to new gear and electronic technology. Observers identify developments that impact on fishing power and the patterns of uptake of these developments among fleets.

## Make / model

If 'Y' (yes) is circled to indicate the electronic equipment is onboard, the make and model number should always be provided. Usually the make and model number are clearly marked on the front of the equipment. Occasionally, they are on the back, or marked in Chinese characters.

### Make

The make is often a single word stating the name of the manufacturer (e.g. Koden, Furuno, Sailor, etc.) or a series of letters that are an abbreviation of a name (e.g. JRC – Japan Radio Company).

## Model

The model is often a series of numbers and letters. Record all of these numbers and letters.

## Comments

Record brief comments, or any extra information that has been discovered about the electronics that might be useful. This may include notes on any malfunctions during the trip, comments from the captain about the item (good, unsatisfactory, due for replacement, etc.). Comments can continue on to other lines, but it should be clear which piece of equipment the comments refer to. Use brackets and arrows if necessary. Comments should always be used to explain why any of the make and model information was not filled in, and to direct the reader to the journal page where any comments are continued.

## Advances in technology

Record new types of equipment or major upgrades to the current electronics or any types of advances in fishing electronics technology. Do not use these vacant lines to fill in other standard pieces of electronic equipment that are normally found onboard, such as radios, etc.

### Sonar



The sonar displays solid objects in the water column below or to the side of the vessel. Sonars are more commonly seen on purse-seine vessels but may also be seen on larger longliners.

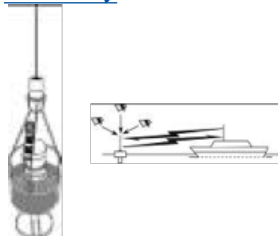
### Radio beacon direction finder



The radio beacon direction finder (RDF) is used to locate radio buoys (beacons) that are attached to the mainline. They enable the vessel to relocate its mainline.

The radio beacon direction finder indicates to the user the direction the vessel should travel towards to locate the source of the signal (radio buoy). The 2019 4th PIRFO Trainers Workshop agreed to use the term 'radio buoy', though they are often also referred to as a radio beacon.

### GPS buoy



A GPS buoy works in the same way as a radio buoy except that, with the help of satellites, the GPS buoy transmits its exact position (latitude and longitude) to the vessel. Some may also transmit the surrounding sea-surface temperatures. Check in the wheelhouse for the unit that shows the GPS buoy latitude and longitude reading – this will help identify GPS buoys.

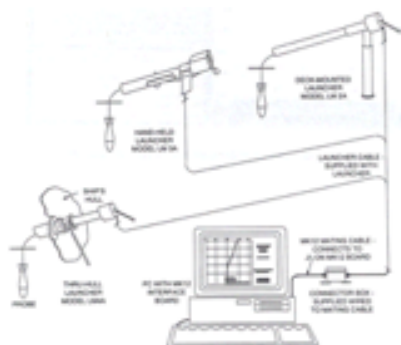
### Doppler current meter



The Doppler current meter displays the direction and strength of the current at various depths. The current strength is displayed in knots, and the current direction is displayed in degrees.

## XBT (Bathythermograph)

Expendable bathythermographs collect information on the temperature of the water column. Continuous temperature readings are taken by the descending falling probe, thus showing the temperature structure of the ocean. The information is used to find thermoclines, ocean fronts or current eddies that will indicate the presence of fish/tuna. Vessels may have automated or manually operated XBTs. If an XBT is used by the vessel, a probe will be deployed regularly.



## VMS-1 and VMS-2



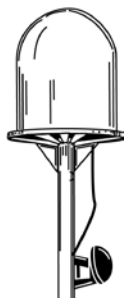
The VMS (vessel monitoring system) is the system that tracks the vessel's position using satellite technology. The system relays the position to a monitoring station on shore. Observers should be able to identify the unit box (Mobile Transmitting Unit – MTU) in the wheelhouse. This transmits the signal to the satellite. The box may make a beeping sound at constant intervals, but this can be turned off. Record the VMS system, usage code, make and model using the table below. The VMS system may be Inmarsat C or Iridium under FFA-approved types.

Refer to the FFA-approved MTUs below to decide whether it is an Inmarsat C or Iridium system. For example, the Faria Watchdog is an Iridium system. The Japan Radio Company (JRC) is an Inmarsat C system.

Type	Model Name/Make	Model N°
E-MTU	Faria Watchdog (Iridium)	750VMS
MTU	Thrane & Thrane Sailor 6140 (with 6194 TCU)	TT-6140 Mini-C
MTU	Thrane & Thrane Sailor 6150	TT-6150 Mini-C
MTU	Japan Radio Company Limited Inmarsat-C Transceiver	JUE-95VM
MTU	Furuno Inmarsat-C MES Transceiver (includes the Nera Mini-C model)	Felcom 16
MTU	Furuno Felcom 19	Felcom 19
MTU	Faria Watchdog (Iridium)	750VMS
MTU	CLS Thorium	TST-100+FFA
MTU	CLS LEO	LEO+FFA
MTU	Satlink ELB2014	ELB2014
MTU	Satlink ELB2020	ELB2020
MTU	CLS TRITON ADV	TRITON ADV
E-MTU	CLS TRITON ADV	TRITON ADV
MTU	SKYWAVE IDP	IDP 690
MTU	SKYWAVE ST-6100	ST-6100

\*Updated on 17 June 2019

## Communication services



The vessel may have access to a variety of communication services, such as telephone, mobile/cell phone and email, via satellite technology.

Ask the captain for the contact details for the vessel and record them in the data fields.

For phone and fax, remember to record all access numbers – that is, the numbers that go before the vessel's actual number. The access numbers show which ocean the vessel is in.

## Phones

The vessel may have a phone onboard for business or official calls. (This does not refer to any phones of crew, etc.) This phone is likely to be in the possession of the captain or navigator and be used for communicating with their company, etc. Remember to include the full access numbers.

### ***Satellite / Phone #***

Fill in the number of any satellite phones the vessel may have.

### ***Mobile / Cell phone #***

Fill in the number of any mobile phone that the captain or vessel may have. If there are several different mobile phone numbers (for different locations/ports, for instance), record additional numbers in the trip report.

## Other

If the vessel has other ways of communicating, record the details here. Remember to include the full access numbers if required.

### ***Facsimile / Fax #***

Fax number: If the vessel can receive faxes, fill in the fax number(s) used to receive faxes. Remember to include the access numbers.

### ***Email***

Email: If the vessel can receive emails, fill in the email addresses. This will help your observer programme contact the vessel in the future.

## Information services

### ***Weather***

Circle 'Y' or 'N' to show if the vessel has the following two pieces of equipment to receive up-to-date weather information.

### ***Weather fax***



Weather reports and fishing maps are received by fax using the Inmarsat C telecommunication service. Reports may be received daily or on demand.

### ***Satellite weather monitor***

A weather satellite monitor displays the weather and climate of a specific fishing area.

## **Websites**



Fishery information services provide vessels with up-to-date data on various oceanographic features via the internet. A vessel will need to have an onboard computer and internet connection to access these services. However, sometimes the vessel's headquarters may download the information and fax a copy to the vessel.

### ***Phytoplankton:***

Circle 'Y' (yes) and state the website URL address (e.g. [www.catsat.com](http://www.catsat.com)) if the vessel is receiving any maps of phytoplankton/algae concentrations.

### ***SST:***

Circle 'Y' (yes) and record the URL if the vessel is receiving any maps of sea-surface temperatures.

### ***Sea height:***

Circle 'Y' (yes) and state the website address if the vessel is receiving any maps on differences in sea heights in the ocean.

**Caution:** Remember to circle 'N' (no) for all the data fields on this line if there are no fishery information services available.

## **Fishing gear**

**The following helps observers identify each piece of fishing gear requested on the LL-1 form and outlines how the gear is used.**

Most fishing gear will be found on the deck of the vessel.

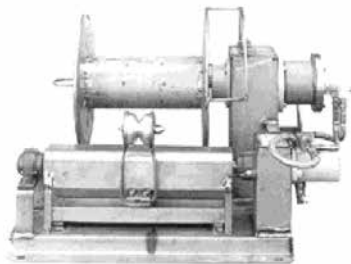
FISHING GEAR		USAGE
MAINLINE HAULER	Y / N	ALL
BRANCHLINE HAULER	Y / (N)	----
LINE SHOOTER	Y / N	ALL
AUTOMATIC BAIT THROWER	Y / (N)	----
AUTOMATIC BRANCHLINE ATTACHER	Y / (N)	----
WEIGHING SCALES	Y / (N)	----
OFFAL DISPOSAL MACHINE	Y / N	OIF
ADVANCES in TECHNOLOGY	----	Y / (N)

## Mainline hauler

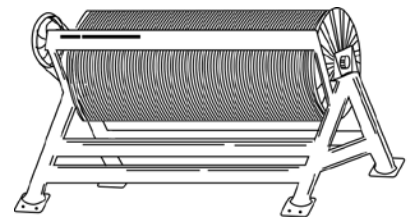
The mainline is threaded through the mainline hauler, which then pulls the mainline back from the water after the soak period. It is usually located on the front starboard side of the vessel. The mainline is threaded through the mainline hauler during hauling. There are different types of mainline haulers.



Traditional rope gear hauler



Japanese magu reel system



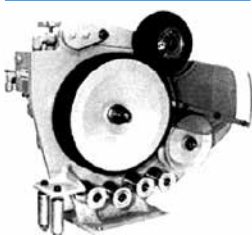
Monofilament reel system

## Branchline hauler



Branchline haulers coil the branchlines quickly. They are usually located on the front starboard side, near the gate where the fish are landed. Not all longline vessels have branchline haulers. They are more commonly seen on larger Japanese vessels. Branchlines are more commonly coiled and retrieved by hand.

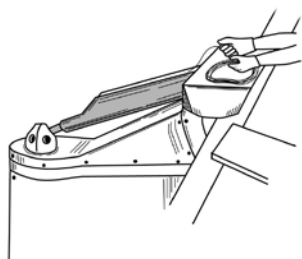
## Line shooter / setter



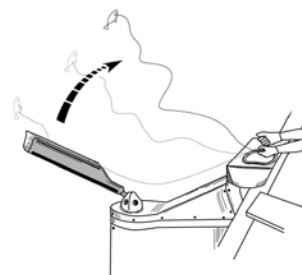
The line shooter/setter is a piece of fishing equipment that sends out (shoots out or deploys) the mainline from the stern of the vessel. Smaller vessels may not have line shooters. The line shooter deploys the mainline at a speed set by the captain or fishing master. By adjusting this speed, the captain can control the depth the mainline will fish in.



### Automatic bait thrower



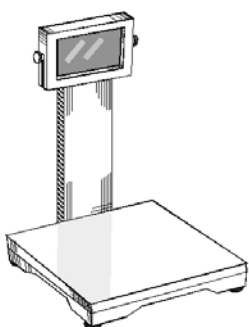
Some large, modern longline vessels use automatic bait throwers. They are generally only seen on larger Japanese vessels. Bait throwers are usually located at the stern of the vessel. They ensure that the bait is thrown well clear of the vessel's wash, so they sink more quickly and without tangling. This is especially important if there is a problem with seabirds.



### Automatic branchline attacher

The automatic branchline attacher machine attaches the snap (or shark clip) of the branchline to the mainline during setting. This helps to reduce the number of crew required for setting. These machines are often located at the stern of the vessel. (They are not commonly seen in the region, except on some large Japanese vessels.)

### Weighing scales



A balance weighing scale may be seen on some of the larger longline vessels. Circle 'Y' (yes) if there is one onboard. A hand scale may also be in use. Note the type of weighing scales used in section 10.0 (Vessel's own data collection) of the trip report.

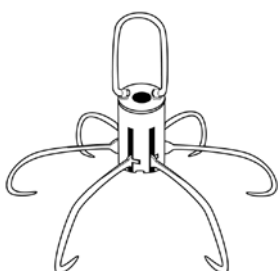
### Offal disposal machine

Offal is fish waste (discarded guts, gills, etc.). Circle 'Y' or 'N' if a machine is used to grind the fish waste, and record the usage code.

### Advances in technology

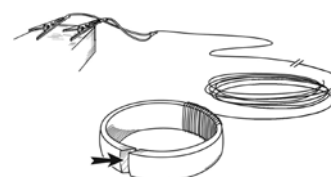
Record any fishing gear that you think you have not seen before and that might be used to improve fishing and vessel catch.

### Supplementary hauling gear



The following items are not requested on the LL-1 form but may be seen on some vessels. If seen, they can be reported on in the trip report in the 'Hauling fish onboard' section. Tuna missiles help haul up large tunas. A small hydraulic winch may also be used to land larger fish.

Electrocution rings may be used, especially in a shark fishery. An electric charge is sent down the line to stun the fish before landing it.



## Terminal gear

Refer to your Longline terminal gear identification guide.

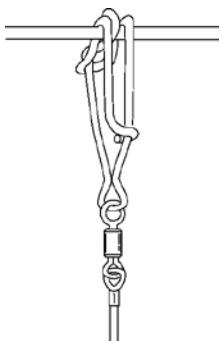
MAINLINE:	MATERIAL	DIAMETER	LENGTH
		mm	nM
BRANCHLINE MATERIALS:	1)	mm	WIRE TRACE ?
	2)	mm	YES / NO
	3)	mm	

### Mainline:

#### Material

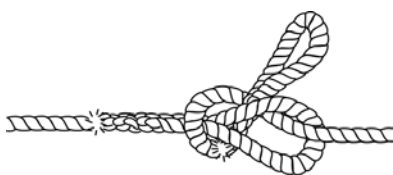
Record the type of material the mainline is made of. Refer to **Horizontal longline fishing – methods and techniques** or **Longline terminal gear identification guide** for further information. The standard materials used in mainlines currently are:

*Monofilament*: Single strand, clear, transparent, synthetic material.



*Braided monofilament*: Generally 8 or 12 strands of clear monofilament braided into a single line.

*Tarred rope*: Rope-like, natural material covered with a tar solution.



#### Mainline: length (nm)

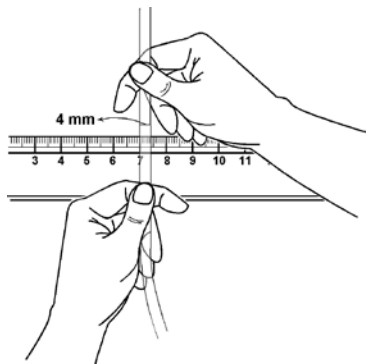
Ask the captain what is the maximum length of the mainline. The captain can judge the length of the mainline by using the track plotter. Record the length of the mainline in nautical miles (nm).

The value should always be recorded as a whole number (see Rounding off to the nearest value page 18).

### ***Mainline and branchline: diameter***

The observer should measure the diameter of the branchline and mainline. Place the line against the callipers or a ruler to read off the width of the branchline and mainline.

The value can be recorded up to one decimal place.



### **Branchline materials**

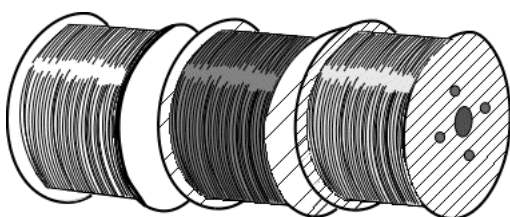
Note down what line materials are used to make the branchline. It is not necessary to record any of the other pieces of material that make up the branchline (such as crimps, snaps, etc.). Just record the key line materials.



The most common branchline materials are:

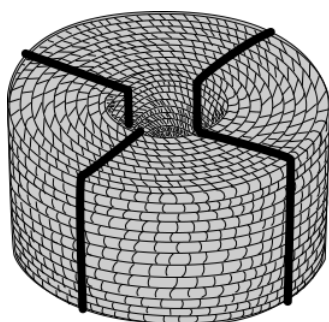
#### ***Monofilament line:***

Transparent, clear, synthetic material



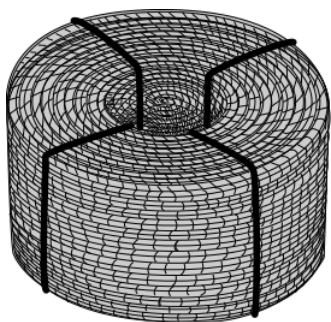
#### ***Tarred rope:***

Rope-like, natural material



*Tarred red polyester line:*

Highly coloured, synthetic material



*Sekiyama wire:*

Central core is wire, bound with cotton or synthetic fibre, usually tarred



It is helpful if observers make a drawing of the branchline in the journal or trip report.

*Wire trace*

*Wire traces* are short pieces of wire, often added to the end of the branchline to strengthen the line and prevent marine species biting through it. Indicate if any of the branchlines have wire traces added by circling either 'Y' (yes) or 'N' (no). If wire traces are added to some, but not all, of the branchlines, give an outline of the pattern in the 'Branchlines' section of the trip report.

*Hooks – type and size*

BRANCHLINE WEIGHTS?	<input checked="" type="radio"/> YES / NO		WEIGHT 45 (g)		DISTANCE of WEIGHT to HOOK 100 (cm)	
HOOKS		JAPAN		CIRCLE		"J"
OFFSET, RINGS, and/or SWIVELS		size	%	size	%	size %
(O, R, S)		---	---	14	100	---
record each used		---	---	O R	---	---

Use the Longline terminal gear identification guide to select the hook types and sizes. The guide also provides information on the hook offset, ring and swivel. Record this information on the LL-1 form.

Here are the three hook types found on commercial tuna longliners:

### Japan tuna hook

The standard Japanese tuna hook has a straight shank with a point aiming toward the eye. They often have closed rings at the eye, though not always.



### Circle hook

Circle hooks form a closed curve, hence their name. They are shaped with a mostly curved shank and a strong bend so that the point is at right angles to, and facing, the shank. These are designed to hook in the corner of the jaw and so cause less injury to SSL species. Some shallow-set longliners targeting swordfish are required to use large offset circle hooks (for example, in Hawaii).



### J-hook

The J-hook has a straight shank and the point is close to parallel with the shank, with a wide gape. The J-hook has advantages when fishing for swordfish as it grabs a larger portion of the fish's flesh. (The lower jaw of the swordfish is fragile and likely to fall away if the standard Japanese tuna hook is used.) However, J-hooks are frowned on by environmentalists as they also grab a larger portion of a turtle's flesh, reducing its chances of survival.



### Size

The way in which the size of hooks is calculated differs between manufacturers in different countries. Use the Longline terminal gear identification guide to determine the correct hook size by placing the actual hook on the correct hook type and matching the size.

### Percentage (%)

If more than one hook type is used, calculate the total percentage of each type of hook compared to the total number of hooks used during the trip.

## Safety equipment

SAFETY EQUIPMENT									
LIFE JACKET			PROVIDED FOR OBSERVER:		<input checked="" type="radio"/> Y / N / O		Number of LIFE BUOYS / LIFE RINGS		
			SUITABLE SIZE:		<input checked="" type="radio"/> Y / N				
AVAILABILITY (circle one)			<input checked="" type="radio"/> Easy		Moderate		Hard		6
EPIRBs		Total	Total with Exp Bat.	LIFE RAFTS		1	2	3	4
406	3	1	Number of PEOPLE		No. 6	No. 6	No. ____	No. ____	
other	—	—	INSPECTION DATE (D or L - yy/mm)		YYMM (L or D) L-20/12	YYMM (L or D) L-20/12	YYMM (L or D) —	YYMM (L or D) —	

Observers should check the safety equipment as soon as they board the boat. During the observer placement meeting, the safety gear onboard can be checked. It is important for the observer's own security to know where all the safety equipment is located.

The first priority is to ask where the observer's life jacket is located. Keep an eye out for all safety equipment throughout the voyage, but especially during the first day. More safety equipment may be seen later on when observers get to know their way around the vessel and develop better relationships with the officers and crew. Collect as much of the safety equipment information as possible without intruding. For example, do not search for life jackets in personal storage areas – ask first!

## Life jacket

### *Provided to observer*

- Circle 'Y' (yes) if provided with a life jacket by the vessel.
- Circle 'N' (no) if not provided with a life jacket by the vessel.
- Circle 'O' (for own) if the observer has their own life jacket or was supplied with one by their fisheries department.



### *Suitable size*

- Circle 'Y' (yes) if the life jacket provided to the observer (by the vessel/fisheries) is a suitable size.
- Circle 'N' (no) if the life jacket provided to the observer (by the vessel/fisheries department) is not a suitable size.

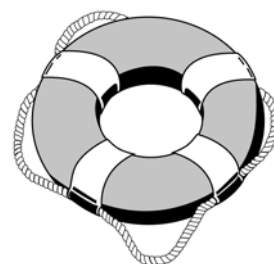
If the life jacket is damaged, mention this in the journal and trip report.

### *Availability*

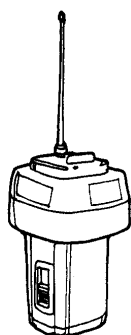
Select one of the following choices, Easy / Moderate / Hard, to indicate how accessible the life jacket is. To answer this question, observers might like to think about how they would get the life jacket if they were in their bunk or working on the deck when there was an emergency.

### *Number of lifebuoys / life rings*

Walk around the deck and outside passageways and count the total number of lifebuoys/life rings. If some of the lifebuoys are damaged, count them but note the type of damage in the trip report.



## EPIRB



An EPIRB is an 'Emergency Position Indicating Radio Beacon'. They work by sending signals to satellites, over-flying aircraft or emergency radio stations, depending on the type of EPIRB used. Current models of EPIRBs emit the exact GPS location so rescue teams can fly straight to the EPIRB. EPIRBs are often found inside the wheelhouse door. Smaller handheld or personal EPIRBs may also be kept in the living quarters.

The 406 MHz frequency signal has been designated internationally for distress use only. It is the only legal frequency for EPIRBs to use. Any 406 MHz signal emitted from a triggered EPIRB will be picked up by satellites. The signal can help to locate the EPIRB within a 100-metre range and also identifies the vessel/user.

### Total

Record the total number of EPIRBs found on the vessel. Remember to ask about any handheld or personal EPIRBs that the captain or other officers may have.

### Total with exp. bat. (expired battery)

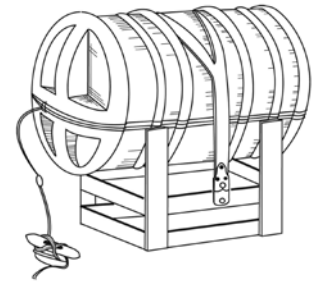
Record the number of EPIRBs that have a battery renewal or inspection appointment that is out of date and expired.

**Caution:** EPIRBs may also be located inside life rafts. Do not open up life rafts to check for EPIRBs and do not count EPIRBs if they cannot be seen.

Here we are asking how many of the vessel's EPIRBs are easily accessible and current. Observers should indicate in their journal and on SUP-1 if they were (or were not) issued with a two-way communication device and personal locator beacon (PLB) by their agency.

### Life rafts

Life rafts are kept outdoors where they can be easily thrown into the sea in case of an emergency. Observers are asked to record the information about carrying capacity and service expiry dates printed on an attached label or sticker. Check this information and record it on the forms.



In the top data field, record the number of people the life raft can carry. In the bottom data field record the inspection due date or the last date of inspection. To indicate the inspection due date, mark the letter 'D' before the date. To indicate the last date of inspection, mark the letter 'L' before the date.

If the carrying capacity or service dates are not displayed, then mark 'ND' for not displayed in the data fields. 'ND' should only be recorded if the observer has had the opportunity to fully inspect the life rafts and has not been able to find the information. If the observer is not able to check the life raft (stored too high up, etc.), then they should place a dash in the field and make a comment in the comments section and/or their journal and trip report to explain why they could not get this information.

### Refrigeration method

REFRIGERATION METHOD		USAGE CODES	ALL - used all the time in fishing TRA - used only in transit OIF - used often in fishing SIF - used sometimes in fishing RAR - rarely used BRO - broken now but used normally NOL - no longer ever used OTH - other please specify
BLAST FREEZE	<input checked="" type="radio"/> Y / <input type="radio"/> N		
ICE	<input type="radio"/> Y / <input checked="" type="radio"/> N		
BRINE WELL	<input type="radio"/> Y / <input checked="" type="radio"/> N		
BRINE SPRAY	<input type="radio"/> Y / <input checked="" type="radio"/> N		
CHILLED SEA WATER	<input checked="" type="radio"/> Y / <input type="radio"/> N		
REFRIGERATED SEA WATER - RSW	<input checked="" type="radio"/> Y / <input type="radio"/> N	WASTE DISPOSAL SYSTEM? <input checked="" type="radio"/> Y / <input type="radio"/> N	
		STRATEGIC OFFAL DISPOSAL? <input checked="" type="radio"/> Y / <input type="radio"/> N	

Indicate the type of refrigeration method used by the vessel to preserve the catch. If more than one refrigeration method is used to store the catch, indicate this by circling 'Y' (yes) for every refrigeration method used.

### ***Blast freezer***

Larger longline vessels that go to sea for long periods often use a blast freezer to fast freeze and drop the inner temperature of fish very quickly before they are stored in a holding freezer. Air blast freezing temperatures are -35°C or lower.

### ***Ice***

Vessels making shorter trips often use flake ice for storage. Ice is often taken onboard the vessel before it leaves port. Some boats are equipped with ice-making machines. The fish hold is sectioned off with boards. Fish are first held in one area until their core temperature is brought down. They are then stacked in ice in another section of the hold.



### ***Brine well***

This type of refrigeration method is mainly used in purse-seine fishing. The brine solution is a mix of sea water with lots of salt, which is chilled by refrigeration.

### ***Brine spray***

Salted (sodium chloride) brine spray is used on some fishing vessels to freeze fish. The brine temperature is generally -21°C.

### ***Refrigerated sea water***

Some vessels store fish in a tank of refrigerated sea water (RSW). The water temperature is maintained at around -1°C. The seawater is pumped through the refrigeration unit and the temperature is checked frequently. The fish are dropped into the tank slowly to avoid damage and normally come to rest at the bottom of the tank.

### ***Chilled sea water***

Target species are often first preserved under chilled sea water (CSW), also called slurry, for several hours before they are finally removed and preserved under ice. This helps to lower the core temperature of the fish quickly. CSW is a mixture of ice and sea water in a 3:1 ratio. Ice is continuously added to the slurry as the ice tends to melt when more fish are added.

## **Waste disposal system?**

Indicate if there is a waste disposal system. A waste disposal system is either a machine or a procedure to properly process garbage/oil/plastics (refer to GEN-6). Examples of equipment include incinerators, crushers, shredders, compacters, balers, meal plants, barrel to contain oil, etc.

## **Strategic offal disposal?**

Does the vessel have a procedure to discard fish offal (guts, bait, bits of fish) during the setting/hauling cycle to avoid seabird capture. These procedures could include **no disposal of fish offal during setting or hauling, or disposal of offal from the opposite side of the vessel to the line during hauling or setting** to actively encourage seabirds to move away from baited hooks.

## *Observations / Comments: Other gear or unusual use of gear, LL-1 (page 2)*

Write about anything special observed about this vessel and its equipment or crew compared to other vessels observed.

Comment if equipment is not working, not used, or used in an unusual way. Describe fishing gear that is different from equipment observed on other longliners, and record the make, model, special characteristics and usage of this new gear.

If there is a lot to write about, then write in the observer journal and in the appropriate place in the trip report. Write brief notes here but include the journal page numbers so that others can easily find the information in the journal and trip report.

## How many fishing operations do I have to observe?

The time taken for a vessel to complete each fishing operation mainly depends on the number of hooks set. However, technology can speed up the setting process, and other factors like weather can slow it down.

Some vessels set a comparatively small number of hooks and observers should have no problems monitoring each fishing operation. However, some of the larger longliners will set a lot of hooks and have two teams working in rotation, making it difficult for one observer to monitor all parts of every fishing operation.

A fishing operation includes setting the longline gear, soaking, hauling and retrieving the longline gear and catch.

**All observers are encouraged to aim for 100% coverage of all fishing operations.**

The data monitoring requirements during the setting and hauling are as follows:

- During the set
  - record the start and end of setting
  - establish the set specifications, hook type, bait and use of mitigation methods, and determine if these are consistent throughout the set
  - as a minimum, monitor at least three baskets at the start, the middle and the end of the set.
- During the soak time, there is a chance to get some rest, but be aware of activity on the deck.
- During the haul, the observer is required to be monitoring on deck. This is to ensure the catch is completely monitored and recorded, as well as hourly time/positions. If observers need to leave the deck during hauling, they must indicate the time they left and the time they returned on the LL-2/3 and LL-4 forms. This is important to calculate what proportion of the haul they were able to monitor.

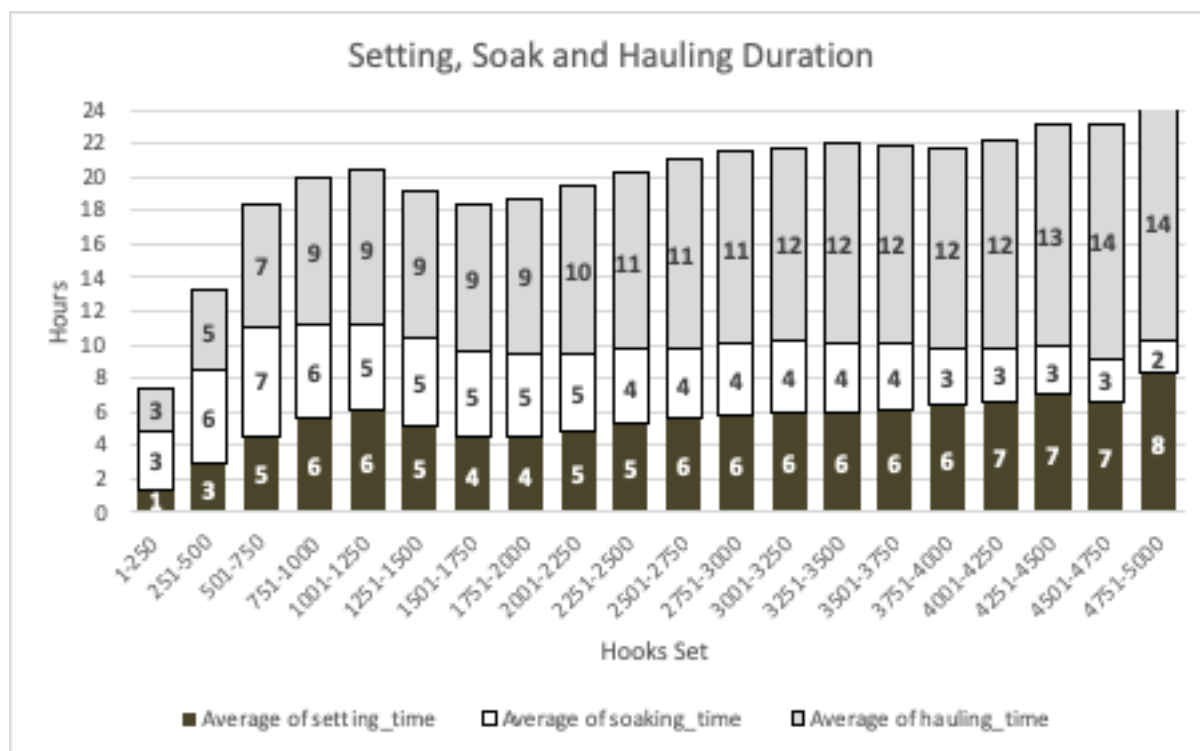
When there are particularly large fishing operations that have lots of hooks and last a long time, observers may not be able to get sufficient rest and may risk becoming overtired or fatigued.

**Observers must be aware of their own health and avoid fatigue, which can lead to errors and endanger their health and safety.**

If becoming overtired, the observer may choose to not monitor the haul and have a rest day.

However, this must be made clear on the LL-2/3 in comments. Observers should still collect the start and end of the set, and the start and end of the haul. They should still complete the header section of the LL-2/3 and then strike across the page and write 'Haul not monitored' on the page.

**Observers should fully monitor all parts of a fishing operation.** However, when there is a risk of overtiredness, **observers can choose the number of fishing operations they will fully monitor.** This choice should be based on the duration of an operation and average number of hooks being set by the vessel. A rough guideline to how many fishing operations should be monitored by observers on longline vessels is given below (Figure 2).



**Figure 2. Average time taken in hours for the three stages of a longline fishing operation – set, soak and haul – by the number of hooks employed.**

If observers are not able to achieve 100% coverage, they should follow these guidelines for choosing how many fishing operations to monitor:

- For vessels setting less than 1000 hooks with the haul taking up to 8 hours, the observer is expected to monitor every fishing operation.
- For vessels setting between 1000 and 2000 hooks and hauls taking up to 10 hours, the observer is expected to monitor at least three out of every four fishing operations.
- For vessels setting more than 2000 hooks, and hauls taking over 10 hours, the observer is also expected to monitor at least two out of every three fishing operations.
- However, on especially long trips (over one month), observers are advised to keep their own personal well-being in mind and are permitted to take additional rest days if necessary.



### “Can I never take time off during the setting period?”

Observers should be on deck and observe a complete set for the first three fishing operations. They may leave the deck for meals, but must make a comment. After three sets, observers must monitor at least three baskets at the start, and three at the end of sets, and at least three in the middle of the setting periods (see ‘Monitoring the set’, page 54).



### “Can I never take time off during the hauling period?”

It is important that observers make a determined effort to monitor all of the hauling period, although of course they need to leave the deck occasionally to go to the bathroom or eat a meal, etc. However, they should get back out on deck as soon as possible. Observers must fill in a line on the LL-4 form when they leave and another when they return to the deck to indicate time off deck. They are also required to note the number of baskets they have monitored during the hauling operation to allow scientists to calculate the amount of the haul that has been observed (see ‘Monitoring the haul’, page 71).



### “What sort of things should I do on my rest days?”

**Caution:** Even on rest days the LL-2/3 form must be filled in.

Rest days are days with fishing operations that the observer has chosen not to monitor. Observers must directly observe the start and end of the set, and the start and end of the haul, and record the times and positions for every fishing operation made by the vessel. This includes fishing operations that observers have chosen not to monitor.

Example of a properly completed LL-2/3 form for fishing operations not monitored by the observer.

SPC/FFA REGIONAL LONGLINE OBSERVER - SET and HAUL INFORMATION										FORM LL - 2 / 3	
OBSERVER NAME John Smith			VESSEL NAME Pacific Sunrise			OBSERVER TRIP ID NUMBER JHS 20-03		SET No. 5	PAGE 5	OF 28	
LONGLINE SET SPECIFICATIONS										TARGET SPECIES (X' to indicate)	
No. OF HOOKS PER BASKET	-----	LINE SETTING SPEED - m/s (only)	-----	VESSEL SPEED FOR SETTING (kts)		-----		TUNA		ALL MUST BE RECORDED	
TOTAL No. OF BASKETS	-----	BRANCHLINE SET INTERVAL (s)	-----	SHARK LINES on floats (Hook No.99s)		-----		SWORDFISH		OTHER -	
TOTAL No. OF HOOKS	-----	BETWEEN BRANCHLINES (m)	-----	Number::	-----	LENGTH (m):	-----	WERE TDRs DEPLOYED ?		Y / N	
LENGTH OF FLOATLINE (m)	-----	LENGTH OF BRANCHLINES (m)	-----	WERE TDRs DEPLOYED ?		Y / N		Y / N		Y / N	
SHIP'S TIME										START OF SET	
LATITUDE (dd°mm.mmm')										SHIP'S DATE AND TIME	
N S										yy mm dd hh mm	
LONGITUDE (ddd°mm.mmm')										UTC DATE AND TIME	
E W										yy mm dd hh mm	
Were all "Start" and "End" positions observed directly?										Y / N	
If "N" explain in comments										Y / N	
MITIGATION (were any of the following used for this set ?)										BAIT USED (total weight for EACH species)	
TORI LINES - TOTAL NUMBER:										SPECIES	
BIRD CURTAIN										Y / N	
WEIGHTED LINES										Y / N	
UNDERWATER SETTING CHUTE										Y / N	
WAS OFFAL DISCHARGED DURING SETTING OR HAULING?										Y / N	
IF yes, WAS IT DISCHARGED FROM THE OPPOSITE SIDE OF SETTING or HAULING?										Y / N	
COMMENTS - use for comments from both setting and hauling. Use lower portion for personal workings if necessary.										LIGHT STICKS	
"This set not monitored"										TOTAL NO.	
HOOK CHANGES THIS SET?										Y / N	
UNUSUAL SET DETAILS										DESCRIBE CHANGES TO HOOK SIZE / HOOK TYPE this SET below.	
TOTAL BASKETS OBSERVED DURING HAUL (add up the total baskets monitored from the bottom of each Form LL-4 used in this set)										0	
DID YOU OBSERVE ANY EVENTS TO RECORD ON FORM GEN-3 TODAY ?										circle one YES NO	
reported in Journal pg #										pg #	

When not monitoring, observers can use rest days for the following activities:

1. Get some rest.
2. Continue to fill in the relevant GEN forms. Watch out for any sightings of other vessels or aircraft, sightings of or interactions with species of special interest (SSI), and pollution infringements. Record these events on the relevant GEN forms. (Note: There is no need to record landed SSI during rest days. These should only be recorded on the LL-4 form.) Review the GEN-3 form at the end of the day and make sure that any infringements or attempts to infringe have been properly documented in the observer's journal.
3. Take photos (for example, of the vessel, gear and marine species).
4. Work on biological sample requests if necessary, and if possible. Many biological requests will require observers to fill in the LL-2/3 and LL-4 forms, so biological sampling may not always be possible on rest days.
5. Ensure that any previously collected samples are properly labelled and packaged and the forms are correctly filled in. Check to see that samples are correctly stored, have not been moved, and are not in a position that may cause problems for others.
6. Collect conversion factor information on the GEN-4 form, if trained and if requested to do so.
7. Check how the vessel is using its electronics and fishing equipment. In particular, note how the electronics are being used during fishing. Make notes on this so the usage codes on LL-1 can be properly filled in before the end of the trip.
8. Gather extra information about the vessel and its fishing strategy.

9. Fill in the observer journal.
10. Check the completed data forms; make sure every data field is filled in or a dash is inserted.
11. Work on the trip report. Look at the type of questions that are asked and make notes on these topics in the journal. This will make it easier to complete the trip report later.



### **“What about days when the vessel does not make a set?”**

If the vessel does not set the mainline on any day, due to a long transit period, etc., it is not necessary for observers to fill in a LL-2/3 form as there is no fishing operation to record. However, it is a good idea to make a short comment on the next LL-2/3 form that is filled in, explaining why there is no LL-2/3 form(s) for the previous day(s).

On days when the vessel does not set the line, the observer can also carry out many of the items listed above, except for points 4 and 6.

## **Form LL-2/3 Set and haul information**

### ***Data submitted***

At least one LL-2/3 form must be filled in for every single fishing operation made by the vessel. A LL-2/3 form is required even if the observer chooses not to monitor the fishing operation. A second LL-2/3 form may be necessary for a fishing operation if the observer has made numerous haul log time and position records.

### ***Header details***

SPC/FFA REGIONAL LONGLINE OBSERVER - SET and HAUL INFORMATION				FORM LL - 2 / 3	
OBSERVER NAME John Smith		VESSEL NAME Pacific Sunrise		SET No. 1	PAGE 1 OF 20

The header details *must be fully filled in on every completed form* (for information on observer name, vessel name, observer trip ID number, set number and page number, see ‘Header details’ page 12).

### ***Set no.***

Set numbers are recorded in the order that they happen while the observer is onboard the vessel. As observers fill in a LL-2/3 form for all fishing operations (even those they do not monitor), the observer’s set number will normally be the same as the vessel’s set number. (There may be exceptions to this if the vessel starts a new set in the middle of the setting period (see ‘Starting a new set in the middle of the setting period’, page 55).

## Monitoring the set

**The time and position for the start and end of every set must always be observed directly and recorded by observers, even on their rest days.** (The time and position for the start and end of haul positions should also be recorded for every haul made by the vessel.) Observers must make an effort to always record this information and should ask the captain and crew to wake them up at these times.

Observers are required to fully monitor all fishing operations. 'Fully monitoring' the set means being at the stern during setting. Talking to the captain and crew about changes to the setting specification for each set before it starts is a good approach. Once the setting specification is confirmed with the captain, the crew will follow the setting specification. Specifications include the number of hooks between floats; branchline set interval; vessel speed for setting; and line setting speed.

When the setting specifications are the same for each basket during setting, observers only need to confirm this while on deck. The setting specifications can be cross-checked again during the hauling period. However, if the setting specifications for a basket change within the setting period, then observers need to pay close attention and spend more time on deck during the setting period. They should watch for any setting specifications that change during the setting.

***Extended time should be spent on deck to monitor the set if:***

1. the setting specifications change between different baskets;
2. the vessel changes its target species during setting (see 'Change of target species during setting', page 60);
3. the vessel deliberately starts a new set (see 'Starting a new set...', page 55).

If the observer fully monitors the first three sets, they will get a good idea whether the vessel uses any of these tactics (1–3). If tactics 2 and 3 are used by the vessel, then the observer will need to stay out on deck for most of the setting period to record exactly when these changes are being made, and to be ready to start a new LL-2/3 form (see 'Starting a new set...', page 55).

However, the vessel may suddenly start using these tactics after the first three sets. In these cases, observers should be able to see the changes in the setting specifications during the hauling period and should change the way they monitor the following set. The observer will also need to go back to the LL-2/3 form and make a note in the 'Unusual set details' data field, stating that changes in the setting specifications were noticed during the haul, and stating what the changes were.

### Start of set

ALL MUST BE RECORDED	START OF SET				
	SHIP'S DATE AND TIME				
	YY	MM	DD	hh	mm
	20	04	15	06	50
	UTC DATE AND TIME				
	YY	MM	DD	hh	mm
	20	04	14	18	50

At the start of every set, fill in the 'ship's date and time'. Use ship's time (see 'Ship's time', page 14). This is the date and time that the first radio buoy/float is thrown into the water. The mainline will be attached to this radio buoy/float.

Also, the observer needs to convert the ship's time to UTC time. This can usually be done by just looking at the GPS (see 'GPS', page 34) or by doing a simple calculation (see 'UTC time', page 14)

### Starting a new set in the middle of the setting period

The start of the fishing operation is defined as when the first radio buoy/float is thrown into the water.

However, there are two different scenarios that affect where *the start of a new set will happen during setting*. These are:

- 1) if the vessel changes its target species during the set (see 'Change of target species', page 60);
- 2) if the vessel cuts its line during setting (for example, due to the presence of whales) and moves a considerable distance (more than 2–3 nautical miles) away.

**Caution!** If the vessel starts a new set during the setting period, the observer should start a **new LL-2/3 form** with a **new 'Start of set' date and time** to indicate when this new set started. There will then be two LL-2/3 forms (or two groups of LL-2/3 forms) for what would ordinarily seem like one set. **Make sure each LL-2/3 form is correctly matched with the correct LL-4 forms by indicating the correct 'Start of set' date and time, and set number on each form.**

### Longline set specifications

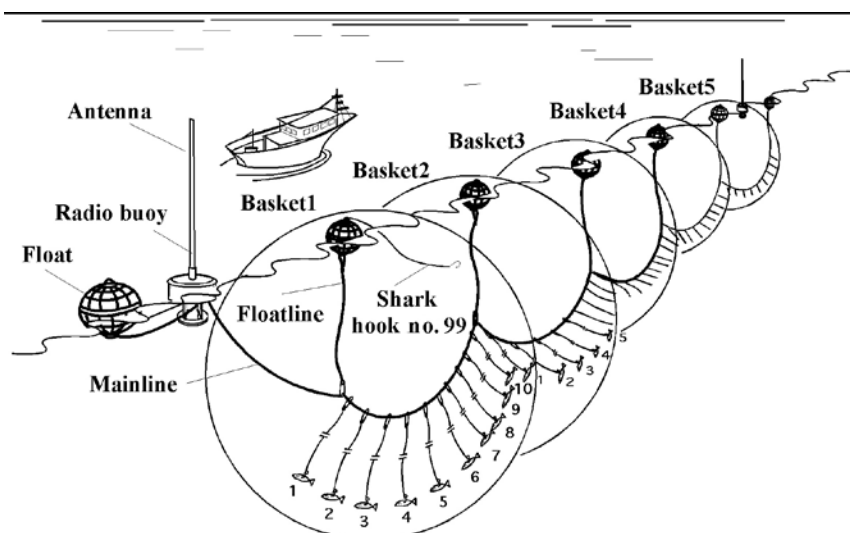
LONGLINE SET SPECIFICATIONS							TARGET SPECIES (‘X’ to indicate)	
No. OF HOOKS PER BASKET	10	LINE SETTING SPEED - m/s (only)	7	VESSEL SPEED FOR SETTING (kts)		7.6		
TOTAL No. OF BASKETS	160	BRANCHLINE SET INTERVAL (s)	6	SHARK LINES on floats (Hook No.99s)			TUNA	X
TOTAL No. OF HOOKS	1600	BETWEEN BRANCHLINES (m)	42	Number.:	0	LENGTH (m):	SWORDFISH	—
LENGTH OF FLOATLINE (m)	15	LENGTH OF BRANCHLINES (m)	20	WERE TDRs DEPLOYED ?		Y / N	OTHER - pls specify	—

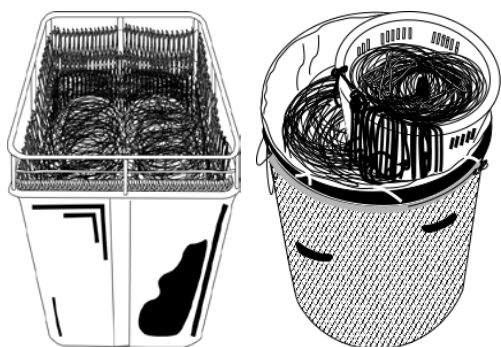
### Hooks / baskets

#### No. of hooks per basket

Count the number of hooks in one basket. To start this count, watch out for when a floatline is attached to the mainline. From this point on, count every branchline that is then attached to the mainline. Stop the count when the next floatline is attached. This number represents the number of hooks in a basket. In most cases, the number of hooks between baskets should remain the same throughout the entire set. Note: the captain may change the number of hooks between baskets further down the setting. Count hooks per basket for the first three baskets, the last three baskets and three baskets around the middle of the set to see if there are any intended changes.

In this example, there are 10 hooks in the basket.





**Caution:** These are not 'baskets', they are bins. Do not count the number of hooks in a bin. The recorded value for the 'Number of hooks in a basket' should always be a whole number. The number can be cross-checked during the hauling period.

If there are any *deliberate changes* made to the standard 'Number of hooks in a basket' value during the set, or between different baskets, record this information in the 'Unusual set details' data field. Be aware that if the crew puts in or leaves out one or two hooks by mistake – due to tiredness, line tangled or lack of attention perhaps – this is not considered a deliberate change, so there is no need to fill in the 'Unusual set details' data field (see page 61).

*An example of unusual set details:* If the number of hooks between baskets is always 30, and the captain deliberately reduces the number to 15 (to get a shallower line), then record 30 in the standard 'No. of hooks per basket' data field and write 'Captain reduced no. of hooks per basket to 15 for the last 10 baskets' in the 'Unusual set details' area.

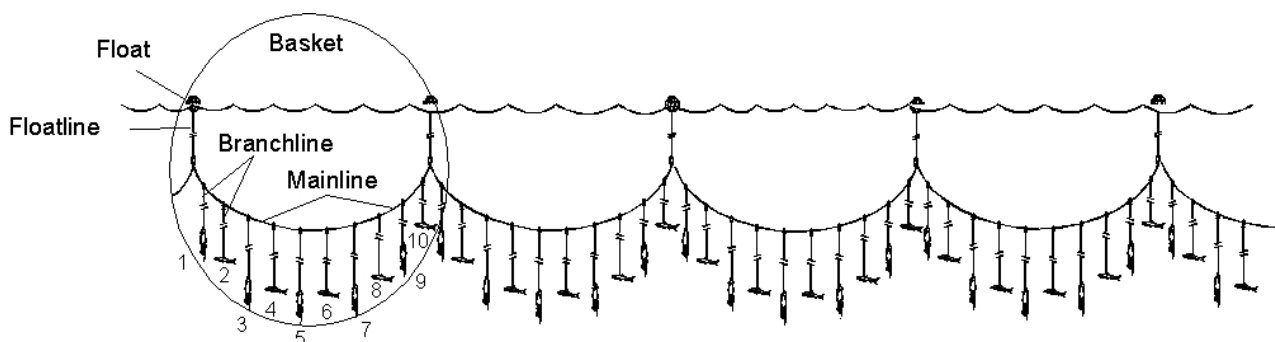
**Caution:** When counting the 'Number of hooks per basket' do not count any branchlines that are attached to the floats. These are shark lines (see 'Shark lines', page 59).

### **Total no. of baskets**

Count the 'Total number of baskets' that have been set by the vessel. This is best done by counting all the floats that are set by the vessel. The total number of floats attached to the mainline minus one equals the total number of baskets. Watch out for radio buoys, which replace floats in some baskets. They also need to be counted. If two floats are tied together to give more floatation, count them as one float.

**Total number of baskets = Total number of floats minus one**

In this example, there are five floats, so the total number of baskets is four.



The recorded value should always be a whole number.

### **Total no. of hooks**

Calculate the 'Total number of hooks' set by the vessel. There is no need to count every hook that is thrown into the water during setting to do this. All that is required is a simple calculation using the values for the 'Number of hooks per basket' and 'Total number of baskets' that have already been recorded.

**Total number of hooks = Number of hooks per basket multiplied by total number of baskets**

The recorded value should always be a whole number.

However, if *deliberate changes* are made to the standard 'Number of hooks per basket' value during the set, then the 'Total number of hooks' value cannot be found with one simple calculation. In this case, several calculations have to be done to get the 'Total number of hooks' value. For instance, if the vessel sets 110 baskets with 25 hooks per basket and then sets 45 baskets with 7 hooks per basket, the total number of hooks set will be  $(110 \times 25) + (45 \times 7) = 3065$ .

### **Line lengths**



#### **Length of floatline (m)**

Measure the length of the floatline in metres using the callipers. Measure more than one floatline to get the average length of the floatlines.

**The recorded value should always be a whole number.** If the calculated value is not a whole number, then round the value off to the nearest whole number (see page 18).

If there are any *deliberate changes* to the standard floatline length value during the set, or between different baskets, record this information in the 'Unusual set details' data field. Be aware that if only one or two floatlines are slightly shorter or longer than the rest, this is not considered a deliberate change.

#### **Length of branchline (m)**

Use the callipers to measure the length of the branchline *in metres*. Measure all branchlines in one basket. Measure the string part of the branchline (polyester, monofilament, wire trace). There is no need to include the snaps/clips or hooks in the measurement. If all these branchlines are within a metre of each other, then calculate the average length from these measurements and record the data in the specified data field.

If the lengths of the branchlines in a single basket vary by more than one metre, then measure the branchlines in another basket to find out if there is a deliberate pattern of different branchline lengths within a basket. It is also helpful to talk to the captain and the crew to find out if there are deliberate differences in branchline lengths within a basket.

If there are no deliberate differences in the standard length of the branchlines within a basket, but some lengths differ by more than one metre, then measure a reasonable number of the branchlines in three baskets. Use all these length measurements to calculate the average branchline length. Indicate in comments and the journal how many lines were measured from how many baskets to get this average.

**The recorded value should always be a whole number.** If the calculated value is not a whole number, round the value off to the nearest whole number (see page 18).

## Setting intervals

### *Line setting speed – m/s (only)*

The line setting speed is only recorded when there is a line shooter onboard the boat with a visible line setting speed gauge. Record the line setting speed displayed on the gauge. If there is no line shooter onboard, or no visible line setting speed gauge, remember to put a dash in the data field.



Look at the line setting speed gauge to see which units of speed are being used. For vessels that use knots – halve the speed in knots to get the speed in metres per second. Most line shooters will display the line setting speed in metres per second (m/s). Vessels using monofilament reels to haul the mainline often display the line shooting speed in knots.

**The recorded value can have up to one decimal place.** If the value has more than one decimal place, round the value off to the nearest one decimal place (see page 19).

If there are any *deliberate changes* made to the standard line setting speed value between baskets, record this information in the 'Unusual set details' data field.

### *Branchline set interval(s)*

Record the branchline set interval in units of seconds. This is best done when there is a line shooter onboard. The audio beeper will make a sound to indicate when the crew should attach the branchlines to the mainline. A different sound will be made to indicate when the floatline should be attached. This helps the crew maintain a constant distance between branchlines. The branchline set interval in seconds will often be shown on the line shooter instrument.

**If there is no line shooter onboard, put a dash in the data field.**

### *Between branchlines (m)*

Record the distance between the branchlines *in metres*. This is best done when there is a line shooter onboard.

When a line shooter is used, the distance between branchlines can be calculated as follows:

**Distance between branchlines = Line setting speed (m/s) multiplied by branchline set interval(s).**

### *Vessel speed for setting (kts)*

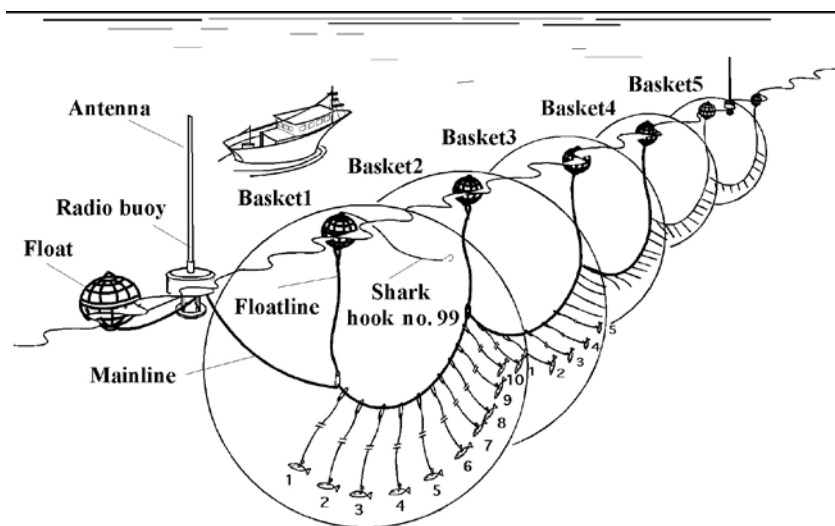
Use the GPS to record the average vessel setting speed *in knots*. It is best to watch the GPS for several seconds at a time and check it a number of times during setting. If the speed varies, record the average vessel speed. Use the comments area of the LL-2/3 form to note down the vessel's speed during setting. This will ensure that observers are aware of the average vessel setting speed and will notice if it changes a lot.

The recorded value can include up to one decimal place. If the value calculated has more than one decimal place, then round the value off to the nearest one decimal place (see page 19).

Watch out for any *deliberate changes* made to the standard vessel speed value within the set and record these in the 'Unusual setting speed' data field. Vessels may deliberately reduce or increase their vessel speed at some point within the set to change the depth of the mainline (see page 61).

## Shark lines on floats (hook No. 99s)

### Number



The total number of shark lines (on floats) is the total number of fishing lines that are attached directly to floats. They may be similar to ordinary branchlines, which are attached directly to the mainline. Shark lines often have larger hooks and are baited differently. These lines target species that swim close to the ocean surface, such as sharks, mahi mahi and wahoo. Physically count the total number of shark lines that are attached directly to the floats during setting. If the shark lines are attached to every float, then the number of shark lines will be equal to the number of baskets plus one.

Additionally, when shark lines come up during hauling, they are given a special hook number when recorded on the LL-4 forms – hook number 99. This identifies them from ordinary branchlines.

The recorded value should always be a whole number.

As the total number of shark lines is requested, there will not be any unusual set details for 'No. of shark lines'.

Note: If there are no shark lines, a zero (0) can be written in the data field.

### Length (m)

The *length of the shark lines in metres* should be physically measured using callipers. Measure several shark lines and then record the average length.

The recorded value should always be a whole number. If the value calculated is not a whole number, round the value to the nearest whole number (see page 18).

If there are any *deliberate changes* to the shark line length value within the set, record this information in the 'Unusual set details' data field (see page 61).

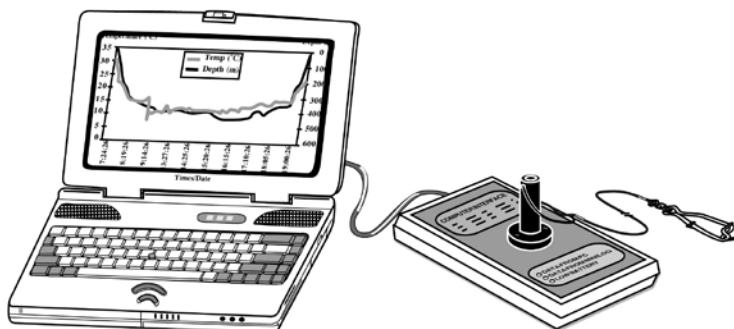
## TDR

### Were TDRs deployed?

Temperature depth recorders (TDRs) are attached to the end of branchlines to record accurate temperature and depth information for the same depth of water that the rest of the hooks are fishing in. TDRs are expensive and only some observers will be given one. If required, training will be given beforehand.

Circle 'Y' (yes) if a TDR has been used by the observer during the set.

Circle 'N' (no) if no TDR has been used by the observer during the set.



## Target species

TARGET SPECIES (‘X’ to indicate)	
TUNA	X
SWORDFISH	___
OTHER - pls specify	___

Indicate what the vessel’s main target species was by placing an X in the target species data field. The vessel’s target species indicates the species the vessel is attempting to catch. It should not be used to indicate the type of species that were finally landed. Just because a certain species is landed does not mean it is a target catch. For instance, it is quite possible that a vessel that is targeting tuna will also catch swordfish and sharks as bycatch. In this case, only tuna should have an X as the target species. Ask the captain what species is being targeted and confirm the response by looking at the gear. The target species is also written on the fishing license.

In some *rare cases*, more than one species may be targeted during one set. Generally, this will mean that both sharks and tuna will be targeted during the same set – sharks with shark lines and tuna with branchlines. Targeting more than one species may be illegal as many vessels only have a licence to target one species, normally tuna.

If more than one target species is marked ‘X’, comment on this in the comments section. Expand on these comments in the trip report and journal. The observer should consider whether targeting more than one species was a compliance infringement and report it (see ‘Dealing with infringement issues’, page 103).

### Change of target species during setting

Some observers have seen vessels completely switch their target species from tuna to shark during the setting period. The first sign noticed may be a change in the gear; for example, using fewer hooks in a basket (to give a shallower line), using chunks of bycatch as bait instead of the smaller standard sardine and mackerel, or using larger hook sizes.

If there is a very clear change in target species during the setting period, this must be recorded as the start of a brand new set.

## Describe changes to hook size / Hook type changes this set

If the hooks are deliberately changed before the set to a bigger size of hook or a different type of hook, record ‘Y’ (yes). Add some notes on the change to the data field below, ‘Unusual set details’. The information recorded in the ‘Longline set specifications’ fields represents the most common or average data during setting. If the setting specifications are deliberately or intentionally changed at some point during the setting, then note these changes in the ‘Unusual set details’ area.

## Unusual set details

The 'Unusual set details' data field should be used to note down any *deliberate or intentional changes* that are made to the standard setting specifications values during the setting operation. These changes could be made within a basket, between one basket and another, or made part way through the set. If such deliberate changes are observed, record the most common or standard value in the 'Setting specification' data field and give a short explanation of the other values in the 'Unusual set details' data field. If more space is required, use the comments area of the LL-2/3 form. Write a full explanation of the unusual set details in the trip report.

1. Generally, deliberate changes will be made to improve the vessel's chances of catching its target species and these changes should be recorded in the 'Unusual set details' data field.
2. On a few vessels, deliberate changes will be made to switch to a new target species. If this happens, the observer needs to start a brand new LL-2/3 form to record a new set (see 'Starting a new set', page 55).

Here are some examples of 'Unusual set details':

**Q:** What should the observer record if the vessel sets 5 hooks per basket for the first 60 baskets, and then deliberately changes this to 9 hooks per basket for the last 40 baskets? Should they record 5 hooks per basket, 9 hooks per basket, or perhaps the average value of 7 hooks per basket?

**A:** Here the observer should record the number 5 (the standard value) in the 'No. of hooks per basket' data field and the number 60 in the 'Total number of baskets' data field and write a comment like *'5 hooks per basket for the first 60 baskets, then 9 hooks per basket for the last 40 baskets'* in the 'Unusual set details' data field. The short note in the 'Unusual set details' data field should summarise what happened, but this note can be expanded on in the comments area or in the trip report.

### Other examples of 'Unusual set details':

#### *Two different floatline lengths*

**Q:** The vessel uses a 5 metre floatline on every second float; all other floatlines are 10 metres long.

How is this recorded?

**A:** The standard value 5 is recorded in the 'Length of floatline' data field and a comment like **'Every second floatline is 10m'** is written in the 'Unusual set details' data field.

Note: This is a special case as there are two standard values; that is, half the floatlines are 5m long, and half of them are 10m long. In these cases, the observer can choose which value to record in the 'Setting specification' data field and which value to record in the 'Unusual set details' data field.

#### *Increased vessel speed*

**Q:** The captain considerably increased the vessel speed for setting towards the end of setting. Mostly, the average speed was 5.5 knots, but near the end of setting, the vessel speed increased to an average of 7 knots. How is this recorded?

**A:** The standard value 5.5 knots is recorded in the 'Vessel speed for setting (kts)' data field and a comment like *'The vessel speed increased to 7 kts for the last 10 baskets'* is written in the 'Unusual set details' data field.

### *Different branchline lengths*

**Q:** An observer found very different branchline lengths in the basket being measured. For example, the first five branchlines were 30 m, the next five were 20 m, the next five were 15 m, followed by another five at 20 m and five at 30 m ( 5 x 30 m, 5 x 20 m, 5 x 15 m, 5 x 20 m, 5 x 30 m). How is this recorded?

**A:** It is not obvious what the standard value is here. In total, there are 10 branchlines measuring 30 m, 10 measuring 20 m, and 5 measuring 15 m. Therefore, either 30 m or 20 m could be recorded as the standard value. For example:

1) 30 m is recorded in the branchline length data field, and a comment is made, such as '**Branchline lengths were not consistent. There were 5 of 30 m, 5 of 20 m, then 5 of 15 m, then 5 of 20 m and then 5 of 30 m**' is written in the 'Unusual set details' data field;

2) 20 m is recorded in the branchline length data field and a comment like '**Branchline lengths changed from 5 of 30 m, then 5 of 20 m, then 5 of 15 m, then 5 of 20 m and then 5 of 30 m**' is written in the 'Unusual set details' data field.

Note: As both these comments are long, they could be continued on to the LL-2/3 form 'Comments' if further space is required.

Only use the 'Unusual set details' data field for recording *deliberate changes within the set*. This data field should *not be used to record changes between different sets*. For instance, if the vessel adds an extra radio buoy during the second set, which was not used during the first set, this information should not be considered as 'Unusual set details' information. Or if the vessel targets tuna for one set but then changes to sharks for the next set, this should not be considered as 'Unusual set details' information. If there are any changes to the setting specifications or target species between different sets, record these changes in the journal and summarise the information in the trip report.

## **Bait used**

### ***Species***

Record the 3-letter FAO species code. Refer to the manual and guides for FAO species codes.

### ***Kg***

Write down the total weight of each bait species used during the set. Normally, baits are stored in boxes and the weight of each box is marked on the side. To calculate the total weight of each bait species used, simply count the number of boxes of each bait type used and multiply this number by the weight in kilograms (kg) of the boxes.

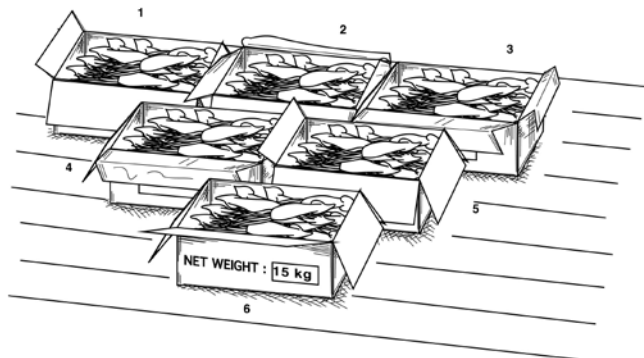
Example 1: If 15 boxes of mackerel scad (MSD) are used, and each box weighs 10 kg, then the total weight of the bait used is 15 multiplied by 10 kg, which equals 150 kg. Record MSD under the 'species' data field and 150 under the 'KG' data field.

**Caution:** Calculate the answer. The required answer is 150 kg. Do not write '15 x 10 kg' in the data field

**Caution:** Only record the amount of bait that was used. The crew might take out 20 boxes of bait, but then return 5 to the freezer. The total weight is then 15 boxes multiplied by 10 boxes, not 20 boxes.

The recorded value will always be a whole number.

A second bait species, squid (OMZ), may be used on certain hooks with Example 1 above. For example, if 6 boxes weighing 20 kg each are also used,  $6 \times 20 = 120$  kg. See below how 2 bait species are recorded.



### Hook no.

Record the *hook number* on which each bait species is hooked. This will show if the branchlines are baited in any special order. Some vessels may put certain bait on specific hooks. They do this to better target some species of fish. For instance, a vessel targeting bigeye might put more expensive bait, such as squid, on the deepest hooks as bigeye are more likely to be caught in deeper water.

BAIT USED (total weight for EACH species)					
SPECIES	OMZ	MSD	----	----	LIGHT STICKS
(KG)	120	150	----	----	
HOOK NOS	2,4,6,8,10	1,3,5,7,9	----	----	----
BAIT DYED BLUE	Y / N	Y / N	Y / N	Y / N	TOTAL NO.
					0

To record the hook numbers or baiting pattern, pay close attention to how each hook is baited. Begin investigating this when the float is set. The first hook to be baited will be hook number 1; the second hook will be number 2, and so on. Stop the count when the next float comes in.

Make a note of which species is baited on to each of the branchlines and try to establish if a baiting pattern is being used. Use the comments section on the LL-2/3 form to take notes on the baiting sequence. If there was any baiting pattern, describe it in the trip report. Explain the reasons for using the baiting pattern (ask the captain) and note if the baiting pattern was used for every set. If it was used for only a few of the sets, mention which sets. Did they start using a baiting pattern but did not continue it for the whole set?

Observers do not have to worry about the final direction of the haul when they record their hook numbers. It is true that the hook numbers may be different during hauling and that the hook number count during hauling depends on whether the vessel picks up the last hook set at the start of the haul, or if they choose to pick up the first hook set at the start of the haul. However, computers will establish the direction of the haul from the observer's vessel position data. Observers should always record hook numbers in the same way. That is, the first hook (hook number 1) is always the first hook that comes after the buoy. It does not matter if the buoys are being set or hauled when the observer starts their hook count.

### Example baiting patterns

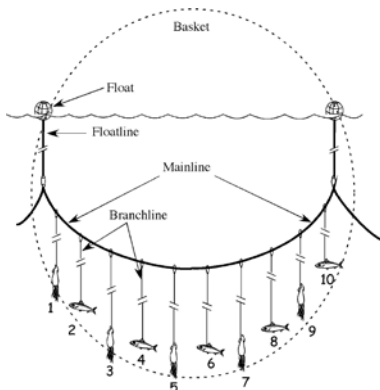
If one species of bait is used, note down 'All' in the 'HOOK NOS' data field.

BAIT USED (total weight for EACH species)					
SPECIES	SAP		----	----	LIGHT STICKS
(KG)	120		----	----	
HOOK NOS	ALL		----	----	----
BAIT DYED BLUE	Y / N	Y / N	Y / N	Y / N	TOTAL NO. 0

If more than one bait species is used, and there is no particular order, note down 'Random' in the 'HOOK NOS' data field. In the example below, sanma and squid were used.

BAIT USED (total weight for EACH species)					
SPECIES	SAP	OMZ	----	----	LIGHT STICKS
(KG)	120	150	----	----	
HOOK NOS	Random	Random	----	----	----
BAIT DYED BLUE	Y / N	Y / N	Y / N	Y / N	TOTAL NO. 0

If there are 10 hooks in a basket, and the bait species alternate between squid and mackerel scad on every second hook, then the pattern can be written as:



BAIT USED (total weight for EACH species)					
SPECIES	OMZ	MSD	----	----	LIGHT STICKS
(KG)	120	150	----	----	
HOOK NOS	2,4,6,8,10	1,3,5,7,9	----	----	----
BAIT DYED BLUE	Y / N	Y / N	Y / N	Y / N	TOTAL NO. 0

Blue dyed bait - if the bait used has been dyed blue, circle 'Y' for yes. Otherwise circle 'N' for no.

### No. of light sticks used



Count the *number of light sticks* used during the set. Light sticks are mainly used by vessels targeting swordfish but may also be used when targeting bigeye. Disposable light sticks emit light for 8 to 12 hours based on a chemical reaction. They can only be used once. If the vessel is using light sticks, count the total number of light sticks used during the set. Generally, they are not placed on every single hook, so calculate the number of light sticks that are placed in one basket and multiply that number by the total number of baskets to get the total number of light sticks. This information may also be available from a crew member.

Battery-operated pressure lights can be used over many sets before the batteries need changing.

## Set log

Observers are required to fill in the set log at the start and end of each set. It is very important that the observer personally monitors the time and position.



**"I didn't wake up in time – can I ask the captain for the start of set position?"**

Try very hard to avoid this problem. Recording the start and end of the set positions is a very important part of the job as these records show where the vessel set its line. If the vessel has set its line in an illegal area, it will be important to have an independent record of the setting position. However, if you do miss the start of set time, the time and position can be taken from the vessel's log. Circle 'N' to indicate that the position was not observed directly. Also comment on why you were unable to observe the set positions.

### Ship's time

Use ship's time to indicate the start and end of set and haul times (see 'Ship's time', page 14).

### Latitude / Longitude

The latitude and longitude positions can be recorded from the vessel's GPS (see page 34). Record the latitude (dd° mm.mmm) and longitude (ddd° mm.mmm) to three decimal minutes. Be sure that the GPS is recording to decimal places of minutes and not seconds. Remember to record N for North, S for South, E for East or W for West.

SET LOG	SHIP'S TIME	LATITUDE ( dd° mm.mmm' )	N S	LONGITUDE ( ddd° mm.mmm' )	E W
	START SET 0650	17 47 890	S	175 32 250	E
	Were all "Start" and "End" positions observed directly? <input checked="" type="radio"/> Y / N <input type="radio"/> N If "N" explain in comments				
	END SET 1205	18 53 150	S	176 35 005	E

## Haul log

Number of haul log records to make:

**Observers must record the time and position at the start and end of the haul.** This should be done during rest days also. For hauls that are fully monitored, a time and position record should be made **approximately every hour**, or the next time that fits in with the observer's activities on deck. Aim to record the time and position as close to the hour as possible. However, if the observer is busy at this time (e.g. measuring fish), the next record should be made as soon as possible after the hour.

In addition, if the mainline breaks during hauling, use a line on the form to record the time, the position, and a comment. Use another line to record the time and position, and a comment when the line is found again. The next haul log record should be made one hour after the line has been found again.

**Caution:** Never leave the 'start' or 'end' of haul time and position record blank.

HAUL LOG	START HAIL				
	1505	18 55 250	S	176 35 005	E
	1600	18 52 876	S	176 35 005	E
	1710	18 48 000	S	176 34 500	E
	1820	18 45 100	S	176 33 545	E
	1905	18 45 002	S	176 32 008	E
	2000	18 40 505	S	176 30 100	E
	2110	18 35 454	S	176 25 250	E
	2200	18 30 400	S	176 23 000	E
	2305	18 20 500	S	176 20 530	E
	0010	18 15 345	S	176 15 357	E
	0100	18 10 589	S	176 10 750	E
	0210	18 05 543	S	176 05 800	E
	0300	17 55 456	S	175 58 750	E
	END HAIL				
	0350	17 50 359	S	175 56 009	E

1. If more than one LL-2/3 form is used, fill in 'Contd' (continued) in the 'End haul time' data field. 'Contd' should also be written in the 'Start haul time' data field on the new LL-2/3 form that is started.
2. If the observer did not directly observe the start and end of the haul time and positions, a comment should be made stating why the time and positions were taken from the vessel's log.

Remember to fill in the end of haul time and position. Some observers leave the deck after the last hook is hauled in, but the work is not finished until the end of haul time and position are filled in and the GEN-3 question is answered.

### *Ship's time*

Use ship's time to indicate the start and end of haul times (see 'Ship's time', page 14).

### *Latitude / Longitude*

The latitude and longitude positions can be recorded from the vessel's GPS (see 'GPS', page 34). Record the latitude (dd° mm.mmm) and longitude (ddd° mm.mmm) to three decimal minutes. Make sure that the GPS is recording to decimal places of minutes and not seconds. Remember to record N for North, S for South, E for East or W for West.



**"I couldn't get access to the GPS during hauling because the captain was sleeping. What can I do?"**

This is a problem that you should try to solve as quickly and diplomatically as possible. Ordinarily, the captain will have been briefed during the observer placement meeting and will know that observers need access to all the electronic equipment at all times. It may be possible to negotiate access to the room even when the captain is sleeping, or get access for the first and last few hours of the haul. However, rightfully the observer should have access to the GPS at all times.

If access to the GPS is denied, make sure a comment is made in the daily journal, using the appropriate infringement header and letter from the GEN-3 form as a paragraph heading. The GEN-3 question at the end of the LL-2/3 form should also be filled in.

## Comments

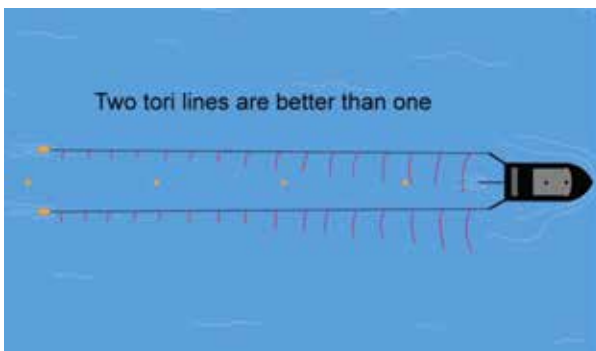
Observers are encouraged to write in the comments sections on all their forms regularly. Important events to comment on for the LL-2/3 form include unusual or significant conditions that affected the setting strategy or caused problems, such as:

- environmental conditions (wind/sea state, moon phase);
- accidents; mainline cuts (when lost and when found); any other long delays or breakdowns;
- why it was not possible to get any or some of the setting or hauling positions;
- if you needed to leave the deck for a significant period;
- if any of the positions were taken from the vessel's log;
- further notes about any 'Unusual set details';
- various vessel speeds during setting (to help in calculating the standard vessel speed);
- the baiting pattern; line setting pattern (make a drawing); and soak time.

If more space is needed, the journal or trip report can be used. Indicate where the comment is continued and the page number where the rest of the comments can be found.

## Mitigation

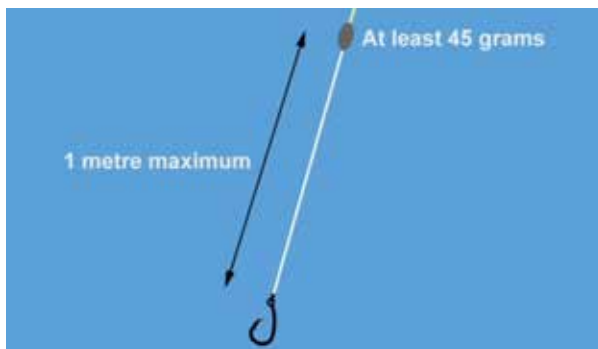
*Tori pole: High vertical pole placed at the stern, which has a trailing line with plastic streamers attached. Record the total number of tori lines (attached to tori poles) used during setting.*



*Bird curtain: Horizontal pole with vertical streamers positioned on side (+ stern side of the setting station).*



*Weighted lines: Approx. 60 to 100 g weight placed on branchline 1–3 metres away from the hook.*



*Setting chute: Equipment that ensures the line is set below the waterline.*



***Was offal discharged during setting or hauling?***

Indicate if any fish waste (including bait) was thrown overboard at any time during setting or hauling. If fish offal was disposed of during setting or hauling circle 'Y' (yes).

***If YES, was it discharged from the opposite side of setting or hauling?***

Indicate if the offal was discharged during setting or hauling on the opposite side of the boat to bring birds away from the branchlines and baits.

Fill in the data fields below – total number of tori lines and Y or N for the rest of the data fields.

MITIGATION (were any of the following used for this set ?)	
TORI LINES - TOTAL NUMBER :	0
BIRD CURTAIN	Y / (N)
WEIGHTED LINES	Y / (N)
UNDERWATER SETTING CHUTE	Y / (N)
WAS OFFAL DISCHARGED DURING SETTING OR HAULING?	(Y) / N
IF yes, WAS IT DISCHARGED FROM THE OPPOSITE SIDE of SETTING or HAULING?	(Y) / N

## Hook changes this set? Y / N

If 'Y' (yes), then describe the changes to hook size and hook type for this in the data field below.

If the hooks are deliberately changed before the set to a bigger size of hook, or a different type of hook, record 'Y'. Add some notes on the change to the data field below.

'Unusual set details': The information recorded in the 'Longline set specifications' fields represents the most common or average data during setting. If the setting specifications are deliberately or intentionally changed at some point during the setting, then note these changes in the 'Unusual set details' area.

## Cross-referencing with other forms

### TOTAL BASKETS OBSERVED DURING HAUL

TOTAL BASKETS OBSERVED DURING HAUL (add up the total baskets monitored from the bottom of each Form LL-4 used in this set)	143	This data field is filled in at the end of the hauling period, after the page totals on the LL-4 forms have been added up.
---	-----	--

Page total from the LL-4 form

Add up all the page totals from all of the LL-4 forms used during the haul to get the value for 'Total baskets observed during haul'.

Baskets monitored while filling this page:

Total:

## Did you observe any events to record on Form GEN-3 today?

DID YOU OBSERVE ANY EVENTS TO RECORD ON FORM GEN-3 TODAY ?	<input checked="" type="radio"/> YES <input type="radio"/> NO <small>circle one</small>
	reported in diary pg # 5

### Review the GEN-3 form at the end of every day

If the vessel has carried out, or attempted to carry out, any of the items listed on the GEN-3 form, circle 'YES' for this question on the LL-2/3 form. Record the journal page number where a report on the day's infringements can be found.

Write up a full report of any infringements that took place during the day in your journal. Use a paragraph to report on each activity, and head the paragraph with the incident line on GEN-3, page 2, that most closely describes the action that took place.

It is very important that observers pay attention to and record all details about the infringement in the daily journal, such as the time, position, person/s involved, and details of any conversations about the incident (especially if the observer was involved in the conversation) as this information may be used as evidence in court.

At the end of the trip, observers must indicate all the infringements made by the vessel on the GEN-3 form and summarise all journal comments in their trip report. (See 'Dealing with infringement issues', page 103). If no infringements took place, circle 'No' and put a dash in the page number field.

# Form LL-4 Catch monitoring

## Data submitted

If observers have chosen to fully monitor the fishing operation, then they need enough LL-4 forms to record each hooked species that they directly observe during the hauling operation. Every species observed on a hook requires a separate line on the LL-4 form. This includes all species that are retained, discarded, or finally escape from the line. The number of LL-4 forms used will depend on the number of fish hooked by the vessel and directly observed by the observer.

If the fishing operation is not monitored by the observer, there is no need to fill in a waterproof LL-4 form. There is no need to submit blank waterproof forms with a comment stating that no activity took place or no haul was monitored.

\*Note: Sometimes a vessel makes two sets – one set after the other set (meaning the whole length of the longline is halved to make the two sets). This case is counted as two sets and the observer will require a separate LL-4 form for both hauls (see 'Starting a new set in the middle of a set', page 55).

## Header details

The header details must be fully filled in on every completed form (see observer name, vessel name, observer trip ID number and page number, page 12).

SPC/FFA REGIONAL LONGLINE OBSERVER CATCH MONITORING										FORM LL-4	
REVISED 2018											
OBSERVER NAME John Smith				OBSERVER TRIP ID NUMBER JHS 20-03				SET No. 5		PAGE OF 10	
VESSEL NAME Ocean Star			MEASURING DEVICE 1.5 metre callipers		CALIBRATE + / - 0 mm		SHIP'S START OF SET DATE AND TIME Y Y M M D D h h m m 20 04 15 06 50			START OF HAUL DATE Y Y M M D D 20 04 15	

### Set no.

Record the *set number*. This is the **set number of the vessel for this trip**, not the number of sets you have monitored (if you had a rest day). Make sure the set number is the same as the set number that was recorded on the LL-2/3 form for the same fishing operation.

### Measuring instrument

Record the type of measuring instrument used to measure the marine species during the hauling period. Observers should always aim to use callipers, but measuring boards and deck tapes can also be used if necessary.

A simple description, such as 1.5 m callipers, 1 m deck tape, 1.2 m measuring board, etc., should be recorded in the data field, but a more detailed description can be given in the trip report under the 'General/Your headings' section. Some examples of notes that could be made in the trip report include: 'Standard 1.5 m aluminium callipers, but with fading numbers' or '2 m wooden callipers, but difficult to keep calibrated because of broken and re-glued plastic head'.

Remember, callipers should be calibrated regularly. Use the instructions on how to calibrate callipers at the front of the workbook. (For observers who have regrettably forgotten to bring a measuring instrument, see 'I have forgotten my callipers ...', page 18).

## Ship's start of set date and time

START OF SET				
SHIP'S DATE AND TIME				
YY	M M	DD	h h	m m
20	04	15	06	50

Copy this information directly from the LL-2/3 form for the same fishing operation. This will help to link the information collected on the LL-2/3 form with the information collected on the LL-4 form.

### *Start of haul date*

Fill in the date that hauling started. Use the ship's date. Normally, the ship's start of set date will be the same as the ship's start of haul date. However, if the vessel sets the mainline very late in the evening, the ship's start of set date may be different from the start of haul date.

### Monitoring the haul

It is important that observers are physically on deck for the **entire haul** of every fishing operation they have chosen to monitor. If observers need to leave the deck for more than a few minutes, they should always record the time and a comment on the LL-4 form stating when they left and when they returned to the deck (see the example below). Comments with times are required for all extended periods away from the deck, e.g. leaving to eat a meal, etc. Comments with times are not required if the observer leaves the deck for a brief period to take a position, get a new pencil, etc., although it is better to do these things when fishing is slow. Ordinarily, observers can still watch the deck when they go to the wheelhouse to take a position, and any hooked species or floats will be easily seen as it takes time to process fish.

It is understandable that occasionally observers may feel they need to leave the deck early due to illness, dangerous weather conditions, etc. However, when observers spend less time on deck, they limit the value of the data collected during the rest of the haul. Coordinators are asked to consider the number of complete hauls when evaluating submitted data. If observers find that they often cannot monitor the entire haul, they may need to consider whether being an observer is the right job for them.

**Do not ask the crew** to record the data if away from the deck for extended periods. It is unnecessary and may result in incorrect data if the crew decide they want to play a joke or do not want to cooperate that day. Such data may look like false data and the observer will be responsible.

The most important thing during hauling is that observers carefully record all the species and all the baskets (with the float tally) that they have **observed directly**. This enables scientists to correctly assess the observed 'catch per unit effort' (number of fish caught for every 100 hooks that were observed being hauled onboard).

## Catch details

Sample of LL-4 form filled.

CATCH DETAILS											
SHIP'S TIME	HOOK No.	SPECIES CODE	GEAR INTER-ACTION CODE	CONDITION CODE		LENGTH		FATE CODE	SEX M, F, I, U	COMMENTS / SSI TREATMENT	
				CAUGHT	DISCARD	(cm)	CODE				
1 1530	2	YFT	----	A1	----	125	UF	RGG	M		
2 1535	4	BET	----	A2	----	145	UF	RGG	F		
3 1540	8	TUG	IHE	A1	A1	35	CL	DDH	M	hooked on one of the flippers.	
4 1550	10	DOL	----	A1	----	98	UF	RGG	M		
5 1558	3	WAH	----	D	----	115	UF	RGG	F		
6 1605	9	BUM	----	A1	----	167	LF	RHG	F		
7 1630	3	OCS	IHD	A1	A1	----	NM	DCF	U	estimated 1 meter of B/line still with the OCS	
8 1635	6	TST	----	A2	D	----	NM	DSO	U		
9 1638	3	YFT	----	A1	----	147	UF	RGG	M	Tag # P 23478 refer to filled tag form. BS carried out	
10 1705	10	ALX	----	A3	D	----	NM	DSO	U		
11 1745										Left deck, early dinner.	
12 1800										returned on deck after dinner	
13 1810	2	BET	----	D	----	157	UF	RGG	F	BS carried out otolith, stom, liver n musc. refer to BS form	
14 1830	1	BSH	----	AI	AI	----	NM	DCF	M	2 meters of line still attached to the mouth	
15 1855										looking for the mainline n gear being cut assumed by shark	
16 1930										found the mainline, hauled the broken line with 10 baskets	
17 1935	10	OCS	IHU	AI	AI	----	NM	DCF	M	claspers seen, 3 meters line still attached.	
18 2005	3	BUM	----	A3	----	185	LF	RHG	M		
19 2010	9	GBA	----	D	----	98	UF	DUS	U		
20 2030	3	BTH	----	A1	A2	----	NM	DDL	M	sighted far from vessel. Cut, 4 meters line left with the BTH	
21 2045	10	TUG	IDH	A2	A2	----	NM	DDH	F	dehooked beside the vessel, finally cut free, 2 meters	
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
									Tally area	Baskets monitored while filling this page:	Total:

Note that the lines of the LL-4 form are now numbered (on the left of the 'Ship's time' column). This ensures observers do not miss any lines and makes data entry easier to follow. There are 31 entries in each full LL-4 form.

## Ship's time

It will be easier to record this information if the observer's watch is set to ship's time at the start of the trip (see 'Ship's time', page 14).

Use ship's time to record the time the hooked fish first landed on deck. (For species that are hooked, but are not subsequently landed on deck, record either the time the crew strikes the species off the line, or the time the observer notices the species escaping from the line).

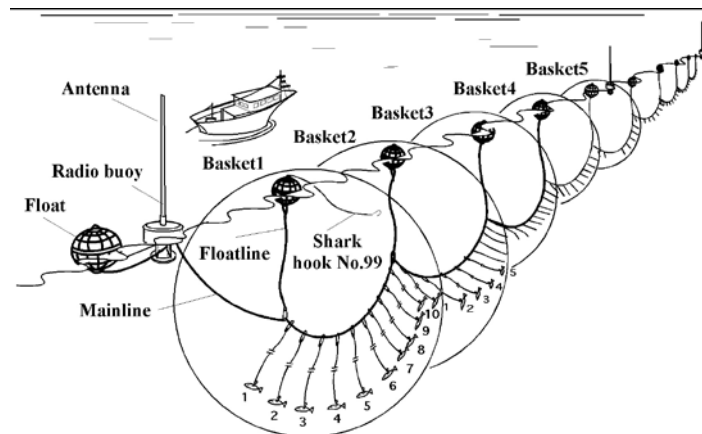
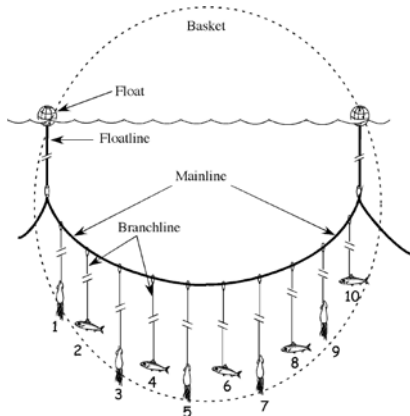
**Important:** Every record on the LL-4 form must have a unique time. If two or more fish are tangled and come up during the same minute, record the first fish with the actual ship's time, but record the second fish as having been caught during the next minute, and add a third minute if a third marine species comes up during the same minute, etc.

**Caution:** Every record on the LL-4 form should have a ship's time. Do not leave any ship's time blank.

## Hook no.

Record the *hook number* that the species was hooked on. Hook numbers are counted within one basket only.

A basket starts when a float comes in, and ends when the next float comes in. The first hook that comes in after a float is hook number one. Count hooks in each basket as they come on deck, restarting at '1' after the next float. Hook numbers indicate hooks that are at the end of the branchlines only. If any species is hooked on a shark line, then the hook number should always be recorded with the special number '99'.



Counting hook numbers can be quite difficult if there are a large number of hooks in a basket, or if there are a large number of species hooked in the same basket. Try to get the hook numbers for as many of the hooked species as possible. It is okay to give a best estimate if necessary. If it is too difficult to get the hook numbers, then just put a dash in the data field.

Hooks can be counted either forwards or backwards depending on the fishing activity and the observer's preference. Sometimes it might be easier to count forward to the next float, while at other times it might be better to count back to the last float that came in.

Two ways to identify the hook number in a basket:

1. Count of hooks since the last float, **or**
2. 'No. of hooks per basket' **minus** the count of hooks until the next float marking the end of the basket.

**Caution:** Do not count the hook number without re-starting the count at the next float. The result will be very large numbers in this data field (i.e. more than 100), which is incorrect.

### ***Species code***

Use the FAO three-letter species codes to record any species that are hooked. These codes are marked in the '*Marine species identification manual for horizontal longline fishermen*', the species identification sheets, and the species lists that were provided during training. If necessary, further copies can be obtained through the observer coordinators, SPC or FFA.

If observers are unsure of the correct species code, they have two options:

**1. Use a species group code.** A species group code describes a group that contains a number of similar species without indicating an actual species. Usually (but not always) this is a scientifically recognised family group. Some species codes are:

ALI – Lancetfish  
BIL – Billfish  
BAR – Barracuda  
MAR – Marlin  
TUN – Tuna  
SKH – Shark  
THR – Thresher sharks  
TTX – Turtles  
BRZ – Pomfrets and ocean breams

**Caution:** Observers are urged to record the actual species code and not the group code whenever possible. Observers using group codes should be questioned by the debriefer and given further help on finding the correct species code. While it is expected that new observers will use group codes from time to time, experienced observers should avoid using group codes. Group codes can be useful when recording damaged species or species that the observer did not have the opportunity to check closely.

**2. Use the three-letter code ('UNS' - Unspecified)** when the correct species or group code is not known. A further description of the species must then be provided.

### How to provide further descriptions for unspecified (UNS) or group codes

- 1) Take some photographs of the specimen.
- 2) Bring the specimen back to shore for further identification. (For sharks it may be helpful to collect some of the teeth. Note whether the teeth came from the upper or lower jaws and from the front or back of the jaw.)
- 3) Draw the species and write a full description in the written report. When drawing or describing unidentified species, pay special attention to:
  - overall body shape
  - colour or stand-out marking of the fish
  - location of fins and where they are attached to the body
  - position of fins in relation to other fins
  - features of fin – round or triangle shape (especially sharks)
  - size of fins, and number of fin spines and rays
  - height of dorsal fins (especially for marlin)
  - presence (or absence) of lateral line and its shape
  - scales or skin of fish (smooth, hard, sharp, etc.)
  - any other distinctive and stand-out feature of the fish
  - finlets – colour and number
  - caudal fin/tail feature, fork and notch
  - number of caudal keels (marlins)

**Caution:** Do not write local names for species in the data field. If the FAO species code is not known, record the code 'UNS' (unspecified) in the data field and record the local name in the comment section. Work with the debriefer at the end of the trip to try to determine the correct species code. Correct the species codes on all the LL-4 forms before they are submitted.

**Caution:** If observers see more than one unknown species, they can use their own numbering system to separate out the different species (i.e. UNS #1, UNS #2, UNS #3). Use the comment area to make some notes that will help with re-coding these species later, e.g. 'large orange fish', 'long fish, big teeth'. Note: Further descriptions for all UNS codes must be supplied (see box above). Short comments on the LL-4 form are not sufficient.

**Caution:** Every record on the LL-4 form must have a species code filled in. There should be no records left blank or dashed.

### *Condition code*

Observers should try to observe the state of health of all fish, marine mammals, marine reptiles or seabirds that are hooked by the vessel from the moment they emerge from the water. If they are discarded or released, record their condition at release. This includes species struck off or cut free without landing.

When filling in an LL-4 form, only use the condition codes listed on the back of the LL-4.

### ***Gear interaction code***

Interaction codes are used for interactions of species of special interest (SSI) with the primary gear during the hauling phase, and SSI captures (landed on deck) to provide more detail on hooking injuries for SSIs landed and discarded. On the LL-4 form, primary gear (for a longline vessel) means the mainline, branchline with hooks, floatlines and radio buoys. Use with the best fate code for captured/discarded SSI to describe how SSI are hooked and entangled.

Refer to SPC materials on SSI handling guidelines (dehooking and untangling SSI). The interaction codes have clear descriptions. Note that these gear interaction codes are only used for SSI. For other species, put a dash in the data field.

Code	Descriptions
IEN	Entangled
IHE	Hooked externally
IHI	Hooked internally (mouth)
IHJ	Hooked in jaw (circle hook in corner of jaw))
IHD	Hooked deeply (throat or stomach)
IHU	Hooked unknown
IFB	Feeding on bait during set
IGO	Interacted with primary gear only (not hooked or tangled)

The interaction code, when linked to the condition code, provides information on the effects of things like circle hooks on the survival of SSI after release.

### ***Condition code – caught***

Record a condition code for every fish, marine mammal, marine reptile or seabird that is hooked by the vessel when it lands on deck. If the species is not landed on deck, but is struck off or escapes first, try to assess and record its condition before it was detached from the hook.

Every record on the LL-4 form must have a condition code. Use the condition code 'U' (condition unknown) if there was no opportunity to assess the condition.

### ***Condition code – discard***

Record an additional condition code for every fish, marine mammal, marine reptile or seabird that subsequently escapes, is struck off the hook, discarded, released or otherwise returned to the sea. Record this second condition code in the 'Condition code – discard' data field.

**Caution:** All species that subsequently escape or are released, discarded or struck off must have the second code, that is, 'Condition code – discard'. Use the condition code 'U' (condition unknown) if there was no opportunity to assess the condition. Remember to put a dash in this data field if the species was retained onboard.

Remember every record with a discarded fate code requires a discard condition data field to be filled in.

#### LL-4 condition codes

**AO:** The species is alive (not categorised into A1, A2, and A3).

Use this code if the hooked specimen is obviously alive, but it was not possible to make a further assessment of its condition.

**A1:** Alive, healthy.

Use this code if it seems that the species is still very much alive and likely to survive in the sea. Maybe it was seen thrashing around on the deck or swimming away vigorously. However, not all species will thrash around once landed. Some species will naturally behave more quietly when they land on deck and it may only be possible to see how alive they really are when they are handled by the crew.

**A2:** Alive – injured, distressed.

Use this code when the species still seems to be somewhat lively after it has been landed but is obviously stressed, or has injuries (that is, a cut or wound). Use this code if it seems that the species still has a fair to good chance of surviving if released, despite its injuries.

**A3:** Alive, but dying.

Use this code when the species is alive, but only barely. Use this code if it seems that the species would have very little chance of surviving if released into the sea.

**D:** Dead.

Use this code when the species is obviously dead. Watch out for specimens that come alive afterwards! Some species might look dead on the deck, but show some movement when handled by the crew. These specimens should probably be coded as A3.

**U:** Condition unknown.

Use this code if unable to assess the condition of the species. This might happen if it has been struck off without the observer seeing it, or several species arrive on the deck at the same time and there is no chance to assess the state of each one.

## Length

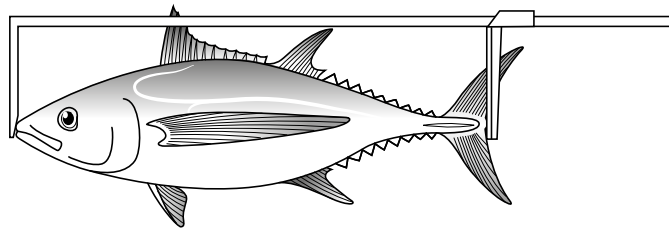
### *Length – cm*

See 'Measuring lengths' (page 16) for more information on how to measure marine species.

### *Length – code*

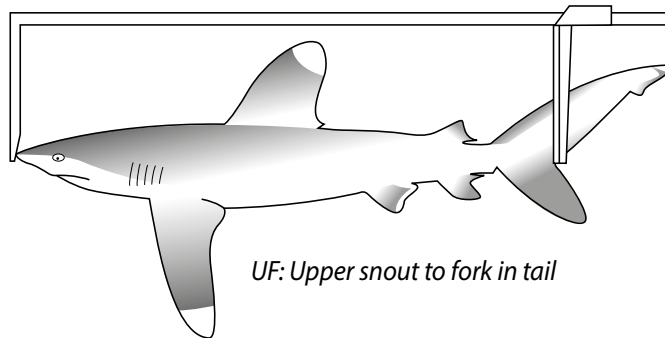
Observers onboard longline vessels have a unique chance to measure whole fish before they are processed. For this reason, observers are encouraged to always try to get the full-length measurement (that is, UF, LF, TL) whenever possible. Other length measurements, such as pectoral fin to fork in the tail (PF) measurements, are best left to port samplers for measuring processed fish. However, observers can use the length measurement codes that are normally reserved for processed fish, if required. The following are the best measurements to take onboard longline vessels

**Tuna** – Aim to always get the UF length measurement for tuna on longline vessels.



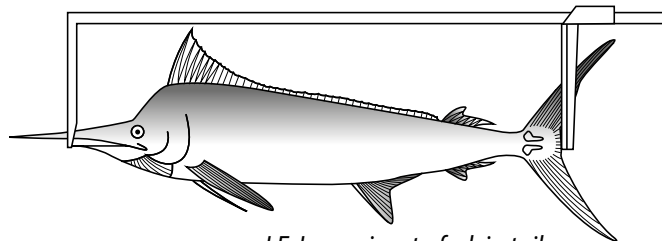
*UF: Upper jaw to fork in tail*

**Sharks** – Aim to always get the UF length measurement for sharks on longline vessels.  
(Avoid taking PF or TL length measurements for sharks unless specifically requested to do so.)



*UF: Upper snout to fork in tail*

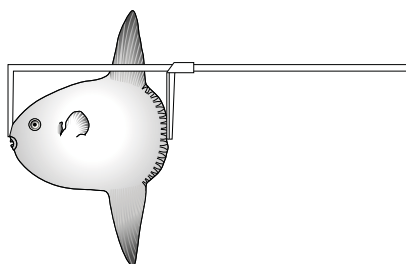
**Billfish** – Aim to always get the LF length measurement for billfish on longline vessels.  
(Avoid taking PF length measurements for billfish unless specifically requested to do so.)



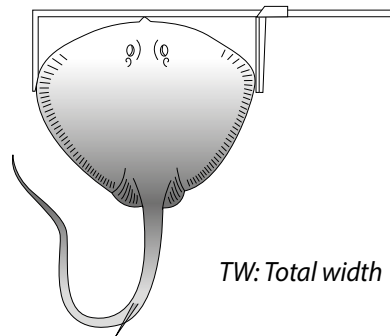
*LF: Lower jaw to fork in tail  
LF - (for all billfish)*

**Other fish with forked tails** – Aim to always get the UF length measurement of other fish with forked tails (that is, most bycatch) on longline vessels.

**Other fish without a fork in the tail** – Aim to always get the TL length measurement for bycatch without a fork in their tails.

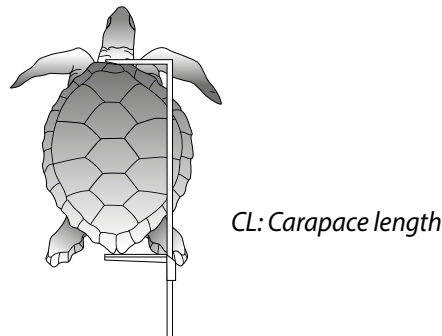


**Rays** – Aim to always get the TW length measurement for rays on longline vessels.



**Turtles** – Aim to always take a CL length measurement for turtles on longline vessels.

*Note: It is not possible to measure turtles without callipers.*



**Caution:** Every record on the LL-4 form needs a length code. If the species has not been measured, the length measurement code 'NM' (not measured) should be recorded, and a dash should be inserted in the length (cm) data field. If it is not already obvious from the fate code (that is, that they were struck off, escaped, or suffered whale damage), say why the species was not measured in the comment field.

#### ***Weight (not required)***

***Observers are no longer required to record the weight of fish. The weight and weight code data fields have been removed from the LL-4 form.***

#### ***Fate code***

The fate code records the final processed state of the marine species, or in other words what finally happened to the species after it emerged from the water. The fate code also provides some information on why an animal may be retained or discarded. It is used in conjunction with *condition and interaction codes* (for SSIs) to better describe the likelihood of survival for discarded animals.

There are two groups of fate codes:

Starting with **R** – for when the species is retained (kept) onboard the vessel

Starting with **D** – for when the species is discarded (returned to the sea)

There is also a code for any species that escapes – **ESC**

Sometimes more than one fate code might seem to fit. In this situation, **choose the best or most informative code when deciding between codes**. Record the most informative code in the data field and note any other possible code in the comment area. For example, a yellowfin tuna is landed but is severely damaged by shark

bites. The crew later eats the tuna. There are two codes that could describe the fate of that fish: RSD – (retained shark damage), or RCC – (retained for crew consumption). RSD could be seen as the most informative code as it lets data users know why the yellowfin was eaten. On the other hand, RCC could be recorded as the most informative code as it was the final fate of the fish.

The focus of fisheries biology or fisheries development work may change and influence which code should be chosen as the most informative code. For instance, with the present emphasis on damage caused by marine species it may be best to record 'RSD' as the most informative code. Training and debriefing will help observers choose the most informative fate code and keep them up to date with any research changes that may affect their work.

If the observer did not observe the final fate of the species (too many fish coming up at once, for instance), they should put a dash in the data field and make a comment explaining why the fate code was not recorded in the comment data field.

Fate codes describe whether the fish was kept (retained) or thrown away/released (discarded) and also how it was processed or discarded, and the reason. It is important to select the most informative code (**one only**).

#### ***'Retained' fate codes***

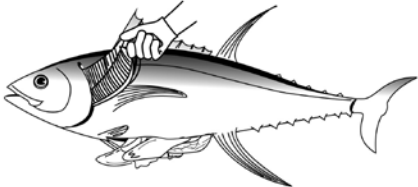
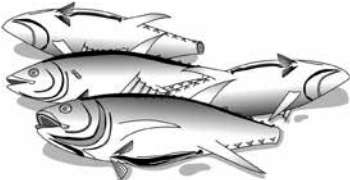
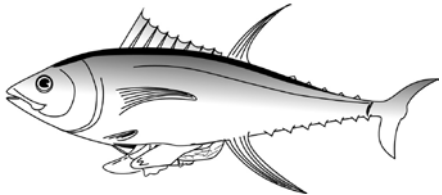
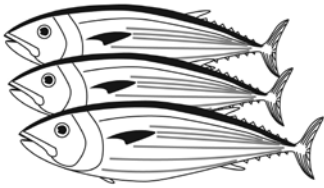
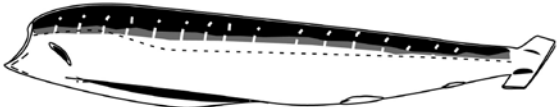

RGG Retained – gilled and gutted (for sale)  
RGT Retained – gilled gutted and tailed (for sale)  
RWW Retained – whole  
RPT Retained – partial (e.g. fillet, loin, trunk)  
RFR Retained – both fins and trunk (sharks)  
RHG Retained – headed and gutted (billfish)  
RSD Retained – but shark damaged  
RCC Retained – for crew consumption  
RGO Retained – gutted only  
ROR Retained – other reason (specify)



#### ***'Discarded' fate codes***


DFR Discarded trunk – fins retained (sharks)  
DGD Discarded – gear damage (tuna only)  
DSD Discarded – shark damage  
DWD Discarded – whale damage  
DUS Discarded – uneconomic species  
DDL Discarded – too difficult to land  
Discarded – struck off  
DCF Discarded – cut free (use 'Comments' to indicate length of line remaining attached)  
DDH Discarded – de-hooked  
DUN Discarded – untangled  
DTS Discarded – too small (target species)  
DPQ Discarded – poor quality  
DOR Discarded – other reason (specify)  
DPG Discarded – SSI handling guidelines followed  
ESC – escaped

Note: The old fate code for SSIs (DPA) has been removed. The treatment of SSIs and the crew's compliance with treatment requirements are better described using other fate codes together with condition and interaction codes.

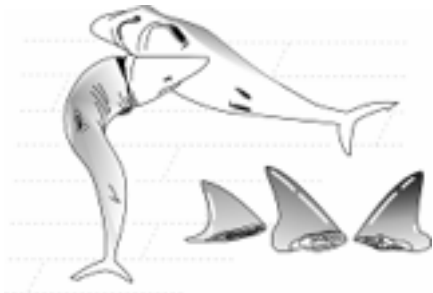

### *Retained fate codes and descriptions*




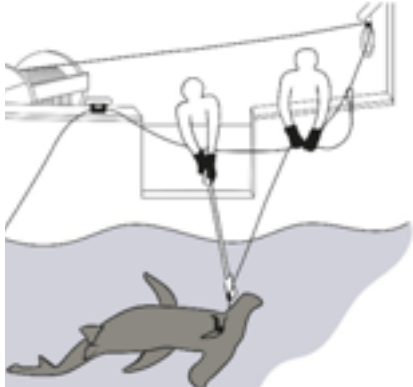
<i><b>RGG: Retained – gilled and gutted</b></i>	<i><b>RGT: Retained – gilled, gutted and tailed</b></i>
	
When both the gills and guts are removed and the species is retained onboard, use this fate code.	When the gills and guts are removed, the end of the tail is cut off and the species is retained onboard, use this fate code.
<i><b>RGO: Retained – gutted only</b></i>	<i><b>RWW: Retained – whole weight</b></i>
	
When only the guts are removed and the species is retained onboard, use this fate code.	When there is no processing of the species, and it is retained onboard, use this fate code.
<i><b>RHG: Retained – headed and gutted (Billfish)</b></i>	<i><b>RPT: Retained – partial (fillet, loin, trunk)</b></i>
	
<p>When the heads and guts are removed and the species is retained onboard, use this fate code.</p> <p>This is typical processing for billfish species – marlins, swordfish, sailfish, and shortbill spearfish. If this fate code seems suitable for a non-billfish species, justify this with a comment and provide a full description in the written report. Providing a photo will also be helpful.</p>	<p>When the species is cut up and only pieces of it (e.g. fillets, loins or part of the trunk) are retained onboard, use this fate code.</p> <p>When this type of processing is done onboard, a full description of the processing should also be made in the trip report.</p>

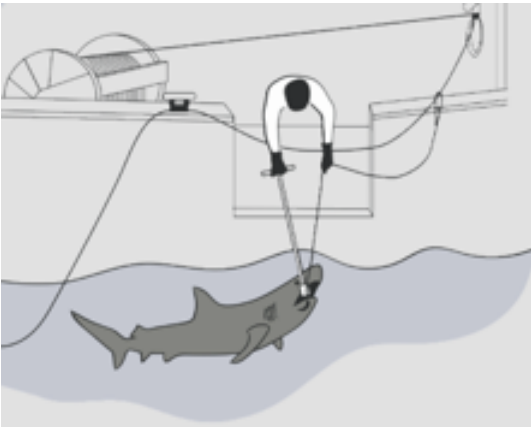
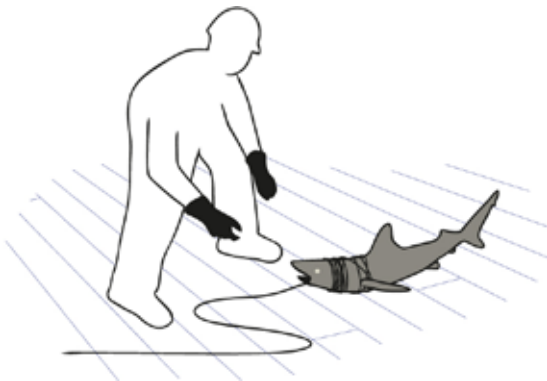
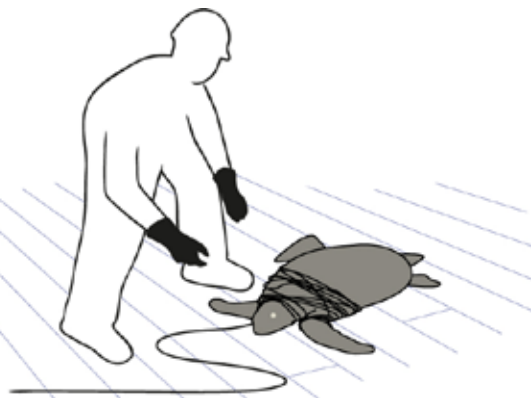
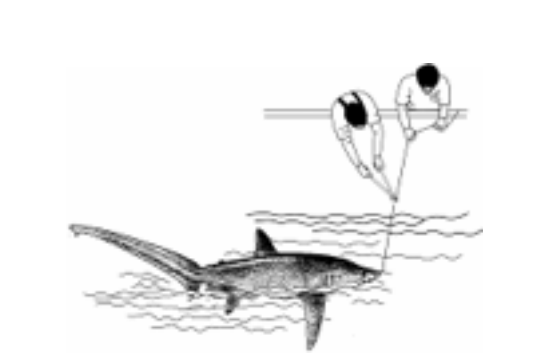


<i>RFR: Retained – both fins and trunk</i>	<i>RSD: Retained – but shark damaged</i>
	
When sharks are finned and both the fins and trunk of the shark are kept (retained) onboard, use this fate code. Normally the head, gills and guts of the shark will be discarded.	When the species has been obviously bitten by sharks but is still retained on board, use this fate code.



<i>RCC: Retained – for crew consumption</i>	<i>ROR: Retained – other reason (specify)</i>
	
When a species is retained onboard, but eaten by the crew during the voyage, use this fate code.	When species are retained onboard, but none of the retained fate codes properly describes what happens to it, use this code.  Always describe the reason the species was retained in the comments data field.

### *Discarded fate codes with descriptions*

<i>DFR: Discarded trunk – fins retained (sharks)</i>	<i>DTS: Discarded – too small (target species)</i>
	
When sharks are finned, and the fins are retained but the trunk is discarded, use this fate code.	When a species that is usually retained on board for commercial sale is discarded because it is too small, use this fate code.  If a species is not normally retained onboard (because it has no commercial value) and it is small and discarded, this is not the correct code to use. Record the best or most informative code, which is often the normal fate code for the species. Record DTS in the comments data field.

<i>DGD: Discarded – gear damaged</i>	<i>DPQ: Discarded – poor quality</i>
	
<p>For species that are normally retained onboard but are discarded because they have been damaged by the vessel's gear.</p> <p>If a species is not normally retained onboard, this is not the correct code to use. Record the best or most informative code, which is often the normal fate code for the species. Record DGD in the comments data field.</p>	<p>For species that are normally retained onboard but are discarded due to their poor quality (e.g. soft flesh), use this fate code.</p> <p>If the species is not normally retained onboard, this is not the correct code to use. Record the best or most informative code, which is often the normal fate code for the species. Record DPQ in the comments data field.</p>
<i>DSO: Discarded – struck off close</i>	<i>DCF: Discarded – cut free</i>
	
<p>When a species is deliberately struck off the line by the crew (the line is tugged to rip the hook out, usually because it is not a high-value fish), and is not landed on deck, use this fate code (common for unwanted species of no commercial value).</p>	<p>(Use comments to indicate length of line remaining attached.)</p> <p>When the branchline line is deliberately cut near the snap or close to the hook to release a SSI or another species that is locally considered protected, use this fate code.</p> <p><b>Caution:</b> This may be done quickly by the crew so that the observer cannot make a count of the number of interactions with a certain species.</p>

<p><i>DDH: Discarded – de-hooked</i></p>	<p><i>DUN: Discarded – untangled</i></p>
	
<p>Removing hook from SSI. Applies to sea turtles and protected shark species.</p>	<p>SSI being untangled from the mainline and branchline.</p>
<p><i>DPG: Discarded – SSI handling guidelines followed.</i></p>	<p><i>DDL: Discarded – too difficult to land</i></p>
	
<p>Applies to turtles, dolphins and other protected shark species.</p>	<p>When a species is let go because it is too difficult to land (too large or aggressive), use this fate code. In this case, the thresher shark is not a SSI, so DDL is used.</p>
<p><i>DOR: Discarded – other reason (specify)</i></p>	<p><i>ESC: Escaped</i></p>
	
<p>When a species is discarded, but none of the 'discarded' fate codes properly describe what happened to it, use this fate code.</p> <p>Always give the reason for discarding the species in the comments data field.</p>	<p>When a species escapes from the line without help from the crew (not struck off, unhooked or released) before it is landed on deck, use this fate code.</p>

<i>DSD: Discarded – shark damage</i>	<i>DWD: Discarded – whale damage</i>
	
<p>When a species that is normally retained onboard is discarded because it has been damaged by sharks (there will be obvious shark bites), use this fate code.</p> <p>If the species is not normally retained onboard, this is not the correct code to use. Record the best or most informative code, which is often the normal fate code for the species. Record DSD in the comments data field.</p>	<p>When a species has been damaged by toothed whales (usually only the head of the animal is left attached to the hook with perhaps distinctive tooth marks showing), use this fate code.</p> <p><b>** This is probably the most informative fate code for all species, whether normally retained, or normally discarded. Highlighting all species with whale damage will give a good indication of the extent of whale predation (damage).</b></p>

## Sex

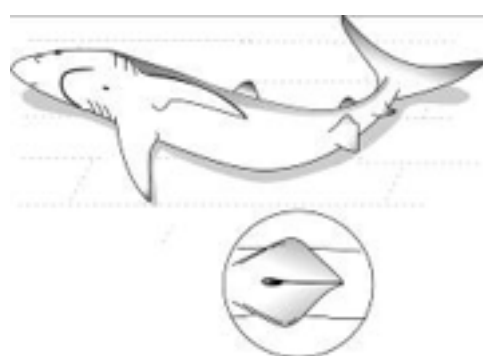
The sex of each landed fish should be recorded. Mostly this can be done by checking the gonads of processed fish. However, the sex of sharks, marine mammals, mahi mahi and opah can be easily determined by looking at external features. The following section will help observers sex most of the common species often seen on longline vessels.

Sex codes:

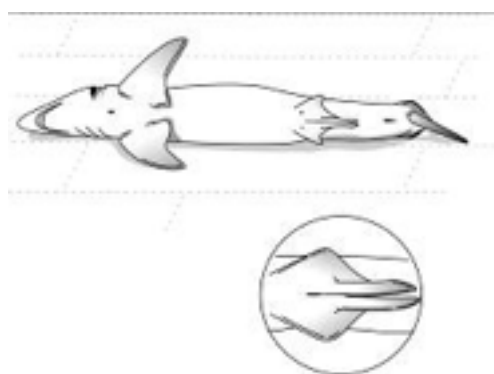
- M: Male
- F: Female
- I: Indeterminate
- U: Unknown

## Marine species that can be sexed from external features

### 1. Sharks



Female shark



Male shark with two claspers

2. Opah (moonfish) – LAG – (*Lampris guttatus*)

Differences between the male and female can be easily seen when they are placed side by side



Female 'chest' area narrow, and slightly convex (outward)

Male 'chest' area broad, and noticeably concave (inward)

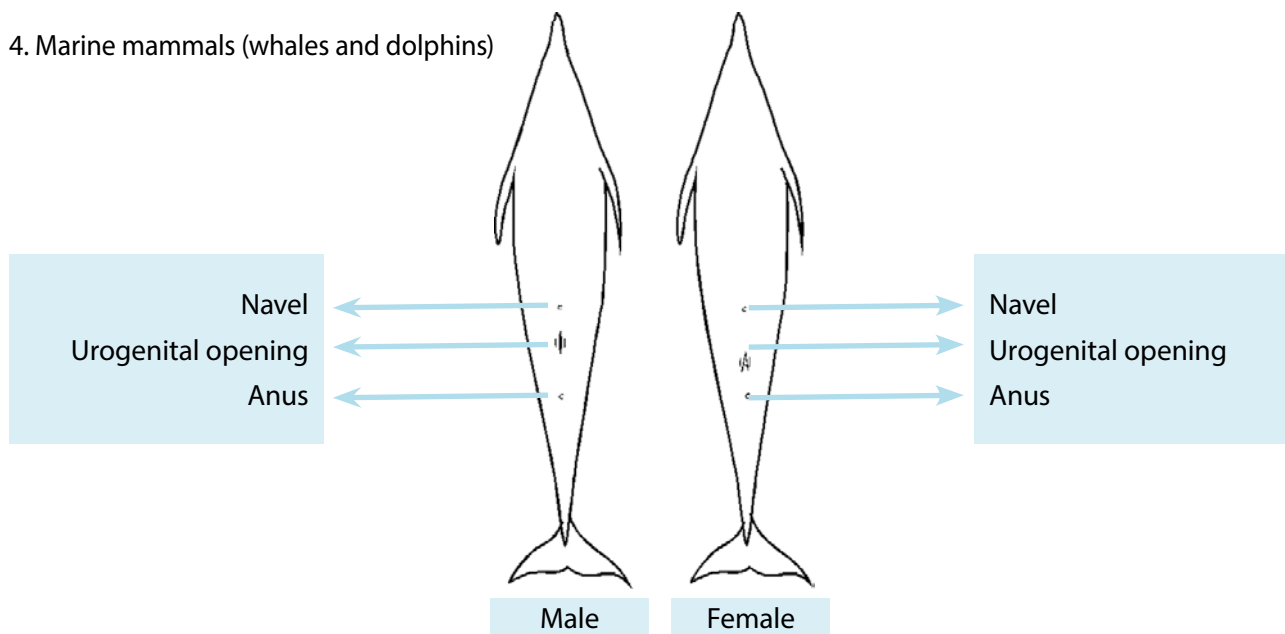
3. Mahi mahi – DOL – (*Coryphaena hippurus*)



Male: Straight, blunt, square head

Female: Curved, backward sloping head

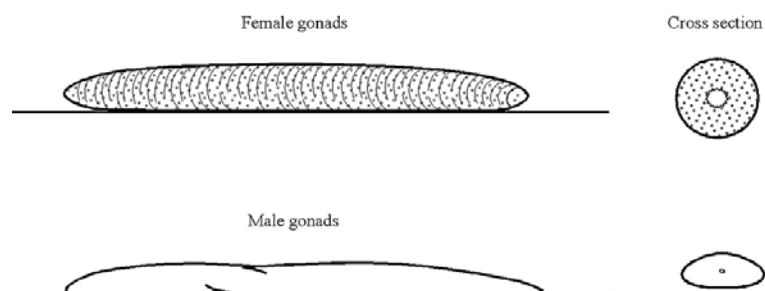
4. Marine mammals (whales and dolphins)



\*In females, the urogenital opening is closer to the anus

5. Male sea turtles have a tail that is almost a foot long, extending beyond the shell or carapace, whereas a female's tail does not extend past the shell or carapace.

## Sexing other marine species



Most marine species can be sexed by checking the gonads, which are located inside the fish. Gonads from different species may not look the same, but they all have the same basic design. To work out what sex the fish is, locate the gonads and use the guide below.

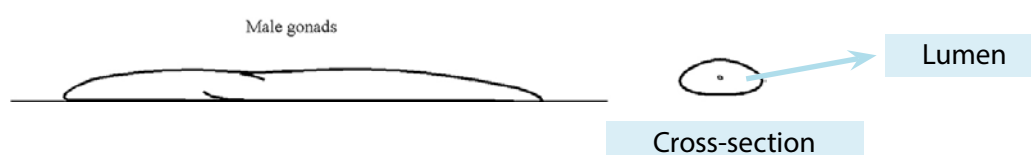
Gonads are normally removed from tuna and some other bycatch species during gutting, so it will be easy for the observer to check these gonads. Billfish gonads might not be removed during gutting and observers should make an effort to find them inside the stomach cavity of the billfish.

Not all species will be gutted by the crew and it will probably not be appreciated if an observer cuts open a fish that the vessel does not normally cut open. There is no need for observers to gut fish just to find out the sex of the fish, unless they have been specifically requested to do so (for instance, for biological sampling). If the gonads were not checked because the fish was not gutted, record the code 'U' (unknown) in the sex data field.

### Male – 'M'

A cross-section of the male gonad looks slightly triangular. It contains a lumen (small hole) that runs the full length of the gonad. The diameter of the lumen is quite small and the edges are smooth. Male gonads are likely to be white but there may be a red tinge, depending on the maturity of the gonad. If the gonad is lightly squeezed, a white liquid (semen) may emerge. No granules can be seen when looking closely at the tissue of male gonads.

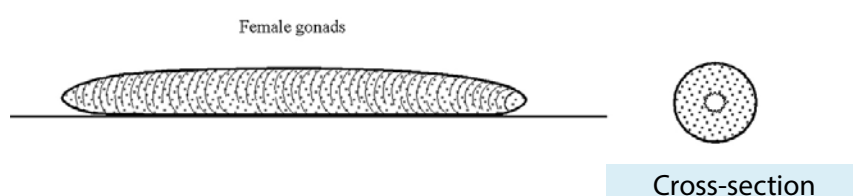
Use the sex code 'M' (male) to record male specimens.



### Female – 'F'

A cross-section of the female gonad looks mostly circular. It also contains a small lumen (hole) that is somewhat rough at the edges and runs the full length of the gonad. Female gonads usually, but not always, have a yellow to orange tinge. The colour may be deeper, depending on the maturity of the gonad. When looking closely at female gonad tissue, small granules (eggs) can be seen. These are more obvious in more mature gonads.

Use the sex code 'F' (female) to record female specimens.



### *Indeterminate – ‘I’ (immature)*

If the gonad is checked but is too immature to determine the sex, the observer can record I – (indeterminate).

Both immature male and female gonads are likely to be string-like and thin and some of the features outlined above may not be obvious when the gonad is examined.

### *Unknown – ‘U’*

Use the sex code ‘U’ – (unknown) when unable to check the sex of the marine species.

**Caution:** Note the difference between the sex codes ‘I’ and ‘U’.

### *Comments and SSI treatment*

Any extra comments that may help to further explain the information recorded on the LL-4 form can be written here. If the space is too small, make further notes in the journal. Include a key word or two to suggest what the comment is about, along with the journal page number where further comments can be found. Later, the notes from the comments section of the LL-4 plus the notes from the daily journal can be used to report more fully on the subject in the trip report.

Include comments on SSI treatment here and more detail in the observer journal.

The comments field can also be used to record a photo frame number/name, if a photo has been taken.

**Caution:** Comments must always be made for:

- 1) any specimen that has been retained but not measured
- 2) any specimen that has been processed but not sexed
- 3) any group or ‘UNS’ species code; in this case, the comments should direct the reader to a further description of the species
- 4) gear interaction with SSI
- 5) Tag # – record the Tag # here and refer to the tag recovery form filled in.

## **Baskets monitored**

### *Tally area*

This area of the form is used to help keep track of the precise number of baskets that have been fully monitored by the observer. It should be maintained diligently.

	Tally area ←	Baskets monitored while filling this page:	Total: 5
---	--------------------	---	----------

Count the first two floats as the first basket, and then mark down a strike in the tally area for every float that is **observed directly** coming onboard the vessel. The number of floats counted in this way will be equivalent to the number of baskets directly observed by the observer.

If the observer needs to leave the deck for more than a minute or two, and cannot continue to monitor the haul (see 'Monitoring the haul', page 71) it is recommended that they **wait until they have fully recorded all the species in the basket they are monitoring**, and then mark a strike for the last float they monitored to indicate the end of the basket.

A time and comment must then be inserted on the main part of the LL-4 form stating when they left the deck. When the observer is able to start monitoring the haul again, a time and a comment must also be inserted on the main part of the LL-4 form stating when they returned to the deck. Continue marking down a strike for each float that comes onboard until the end of the haul.

When all the 31 rows on the LL-4 form have been completely filled in, start a new LL-4. Continue the basket tally on the new form.


## Total

For each completed LL-4 form, count up the strikes or ticks in the 'tally area' and write the total number in the right-hand data field marked 'Total'. The number of strikes or ticks should be in groups of 5.

**At the end of the haul**, add up every 'Total' on all the LL-4 forms that were filled in for the same haul. Record this overall figure as the 'Total baskets observed this haul' on the LL-2/3 form completed for the same fishing operation.

Example:

First LL-4 form of the trip

	<div style="text-align: right;">Tally ← area</div>	<div style="background-color: #d9ead3; padding: 2px;">Baskets monitored while filling this page:</div>	<div style="border: 1px solid black; padding: 2px;">Total:</div>	12
---	--	--	--	----

+ Second LL-4 form of the trip

	<div style="text-align: right;">Tally ← area</div>	<div style="background-color: #d9ead3; padding: 2px;">Baskets monitored while filling this page:</div>	<div style="border: 1px solid black; padding: 2px;">Total:</div>	13
---	--	--	--	----

Add up the form totals and record the answer on the LL-2/3 from

TOTAL BASKETS OBSERVED DURING HAUL (add up the total baskets monitored from the bottom of each Form LL-4 used in this set)	25
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## Form GEN-1

### Vessel and aircraft sightings and other transfer logs

#### *Data submitted*

The number of GEN-1 forms that need to be filled in depends on the number of sightings and amount of transfer information collected during the trip. However, at least one GEN-1 form must be completed.

If there is no appropriate information for this form (that is, no vessels or aircraft were sighted, and no transfers made) then put a comment on the first GEN-1 form in the first workbook to confirm this; for example, 'No sightings noted this trip' under the vessel or aircraft sightings area, and 'No transfers this trip' under the 'Transfers by the observer's vessel' area on the first blank GEN-1 form in the first workbook. This will explain the absence of any GEN-1 data.

Remember to complete the Header section even when nothing was sighted.

OBSERVER NAME	John Smith	VESSEL NAME	Pacific Sunrise	OBSERVER TRIP ID NUMBER	JHS 20-03	PAGE	1	OF	1
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The header details must be *fully filled in on every completed form* (for information on observer name, vessel name, observer trip ID number and page number, see 'Header details', page 12).

#### *Vessel or aircraft sightings*

Information gathered about vessel or aircraft sightings can help keep a check on any IUU (illegal, unreported, unregulated) vessels, and can indicate the intensity of fishing in certain areas. (VMS data can also be used when proper agreements are in place.) These sightings can provide information about activities in unregulated areas (that is, high seas areas) that is otherwise difficult to get.

IUU vessels may include vessels that:

1. do not have a licence to fish
1. fish in an illegal manner when they do have a licence
2. are involved in fishing activities that have not been reported or have been misreported
3. are fishing without nationality, or their flag state does not monitor or regulate their fishing activities in an area of regional obligations.

As observed vessels will have paid licence fees, the captain and crew may be happy to help the observer gather information about other vessels that may not have paid fees.

#### *How to gather information on sightings*

Once observers have left port, they should start filling in the sighting section of the form as soon as they see any other vessels or aircraft. Fill in as much information as possible about the sighted vessel/aircraft. It does not matter if all the required information cannot be filled in immediately. If it is not possible to get information for some of the data fields straight away, then leave them blank initially. If the observer's vessel gets closer, record information in the blank fields when possible, and verify the information that has already been inserted. Eventually, after the observer's vessel, or the sighted vessel, has left the area, put a dash in any of the data fields for which it was not possible to collect information at any time during the sighting period.

Some vessels may never come closer and there may be no opportunity to record any information other than the position of the observer's own vessel, along with the compass bearing and the distance to the sighted vessel/

aircraft. This is okay. It is possible that another observer in the vicinity will also see the vessel and this information will help to pinpoint the exact position of the sighted vessel/aircraft.

If a previously sighted vessel comes much closer later on, and it becomes possible to get better details, make a new record on the same vessel on the line below. At the end of the day, check that all the data fields have been filled in or dashes have been inserted. No data fields should be left blank.

VESSEL OR AIRCRAFT SIGHTINGS														
SHIP'S TIME		OBSERVER'S VESSEL POSITION				SIGHTED VESSEL OR AIRCRAFT				COMPASS BEARING	DISTANCE	ACTION CODE	PHOTO FRAME #	COMMENTS
DATE (MMDD)	TIME (hh mm)	LATITUDE (dd° mm.mmm')	N S	LONGITUDE (ddd° mm.mmm')	E W	NAME	INTERNATIONAL CALLSIGN	FLAG	TYPE CODE	(degrees)	(Nautical Miles)	(seen vess)		
1	0420	1350	17 50 450	S	176 35 755	W	Ocean Star # 3	ZKLM 34	FJ	2	035	2	PF	
2	0420	1645	18 45 005	S	175 54 850	W	Yu Yuan 78	YML378	TW	2	270	3	FI	setting gear at the stern
3	0420	0730	19 25 567	S	178 32 000	W	Solandar 12	ZKMGH 12	NZ	2	180	5	PF	

## Date and time

Record the ship's date and time (only month and day required).

## Observer's vessel position

### Latitude / Longitude

The latitude and longitude positions can be recorded from the GPS of the observer's vessel. Record the latitude (dd° mm.mmm) and longitude (ddd° mm.mmm) to three decimal minutes. Check that the GPS is recording to decimal places of minutes and not to seconds. Remember to record N for north, S for south, E for east or W for west.

Note: The **position of the observer's vessel** should be compatible with the **compass bearing** and the **distance record**. Therefore, make sure **all these values are recorded at the same time**. It is okay to fill in other pieces of information as they become available, but these three data fields should be recorded at the same time.

## Sighted vessel or aircraft


### Name

Record the name of the sighted vessel, which is usually painted on the side of the hull or on the back of the vessel. It is very important to note down the numbers associated with the name, if there are any.

If it is not possible at any time during the sighting to see the full name, but some of the name can be seen, then record the part of the name that is clear and leave question marks for the parts that cannot be clearly seen (for example: 'Rodriguez Catcher ???' or 'C???? Maru 88'). Mention in the comments which part of the name could not be seen or was faded (for example, the number or some letters).

### IRCS

Record the international radio call sign (IRCS) which, for licensed fishing vessels in this region, should be painted in large letters/numbers on the side of the vessel (see page 31).

If it is not possible at any time during the sighting to see the full IRCS, then record the part of the call sign that is clear and leave blanks for the letters or numbers that cannot be clearly identified. For example, if the call sign appears to be 'WR W  ' so that only certain letters are visible like the 'Ws', and it seems likely that there are five letters and/or numbers making up the IRCS, then record it as 'W ? W ??'.

## Flag

The flag of the vessel is the registered nationality of the vessel. There are several ways to find the flag of the vessel. Usually, the port of origin is written on the stern of the vessel. However, the port of origin does not always indicate the actual flag of the vessel. Sometimes the flag is painted on the side of the vessel's bridge, or it may even be flying its registered flag.

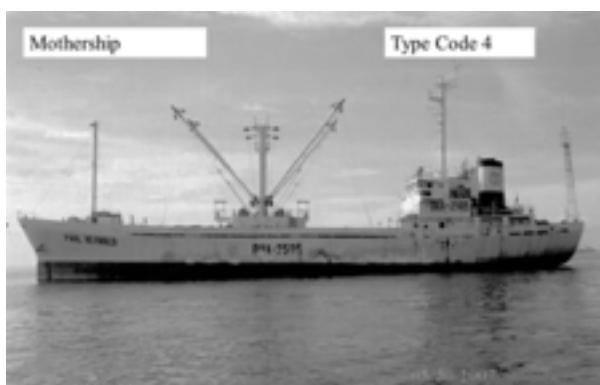
The country codes page is inside the longline workbook. Record the correct country code for the vessel flag from the code page.

## Vessel and aircraft type code

Vessel and aircraft type codes are written at the bottom of the GEN-1 form. Use these codes to describe the type of vessel seen. If the type of vessel is not on the list, use code '31' (Other – please specify) and describe the vessel type in the comments column.

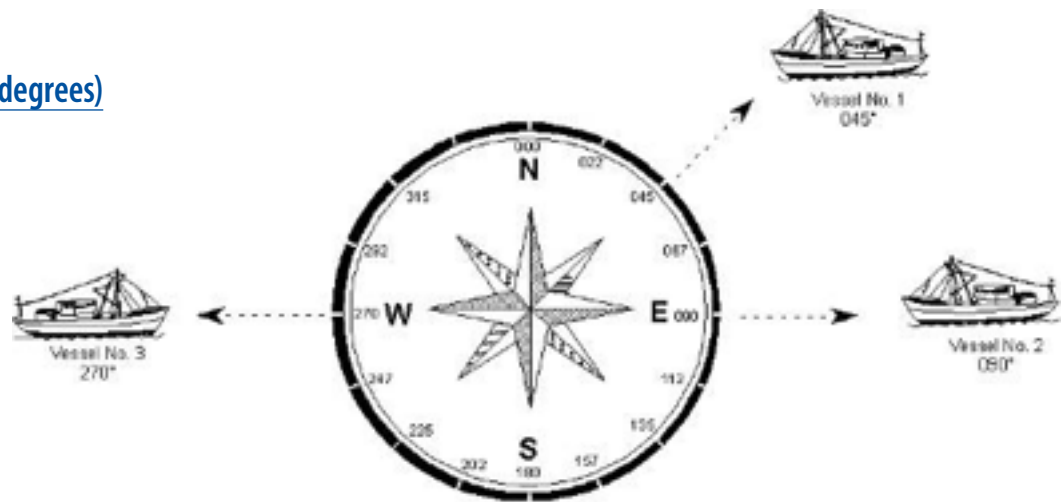
1. Single purse-seine
2. Longline
3. Pole-and-line
4. Mothership
5. Troll
6. Net boat
7. Bunker
8. Search, anchor or light boat (also known as tender vessels)
9. Fish carrier
10. Trawler
11. Light aircraft
22. Helicopter
31. Other... please specify

Note the difference between a 'Mothership' and a 'Fish carrier': A mothership works together with a group seine operation receiving the fish on each set, whereas a fish carrier receives an unloading from a purse-seiner at the end of the trip. Fish carriers are usually larger than motherships



## Other details

### Compass bearing (degrees)



The compass bearing indicates the direction to the sighted vessel/aircraft from the observer's vessel. The value is recorded in degrees (please record degrees and not N, S, E, W, NE, EWE, etc.). When recording degrees, use the three-figure notation (i.e. forty-five degrees is recorded as 045° and not 45°; five degrees is recorded as 005° and not just 5°).

Use the compass in the wheelhouse to determine the compass bearing for the line-of-sight to the sighted vessel/aircraft. The direction that the observer's vessel is actually heading in will not matter – just line up the direction to the sighted vessel and read what this line of direction is on the wheelhouse compass.

As an example, the line-of-sight in the diagram above for vessel #1 is 045° on the compass. The compass bearing will be recorded as 045°. Vessel #2 is directly to the east and so its compass bearing is 090°. What will the compass bearing for vessel #3 be?

### Distance (nautical miles)

Use the radar in the wheelhouse to calculate the distance between the vessel and the sighted vessel/aircraft. Ask the captain or another officer to help with this, if necessary. If it is not possible to use the radar, give a best estimate. Remember, the horizon is 6 nautical miles away from the vessel. Record the value up to one decimal place.

### Action code (seen vessel)

What was the sighted vessel that is recorded on this line doing when seen? Use the 'Action codes' marked on the bottom right of the GEN-1 form to indicate the main activity of the vessel when it was sighted.

The codes are:

- FI Fishing
- PF Possibly fishing
- NF Not fishing
- DF Dumping fish

The codes for observed exchanges between vessels (vessel transfers) are:

Receiving		Giving	
TR	Transshipping fish	TG	Transshipping fish ... (from <b>hold</b> in one boat to hold in other boat)
SR	Set sharing	SG	Set sharing ... (from one boat's <b>net</b> to another boat's hold)
BR	Bunkering	BG	Bunkering
OR	Other, specify.....	OG	Other .....

Notes:

- Bunkering is usually with a tanker but may be with another fishing vessel or any other vessel.
- Examples of 'Other' may be crew; food; cigarettes; salt (for brine); engine parts; etc.
- If two vessels are seen making a transfer (neither of them being the observer's vessel), then two lines will need to be filled in this section of the GEN-1 form, one for each vessel. The 'Action code' for one vessel will be a giving (?G) code and the 'Action code' for the other vessel will be a receiving (?R) code.
- If two vessels are exchanging more than one type of goods, then use the code that seems to be the most important (transfer of fish is always more important than any other transfer) and note the other items being transferred in the comments.
- Set sharing (SR and SG codes) will be used for sighted purse-seiners only.
- The observer should consider whether any bunkering, transshipping, or set sharing was a compliance infringement and report this (see 'Dealing with infringement issues', page 103).

### Photo frame #

Take a photo of the vessel or aircraft whenever possible. It is better to wait until the vessel is close enough to get a clear picture. Photographs of small dots on the horizon are of little use. Label the photos after they have been transferred to a computer or tablet.

### Comments

Additional information about the vessel could include its colour; overall shape including length; notes on the name or radio call sign if these have not been clear; and any other distinguishing characteristics. These may help to identify the vessel, especially if its name or call sign are not clear and available.

### ***Fish transferring, fish dumping and bunkering by the observer's vessel***

Use this area of the form to record all fish transfers, fish dumping, bunkering or other transfers carried out **between vessels of any kind and the vessel that is hosting the observer.**

1. **If observers are onboard a transit vessel that is involved in any of these operations, they should record the information in their journal and in the trip report.**
2. Sightings of fish transfers, fish dumping or bunkering that are carried out by vessels other than the observer's vessel should be recorded in the first section of the GEN-1 form (Vessel or aircraft sightings).

**Note:** The observer should consider whether any bunkering or transshipping by their host vessel was a compliance infringement and report this (see 'Dealing with infringement issues', page 103).

FISH TRANSFERRING, FISH DUMPING, BUNKERING by OBSERVER'S VESSEL																	
SHIP'S TIME			OBSERVER'S VESSEL POSITION				OTHER VESSEL				FISH TRANSFERRED (circle units)				ACTION CODE (host vess)	COMMENTS	
DATE (MMDD)	TIME (hh mm)		LATITUDE (dd° mm.mmm')	N S	LONGITUDE (ddd° mm.mmm')	E W	NAME	INTERNATIONAL CALLSIGN	FLAG	TYPE CODE	SKJ WGT. NO.	YFT WGT. NO.	BET WGT. NO.	BUM WGT. NO.			
1	0420	1830	18 35 800	S	178 55 200	W	Fortuna # 5	JKFM12	KR	2	-----	2	--	1	--- 15	TG	
2																	
3																	

## Observer's vessel position

### Latitude and longitude

The latitude and longitude positions can be recorded from the vessel's GPS (see 'GPS', page 34). Record the latitude (dd° mm.mm') and longitude (ddd° mm.mm') to three decimal minutes. Ensure the GPS is recording to decimal places of minutes and not seconds. Remember to record N for north, S for south, E for east or W for west.

### Other vessel

(In the case of fish dumping by the observer's vessel, put a dash in the following data fields.)

### Name

Record the name of the vessel that is receiving fish or other goods from the observer's vessel (or giving them to the observer's vessel).

### IRCS

Record the IRCS, usually seen as large letters and numbers on the side of the vessel.

### Flag

The flag of the vessel is the registered nationality of the vessel. There are several ways to find out the flag of the vessel. Usually the port of origin is stamped on the stern of the vessel. However, the port of origin does not always indicate the actual flag of the vessel's nationality. At times, the flag can be seen painted on the side of the vessel's bridge or it may even be flying its registered flag.

Some country codes are marked on the GEN-6 form. Use these codes to save space and ensure there is no confusion about the data provided.

### Type code

Choose a code to describe the other vessel involved in the transfer of fish or goods. Codes for different types of vessels and aircraft are listed at the bottom of the GEN-1 form. If the type of vessel is not on the list, use code '31' (Other – please specify). Describe the type of vessel seen in the comments column.

### Fish transferred

(SKJ weight, YFT weight, BET weight, Mixed weight).

If the observer's vessel **dumps fish**, or **receives fish** from another vessel, or **gives fish** to another vessel, then record the weights of the fish that were involved here. Try to record accurate information on weight. Note in the comments area how the weight value was obtained, stating whether it was possible to count single fish being transferred or just cartons of fish. Record the weights under their species heading if possible. For 'Other species', record the species code in the blank data field and record the weight, or both weight and number(s).

Put a dash in the 'Fish transferred' data fields if the observer's vessel is only involved with bunkering or other forms of transfer and not with fish transfers.

### Action code (host vessel)

Choose one of the action codes at the bottom of the GEN-1 form to further describe how the observer's vessel was involved in transferring fish, dumping fish, bunkering, or other form of transfer.

If the observer's vessel dumped fish, use the 'DF' (dumping fish) action code. In all other cases, choose between the receiving (?R) or the giving (?G) codes, depending on whether the observer's vessel received or provided the goods.

For example:

If the observer's vessel was **receiving** fuel from another vessel, use the action code **BR** (receiving/bunkering).

If the observer's vessel was **giving** fish to another vessel, use the action code **TG** (giving/transshipping fish).

**Caution:** Do not use the first three action codes (FI – fishing, PF – possibly fishing, NF – not fishing) in this section of the form. These codes are only used for vessel and aircraft sightings.

**Caution:** Remember that a GEN-6 form (pollution report) may need to be filled in if a vessel dumps a large amount of fish, especially when in the harbour or within 3 miles of the shore.

### Comments

The comments area can be used to record further information about the other vessel's name, IRCS, and flag. A further description of how the observer estimated the transferred weight could also be recorded. If necessary, continue any comments in the journal and note the journal page number in the comments.

Record only aircraft involved in fishing, such as helicopters. Do not record commercial passenger aircraft.

## Form GEN-2

### Species of special interest – Vessel interactions

#### *Description*

A GEN-2 'Vessel interactions' form must be filled in for every **species of special interest (SSI)** that interacts with the vessel or its non-primary gear.

*(Note: All SSI interactions with the vessel's primary fishing gear are recorded on the LL-4 form.)*

The purpose of the new 'Vessel interactions' form is to capture any interactions by any SSI with the vessel or its non-primary gear. An interaction with the vessel or its non-primary gear is said to have occurred if the SSI has come close to the vessel/non-primary gear or if the behaviour of the SSI has been influenced by the presence of the vessel/non-primary gear – for instance, the marine mammal came close to the vessel and swam alongside it.

- Non-primary gear means equipment that belongs to the vessel but is not used by the vessel to catch tuna. Non-primary gear on a longliner may include tori lines, feeding on offal, or interacting with garbage discharged from the vessel, such as plastic strapping and other non-perishable items.

SSI include:

- all marine turtles
- all marine mammals (e.g. all whales and dolphins)
- all seabirds
- silky sharks
- oceanic whitetip sharks
- whale sharks
- manta and mobulid rays.

Birds resting on floats are examples of non-primary gear interaction.

#### ***Interactions with primary gear***

Record all SSI interactions with the vessel's primary fishing gear on the LL-4 form.

- Primary gear on a longliner includes the mainline, all components of the branchlines and hooks or floatlines, and the radio buoys.

Note: Interactions with the primary gear should be recorded on the LL-4 form, **NOT** GEN-2 for the 2018 forms version and later. EXCEPTION: Birds just resting on floats are **NOT** interacting with primary gear.

- **NEW:** Where multiple animals are feeding on bait during **SETTING**, e.g. seabirds, they can be recorded on the GEN-2 'Vessel interactions' form. This is because the LL-4 does not cater for multiple interactions, and the LL-4 is generally not carried on to the deck during **SETTING**. Use Interaction code 'IFB'.

#### ***No SSI interaction***

If no SSI interact with the vessel during the trip, fill in one GEN-2 form with the header data fields and make a comment in the 'Description of species/interaction' field: 'No SSI interaction'.

### Header details

<b>SPC / FFA REGIONAL OBSERVER</b> <b>SPECIES OF SPECIAL INTEREST - VESSEL INTERACTIONS</b>	<b>FORM GEN - 2</b>
--	---------------------

Rev. 2018

OBSERVER NAME	VESSEL NAME	OBSERVER TRIP ID NUMBER	PAGE	OF	
John Smith	Pacific Sunrise	JHS 20-3	1		3

The header details must be *fully filled in on every completed form* (see 'Header details' for information on observer name, vessel name, observer trip ID number and page number, on page 12).

The GEN-2 'Vessel interactions' form has space for up to four different interactions on one form. If the interaction involves multiple animals of one species, use one row and indicate the number of adults and juveniles involved. If more than one species is involved, use a separate row for each species. Below is an example of one row filled in. (There are instructions at the back of the form to guide the observer on filling each data field.)

<b>SPC / FFA REGIONAL OBSERVER</b> <b>SPECIES OF SPECIAL INTEREST - VESSEL INTERACTIONS</b>	<b>FORM GEN - 2</b>
--	---------------------

Rev. 2018

OBSERVER NAME	VESSEL NAME	OBSERVER TRIP ID NUMBER	PAGE	OF	
John Smith	Chance 2	JHS 20-3	1		3

SSI CODE	START OF INTERACTION	END OF INTERACTION	DATE	LATITUDE	LONGITUDE
FAW	TIME (HH : mm) 13 30	TIME (HH : mm) 13 40	YY MM DD 20 03 15	(dd mm.mmm) N 19 45 335 S	(ddd mm.mmm) E 175 20 545 W
VESSEL INTERACTION CODE	Est. DISTANCE from V.	CONDITION CODE	Estimate of SSI Length		Total Numbers
IFB	START END 1 (m) NM 2 (m) NM	START END A1 A1	Adults 3 (m) cm	Juveniles ----- m cm	Adults Juveniles 1 0

#### Description of Species / Interaction

dorsal fin located mid back, strong falcate dorsal fin and pointed. Interaction with the vessel occurred during hauling operation, appeared that the catch landed with mainly heads.

**VESSEL INTERACTION CODES PERTAINING TO LONGLINERS:** Use these codes to describe how the SSI interacted with the vessel or non-primary gear on a longliner.

IBV – Interaction, beside vessel	IFO – Feeding on discarded offal
ICV – Collision with vessel	IWG – Interaction with garbage
ICP – Collision with propeller	ICF – Interaction, crew feeding
ICT – Collision with tori line	IFB – Interaction, feeding on bait during set
IRE – Resting on vessel, floats or FADs (birds)	OTH – Interactions - other, please specify
IDW – Interaction - dead in water	

### SSI code

Use the standard species codes in the ID guide or on the 'green' SSI Codes page in the workbook.

### Start of interaction time

Record in hours and minutes the time the SSI started to interact with the vessel/non-primary gear. This is the time the observer first noted that there was an interaction or that the SSI's behaviour was influenced by the presence of the vessel.

### End of interaction time

Record the time in hours and minutes when the SSI's interaction with the vessel ended.

### Date

Record the date of the interaction (year-month-day).

### Latitude / Longitude

Record the location of the start of the interaction (or when the observer first noticed the interaction) by recording the degrees, minutes and decimal minutes for latitude and longitude to three decimal places.

### Estimate of distance from vessel

Record an observer eye-estimate of the distance of the SSI from the vessel when the observer first noticed the interaction. If the SSI moves towards or away from the vessel/non-primary gear, record this in the description box below. Normally the distance will be recorded in (m) metres, or (nm) nautical miles.

### Condition code

Record the condition of the animal that best describes its life status from the list on the back of the form or from the code page in the workbook.

### Estimate of SSI length

Record an observer eye-estimate of the average length of (1) adult SSI, and (2) juvenile SSI. Normally, marine mammals are recorded in (m) metres. Turtles and birds are recorded in (cm) centimetres.

### Total numbers

Record the total number of adult SSI, and/or total number of juvenile SSI. If there are a large number of species, record an eye-estimate, and mention it is an estimate in the description area below.

### Description of species / Interaction

Provide more information (size, colour, markings) about the animal to help confirm the species code recorded by the observer. Briefly describe aspects of the interaction with relevant detail.

### Start of interaction: Condition code

Choose one of the condition codes on the back of the GEN-2 forms to describe the condition of the SSI when it was first seen interacting with the vessel.

### Start of interaction: Condition description

Observers should explain why they chose a particular condition code by commenting on the condition of the specimen when it was **first seen to interact with the vessel**. If the condition code describes the SSI as alive and healthy, explain what it was about the species that gave this impression. Use the daily journal if more space is needed, and indicate the journal page number on the GEN-2 form.

### End of interaction: Condition code

Choose one of the condition codes on the back of the GEN-2 forms to describe the condition of the SSI **just before it was last seen interacting with the vessel**.

### End of interaction: Condition description

Observers should explain why they chose a particular condition code by commenting on the condition of the specimen.

### Describe the interaction

Give details of the interaction of the SSI with the vessel. If this was a snapshot of birds feeding around the boat, explain that you did an estimate at a certain point in the set.

Did the SSI actually touch the vessel? Was it harmed by the interaction? Did the SSI bow ride or ride the wake at the stern of the vessel. Did it eat any of the catch? Use the journal if more space is needed and indicate the journal page number on the GEN-2 form.

## Supplement to Form GEN-2

### Species of special interest – sightings

This form is for species of special interest (SSI) that are sighted away from the vessel, and that do not interact with the vessel or its gear, or land on deck. In the 2018 edition of the forms, the GEN-2 form is separated into two forms (1) SSI – Vessel interactions, and (2) SSI – Sightings (GEN-2 Supplement).

Recording sightings of SSI is something that can be done if an observer has time. The information obtained by keeping an eye out for SSI when the observer is not involved in other duties is appreciated. At present there is not enough information on sightings of marine mammals in the Pacific region.

#### *Header*

Complete the header on each form you use. Remember to include the total pages used at the end of the header. If you do not report any sightings, still fill out the header, strike across the page and add the comment: 'No sightings made'.

#### Date

Record the date of the sighting (year-month-day).

#### Latitude / Longitude

Record the location of the start of the sighting by recording the degrees, minutes and decimal minutes for latitude and longitude to three decimal places.

#### Sighting code

Use the sighting code that best describes the situation and behaviour. Remember to use comments if you need to explain further.

##### **SIGHTING CODES**

SDS - Sighting - Distance Swimming  
SBR - Sighting - Breaching  
STP - Sighting - Tail slapping or playing  
SMG - Sighting - Motionless in group  
SDW - Sighting - Dead in water  
SBO - Sighting - Bird overhead  
OTH - Other, please specify

#### Tally / Total number

Use the tally box to count the number of individuals by species and then record the 'Total number' for each species in this sighting.

## SSI code

Use the standard species codes in the ID guide or on the 'green' *SSI codes* page in the workbook.

## Species description

Provide more information (size, colour, markings) about the animal to help confirm the species code recorded by the observer. Briefly describe aspects of the sighting with relevant detail.

This data field is mostly useful for sightings of marine mammals (whales or dolphins). Use whichever words are necessary to describe their behaviour when sighted, but be sure to use the terms below accurately if they are seen carrying out any of these behaviours:

*bow riding* (swimming off the bow of the boat)

*wake riding* (swimming closely behind the boat)

*breaching* (launching themselves into the air head-first, and then falling back into the water)

*lobtailing* (tail slapping)

*logging* (lying at the surface after deep dives)



**"I sighted a few seabirds flying overhead. Do you want me to record that?"**

There is no need to record every seabird that is seen flying nearby. If you are familiar with your seabirds and think this might be an unusual species, or if you notice flocks that are behaving unusually, you could record this.

Remember any interactions of seabirds, especially feeding on bait during setting, should be recorded on the GEN-2 'Vessel interactions' form.

## Form GEN-3

### Vessel trip monitoring summary

#### Description

The GEN-3 form is a summary of incidents that have occurred on the trip. The pre-notification requirement for observer programmes obliges observer providers to submit the GEN-3 form to WCPFC as soon as possible after the trip, preferably after debriefing. WCPFC assesses the record of incidents and potential infringements that should be further investigated. The observer must sign the GEN-3 form. Signing the form makes it a legal statement by the observer of incidents that did or did not occur on the trip.

**One (and only one) GEN-3 form** must be filled in at the end of every single trip. Fill in the first form in the first workbook. (Note: A second form is included in most observer workbooks as a backup in case of a mistake.)

#### Header details

OBSERVER PROGRAMME:		SPC/FFA REGIONAL OBSERVER VESSEL TRIP MONITORING SUMMARY				FORM GEN - 3 (pg 1)	
REV. 2018		<b><i>This form <u>must</u> be filled in by the observer for every trip</i></b>				TRIP START DATE YY MM DD	
Observer NAME						TRIP END DATE YY MM DD	
Obs. NATIONALITY	TRIP ID NUMBER	COASTAL STATE LICENCES (IF ANY)				NATIONALITY OF BOARDING VESSEL IF BOARDED DURING TRIP AT SEA	
VESSEL NAME	COUNTRY REG. #	UVI	IRCS	VESSEL FLAG	VESSEL GEAR TYPE		

The header details must be fully filled in on every completed form (for more information on observer name, vessel name, observer trip ID number and page number, see page 12).

#### Dealing with infringement issues

The GEN-3 form summarises incidents that were directly observed by the observer.

Incidents can also be given a ranking of further significance where they are described as critical incidents or infringements.

A critical incident is an incident that is serious and should be reported to your debriefer as soon as possible after you disembark – preferably before the vessel departs or another placement is made. These incidents may include intimidation, poor hygiene, or safety issues.

Infringements indicate that an incident may be in breach of fisheries regulations or may be criminal.

One of the purposes of pre-debriefing an observer is to determine if any critical incidents or infringements need to be dealt with immediately (before the vessel departs again). It is an observer's responsibility to report for a pre-debriefing as soon as possible after disembarking.

Observers should ensure the debriefer is aware of any critical incidents or possible infringements so that the agency's compliance officers can be informed quickly.

Observers should not discuss possible infringements with the captain or crew of the vessel as it may cause a safety issue.

If the observer sees an incident that requires a 'Yes' against any of the 31 items listed on GEN-3, they should:

1. At the bottom right corner of the LL-2/3 'DID YOU OBSERVE ANY EVENTS TO RECORD ON FORM GEN-3 TODAY?', circle 'Yes'. That is a reminder. Also make a note of the time of the incident.
2. When you have time in private, make an entry in the journal of the incident.
3. Again, at the bottom of LL-2/3, under 'Journal page #', indicate the journal page number where you reported the incident
4. At the end of the trip, record the incident in your trip report.
5. When you disembark, depending on the seriousness of the incident, if it is a critical incident or infringement, contact your agency or the observer programme in the port where you disembark and ask to schedule a pre-debriefing.
6. At the pre-debriefing, ensure the debriefer is aware of the incident.
7. Ensure you have all your material ready at your debriefing

When reporting an incident in your journal, ensure it is described under a **heading** that will make it easy for the debriefer to find it. You could include the GEN-3 code and a short description, for example: '**WC-C FAD Set**'. Indicate the time of the incident with a description. Include relevant details, such as time (use ship's time), position, name(s) of people involved, details of any conversations about the incident (especially if the observer was involved in the conversation), and if there were communication problems. Be clear in your descriptions and unprejudiced in your facts as the information may end up being used in court.

Certain types of incident may occur frequently (for example, LC-d Not recording bycatch discards). In cases where the same issue happens often, one full description in the journal is sufficient at the start. Daily journal reports can then refer to this description but should also include new details relevant to each occurrence, such as the time and position that the issue occurred, and any new descriptions or developments associated with the issue. You can also dedicate a spare page near the back of the journal to list each incident of that type in one place: record date, time, position and brief details of repeated incidents. Ensure the page has a title, such as 'Pollution Incidents'.

### Incident summary: 'Yes' or 'No' with an X

At the end of the trip, you should check back through your LL-2/3 and journal to complete the GEN-3 incident summary by indicating a 'Yes' or 'No' against each listed item. There must be an 'X' in either Yes or No for all items. If you are not sure, use your best judgement to choose Yes or No, and then state that you are unsure and why you are unsure.

It will be easier to complete this section if you have reported the item under a clear heading with the relevant GEN-3 code.

Issues that happen frequently will still be summarised on the GEN-3 form with a single X, although they will also be listed by time/date of incident on the GEN-3 form, page 2, and regularly in the observer's journal. If you have a summary page you may refer to that, such as: 'Journal pg# 56 Pollution Summary'.

### GEN-3 (page 2) Brief details

Once the GEN-3 (page 1) form has all the appropriate 'Xs' in place, use the GEN-3 (page 2) form to give a brief description of the incidents that occurred and the dates. Also, refer the reader to the journal pages for more detailed information about each issue.

For example, this part of the form may look like this:

IF YOU ANSWERED YES TO ANY OF THE ABOVE PLEASE EXPLAIN BRIEF DETAILS IN THE AREA BELOW INDICATE THE PAGE NUMBER OF YOUR JOURNAL OR REPORT IN WHICH A MORE COMPREHENSIVE EXPLANATION IS WRITTEN	
<p><b>Lc-d</b></p>	<p><i>Not record bycatch and discards: This happened most days, the vessel is really only recording the retained target catch on the logsheets. See daily journal pages 2, 3, 4, 7,9, 10,11, 14, 16, 17, 19, 21 and 23.</i></p>
<p>date : <u>23/09/06</u></p>	<p><b>p)</b> <i>Hinder the observer in the carrying out of their duties. See diary page 25. Captain refused to let me see the logsheet on this date, although usually it wasn't a problem, so not sure why.</i></p>
<p>Date: Several</p>	<p><b>k)</b> <i>Breach MARPOL Regulations. Happened a number of times during the trip. See journal page numbers 7, 9, 12, 13, 15, 21 and 23. Mostly discarding monofilament line. No oil spills seen.</i></p>

## Debriefing status

This section is to be completed back in the office before submission of the GEN-3 form to WCPFC. If the data is not yet debriefed at the time of submission, then indicate this. If only pre-debriefed or if debriefing is complete, indicate these instead. This is to let WCPFC know whether or not the incidents have been verified by a debriefer.

### Observer's signature

Please make sure to always sign off this form at the end. The form may need to be used in court and it will be important that it is properly signed off. Signing the form means (1) the observer attests that the information is true, and (2) it makes the form a legal statement.

## Form GEN-4

### Conversion factors

#### Purpose of data collected

The reason for collecting multiple measurements on the same fish is to build up a database of comparative measurements of standardised lengths and weights for each target, key bycatch and SSI species.

Scientists use standard measurements (UF for tuna, LF for billfish, etc.) and how that relates to their live weight for stock assessment. Just from knowing the relationship between the standard lengths and weights of a species, scientists are able to calculate things like a population's total biomass, and to work out how many individual fish the total catch represents, what proportion of the stock is adult or juvenile, whether the stock is stable or suffering a decline, etc.

However, sometimes it is not possible to collect the standard lengths or whole weights. This is particularly the case with port sampling or transshipment monitoring in which the fish are processed, gilled and gutted, perhaps headed and/or tailed. In these cases, alternative lengths or weights can be collected and then the standard lengths and weights calculated by using the conversion factor data for that species.

The GEN-4 'Conversion factor' form is not a standard form and observers are only required to complete it when they have been asked to under a specific project and when they have been trained to collect the data.

#### Header details

OBSERVER NAME <i>Jesse James</i>	MEASURING INSTRUMENT <i>1.5m calliper, reading +2mm</i>	OBSERVER TRIP ID No. .....	PAGE OF .....
VESSEL NAME .....	MAKE, MODEL AND CAPACITY OF SCALES .....	SHIP'S START OF TRIP DATE (YYYYMMDD) .....	SHIP'S END OF TRIP DATE (YYYYMMDD) .....

The header details must be fully filled in on every completed form (for more information on observer name, vessel name, observer trip ID number and page number, see 'Header details', page 12).

As this form records data for comparative measurements, it is important to provide the details for the measurement instruments. If standard callipers are used, make sure to check they are zero. If not zero, include the error in the 'Measurement instrument' field. If scales have been issued, include the make and model of the scales.

#### Detail of weights and measurements collected

SET NO.	SHIPS TIME	LABEL NO.	SPECIES CODE	LENGTHS (in cm.)					WEIGHTS (in kg.)					PROCESSED WGT. (kg.)		LANDED WEIGHT (kg.)		COMMENTS
				UF	US	LF	PF	PS	TL	WHOLE	HEAD	TAIL	GUTS	WET FIN	CODE	CODE	CODE	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Note: Any fish for which there are conversion factor details on the GEN-4 should also be recorded on the LL-4. Also, the set and time details should be the same so that the two entries for the same fish can be matched.

#### Set no.

This is the number of the set of the vessel. This number should be the same as that on the LL-2/3 and LL-4.

## Ship's time

The time that the fish was landed should be given in ship's time. This must be the same as the time for this fish on the LL-4 form so the entries can be matched.

## Label no.

You should be given a set of labels to mark the fish so that you can collect the landed weight when it is unloaded. Write the label number so you can complete the 'Landed weight' section at the end of the trip.

## Species code

Use the standard three-letter species codes you have been taught to record any species that are hooked. These codes are marked in the *Marine species identification manual for horizontal longline fishermen*, the species identification sheets, and the species lists that were provided during training. If necessary, further copies can be obtained through the observer coordinators, SPC or FFA.

## Lengths

Take each of the length measurements listed on the same fish. If you are unable to collect some, put a dash ('-'). You can make a comment to note why the measurement could not be taken.

Remember, as elsewhere, to round the length measurements down to the nearest whole number in centimetres.

## Weights

You need to be able to use proper tested scales for this section. Take the weights and round up or down to the nearest kilogram (kg). Only weigh the features listed if they were cut off. For example, the head can be measured only if it is cut off, and guts only if you can collect them all and weigh them. Wet fins are the fresh (not dried) fin weight for sharks only.

## Processed weight

This is the weight for the final processed state of the fish on the vessel, for example, RGG for tuna, RHG for billfish, etc.

## Landed weight

This is the weight of the final processed state when it is unloaded or transhipped. This is to determine if there is weight loss due to storage.

## Comments

Indicate anything that may have had an impact on the measurements taken, such as a particularly skinny tuna, or if you were unable to measure a length for some reason, etc.

## Form GEN-6

### Pollution report

#### *Data submitted*

The number of GEN-6 forms that must be filled in depends on the number of MARPOL incidents observed during the trip. (MARPOL is the International Convention for the Prevention of Pollution from Ships.) One GEN-6 form must be filled in for each observed MARPOL incident, whether the incident was caused by the observer's vessel or by another vessel.

If no pollution incidents are observed during the trip, this should be confirmed by striking a line across the first GEN-6 page and writing a comment like 'No pollution incidents observed this trip', with header details completed. This will show you have not just forgotten to report pollution events.

#### *Header details*

OBSERVER NAME	VESSEL NAME	OBSERVER ID NUMBER	PAGE	OF
Leban Benson	Van Loic # 786	LAB 05-03	1	1

The header details must be fully filled in on every completed form (for more information on observer name, vessel name, observer trip ID number and page number, see 'Header details', page 12).

Use one GEN-6 form to report on every pollution incident observed. This may mean filling in more than one GEN-6 form during the day. If observers run out of GEN-6 forms, they should keep a note of all pollution infringements in their journal, using the GEN-6 form as a guide to the type of information that should be noted. Compile all the information about pollution infringements in the observer's trip report.

Use the 'Incident details' section to record the time, position, weather details, etc. for each pollution infringement. Then determine which section to complete by the type of pollution that occurred (that is, 'Waste dumped overboard', 'Oil spillages and leakages' or 'Abandoned or lost fishing gear') and fill in the appropriate section. Generally, only one of these boxes will be completed for a pollution incident as it is unlikely that a vessel will dump waste and spill oil at the same time (though it could happen). Fill in the relevant box and put a dash in the other boxes. Finally, answer the questions at the end of the form.

Note: The observer should consider whether the pollution incident was a compliance infringement and report this (see 'Dealing with infringement issues', page 103).

#### *Incident details*

Use the top section of the form to record the time, position, weather details, etc. for when the pollution infringement was first observed. Then choose the data field box to indicate the type of pollution that occurred, that is, waste dumping or oil spillage/leakage.

#### Ship's date and time

Fill in the date and time that the pollution infringement occurred. Use ship's time.

## Latitude / Longitude

The latitude and longitude positions can be recorded from the vessel's GPS (see 'GPS', page 34). Record the latitude (dd° mm.mmm) and longitude (ddd° mm.mmm) to three decimal minutes. Ensure that the GPS is recording to decimal places of minutes and not seconds. Remember to record N for north, S for south, E for east, or W for west.

## EEZ / Harbour

Mark down the name (country) of the EEZ in which the infringement occurred. A list of country codes is on the codes page of the workbook. If the offence took place in the harbour, write down the name of the harbour.

## *Meteorological details*

Wind direction and speed, sea conditions and current determine the drift of floating pollution, especially for oil spills.

## Wind direction

Record the direction in which the wind was blowing when the infringement was first observed. Use the compass in the wheelhouse to work out the wind direction. For wind, this is the direction it is coming from. When recording degrees, use the three-figure notation (see 'Compass degrees', page 93).

## Wind speed

Mark down the wind speed, in knots, when the infringement was first observed. Work out the approximate wind speed from the 'Observers guide to the Beaufort Scale, wind and sea state' table at the back of the observer workbook. A wind speed gauge may also be available in the wheelhouse.

## Sea conditions

Record the state of the sea, using the sea state codes provided in the wind and sea state table at the back of all workbooks. This helps to gauge the sea state using the appearance of the sea. Again, this should be done when the infringement is first observed.

## Current

Ask the captain or another officer about the speed and direction of the main sea current at the time the infringement happened. The observer may be able to get this information directly if a Doppler current meter is onboard and switched on. Record the speed in knots and the direction in degrees. This is the direction the current is flowing towards.

Note: The current direction is the direction the current is moving towards.

The wind direction is the direction the wind is coming from.

## Observer's vessel activity

Give a one-word description (not a code) of the activity that the observer's vessel was involved in when the observer first noticed the MARPOL infringement (that is, transit, setting, soaking, hauling, transhipping, bunkering, etc.).

## *Offending vessel details*


If reporting on a pollution infringement by another vessel and not by the observer's own vessel, record some details on the identification of the infringing vessel. If only reporting on a pollution infringement by the observer's vessel, put a dash in all of the following data fields.

### Name of offending vessel

Fill in the name of the offending vessel in full. If it is not possible to see the full name, but some of the name can be seen, then record the part of the name that is clear and leave question marks for the part that cannot be clearly identified (for example: 'Rodriguez Catcher ???' or 'C????? Maru 88'). Mention in the comments which part of the name was not seen – that is, the number or some letters.

### IRCS

Fill in the IRCS (international radio call sign) for the vessel. This should be visible and marked clearly on the side of the boat.

If it is not possible at any time during the sighting to see the full IRCS, then record the part of the call sign that is clear and leave blanks for the letters or numbers that cannot be clearly identified. For example, if the call sign appears to be 'WR W\*

### Type of vessel

Use the list of 'Vessel and aircraft type codes' marked on the GEN-1 form to note the type of vessel responsible for the pollution. Use type code '31 (Other please specify .....)' if none of the other vessel types fit, and describe it.

### Your position from offending vessel

To help pinpoint the position of any offending vessel, record this additional information.

#### ***Compass bearing***

The compass bearing indicates the direction to the sighted vessel/aircraft from the observer's vessel. The value is recorded in degrees. (Please record degrees, and not N, S, E, W, NE, EWE, etc.) When recording degrees, use the three-figure notation (that is, forty-five degrees is recorded as 045° and not 45°; five degrees is recorded as 005° and not just 5°).

Use the compass in the wheelhouse to determine the compass bearing for the line-of-sight to the sighted vessel/aircraft. It will not matter which direction the observer's vessel is actually heading in; just line up the direction to the sighted vessel and read what this line of direction is on the wheelhouse compass.

As an example, on page 93, the line of sight for vessel #1 is 045° on the compass. The compass bearing will be recorded as 045°. Vessel #2 is directly to the east and so its compass bearing is 090°.

#### ***Distance (nautical miles)***

Observers should ask the captain or another officer if they can use the navigational radar to find the distance of the offending vessel from the host vessel at the time the infringement was first noticed. Record the distance in nautical miles.

## Waste dumped overboard

WASTE DUMPED OVERBOARD			
Material	<small>Tick each box that applies.</small>	Describe Type	Describe Quantity
Plastics		_____	_____
Metals		_____	_____
Waste Oil		_____	_____
Chemicals		_____	_____
Old Fishing gear	✓	<b>Monofilament branchlines</b>	<b>About 10 damaged branchlines during hauling</b>
General Garbage (within 12 miles of shoreline)		_____	_____

Fill this section in if the offending vessel has dumped any type of waste materials overboard. (If significant amounts of fish are dumped, this should also be recorded on the GEN-1 form.) If no waste materials were dumped overboard, just put a dash in this section. Other liquid pollutants that might be seen include liquid chemicals, sewage, deck washings, etc. If observed, these can be reported under the 'Waste dumped overboard' section. Observers should always try to get a photo of any liquid pollution so it can be properly identified.

## Pollution reporting based on MARPOL Regulations

### Waste dumped overboard

- Record all plastics dumped overboard. This includes small amounts of plastics such as monofilament line, plastic bags, bait box straps, etc.
- Record all other dumping of metal objects or mixed materials.
- Biodegradable waste (food, fish offal, sewage, etc.) should not be dumped within 12 nm of land. If a special garbage processor (comminutor or grinder) is used, then this minimum distance is reduced to 3 nm. Use discretion in reporting. It is not necessary to report when a crew member scrapes his dinner plate into the sea, but it is necessary to report on large amounts of fish being dumped near shore.
- 'Waste oil' refers to dumping of oil, generally in containers. It may include lubricants or hydraulic oil. The MARPOL requirement is that vessels do not dump oil within 50 nm of shore.
- 'Chemicals' refers to noxious liquids other than oil. They are generally refrigerants, such as liquid ammonia or other coolants. Report any significant spills or dumping of chemicals. Be careful – ammonia can burn the skin and eyes. Avoid breathing its vapour.
- General garbage is most likely rubbish/waste from the galley or engine room, other than plastics, metals, oils or chemicals. It may also include large personal items dumped by the crew.
- Tick to indicate the type of material that was dumped. Remember to put a dash in the data fields that have not been ticked.
- If any line is ticked, describe the material in more detail under 'Describe type'. For instance, if 'Waste oil' was ticked, describe what sort of oil, and its colour and thickness.
- If any line is ticked, describe the quantity under 'Describe quantity'. Give an idea of the volume if possible. If not, (such as for an oil leak during bunkering), estimate the area that the spill covers.

## Oil spillages and leakages

'Oil spillages and leakages' refer to larger volumes than the waste oil section above and include bunker fuel and lubricants, or even oily bilge water.

Oil pollution can be identified by:

- a deadening or calming of the sea relative to the surrounding sea surface
- the presence of a silvery sheen and/or rainbow colours
- darker patches where the oil is thicker
- the presence of brown, orange, and/or yellow-coloured mousse (foam).

## Source

Most observations of oil will be recorded on the line marked 'Vessel underway'. 'Vessel underway' is the most suitable choice for any vessel that has left port and is present in the fishing ground. This will include transiting, searching, setting, etc.

If the oil is observed when the vessel is bunkering or has stopped other operational activities due to mechanical breakdown or repairs, use 'Other' and briefly describe the vessel's activity.

Hopefully, an observer's vessel will never be involved with a 'Vessel aground/Collision' event. If oil spillages or leakages are spotted when the vessel is still in the harbour, the observer can record the information on the 'Vessel at anchor/Berth' line. It is unlikely that observers will see oil pollution coming from a land-based source unless they are in a harbour. However, this form can also be used by port samplers or any fisheries personnel to report oil pollution.

Tick to indicate the source of the oil. Remember to put a dash in the lines that have not been ticked.

If any line has been ticked, describe the 'Visual appearance/Colour' of the oil. Make notes on the colour of the oil patch. Note if any silvery/rainbow colours, dark patches or coloured mousse (foam, bubbles) were seen.

If any line has been ticked, describe the amount of oil spilled under 'Describe area and quantity'. The size of the observer's host vessel could be used as a size reference. For instance, the oil spill could be reported as twice the size of the area of the boat. For smaller amounts of oil pollution, use callipers or 1 square metre as an area reference.

## *Abandoned or lost fishing gear*

## Source

'Lost fishing gear' should be used when a portion of the primary fishing gear – mainline, branchline or floatline – is lost and the vessel makes an attempt to recover the gear but is unable to.

'Abandoned gear' should be used where gear is lost and the vessel does not attempt to recover it.

'Dumped gear' is when part of the primary fishing gear (for example, the lines) is deliberately dumped.

## Activity

Describe the 'Activity' of the vessel at the time the gear was lost, dumped or abandoned. etc. Examples of activity include setting, hauling or transiting.

## Describe gear

'Describe gear' is used to indicate what part(s) of the primary fishing gear was lost.

'Estimate quantity' is used to detail how much of the gear was lost. For instance, you could indicate the dumping of 'large ball of line after a tangle – about 0.5 m<sup>3</sup>, or 'length of mainline, branchlines and floatlines of 15 baskets'.

Use the comments section to give further detail on the circumstances of the pollution event.

## Questions

There are three short questions to be answered at the end of every GEN-6 form.

Were there any stickers/ posters displayed to remind the vessel about MARPOL Regulations?	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N
Did you take any photos?	<input checked="" type="radio"/> Y <input checked="" type="radio"/> N
If yes, please state the number(s) of the photo frames or files.	31 32

Circle 'Y' to answer yes to any of the questions.

Circle 'N' to answer no to any of the questions.

If a photo was taken, state the photo frame number in the data field provided. Also include the journal page number if relevant.

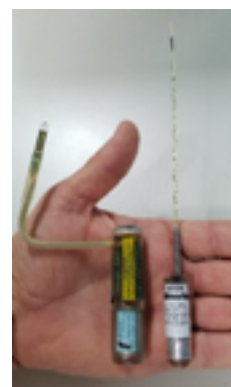
## Tag recovery

The tag recovery form has been added to the *Longline Observer Workbook* to allow observers to record information on tags for any tags that were recovered during the trip, or for tags that were already onboard when the observer boarded the longliner but were not yet recovered. The form can be used to report tagged fish, turtles and birds caught by the fishing vessel.

There are several types of tags – conventional (plastic tags), steel and electronic tags.

The conventional tags are inserted behind the second dorsal fin. The tags may be yellow, orange, green or white:

- An **orange tag** indicates that an archival tag was placed in the abdominal cavity of the tagged tuna.
- A **green tag** indicates that a sonic tag was placed in the abdominal cavity of the tagged tuna.
- A **white tag** indicates that the tagged fish received an injection of strontium chloride (SrCl<sub>2</sub>).



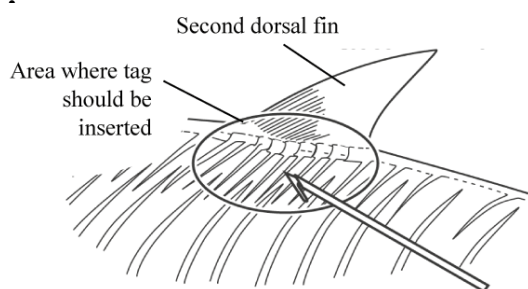
Archival tags



Yellow conventional tag

### What do you do if a tagged fish is caught during your trip?

- Ask permission to put the fish aside.
- Measure the fish. If possible, weigh the fish.
- Verify that there is no archival tag in the belly. You should be able to see the antenna of the archival tag sticking out.
- **If there is an archival or a white tag, do not remove the tags from the fish and do not gill and gut the fish.** Place the fish aside in a freezer (or on ice). Bring the fish to the closest fisheries department office for storage and sampling of the fish. If the fish is frozen, keep the fish frozen at all times. (See the Reward section below.)



- If it is a yellow tag, remove the tag entirely from the fish. Make sure that the front arrow does not remain inside the flesh of the fish.
- Note all the required tag recovery information is in your workbook. If the finder is a crew member, provide a copy to the finder (report the data on another form, or a tag recovery envelope). Do not take the tag from the finder. On your tag recovery form, in the section 'Tag provided with this form' place a cross in 'No' and specify where the crew member can collect their reward. Upon arrival at port, assist the crew member to collect the reward.
- Attach the tag in the comments section of the tagging form (use sticky tape).

### What do you do if a crew member gives you a tag?

- If you observe the fish with the tag inside the fish, follow the same procedure as above.
- Ask when they found the tagged fish and all possible questions to get information about the recovery. If the date when the tag was found is not precise, at least enter the month and year of the catch.
- If the crew gives an approximate date, access the vessel's logbook to find out where the boat was around that date and use the estimate section of the form to report the position.
- If the catch position cannot be retrieved, try to at least describe the region where the tagged fish was caught.
- If the tag was traded and the tagged fish was recaptured by another fishing vessel, note the observer's vessel (please note the information in the general comments section of the form).

## Reward

For each tag reported there is a reward. It is important to ensure that tag finders are given rewards quickly and are therefore happy to continue returning recaptured tags and providing SPC with the necessary information associated with tag recaptures. When any tags are recovered onboard the fishing vessel, upon arrival in port, inform the fisheries office and contact SPC ([tagging@spc.int](mailto:tagging@spc.int)). Tag recoveries may also be reported on a web-based form at [www.spc.int/tagging](http://www.spc.int/tagging)

The website lists all the reward locations and contact details of the Tag Recovery Officer (TRO). A dynamic map allows users to identify the exact location of the TRO.

For a conventional tag (yellow), the reward is either US \$10 (or the equivalent in local currency), a hat or a shirt especially designed for the project.

Rewards for returning the whole fish with the tags left inside the fish are as follows:

- For a white conventional tag, the reward for the finder is US \$100.
- For an orange conventional tag, the reward for the finder is US \$260 (archival tag and orange tag).

*For these tags, the fish is bought not gilled and gutted at a rate of US \$10/kg (fish weight). To make sure the fish can be placed aside, this information must be provided to the captain/fishing company.*

- If the orange tag or the white tag is removed from the fish, the reward is only US \$10. If the archival tag is removed from the fish, the reward is US \$250.
- For the whole fish with the white tag, or the orange tag (with the archival tag inside the belly of the fish), observers will receive a reward of US \$50.

When a tag is recovered onboard:

- fill in the tag recovery form as usual
- take a photo of the fish with the tag still attached to the fish (with a length reference, for example, place the fish on top of a deck tape)
- collect samples (if there is equipment onboard) or keep the fish frozen at all time (or on ice)
- contact SPC immediately and coordinate the return of the fish to the local fisheries office.

## Critical tag information

### Tag number



Find the number on the conventional tag. Be careful to copy the number correctly and write down all numbers and letters. If there is more than one tag, note the other tag number in the comments section.

### Date when tag found

Note the date when the tag was found. **If the exact date is not known, place a dash in the day field and note the month and/or year.** The date for when the tag was found can be different from when the tagged fish was caught (for example, if the tag was found during well transfer or during unloading).

### Where found

Note where the tag was first found. If the tagged fish is found onboard in a well, tick 'Fishing vessel'.

### Activity when found

Note what the tag finder was doing when the tagged fish was found.

### Well number where found

If the tagged fish was found during unloading, note the number and position of the well, for example: Starboard side well #2: S2.

CRITICAL TAG INFORMATION					
TAG NUMBER: <b>P-234516</b>		DATE WHEN TAG FOUND: YY MM DD <b>11 08 26</b>			
WHERE FOUND:	<input checked="" type="checkbox"/> Fishing vessel	<input type="checkbox"/> Reefer / Transfer / Carrier	<input type="checkbox"/> Port Fish market	<input type="checkbox"/> Cold storage	
ACTIVITY WHEN FOUND:	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> Well transfer	<input type="checkbox"/> Transhipment	<input type="checkbox"/> Unloading at port	WELL NUMBER WHERE FISH FOUND: <b>S2</b> (If Applicable)

## Fish information

### Species

Fill in the 3-letter FAO species code. Refer to the species identification manual if necessary. It is very important to be able to tell the difference between juvenile bigeye and yellowfin.

### Species reliability

How sure are you of the species code? The species code will normally be 100% accurate if the observer saw the fish and identified it. In this case, tick the 'Confirmed' box. However, if you have been given a tag that was recovered by a fisher during a previous fishing trip, you may like to make some remarks about how accurate the species code is. For instance, if the fisher tells you it was a yellowfin tuna – how accurate do you think that is? Ask the fisher to describe the fish or to say how they knew it was a yellowfin. If you consider that the crew guessed the species of the fish, tick the 'Guessed' box.

### Fork length (cm) and code

Measure the fish from the upper jaw to the fork in its tail and note the length in centimetres in the length 1 field (code UF).

For turtles, note the measurement of the carapace length in the length 1 field (CL).

For seabird species, note the measurement from the wrist to the fingertips in the length 1 field (code: WL), and the bill length in the length 2 field (code: BL). Use both measurement fields.

**If the length of the species has not been measured**, tick the 'No length information' box and go to the next section.

### How measured?

When you measure the tagged species using callipers, tick 'Measuring tool'. The length measurement information will normally be 100% accurate if the observer was onboard when the fish with the tag was landed. However, if you have been given a tag that was recovered during a previous fishing trip, check whether the measurement was an estimate or was taken using a tool such as a measuring board, ruler, or deck tape. If the measurement was taken with a piece of string, or by eye, tick the 'Estimated' box.

### Who measured?

Did you measure the fish? If the crew estimated the size of the fish, tick the 'Other' box and write 'crew'.

### Fish processed state when measured

What was the condition of the fish when it was measured – was the fish fresh, frozen, previously frozen but then thawed (defrosted)? Was the turtle or the bird alive?

### Weight

If the weight of the species was not measured, tick the 'NO weight information' box and go to the next section. If a weight can be taken on board or at port, note the exact weight in kilograms and grams, for example, 2.8 kg.

### How weighed?

How sure are you of the weight measurement information? If there was a weighing scale available, tick the 'Measuring tool' box. If the weight was estimated by using a length/weight relation, tick the 'Estimated' box and add a comment explaining that a length/weight relation was used.

### Fish processed state when weighed

Was the fish processed (cut up) in any way before it was weighed? Select the state of the fish before it was weighed.

TAGGED SPECIES INFORMATION			
SPECIES: <b>YFT</b>		SPECIES RELIABILITY: <input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Guessed	
LENGTH 1 : (cm) <b>58</b>	LENGTH 2 : if applicable (cm) <b>—</b>	NO length information <input type="checkbox"/>	HOW MEASURED? <input checked="" type="checkbox"/> Measuring tool <input type="checkbox"/> Estimated
Length 1 code: <b>uf</b>	Length 2 code: <b>—</b>	WHO MEASURED? <input type="checkbox"/> Port sampler <input checked="" type="checkbox"/> Observer <input type="checkbox"/> Other.... Please specify:	
PROCESSED STATE WHEN MEASURED: <input type="checkbox"/> Alive <input checked="" type="checkbox"/> Fresh and dead <input type="checkbox"/> Frozen <input type="checkbox"/> Frozen then thawed			
WEIGHT: (kg) <b>6.4</b>	NO weight information <input type="checkbox"/>	HOW WEIGHED? <input checked="" type="checkbox"/> Measuring tool <input type="checkbox"/> Estimated	
PROCESSED STATE WHEN WEIGHED: <input checked="" type="checkbox"/> Whole weight <input type="checkbox"/> Gilled & gutted <input type="checkbox"/> Other.... Please specify:			

## Tagged species catch information

In this section, the left side of the box is for an exact date and position, and the right side of the box is for an estimated date and position.

### Date

How sure are you of the date of capture? The date of capture will normally be 100% accurate if the observer was onboard when the fish with the tag was landed. However, if you have been given a tag that was recovered during a previous fishing trip you may like to make some remarks about the accuracy of the date of capture. Was the fisher very sure about the date? Was it captured during the last trip or a long time before you boarded? Did the fisher make a written record of the date it was recaptured (in a diary for instance)? Note this information in the comment section of the form

**For an exact date of catch tick the 'Exact' box and note the year, month and day of the start of the set.** If you have been given a tag that was recovered during a previous fishing trip or the tag finder cannot remember an exact date, **tick the 'Estimated' box and note the first set date in the date field 'from' and the last set date in the date field 'to'.** This will give the period of time when the tagged fish could have been caught by the fishing vessel.

## Position

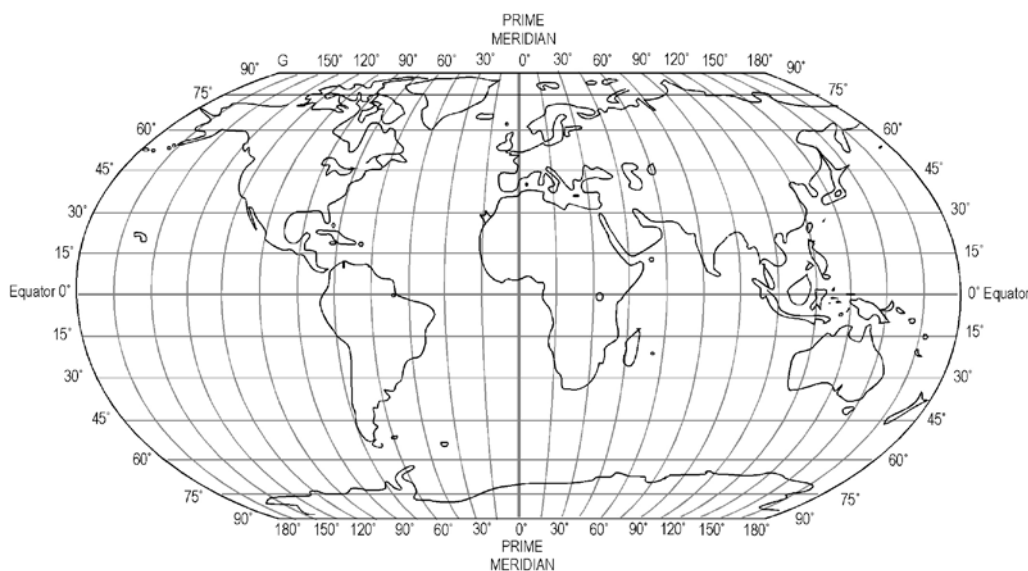
How sure are you of the position information? The position information will normally be 100% accurate if the observer was onboard when the fish with the tag was landed. However, if you have been given a tag that was recovered during a previous fishing trip, you may like to make some remarks about the accuracy of the position of capture. How sure is the fisher of the position of capture? Did they write down any details? Note this information in the comment section of the form.

**For an exact position, tick the 'Exact' box and report the position at the start of the set.** Latitude and longitude are reported in degrees and decimal minutes. **For an estimated area of catch, tick the 'Estimated' box and enter two latitudes and two longitudes** outlining an area that encompasses all of the sets during the estimated period (from the date of the first set to the date of the last set).

Note the position that is further north in the box 'Latitude max', the position further south in the box 'Latitude min', the position further east in the box 'Longitude max' and the position further west in the box 'Longitude min'.

The minimum and maximum latitude and longitude do not have to be from the same set. That is, they do not have to be both the latitude and longitude of the first set and the last set of the period of catch. One latitude and one longitude can come from two different sets. Be aware that on a chart, when facing the 180° meridian, the lines of longitude west are on the right side of the chart, and the lines of longitude east are on the left side of the chart.

**On the left of the 180° meridian, the number of degrees east increases as you move towards the east. On the right of the 180° meridian, the number of degrees west decreases as you move towards the west.**



When selecting the minimum and maximum latitude and longitude of the area of catch, verify in which hemisphere the sets were done.

### For latitude

Fill in the latitude for the position where the fish with the tag was captured. Use the dd° mm.mmm format and remember to fill in whether this position refers to north (N) or south (S) of the equator.

- If all the sets were deployed in latitude north OR latitude south, note the **highest and lowest number in degrees north**, OR note the **highest and lowest number in degrees south**.
- If all the sets were deployed in latitude north AND latitude south, note the **highest number in degrees north**, AND the **highest number in degrees south**.



### For longitude

Fill in the longitude for the position where the fish with the tag was captured. Use the ddd° mm.mmm format and remember to fill in whether this position refers to east (E) or west (W) of the equator.

- If all the sets were deployed in longitude east OR longitude west, note the highest and lowest numbers in degrees east OR the highest and lowest numbers in degrees west.
- If all the sets were deployed in longitude east AND longitude west, note the lowest number in degrees east AND lowest number in degrees west.



TAGGED SPECIES CATCH INFORMATION / Date and position when tagged species was caught by the fishing vessel																		
DATE		Exact <input checked="" type="checkbox"/>			YY	MM	DD	Estimated <input type="checkbox"/>			From	YY	MM	DD	to	YY	MM	DD
					26	08	11											
POSITION		Exact <input checked="" type="checkbox"/>			dd	mm.mmm	N/S	Estimated <input type="checkbox"/>			Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered							
					03	56.450	N											
					ddd	mm.mmm	E/W											
					158	25.300	E											
					Latitude	Min	Max											
					03	50	600											
					Longitude	Min	Max											
					152	20	450											
or DESCRIBE FISHING AREA (if NO Latitude and longitude provided above):																		

Estimated <input checked="" type="checkbox"/>		From	YY	MM	DD	to	YY	MM	DD	Estimated <input checked="" type="checkbox"/>		From	YY	MM	DD	to	YY	MM	DD																					
			11	04	05		11	04	22				11	03	01		11	03	15																					
Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																																						
		dd	mm.mmm	N/S	ddd	mm.mmm	E/W			Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																												
		04	40.500	N	158	25.300	E					Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																										
		03	50.600	S	152	20.450	W							Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																								
		Latitude	Min	Max	04	40	500	N	158	25	300	E					Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																					
		03	50	600	S	152	20	450	W									Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																				
		Latitude	Min	Max	05	02.500	N	150	20	450	E									Estimated <input checked="" type="checkbox"/>		Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																		
		00	50	600	N	145	12	300	E													Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																		
		Longitude	Min	Max	05	02	500	N	150	20	450	E											Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																	
		00	50	600	N	145	12	300	E													Record 2 lines of latitude and 2 of longitude to form area of catch (box) in which tag was likely recovered																		

### Or describe fishing area (if no latitude and longitude provided above)

If you cannot identify the latitude and longitude of a catch or an area of catch, and the catch was close to an island, note the name of the island and how many miles away from the island the area of catch is. If the area of catch can be identified to an EEZ, note the EEZ name (country). If you have a local-area fishing map that refers to the different areas by name or as a 'number/letter format', fill in the name or the grid reference for the area the fish was captured in here.

## Fishery information

Note in this section all information relevant to the catcher vessel that caught the tagged species.

### ***Vessel name***

Fill in the name of the vessel that the recovered tuna was captured by. Make sure to write out the name fully and include any numbers that are at the end of the name.

### ***Flag***

Fill in the flag of the vessel that captured the fish with the tag. Fill in the nationality as recorded on the country registration certificate or vessel license.

### ***Fishing method***

Note the fishing method used to catch the fish (if the crew do some hand-line fishing onboard a longline vessel, report that it was hand-line and not longline).

### ***School type***

This question is more relevant for observers onboard purse-seine vessels. Observers on longline vessels can just dash this field if necessary.

## Transshipment information

This section will be only completed if you find a tagged fish during transshipment. Do not fill the transshipment section if the tagged fish was found during fishing activities.

### ***Name of carrier***

Fill in the name of the carrier that the fishing vessel is unloading to when a tag was found. Make sure you write out the name fully and include any numbers at the end of the name.

### ***Date of transshipment from fishing vessel to carrier***

Note the start and end dates of the transshipment. If it only lasted a day, then write the same date in both fields.

### ***Location of transshipment***

Note the port where the transshipment took place, or if at sea, note the EEZ.

### ***Transshipment position***

Note the latitude and longitude of the transshipment only if it happens at sea.

TRANSHIPMENT INFORMATION/ Carrier only (fill this section only if tag found during set share / transshipment / unloading)													
NAME OF CARRIER: <i>TaiXing</i>	FLAG: <i>CN</i>	DATE OF TRANSHIPMENT FROM FISHING VESSEL TO CARRIER:		YY	MM	DD	to	YY	MM	DD			
				<i>12</i>	<i>09</i>	<i>08</i>		<i>12</i>	<i>09</i>	<i>08</i>			
LOCATION OF TRANSHIPMENT FROM FISHING VESSEL TO CARRIER (EEZ/Port): <i>FSM EEZ</i>		TRANSHIPMENT POSITION:		Latitude	dd	mm.mmm	N / S	Longitude	ddd	mm.mmm	E / W		
					<i>05</i>	<i>09</i>	<i>112</i>	<i>N</i>		<i>156</i>	<i>00</i>	<i>120</i>	<i>W</i>

## Finder information

### ***Finder name***

Name the person who found the tag. Write in the full name (first name first and surname last).

The name of the finder is important so we know who to send tag return rewards to. Also, tag lotteries are conducted regularly and only tags with names of finders enter this lottery.

### ***Finder address***

This address will be used to send the finder a reward. Remember to include any post codes if relevant. If the finder has no address, note down the company's address.

### ***Country of recovery***

Write the name of the country that the tag was recovered in. If the tag was recovered at sea, write the name of the country of the return port.

### ***Recapture information received at***

Note the name of the fishing vessel you are observing on. A tag may be traded between fishers. Recapture information received at is different from the name of the fishing vessel that captured the tagged fish, SPC will understand that the recapture information might be inaccurate.

### ***Tag provided with this form***

In some cases, you can make a copy of the form to give to the finder. The finder can keep the tag to claim the reward in a major port where a Tag Recovery Officer is present. Here you need to mention if the recaptured tag was provided or not with the form in your workbook. Tick 'Yes' or 'No'. If 'No', please try to indicate in which port the finder is likely to hand the tag back for reward purposes.

### ***Type of reward***


Normally this data field is filled in by the person you submit the tag to. Observers can leave this data field blank.

### ***Form completed by***

If you have completed this form, fill in your name here. Note your name followed by the mention 'Observer'. You can write your trip ID number if you provide a copy of the form to the finder.

### ***Comments***

Use 'Comments' to add to the information in the form, such as the archival tag number and whether a tagged turtle or tagged bird was released alive with the tag on. If there is a tag (that is, the tag was removed) attach the tag in the comments section (use sticky tape).

FINDER INFORMATION / finder details for lottery			
FINDER NAME: <i>Joselito Zamora</i>		FINDER ADDRESS: <i>Frabelle PNG ltd</i>	
COUNTRY OF RECOVERY: <i>PNG</i>		RECOVERY INFORMATION RECEIVED AT/ON (Cannery/Company/Agency name/vessel name): <i>Obs Linsay Kovero</i>	
TAG PROVIDED WITH THIS FORM: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(tag kept by finder for reward purpose) IF NO, specify expected reward location for finder (Port/Country): <i>Madang</i>	
TYPE OF REWARD: <input type="checkbox"/> Not given <input type="checkbox"/> T-shirt <input type="checkbox"/> Cap <input checked="" type="checkbox"/> Cash - amount: <i>30 PGK</i>		FORM COMPLETED BY: <i>Obs Linsay Kovero</i>	
COMMENTS: IF A TAGGED TURTLE / TAGGED BIRD WAS RELEASED ALIVE, DID YOU LEAVE THE TAGS ON ? Specify below.			
			
ARCHIVAL TAG NUMBER (If applicable):			



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