



## CCAMLR 2023 Observer Krill Trawl Logbook – Instructions

**Version: OKv2023**

### Introduction

The following instructions cover the 2023 version of the CCAMLR SISO Observer Krill Trawl logbook, an excel based series of datasheets which SISO observers are required to complete. Even if you are familiar with CCAMLR excel logbooks, please take time to browse through these instructions as the format and content of the krill trawl logbook has changed significantly from previous versions.

General comments that apply to the whole logbook are as follows:

- Data can only be entered into cells with a white background. All other areas of the logbook are locked and cannot be edited. You can fill down data for fields where repetitive information is required to be entered (for example the Haul number for each bycatch species record).
- There are numerous data validations and format restrictions that have been applied to data fields. For example the Haul ID field which exists in several worksheets can only be entered as a whole number, and date and time fields must be entered in the format specified. If you attempt to enter an incorrect data type an error message will be displayed with an explanation of why the value cannot be entered.
- In many fields observers select from a series of predefined descriptions of the event appropriate to the data field. This replaces the single letter or number codes that were used in older versions of the logbooks. This makes the logbook much more straightforward to use.
- Comment fields have mostly been removed from the logbook. This is to minimize the unstructured data contained in the logbook. Where comments may be required you can often select an option that refers to the cruise report, in which you can describe the issue in detail and include photos or diagrams if necessary.
- For species and processing codes, drop down reference lists have been included at the top of the sheet, these are cells with a light green background.

In addition to these instructions there is an extensive list of observer resources on the CCAMLR Observer Information webpage: <https://www.ccamlr.org/en/science/information-technical-coordinators-and-scientific-observers>. In particular the common fish species bycatch guide (<https://www.ccamlr.org/en/document/science/common-fish-catch-species-ccamlr-krill-fisheries>), should be downloaded for reference if this has not been issued to you by your technical coordinator.

### Worksheet - Vessel and Gear

Vessel and Observer Details: To populate the vessel details please enter the vessel IMO number. The vessel name and call sign will be automatically displayed if the IMO number exists in the vessel list. If the number is not recognized please enter the vessel name and call sign into the appropriate cells.

Fishing Details: Upon notification by your technical coordinator of your upcoming CCAMLR trip, the Secretariat or your technical coordinator can provide a copy of the vessel notification details which include gear type and characteristics. Please check these when on board the vessel to ensure that they

are correct. If there are differences in the gear type and configuration please describe them in your cruise report. Provide information on monitor cables, offal discards and net cleaning as indicated.

### **Worksheet – Set and Haul Details**

This sheet contains details for each set and haul that take place during your cruise. The field Haul Number (which is also included in other worksheets) should be a consecutive, unique number that matches the Haul ID used by the vessel for their commercial data forms. Please fill in all set and haul details for your cruise, even if you conduct no catch, bycatch or other observations during their operation. Fill in all other fields as appropriate, selecting an option from the drop-down menus for some fields. The field for salps being present in the catch sample is a new field, please select the appropriate option based on your bycatch sample observations, otherwise indicate unknown for hauls that you have not sampled. Please note that in these forms all times are to be recorded in UTC, rather than local ship time.

### **Worksheet - Krill Biological**

This form is designed for the collection of biological information (e.g. length, sex and maturity stage of krill). The Haul ID number from which the data were collected must be recorded, as this links the sample with the trawl. If comments are needed or other measurements are recorded, please place the information in the comments column provided.

Observers are requested to sample 200 krill from one randomly selected haul every three days between November and February. Between March and October sampling should be conducted once every five days during each 20 day period, or from one sample per day for 5 days for continuous fishing methods. A new 20 day period will commence if the vessel moves operation >50 nautical miles, or moves between CCAMLR statistical areas.

Measurement of Krill: Krill length measurements are taken from the front of the eye to the tip of the telson (see Figure 1).

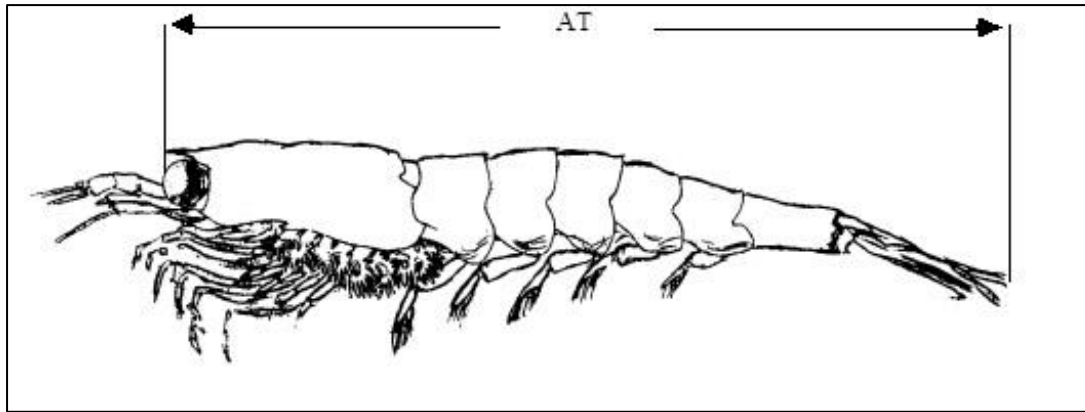
Sex: Male, female or unknown. The following key will help to determine this.

Maturity Stage: Maturity stages are recorded as follows: 1. Juvenile; 2. Adult; 3. Gravid. The following key will help to determine this.

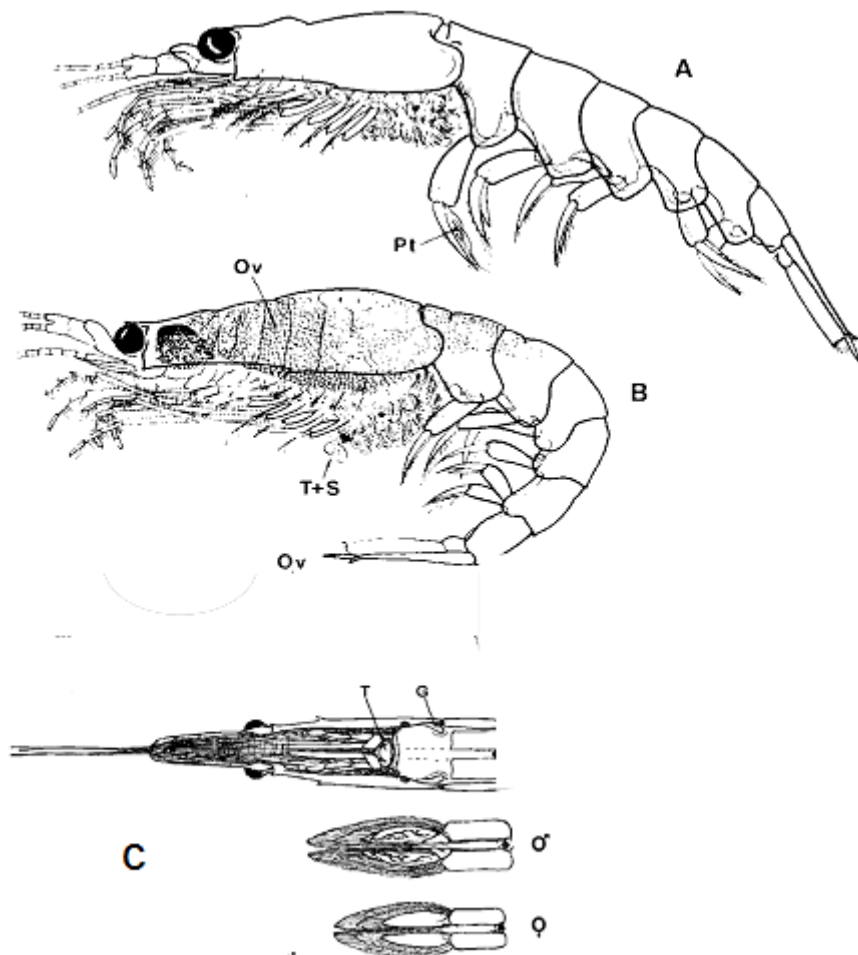
Step 1. Presence of the petasmae: This organ in its various forms (stages of development) appears in males from approximately 28 mm in length. Beginning from this size, all specimens being sorted which do not have a petasma (modified endopods of the first pair of pleopods - see Figure 2) are females. The petasmae are usually folded back and tucked inside the plate of the swimming leg next to the lobes.

Step 2. Presence of the thelycum: Adult female krill can be identified by the presence of the thelycum (Figure 2), which is often reddish in colour, in the case of gravid females the carapace is highly swollen relative to non-gravid females.

Step 3. Juveniles are easily identified as having no external sexual characteristics, either petasma or thelycum and are usually less than 28 mm.



**Figure 1:** Measurement of total body length (AT) of krill caught during commercial fishing operations: front of eye to tip of telson, to the nearest millimetre below.



**Figure 2:** *Euphausia superba*. A - mature male showing the location of the petasma (Pt) on the first pleopod , B - mature female, showing swollen ovaries (Ov) and the thelycum with spermatophores (T+S), and C - ventral view of female krill ( with posterior most gills and endopods (lower parts of the first pleopods) removed for clarity) showing the thelycum (T) and the location of the base of last gills (G) with an inset of first pleopod of a male krill showing the petasma and the first pleopod of a female or juvenile (adapted from BIOMASS Handbook, No. 11 and material from BAS).

**Krill Colouration:** The presence or absence of green/brown colouration (see Figure 3) of the intestines or liver (which indicated feeding) should be recorded for all krill measured.



**Figure 3:** Krill feeding colour.

Top image = 0 (transparent)

Bottom image = 1 (green/brown colouration)



### Worksheet - Bycatch Sampling

In order to quantify the bycatch of fish and invertebrates the observer should select a haul or a two-hour haul unit period for continuous fishing, and collect a 25kg sample of krill from a point on the vessel where no pre-sorting of the catch has occurred. Sort through this sample, identify all bycatch species and record the number and total weight for each species. No further subsampling of the 25kg sample is required, therefore make sure you sort through the sample very thoroughly!

### Worksheet - Bycatch Measurements

Measure the total length of each individual bycatch taxa found in your 25kg bycatch samples, ensuring that the same Haul ID is recorded in both the bycatch sampling and bycatch.

Digital photographs should be taken where:

1. There is uncertainty about identification of a fish.
2. In order to verify the identification of important species (i.e. a species that makes up more than 80% by mass or number of fish in a sample where >50 fish are recorded).

All digital photographs should include the vessel name, haul number, and date. The photographs should be verified by national experts or submitted via the Secretariat for validation.

### Worksheet - Incidental Mortality of Seabirds and Marine Mammals (IMAF)

Seabird and marine mammal by-catch: Assessing bird catch rates during the haul can only be done accurately by observations made from the outside working deck, because on many vessels a work station on the ship's bridge or factory can obscure visibility. Data-recording tasks to be carried out during hauling include observations of seabird and marine mammal entanglements and the trawl stage during which this occurred. Observers must record whether or not they actually saw the bird come on board, or if they were given the information by a crew member.

For each bird or mammal hauled on board, record species, fate of the animal and the cause of injury. Refer to the identification plates for Southern Ocean seabirds given in the book *Fish the Sea, Not the Sky* (CCAMLR, 1996).

Seabirds that are taken aboard dead may be retained as frozen samples if required by your organization. Label the sample with the date, time taken aboard, species, vessel name, observer's name and a label number which corresponds to that used on the Haul IMAF data sheet. All birds should be checked for bands upon landing. Look at your assignment issued by your employing organization for information on the handling of collected bird samples and/or bands for when you disembark the vessel.

### **Worksheet - Warp Strike**

This form is for recording interactions of seabirds with the trawl warps. Observations should be made during any net shooting event, or at least once daily over a 15 minute period when trawling, during one of the following activity periods.

- Net setting
- Deck being washed down after net shooting
- When the vessel is turning
- Other high risk events (please provide comments in your cruise report describing these events)
- A random 15 minute period that does not fall within a high-risk time.

Record the appropriate activity in the Observation Period field.

Always select the warp on the side of the vessel where most discharge occurs (based on your familiarity with the vessel) and monitor this warp and record the distance from the vessel that the warp enters the water throughout the trip. If a turn occurs during your observation record the direction of the turn. For each 15 minute observation period record the level of offal and discards discharged. Offal is defined as bait and by-products from the processing of fish and other organisms, but excludes stick water, which is the liquid discharge produced during krill and fish processing. Discards are defined as whole fish or other organisms returned to the sea dead, or with low expectation of survival. The Offal or Stick Water discharge categories you can select from are as follows:

- None: No observations
- Minor: Up to three observations of offal during a one minute period
- Moderate: Between three and six observations of offal during a one minute period
- Continuous: Offal discharged at less than 10 second intervals.

### **Worksheet - Waste Disposal**

This form is designed to collect summary information relating to the loss, retention and discarding of fishing gear and waste products at sea. Please select the option from the drop-down menu for each field. Definitions for each item are as follows:

Fishing Gear: This refers to all fishing gear that is no longer usable due to damage or loss.

General Waste: This refers to all other waste such as plastics, metal, packaging material, oil and sewage.

Lost: Refers to gear or waste that was unintentionally swept into the sea; e.g. washed into the sea due to rough weather or the loss of a longline or trawl net etc.

Discarded: Refers to the intentional dumping of gear or waste into the sea; e.g. the dumping of galley waste, plastics or damaged fishing gear.

For items that are either lost or discarded there are three categories to select from regarding the frequency for which this occurs. Occasionally (less than once a week or once a month), weekly (up to several times a week) and daily (every day).

The retained column refers to how the waste is retained for disposal back on shore: non-incinerated or incinerated.

Please use your cruise report to detailed specific concerns or problems in detail.

### **Worksheet - Unknown Vessels and Gear**

This worksheet is for reporting sightings by observers of unknown gear, refuse or vessels, or those vessels suspected to be engaging in IUU fishing activities. Please only include sightings and their details that you personally observe. It is a vessel responsibility to report any IUU sightings to the Secretariat as soon as practicable, however information collected by observers also provides important information, particularly supplementary photographs and comments on vessel appearance and activity.

Fill out the details for each gear or vessel sighting as instructed in the worksheet. If necessary provide a more detailed description in the Cruise Report, as well as attaching photos if any are taken. If a vessel is sighted several times within a day complete a record for each time. Vessel name, call sign and flag are to be obtained from what is seen on the vessel or from radio contact with the vessel (the source of this information must be reported). For recovered gill nets please provide measurements of mesh size.