

Commercial Data Collection Manual

Longline Fisheries

Version 2025



This manual is produced in the official languages of the Commission (English, French, Russian and Spanish) and may be downloaded from the CCAMLR website (<https://www.ccamlr.org/node/75666>).

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2025	September 2024	en_C2v2025 fr_C2v2025 sp_C2v2025 ru_C2v2025	Additions to tagging protocol and skate sampling.

1. Table of Contents

1.	Table of Contents	3
2.	Introduction	4
3.	Definition of Terms	4
4.	CCAMLR regulations	6
5.	Catch and Effort (CE) Form	7
6.	General procedures	7
6.1	Data Entry on Forms	7
6.2	Conducting a Conversion Factor Test	8
6.3	Tagging Procedure	10
6.4	Vulnerable Marine Ecosystem (VME) Data	11
7.	C2 Form – Individual Worksheet Instructions	12
7.1	Vessel and Gear	12
7.2	Set and Haul Details	13
7.3	Haul Catch	14
7.4	Conversion Factors	15
7.5	Tagging	15
7.6	Tag Recapture	16
7.7	Vulnerable Marine Ecosystems (VME)	17
7.8	CCAMLR Codes	17
8.	CCAMLR resources	17
9.	Appendix 1 – Map of the CAMLR Convention Area	19
10.	Appendix 2 – Tagging Protocol for Toothfish and Skates	20
10.1	Toothfish Tagging Procedure and Suitability Assessment	21
10.2	Skate Tagging Procedure and Suitability Assessment	23

2. Introduction

The Commission for the Conservation of Antarctic Marine Living resources (CCAMLR) requires both catch and effort reporting (CE), and fine-scale catch and effort data, also known as haul by haul data (C2) to be supplied by members participating in CCAMLR longline fisheries. Both CE and C2 data are submitted to the CCAMLR Secretariat on excel-forms that are aligned in structure with observer data forms. This manual covers the terms and methods that are used for the collection of data by vessels in CCAMLR longline fisheries, instructions on completing the C2 forms, and information on the relevant regulations that apply to CCAMLR longline fisheries. Feedback on the manual, or any queries regarding the content can be addressed to: data@ccamlr.org.

CE and C2 data reporting are mandatory in all longline fisheries, and must be submitted to the Secretariat by email (data@ccamlr.org). Data are reported by the vessel's Flag State, and the regulations covering data submission requirements are detailed in Section 4 of this manual. In addition to CE and C2 data, vessels participating in exploratory fisheries are required to collect and report data related to monitoring of interactions with Vulnerable Marine Ecosystem (VME) indicator taxa. Detailed instructions on completing the C2 form are in Appendix 2 of this manual, and detailed instructions on completing the VME indicator form are in Appendix 3.

All CCAMLR vessel data collection forms are reviewed annually before the commencement of a new fishing season, and are circulated to all Members and updated on the CCAMLR website (<https://www.ccamlr.org/node/74640>). Major structural changes to any of the data collection forms will be informed to Members by August, so that data collection methods and training can be conducted prior to a new season. However, final versions of data forms and instructions are circulated as soon as practicable after the Commission meetings in October to account for decisions made. It is therefore important to ensure that fishing vessels are in possession of the up-to-date forms before embarking on a new trip, and it is recommended that the responsible officer(s) on each vessel take time to ensure they are familiar with these forms.

3. Definition of Terms

The following definitions are for the purpose of clarification, to avoid confusion with other fishery operations terminologies and to ensure standardisation with other manuals.

Autoline: Longline fishing gear type consisting of a single weighted mainline with hooks attached with short snoods or connectors which are mechanically baited during deployment. Additional information and diagrams are available in the [CCAMLR gear library](#).

By-catch: By-catch includes all living material (excluding target species) which is caught whilst fishing. This includes discarded catch and the part of the catch which is not landed but affected by interactions with fishing gear, with the exception of seabirds and marine mammal interactions – see IMAF.

C2: Fine scale catch and effort data form, also known as the C2 data form.

CE: Catch and Effort Data form used for in-season fishery monitoring.

Conservation Measure a regulation designed to support the conservation of Antarctic marine living resources and the management of fisheries in the Southern Ocean. These are reviewed and developed at each annual meeting of the Commission, and subsequently implemented by Members during the ensuing intersessional period and fishing season.

Conversion factor: The ratio between the total weight of a fish or fishes caught (referred to as green weight) divided by the weight of the same fish or fishes after processing (referred to as processed weight). A conversion factor is specific to a processing code. The conversion factor is used to calculate the total greenweight of catch taken for a particular species, back-calculated from the processed products.

Discards: Whole fish or other organisms returned to the sea dead or with low expectation of survival.

Haul: The act of hauling a fishing line, or the recovery of fishing gear. Hauling begins when the first anchor attached to the main line is recovered on board the vessel. The haul ends when the final anchor attached to the main line is recovered by the vessel.

IMAF: Incidental mortality associated with fishing. Refers to marine mammal and seabird interactions.

Longline: Longline is a type of fishing gear consisting of a mainline (and other support lines), which is a long rope or cable with a series of baited hooks attached to it via short branch lines or snoods, and other components including floats, weights, and secondary lines. Additional information and diagrams are available in the [CCAMLR gear library](#)

Line segment: A 1 000-hook section of line or a 1 200 m section of mainline, whichever is the shorter (CM 22-06). For pot lines it is defined as a 1 200 m section.

Offal: Bait and by-products from the processing of catch or bycatch, including organisms or parts of fish which are by-products of processing.

Risk Area: An area where 10 or more VME indicator units are recovered within a single line segment. A risk area has a radius of 1 n mile from the midpoint of the line segment from which the VME indicator units are recovered.

Setting: The act of deploying a line with hooks attached. Setting begins when the first anchor attached to the main line is deployed by the vessel. The set ends when the last anchor attached to the main line is deployed by the vessel.

Spanish line or double line: A bottom longline gear type, where a secondary backbone line is attached to the main fishing longline. Additional information and diagrams are available in the [CCAMLR gear library](#).

Tag: Generally refers to T-bar style plastic tags, supplied by the CCAMLR Secretariat, which have unique serial numbers. They are used on toothfish and skate species. Older style tags include dart tags, and satellite pop-up tags are occasionally deployed for research purposes.

Trotline: A bottom longline gear type where clusters of baited hooks are attached to the floating main line on branch lines, known as trots or dropper lines. Additional information and diagrams are available in the [CCAMLR gear library](#).

VME: Vulnerable marine ecosystem. In the context of CCAMLR this refers to fragile species and habitat found on seamounts, hydrothermal vents, cold water corals and sponge fields.

VME indicator organism or taxon: Any benthic organism listed in the CCAMLR VME Taxa Classification Guide (<https://www.ccamlr.org/node/74322>).

VME indicator unit: Either one litre of VME indicator organisms that can be placed in a 10-litre container; or one kilogram of those VME indicator organisms that do not fit into a 10-litre container.

4. CCAMLR regulations

CCAMLR implements a comprehensive set of regulations to support the conservation of Antarctic marine living resources and the management of fisheries in the Southern Ocean. These Conservation Measures are reviewed and developed at each annual meeting of the Commission, and subsequently implemented by Members during the ensuing fishing season. Conservation measures are published in the annual Schedule of Conservation Measures in Force. <https://cm.ccamlr.org/en>

Members are notified of new or amended Conservation Measures in early November, following the Commission's annual meeting, and these are usually implemented on 1 December to align with the start of the fishing season. Conservation Measures become binding, according to Article IX.6 of the Convention, around early May of the following year (180 days after the first notification).

Some Measures apply to a specific time period (e.g. a fishing season) while other Measures remain in force at all times. Measures which are no longer applicable are removed from the schedule and archived by the Secretariat.

Conservation Measures are listed under general categories, and each Measure is uniquely identified by a numeric code consisting of a leading 2-digit code designating the category to which the Measure belongs and a trailing 2-digit number identifying the Measure within that category; the year in which the version of the Measure was agreed follows in brackets, e.g. 22-06 (2010). The categories used for the Measures are:

Compliance (10 series)

General fishery matters (20 series)

Fishery regulations (30-60 series)

Protected areas (90 series)

Of particular relevance to vessels in CCAMLR longline fisheries are the 20 series as these Measures contain data collection and submission requirements, and the 30 and 40 series, as these cover fishery regulations at both a CCAMLR Convention Area wide scale, and at individual smaller Subarea scales.

5. Catch and Effort (CE) Form

Vessels in CCAMLR longline fisheries are required to complete the finfish fishery CE form. The form and detailed instructions on how to complete it are located on the CCAMLR website here: <https://www.ccamlr.org/en/node/74766>. Catch and effort data are used to monitor CCAMLR fisheries and to forecast fishery closures, so it is critically important to ensure that data are submitted at the correct frequency as required by the relevant Conservation Measure for the fishery you are operating in.

6. General procedures

6.1 Data Entry on Forms

CCAMLR data collection forms are reviewed annually before the commencement of a new season, are circulated to all Members, and are updated on the CCAMLR website here (<https://www.ccamlr.org/en/data/ccamlr-data-forms>). It is therefore important to ensure that fishing vessels are in possession of the up-to-date form before embarking on the new trip, and it is recommended that the responsible officer(s) on each vessel take time to ensure they are familiar with these forms. For the longline fisheries C2 form the following general comments should be noted:

- Please use a new C2 form for each month's data submission to ensure that data are not accidentally duplicated or corrupted
- Data should only be entered into cells with a white background
- Rows can be inserted to add additional data, however please do not add additional columns to the workbook
- If you need to resubmit or update any data after the submission of the original form please use the same file with the changes included, rather than a completely new submission.

A list of standard data entry formats is listed in in Table 1

Table 1: Description of standard data entry formats

Field	Format	Description
Date	dd/mm/yyyy	dd = day, mm = month yyyy = year (e.g. 31/12/2018)
Time	hh:mm	hh = hour, mm = minute. All times are recorded in 24-hour format (e.g. 21:20, NOT 9:20pm) and are recorded in UTC, NOT local times.
Latitude degrees	-DD	DD = degrees e.g. -65 for 65 degrees South
Longitude degrees	-DDD for West + DDD for East	DDD = degrees (e.g. -52 for 52 degrees West and 172 for 172 degrees East)
Latitude and longitude decimal minutes	MM.mm	MM = minute, mm = decimal minute (e.g. 26.12). Decimal minutes should be recorded to at least two decimal places

6.2 Conducting a Conversion Factor Test

The process to determine the live or green weight of target species is commonly undertaken by multiplying the weight of processed fish and fish products with an appropriate scaling factor. This scaling factor is known as a conversion factor and data regarding conversion factors are reported in a section of the C2 form (see section 7.4). The recommended process to calculate a conversion factor is as follows:

Process: The process of determining a conversion factor (Table 2) is by recording individual fish weights in an unprocessed state and later recording the weights of the same individual fish when processed. The conversion factor value is the number obtained by dividing the green weight by the processed weight. Conversion factor tests should be conducted for each processing code used.

Number of Fish and Frequency of Sampling: Sample five fish per individual haul with a weekly sample size of 25 individuals

Table 2: Conversion Factor Step by Step Procedure

01	Randomly select the fish that will be used for the process. It is important to select fish sizes that are representative of the whole catch for the haul
02	Drain the water from the fish's stomach using a sharp knife or a pipe (Figure A1) to ensure that water swallowed by the fish during the hauling process is not included as part of the live weight
03	Weigh the fish whole and unprocessed, before any parts are removed.
04	Record the product type (e.g. HGT for headed, gutted and tailed) and if appropriate the cut type (e.g. straight cut)
05	Record the weight of the final processed product for each fish. For HGT this is normally just the trunk of the fish (Figure A2). Calculate the conversion factor by dividing the whole live weight by the processed weight



Figure A1: Demonstration of a drain tube used for draining toothfish stomachs of water



Figure A2: Trunks produced using the HGT processing method. Photo: Knowledge Xuba (Imvelo Blue environment Consultancy).

6.3 Tagging Procedure

The CCAMLR tagging program is administered by the Secretariat which provides standardised tagging protocols and tagging equipment to fishing vessels engaged. This standardisation is an essential component of the tagging programme as CCAMLR uses the tag recapture rates as the basis of abundance estimation for toothfish.

The Secretariat receives and stores data on all fish that are tagged as well as data on the subsequent recapture of those fish. Each recapture is linked to its release event which generates data for use in population estimates as well as to examine movements and growth.

Tagging of toothfish species within the CCAMLR Convention Area should be undertaken using CCAMLR tagging programme tags and equipment, with the exception of the Australian and French EEZ fisheries in Divisions 58.5.1, 58.5.2 and Subarea 58.6 as these run independent tagging programmes. The tagging of skates and rays is currently voluntary, although in season 2028 a proposed mandatory skate tagging programme has been recommended for the Subarea 88.1 & 88.2 fisheries. Additionally, tagging of these species does occur in some domestic EEZ fisheries within the Convention Area, and as part of dedicated research studies. Any voluntary skate tagging should follow CCAMLR protocols.

For CCAMLR fisheries tagging is a vessel responsibility, although in the Australian EEZ fishery in Division 58.5.2 observers are tasked with tagging and data reporting requirements. It is therefore expected that the vessel will either train and assign the crew to conduct tagging as per the recommended CCAMLR best practices, and coordinate with an observer to ensure tagging operations and data reporting occur correctly. Tagging should follow Appendix 2 in this document, and the extensive CCAMLR toothfish and skate tagging guide which can be found at <https://www.ccamlr.org/node/85702>. The guide should be provided to whomever is responsible for tagging prior to embarkation of the vessel. Pay particular attention to the handling recommendations for large fish. Videos of tagging processes can also be requested from the Secretariat to aid with training. Step by step tagging posters are also available to make best practices information available at the tagging station.

Tagging requirements and tag overlap statistic

The required tagging rate (number of fish tagged per tonne of catch) varies depending on the fishery. Tagging rates are specified for each fishery in the relevant 40 series Conservation Measure. To reflect sizes of fish caught, the length frequency of tagged toothfish must have at least 60% overlap with the length frequency of caught toothfish for each species, unless fewer than 30 toothfish have been tagged. The tag overlap statistic is calculated by comparing the length frequency of tagged fish, with the length frequency of fish reported by the observer(s) in the SISO Longline Logbook. The Secretariat has developed an R library with a function to calculate the overlaps statistic, which is available from the CCAMLR website.

Holding Tanks

Holding tanks are often used to hold and assess suitable fish for later tagging, however overall time fish are held in a holding tank should be minimized. If large predators (e.g. Orcas or Sperm Whales) are present fish should not be released from the holding tank. If possible toothfish and skates should be held separately to reduce potential injury to each other. The design of any Holding Tank should conform to the following specifications:

- Smooth walled, and circular if possible
- A minimum of two meters in length and width.
- The depth of the holding tank should be sufficient to allow for complete submersion of fish
- Clean, flowing water should be provided at times.

6.4 Vulnerable Marine Ecosystem (VME) Data

Compared other areas where bottom fishing occurs, the Southern Ocean has extremely limited data on both the prevailing bottom topography and associated benthic marine ecosystems. Furthermore, the impacts of fishing gear on vulnerable taxa may be magnified because of the long recovery time for those species. As a result, data on VME indicator taxa are collected by both fishing vessels and scientific observers in CCAMLR exploratory fisheries. If large quantities of VME taxa are encountered, fishing activities must immediately cease in that location. It is recommended that

vessel officials familiarize themselves with Conservation Measures 22-06 (<https://cm.ccamlr.org/en/measure-22-06-2019>) and 22-07 (<https://cm.ccamlr.org/en/measure-22-07-2013>) to understand in which fisheries VME data are required to be reported. CM 22-09 also contains details of areas closed to fishing (<https://cm.ccamlr.org/en/measure-22-09-2012>).

Vessels are required to clearly mark fishing lines into line segments. A colour-coding or other system should be used for marking each line section, so that crew, master, and observer are able to tell which line segment is being hauled. For each line segment, the vessel must:

- a) retain all VME-indicator organisms in 10-litre containers.
- b) record the quantity of VME-indicator units recovered, including where none were caught.
- c) If 5 or more VME-indicator units are recovered within one line segment the vessel must immediately notify this to the CCAMLR Secretariat.
- d) If 10 or more VME indicator units are recovered in one line segment the vessel must immediately notify this to the CCAMLR Secretariat, complete hauling any lines intersecting with the Risk Area without delay and not to set any further lines intersecting with the Risk Area.

7. C2 Form – Individual Worksheet Instructions

The C2 form consists of seven individual worksheets for recording data on particular topics required by all fisheries, with an eighth worksheet for fisheries where VME data are required to be collected. It is similar in structure to the SISO observer logbook, and includes many internal validations to reduce data entry errors. For example an error message will be displayed if text is attempted to be entered in a numeric field such as weight, or number of fish. Some fields are also restricted to drop-down lists for codes such as species, or bait type to improve data quality. Where worksheet contains these code fields you will find at the top of the worksheet green cells which contain drop-down reference guides to assist with code completion. Please do not alter the structure of the C2 workbook.

7.1 Vessel and Gear

Vessel information

All fields on this worksheet must be completed. Vessel call sign is the international radio call sign of the vessel. IMO Number is the International Maritime Organisation ID number that consists of 7 digits. This is a permanent vessel ID number that does not change even if the vessel changes flags and/or ownership. Enter the name(s) of the SISO/national scientific observer(s) on board the vessel, the name of the person completing the form as the Data Provider, and enter the email address of the person responsible for data enquiries.

Longline Gear Details

Details in this section must match the vessel notification information provided to the Secretariat. Please complete the fields on the hook measurements for the primary hook type that is used during fishing. Please see the [CCAMLR gear library](#) for terminology on gear components.

Trotline Gear Details

Only complete these fields if the vessel uses the trotline system.

7.2 Set and Haul Details

This section records details for each set and haul that take place during the voyage. All fishing events are numbered in a consecutive numerical sequence from the first event of the trip, beginning at Set No 1. The set/haul numbers therefore become the unique identifier of the line. In some cases, the vessel may set multiple lines and the hauling might not be in the same sequence, however hauling information is still recorded under the relevant set/haul number. Most fields are quite self-explanatory, please see the details for individual fields below. Please only submit data for those Hauls where hauling and processing has been completed, or where the line has been reported as lost.

Setting

- **Date and Time:** Set start and finish times are when the first and last anchor are deployed from the vessel.
- **Fishing Depth:** The depth (m) from the surface to the depth where the gear is set to fish at the start and end of the set.
- **Fishing Type:** Fishing is either Commercial (C), Research (R), or Survey (S). What constitutes a research line or survey will depend on the fishery, and the exploratory research plan the vessel is operating under. It is highly recommended to consult with your government officials if these are unclear. Guidelines on fishing type are also detailed in the relevant CMs for exploratory fisheries.
- **Bait type and percentage:** Three options for the type of bait used during the cruise can be recorded at the top of the worksheet in the cells with the blue headings, with the green box at the top of the worksheet providing a dropdown list of the bait codes. For each set, please record the percentage of the total number of hooks deployed with each bait type. For example if an even mix of Argentine Shortfin Squid and Jack Mackerel is used and all hooks were baited, you would select the bait codes SQA and JAX in the bait type 1 & 2 boxes, and enter 50 in both the bait type % 1 & 2 cell for that haul. Where overall hook baiting percentage is less than 100%, this can be reported by entering a figure of less than 100%, for example if the overall baiting percentage is 90% using an even mix of Argentine Shortfin Squid and Jack Mackerel, you would enter 45 in both the bait type % 1 & 2 cell for that haul.
- **Mainline length (m):** The length of the main hook line between the start and end line anchors.
- **Bottom to line distance (m):** If the mainline is set above the seafloor, please record the distance between the two.

- Trotline: If using trotline, note if a cetacean exclusion device (as described in the notification, e.g. catchalotera or SAGO) was used on that set. Number of droppers is the total number of hook clusters deployed on that set.

Hauling

- Date and Time: Record the time that the first anchor and last anchor are brought onboard the vessel
- Haul interruption duration: Please record this as a decimal number in fractions of an hour. For example one hour and thirty minutes would be recorded as 1.5.
- Number of hooks lost attached to line: If a section of the line is lost with hooks attached, please record the number of hooks on this section
- Number Hooks lost other: Complete this section if individuals hooks lost from the main line are recorded.
- Length of line lost: Record the length of the mainline, and any other sections of the line that are lost, such as backbone line in double line systems, or float lines. For example if 1000m of line with hooks attached is lost, and two buoy lines of 500m length are lost, the total length of line lost would be 2000m

7.3 Haul Catch

This worksheet details all target and bycatch and incidental (IMAF) species caught during each haul, including seabirds and marine mammals. Record individual species codes for each haul on a single row. If no species code is present, please select the No Species Code option and write the species name in the Comment field. The definitions for each subsection are as follows:

- Retained: Refers to any species that is retained on the vessel for processing, including bycatch species that are frozen or macerated for storage and are later discarded.
- Discarded: Refers to any species that is landed on the vessel, and then discarded overboard without processing.
- Released alive: Refers to any species that is released due to it being in good condition, therefore with a high probability of survival. Generally this section is used for by-caught skate species, or for tagged toothfish or skates.
- Number lost/ dropped off at surface: Refers to species that drop off the hooks during the hauling process
- Incidental Catch: This section should be used for seabird and marine mammal species to indicate whether they were recovered alive or dead.

7.4 Conversion Factors

This section is used for reporting any scaling factors used to calculate live or green weight from processed fish and fish products. An example is provided in Figure 2. Please complete the fields for each species and processing code used on each individual haul including the product and resulting green weight for each species-processing code, as this allows the tracking of product types and weights through the CDS system. There is also a code for damaged or liced fish that are caught by the vessel and not commercially landed. The Conversion Factor(s) for each product code may be assigned by the flag state or calculated on board the vessel.

Conversion Factors							
<i>Processing Code Reference List</i>							
<i>Species Code Reference List</i>							
Haul Number	Species Code	Processing Code	Conversion Factor	Cut Type	Product Weight (kg)	Green Weight (kg)	Comment
1	TOA	HGT	1.85	Straight cut - bandsaw	13807	25542.95	
1	TOA	FLT	2.87	Hand Cut	6655.3	19100.71	
1	TOA	DAM	1	Other - describe in comments	10750.1	10750.10	Damaged fish, no processing

Figure 2: Example of data reported on conversion factor worksheet

7.5 Tagging

As noted in section 6.3 tagging is a vessel responsibility, therefore it is critical to ensure that this worksheet is completed accurately. Firstly, ensure that the details in tag ID header fields (at the top of the worksheet with blue title cells) are recorded. Even if the same type of tag is used for both Tags 1 & 2, please record identical details in both of these ID fields. Then complete the worksheet for each haul where any fish are tagged. The worksheet contains conditional formatting to highlight if tag numbers are duplicated (cells will be highlighted red). Ensure accurate tagging release positions are recorded rather than just haul start or end positions. If extra details are required with regard to any tagging information please use the comment field, or the observer's cruise report to detail these. For example, if there are frequent tag breakages it is useful to document these.

For trips conducted in Subareas 88.1 and 88.2 SSRUs A & B, to contribute to the Ross Sea Data Collection, up to three injury fields can be completed using the injury codes in Figure 3 for skates that are tagged and released.

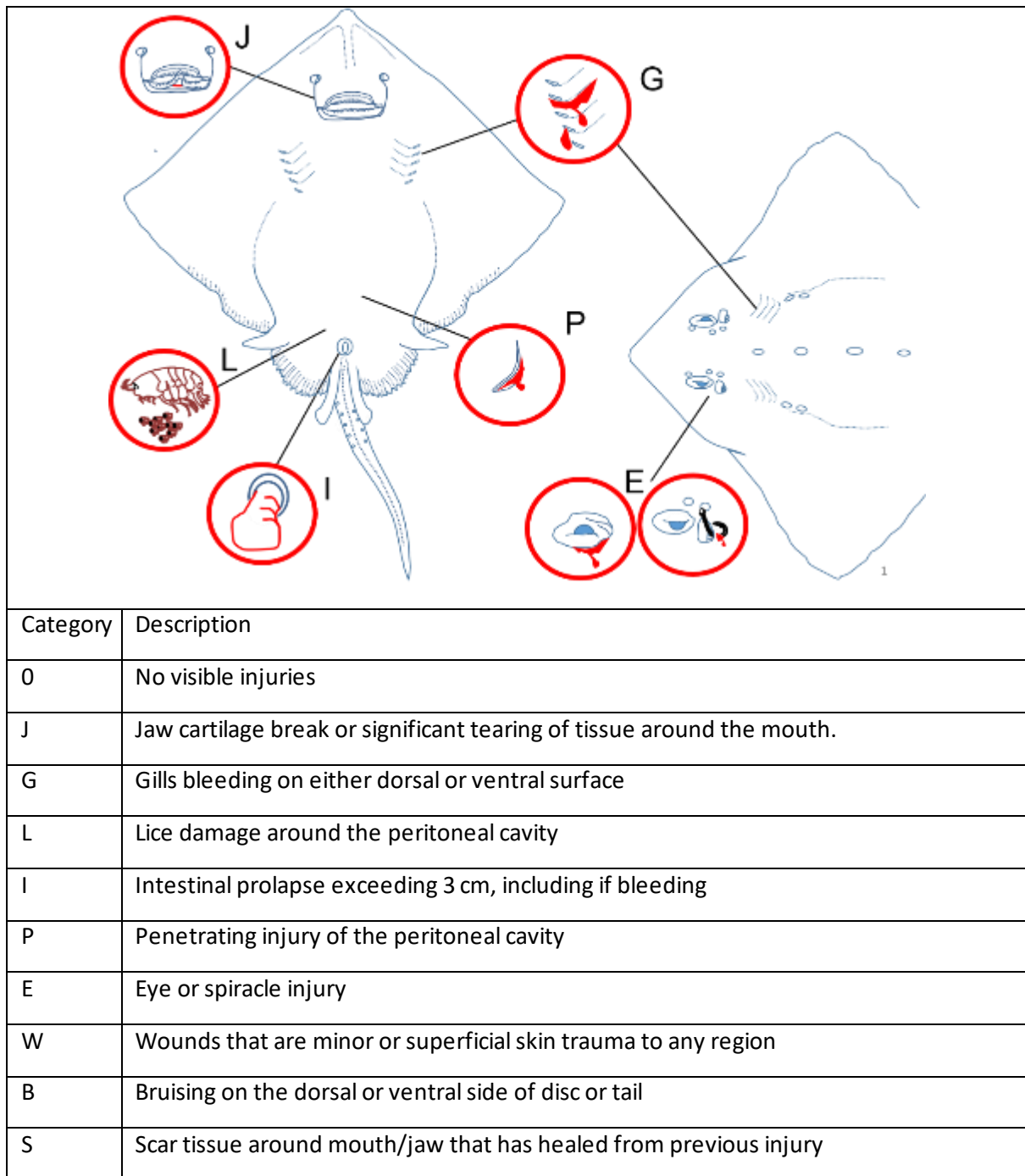


Figure 3. Skate injury codes and injury descriptions.

7.6 Tag Recapture

All tagged fish and skates must be retained by the vessel regardless of their time at liberty. It is good practice to encourage crew to look for tags, particularly as an annual prize is offered by the coalition of legal toothfish operators (COLTO) for tag finders!

For each tagged fish caught, an electronic time-stamped photograph must be taken of the tags in situ using the “CCAMLR tag photo template”. Please check that the photograph clearly shows the tag numbers and that the number is readable. Zip up the photos and send them separately to the Secretariat through your fisheries data coordinator or give them to the observer to attach to their cruise report. Fill out the required biological measurements in the worksheet, noting the specific fields required for skates and toothfish. The worksheet also contains conditional formatting to highlight if tag numbers are duplicated (cells will be highlighted red).

For trips conducted in Subareas 88.1 and 88.2 SSRUs A & B, to contribute to the Ross Sea Data Collection, up to three injury fields can be completed using the injury codes in Table 2 for skates that are tagged and released.

7.7 Vulnerable Marine Ecosystems (VME)

This worksheet is only required to be completed in fisheries where CM 22-07 applies. For each haul and line segment please enter data in a single row, including where no VME indicator taxon catches are recorded. The number of VME indicator units is the sum of weight (kg) and volume (l). Volume should be used where VME species can fit into a 10 litre bucket. Where species cannot fit (e.g for large branching cold water corals) please weigh the items instead.

Note that some lines may be hauled in the opposite direction to the direction of setting, and therefore line segment numbers maybe hauled in a different sequence. Because the line segment number (and location data) is defined when the segment is set, be sure to use the corresponding VME indicator units for the proper line segment.

7.8 CCAMLR Codes

This worksheet contains the lists of codes used through the logbook and can be referenced for data completion. Please do not delete or alter this worksheet, as the logbook will not function properly.

8. CCAMLR resources

CCAMLR data forms and instructions:

www.ccamlr.org/node/74640

By-catch guides, sampling protocols and training materials for observers:

www.ccamlr.org/node/77322

Tagging program ordering information:

www.ccamlr.org/node/76310

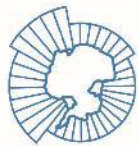
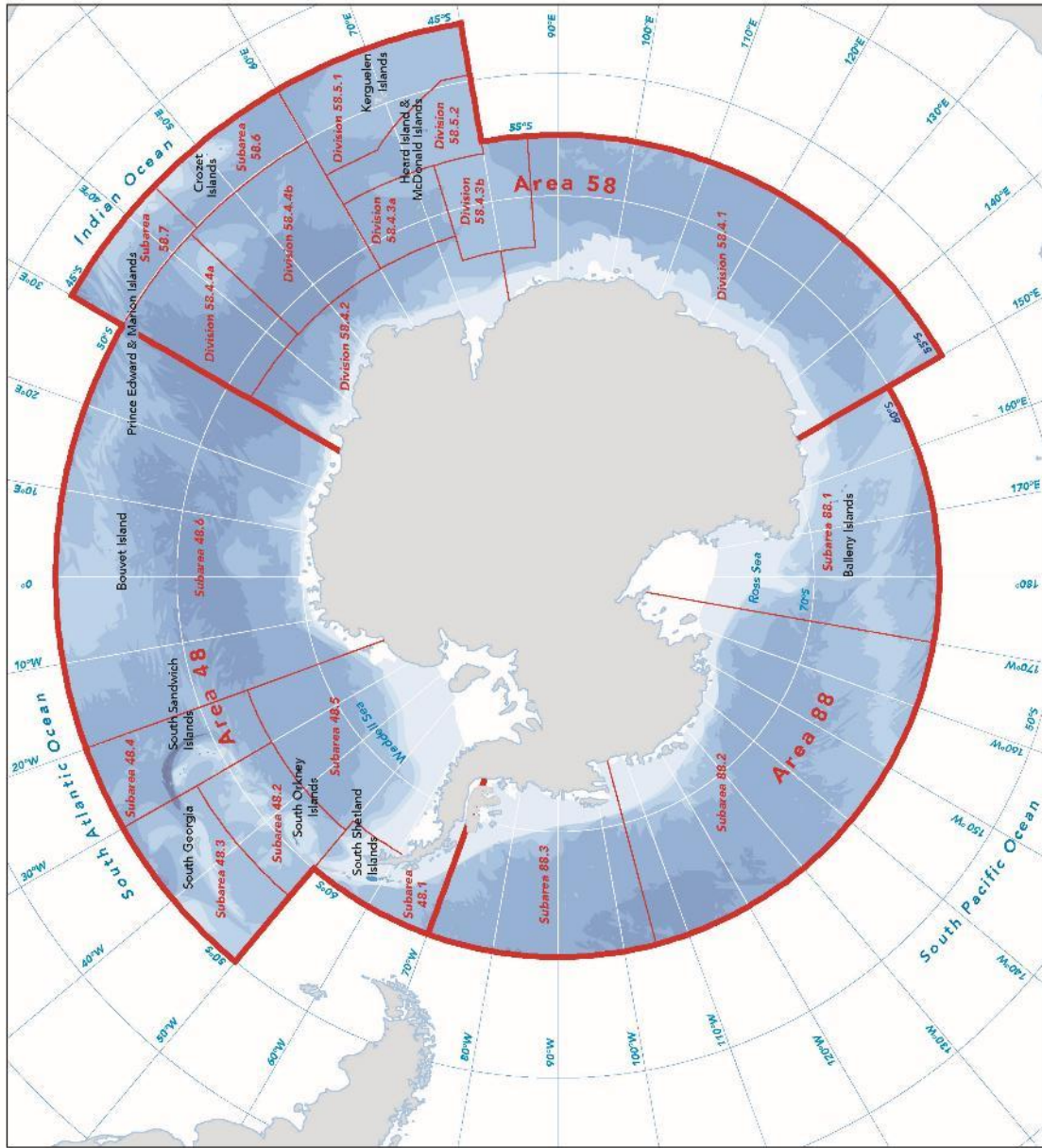
CCAMLR conservation measures:

<https://cm.ccamlr.org/>

Text of the Scheme of International Scientific Observation:

www.ccamlr.org/node/74295

9. Appendix 1 – Map of the CAMLR Convention Area



CCAMLR

Commission for the
Conservation of Antarctic
Marine Living Resources

Convention Area
Statistical Areas

0 500 1000 1500 2000 km

1:45 000 000

South Pole Lambert Azimuthal Equal
Area projection



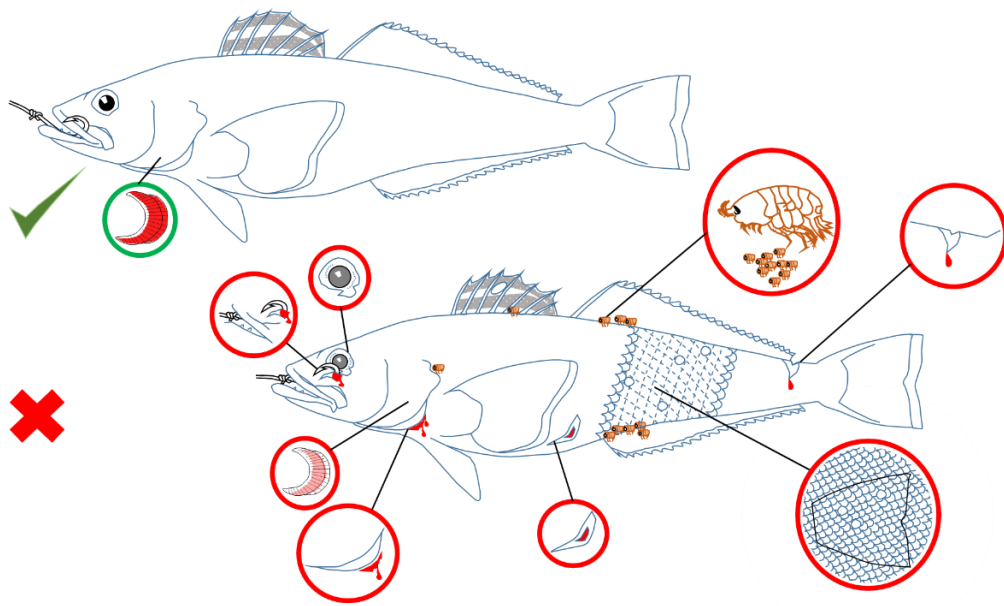
<http://gis.ccamlr.org>

10. Appendix 2 – Tagging Protocol for Toothfish and Skates

1. The Flag State of the vessel is responsible for all tagging procedures and tagging equipment, including sourcing of tags for vessels.
2. Vessels are encouraged to work with observers to ensure that tagging and sampling procedures, specified in the *Scientific Observer's Manual – Finfish Fisheries* and this manual are conducted in an efficient manner.
3. Fish that are selected for tagging should be landed on the vessel using a lifting aide that supports the weight of the fish from underneath (e.g. cradle, stretcher, dip net, or sling) to minimise potential injury.
4. Fish that are selected for tagging shall not be lifted using a gaff.
5. Fish that are selected for tagging must be assessed to be in good condition and free from injuries as specified Figures 4 (toothfish) and 5 (skates).
6. Vessels are encouraged to configure the distance between the hauling bay, the tagging station and the release point to be as short as practicable, and to minimise obstacles that may hinder fish transportation.
7. Fish handling between the hauling bay, tagging station and release point should follow the methods recommended in www.ccamlr.org/node/85702.
8. The tagging station should be protected from the weather, and ensure the safety of the fish handlers and the health of the fish.
9. Fish handling time, from landing to release, is encouraged to be as short as possible.
10. The total time fish are out of any water should be less than three minutes.
11. The time fish are held in a holding tank should be minimised.
12. Any fish tilting sideways or belly up after being held in a holding tank are not suitable for tagging.
13. The design of a holding tank should follow the specifications in section 6.3 of this document. The percentage of fish volume to volume of water in the holding tank should not exceed 10%. Toothfish and skates should be held separately.
14. Tagged toothfish should be released headfirst, ensuring that the distance between the release point and the sea surface is as short as practicable.
15. Tagged skates should be released dorsal side up, ensuring that the distance between the release point and the sea surface is as short as practicable.

10.1 Toothfish Tagging Procedure and Suitability Assessment

1. Transport fish to the tagging station using the handling procedures outlined in www.ccamlr.org/node/85702.
2. Carefully remove the hook and assess suitability for tagging. Do not tag and release fish if any of the conditions listed Figure 4 are present.
3. Double-tag fish using tags with sequential numbers if possible.
4. Confirm tags are anchored with a gentle tug.
5. Record data as required in C2 logbook. Make sure to include all leading characters, tag type, colour and inscription).
6. Check that tag numbers are recorded correctly.
7. Release fish headfirst into water where release conditions are appropriate.
8. Observe and record fate of the tagged fish in the C2 logbook.



credit:
Alan Hart, NIWA

Suitability assessment

Assessment category	Do not tag	
Hook injuries		Hook injury outside the mouth area (outside the lips, jaw, or cheek), or in the back of the mouth.
Gills		Gills pink or white
Bleeding		Any visible bleeding from gills, or excessive bleeding elsewhere
Body		Visible damage to fish body with open wounds
Organs		Visible damage to eye or penetration of body cavity, including by crustaceans (amphipods/lice)
Scales		Abrasions or single area of recent scale loss equal to or exceeding the area equivalent to the fish tail

Figure 4: Toothfish tagging suitability assessment.

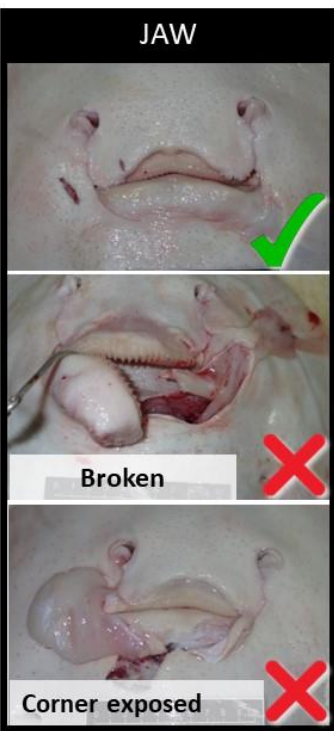
10.2 Skate Tagging Procedure and Suitability Assessment

1. Transport fish to the tagging station using the handling procedures outlined in www.ccamlr.org/node/85702.
2. Carefully remove the hook and assess suitability for tagging. Do not tag and release fish if any of the retain conditions listed Figure 5 are present.
3. Double-tag the skate using tags with sequential numbers if possible.
4. Confirm that tags are anchored with a gentle tug.
5. Record data as required in the C2 logbook. Make sure to include all leading characters, tag type, colour and inscription.
6. Check that tag numbers are recorded correctly.
7. Release skate dorsal side up into water where release conditions are appropriate.
8. Observe and record fate of the skate in the C2 logbook.

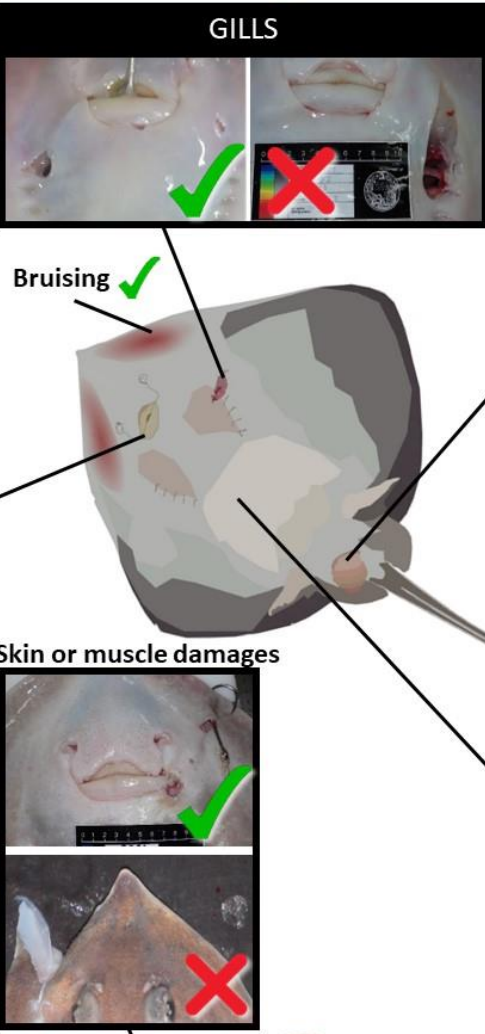
CONDITION ASSESSMENT FOR SKATES  **RELEASE AT SEA**  **RETAIN**

Ventral side

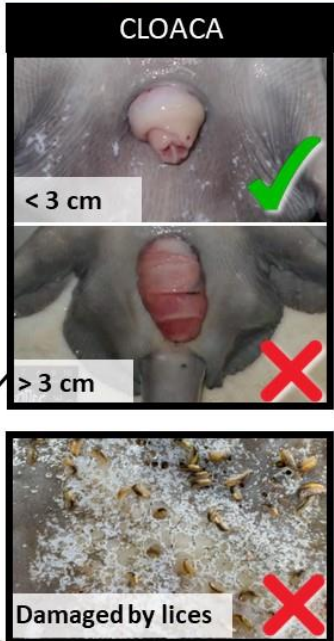
JAW




GILLS



CLOACA

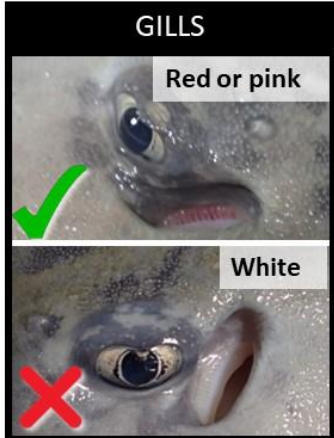



Protuding organs



Dorsal side

GILLS



Curling disc 

CCAMLR Document WG-FSA-2022/19, Faure *et al.*

Figure 5: Skate tagging suitability assessment.