

**PART I**  
**PLANNING SCIENTIFIC OBSERVATIONS**

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SECTION 1

**TEXT OF THE CCAMLR SCHEME OF  
INTERNATIONAL SCIENTIFIC OBSERVATION<sup>1</sup>**

- A. Each Member of the Commission may designate observers referred to in Article XXIV of the Convention.
- (a) The Commission will specify activities of scientific observers on board vessels. These activities are described in Annex I and may be modified taking into account advice from the Scientific Committee. Additional scientific activities may be agreed between the Receiving and Designating Member States provided these do not conflict with, or detract from, the activities specified by the Commission.
  - (b) The Member wishing to place scientific observers on board a vessel of another Member shall be referred to as the ‘Designating Member’ and the Member who accepts a scientific observer on board its vessel shall be referred to as the ‘Receiving Member’. Scientific observers in this scheme shall be nationals of the Designating Member and shall conduct themselves in accordance with the customs and order existing on the vessel on which they are operating.
  - (c) Members shall designate adequately qualified scientific observers who shall be familiar with the harvesting and scientific research activities to be observed, the provisions of the Convention and the measures adopted under it and who are adequately educated and trained to carry out competently the duties of scientific observers as required by the Commission.
  - (d) Scientific observers shall be able to communicate in the language of the Flag State of the vessels on which they carry out their activities.
  - (e) Scientific observers shall each carry a document issued by the Designating Member in a form approved by the Commission identifying them as CCAMLR scientific observers.
  - (f) Scientific Observers shall submit to the Commission through the Designating Member, not later than one month after the completion of the observer trip or after the return of the observer to his/her home country, all observer logbooks and reports of each observation assignment undertaken, using the observation formats approved by the Scientific Committee as they appear in the *Scientific Observers Manual*. The Secretariat shall send a copy of the scientific observer’s

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<sup>1</sup> As adopted at CCAMLR-XI (paragraph 6.11) and amended at CCAMLR-XVI (paragraph 8.21) and CCAMLR-XXVII (paragraph 13.68).

report to the Receiving Member within 14 days of receipt. The language of the scientific observer's report shall be in one of the Commission's official languages, as agreed upon in the bilateral agreement between the Designating and Receiving Members.

- (g) The Designating Member, in consultation with the scientific observer, shall be responsible for providing clarification about data collected, observations made, and incidents that may have occurred during deployment.
- (h) Upon review of the observer's report, the Receiving Member shall advise the Secretariat and the Designating Member of any discrepancies as soon as they are identified. In the event of such notification, the Designating and Receiving Members will make every effort to resolve the issue. If the Designating and Receiving Members notify the Secretariat that they are unable to resolve such issues, the Secretariat will note any unresolved discrepancy.

B. In order to promote the objectives of the Convention, Members agree to take on board their vessels engaged in scientific research or harvesting of marine living resources designated scientific observers, who shall operate in accordance with bilateral arrangements concluded.

Such a bilateral arrangement shall include the following principles:

- (a) The scientific observers shall be given the status of ship's officers. Accommodation and meals for scientific observers on board shall be of a standard commensurate with this status.
- (b) Receiving Members shall ensure that their vessel operators cooperate fully with the scientific observers to enable them to carry out the tasks assigned to them by the Commission. This will include allowing scientific observers access to data, equipment and those operations of the vessel necessary to fulfil their duties as required by the Commission.
- (c) Receiving Members shall ensure that their vessel operators cooperate fully with scientific observers to enable the observers to carry out their data collection duties as specified in the *Scientific Observers Manual* without impediment or influence. Arrangements shall be made for messages to be sent and received on behalf of scientific observers using the vessel's communication equipment and operator. Reasonable costs of such communications shall normally be borne by the Designating Member. After notifying the Master, scientific observers shall be allowed such access as is necessary to undertake observation duties, including the vessel's navigation equipment and personnel to determine the vessel's position, course and speed.
- (d) Receiving Members shall take appropriate action with respect to their vessels to ensure safe working conditions, the protection, security and welfare of scientific observers in the performance of their duties, and to provide them with medical care and safeguard their freedom and dignity in adherence to all pertinent international maritime regulations.

- (e) For transfers at sea, Members shall: (i) ensure that their vessel operators conduct transfers of observers under safe conditions and with the agreement of the observers (ii) conduct the transfer in a manner which maximises the safety of observers and crew during the procedure, and (iii) provide experienced crew members to assist observers during any transfer which is made.
- (f) Arrangements involving the transportation and boarding of scientific observers shall be organised so as to minimise interference with harvesting and research operations.
- (g) Scientific observers shall provide to the relevant masters copies of such records, prepared by the scientific observers, as the masters may wish to retain.
- (h) Designating Members shall ensure that their scientific observers carry insurance satisfactory to the Parties concerned.
- (i) Transportation of scientific observers to and from boarding points shall be the responsibility of the Designating Member.
- (j) Unless otherwise agreed, the equipment, clothing and salary and any related allowances of a scientific observer shall normally be borne by the Designating Member. The vessel of the Receiving Member shall bear the cost of on-board accommodation and meals of the scientific observer.
- (k) The bilateral arrangement shall address such other matters as deemed appropriate by both the Designating and Receiving Members, such as liability and confidentiality.

C. For each observer deployed, the Designating Members shall provide the following information to the Secretariat prior to the deployment of the observer:

- (a) date of signing the arrangement;
- (b) name and flag of the vessel receiving the observer;
- (c) Member designating the observer;
- (d) area of fishing (CCAMLR statistical area, subarea, division);
- (e) type of data to be collected by the observer and submitted to the Secretariat (e.g. by catch, target species, biological data);
- (f) expected dates of the start and end of the observation program;
- (g) expected date of returning the observer to his/her home country.

D. In order to maintain the objectivity and scientific integrity of the data, Designating Members, Receiving Members, the vessels on which scientific observers are deployed and the scientific observers themselves, shall uphold and promote the following provisions:

- (a) A scientific observer appointed in accordance with the CCAMLR Scheme of International Scientific Observation shall not:
- (i) contravene the requirements established in the laws and regulations of the Receiving Member or violate general rules of behaviour and safety that apply to all vessel personnel, provided such rules do not interfere with the duties of the observer under this Scheme, as stipulated in the bilateral arrangement between the Designating and the Receiving Members;
  - (ii) inhibit the proper functioning and fishing activities of the vessel;
  - (iii) solicit or accept, directly or indirectly, any gratuity, gift, favour, loan, or anything of monetary value from anyone who conducts fishing or fish processing activities that are regulated by CCAMLR, or who has interests that may be substantially affected by the performance or non-performance of the official duties of scientific observers, with the exception of meals, accommodations, or salary when provided by the vessel;
  - (iv) have been convicted of a serious criminal offense for five years prior to appointment as an observer;
  - (v) engage in any illegal actions or any other activities that would reflect negatively on his/her image as a professional scientist, on other scientific observers, on the integrity of data collection, or on CCAMLR as a whole;
  - (vi) have any financial interest in, or relationship with, any vessel or business harvesting or processing products from a CCAMLR fishery.
- (b) The owner, Master, agent, and crew of a vessel on which a scientific observer is deployed shall not:
- (i) offer a scientific observer, either directly or indirectly, any gratuity, gift, favour, loan, or anything of monetary value, except for meals, accommodations or salary when provided by the vessel;
  - (ii) intimidate, or interfere with the duties of a scientific observer;
  - (iii) interfere with or bias the sampling procedure employed by a scientific observer;
  - (iv) tamper with, destroy, or discard a scientific observer's collected samples, equipment, records, photographic film, papers, or effects without the express consent of the observer;
  - (v) prohibit, impede, threaten, or coerce, an observer from/into collecting samples, making observations, or otherwise performing the observer's duties; or
  - (vi) harass a scientific observer.

- (c) Deployment limitations. Designating Members shall seek, to the extent possible, to avoid having a scientific observer appointed in accordance with the CCAMLR Scheme of International Scientific Observation undertake multiple consecutive trips on the same vessel.
- (d) Confidentiality. Designating Members shall require that a scientific observer appointed in accordance with the CCAMLR Scheme of International Scientific Observation shall not:
  - (i) disclose verbal, written, or other evidence or observations made on-board a vessel, or observations made in a processing facility, including data or commercially sensitive vessel-specific fishing, processing, and marketing information, to any person except to the Secretariat and as provided for in the bilateral arrangement;
  - (ii) take data or observer logbooks from one vessel onto another, except that if an observer is unable to submit data before being redeployed on another vessel, the scientific observer shall take reasonable steps to safeguard the data and observer logbooks.
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  - (a) When the Designating Member receives information regarding actions of the scientific observer that may contravene the provisions of this Scheme, the Designating Member shall take prompt and appropriate action, in accordance with its domestic law. The Designating Member will notify the Receiving Member and the Commission of any appropriate action taken.
  - (b) When the Receiving Member receives information regarding actions of the vessel owner, Master, agent, or crew that may contravene the provisions of this Scheme, the Receiving Member shall take prompt and appropriate action, in accordance with its domestic law. The Receiving Member will notify the Designating Member and the Commission of any appropriate action taken.
- F. Members who have designated scientific observers will take the initiative in implementing assignments identified by the Commission.
- G. The scope of functions and tasks described in Annex I should not be interpreted to suggest in any way the number of required observers which will be accepted on board a vessel.

**FUNCTIONS AND TASKS OF INTERNATIONAL SCIENTIFIC OBSERVERS  
ON BOARD VESSELS ENGAGED IN SCIENTIFIC RESEARCH OR  
HARVESTING OF MARINE LIVING RESOURCES**

1. The function of scientific observers on board vessels engaged in scientific research or harvesting of marine living resources is to observe and report on the operation of fishing activities in the Convention Area with the objectives and principles of the Convention for the Conservation of Antarctic Marine Living Resources in mind.
2. In fulfilling this function, scientific observers will undertake the following tasks, using the observation formats approved by the Scientific Committee:
  - (i) record details of the vessel's operation (e.g. partition of time between searching, fishing, transit etc., and details of hauls);
  - (ii) take samples of catches to determine biological characteristics;
  - (iii) record biological data by species caught;
  - (iv) record by-catches, their quantity and other biological data;
  - (v) record entanglement and incidental mortality of birds and mammals;
  - (vi) record the procedure by which declared catch weight is measured and collect data relating to the conversion factor between green weight and final product in the event that catch is recorded on the basis of weight of processed product;
  - (vii) prepare reports of their observations using the observation formats approved by the Scientific Committee and submit them to CCAMLR through the Designating Member;
  - (viii) assist, if requested, the captain of the vessel in the catch recording and reporting procedures;
  - (ix) undertake other tasks as may be decided by mutual agreement of the parties involved;
  - (x)<sup>2</sup> collect and report factual data on sightings of fishing vessels in the Convention Area, including vessel type identification, position and activity;
  - (xi)<sup>3</sup> collect information on fishing gear loss and garbage disposal by fishing vessels at sea.

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<sup>2</sup> Added in accordance with CCAMLR-XVII (paragraph 8.16). The Commission decided to review the effectiveness and the need to continue this activity after a two-year trial period (CCAMLR-XVII, paragraph 8.17).

<sup>3</sup> Added in accordance with CCAMLR-XVIII (paragraph 8.21).

## SECTION 2

### **LIST OF CURRENT RESEARCH PRIORITIES IDENTIFIED BY THE SCIENTIFIC COMMITTEE FOR CONDUCTING SCIENTIFIC OBSERVATIONS ON COMMERCIAL FISHING VESSELS**

The list below represents priority research tasks which have been defined and are kept under periodical review by the Scientific Committee. Scientific observers are not required to conduct the full set of tasks defined below. The list of tasks actually undertaken by an observer should conform with the scientific objectives of bilateral arrangements between Members designating and receiving scientific observers, and depends on the type of the vessel, the number of observers involved and their professional skills. The priorities in this section will also change as new research requirements arise, such as benthic organisms in vulnerable marine ecosystems and where single-year focused research is undertaken (e.g. the Year-of-the-Skate).

1. Fishery for *Champscephalus gunnari*:
  - (i) representative length-frequency distributions
  - (ii) observations on sex and maturity stage
  - (iii) collection of otoliths for age determination
  - (iv) observations of the by-catch of other species
  - (v) the incidental mortality of predators (birds and seals).
  
2. Longline fishery for *Dissostichus eleginoides* and *D. mawsoni*:
  - (i) representative length-frequency distributions;
  - (ii) observations on sex and maturity stage;
  - (iii) collection of otoliths and scales for age determination;
  - (iv) loss rate of fish from hooks during longline hauling; catching performance of different hook sizes and types; observations on the condition of fish on capture (for tagging experiments);
  - (v) monitoring of total incidental mortality of seabirds by species, sex and age;
  - (vi) assessment of seabird mortality per unit of fishing effort and relative vulnerability of different species;
  - (vii) collection of bird bands and notification of other study markings;
  - (viii) evaluation of the efficacy of mitigation measures;
  - (ix) investigation of the practicalities of the implementation of different mitigation measures;
  - (x) weighing a sample of longline weights while the vessel is alongside the wharf.

3. Fishery for *Euphausia superba*, including by-catch of fish:
  - (i) understanding the differences in selectivity between different gear configurations;
  - (ii) determining the level of by-catch of fish, including fish larvae;
  - (iii) determining the level of warp strikes and incidental mortality of seabirds and seals;
  - (iv) collection of high-quality length-frequency distribution data from all regions.
  
4. Fishery for *Paralomis* spp. (stone crabs):
  - (i) observations of fishing operations
  - (ii) collection of haul-by-haul catch and effort data
  - (iii) representative length-frequency distributions
  - (iv) representative sex and maturity stage distributions
  - (v) collection of samples of ovaries and eggs
  - (vi) representative length-frequency distributions by sex and maturity stages from catches of bottom trawls (bottom trawl surveys).

## SECTION 3

### RECORDING AND REPORTING RESULTS OF SCIENTIFIC OBSERVATIONS ON COMMERCIAL FISHING VESSELS

#### GENERAL

Scientific observers designated in accordance with the CCAMLR Scheme of International Scientific Observation are required to complete scientific observer logbooks and cruise reports.

2. The scientific observer logbooks contain a set of forms to record the vessel's fishing operations, target species, by-catch, incidental mortality of seabirds and marine mammals and interactions with vulnerable marine ecosystems.

3. The scientific observer logbooks for longline and trawl fisheries contain the following forms:

#### **Longline:**

Form L1	Vessel and Observation Program Details
Form L2	Longline and Streamer Line Descriptions
Form L3	Daily Work Schedule of Observer
Form L4	Daily Setting Observations
Form L4-IMAF	Seabird Activity for Day Setting Only
Form L5	Daily Hauling Observations
Form L5-IMAF	Incidental Mortality of Seabirds and Marine Mammals
Form L5-VME	VME Taxa Recording
Form L6	Biological Data Collection
Form L7	Conversion Factors
Form L8	Waste Disposal
Form L9	Sightings of Unidentified or IUU Vessels
Form L10	TDR-Bottle Test
Form L11	Tagging
Form L12	Tag Recapture

#### **Trawl:**

##### **Finfish**

Form T1	Vessel and Observation Program Details
Form T2	Fishing Gear
Form T3	Trawl Details
Form T4	Biological Data Collection
Form T5	Conversion Factors
Form T6	Incidental Mortality of Seabirds and Marine Mammals
Form T7	Waste Disposal
Form T8	Sightings of Unidentified or IUU vessels
Form T9	Skate and Ray Discards
Form T10	Tag Recapture
Form T11	Trawl Warp Strike Protocol

### **Krill fishing**

Form K1	Vessel and Observation Program Details
Form K2	Fishing Gear
Form K3	Trawl Details
Form K4	Krill Biological Data Collection
Form K5	Finfish By-catch
Form K6	Krill Fishing Strategy Questionnaire
Form K7	Incidental Mortality of Seabirds and Marine Mammals
Form K8	Waste Disposal
Form K9	Sightings of Unidentified or IUU Vessels
Form K10	Change of Fishing Ground
Form K11	Trawl Warp Strike Protocol
Form K12	Fish Sampling

**Details of the contents and requirement for completion of these forms are included with the electronic version of the forms (and are not repeated here).**

4. On completion of the observation program, the observer should submit completed scientific observer logbooks, cruise reports, samples of fishing gear (e.g. hooks or jigs) and biological samples to the technical coordinator of the scientific observer program of the country which nominated the observer. It is the responsibility of the technical coordinator to forward these documents to CCAMLR electronically, together with information on the final destination of collected samples.
5. A set of electronic observer logbook forms are available from the CCAMLR website ([www.ccamlr.org](http://www.ccamlr.org)) or by contacting the Secretariat ([ccamlr@ccamlr.org](mailto:ccamlr@ccamlr.org))
6. It is the responsibility of each observer to ensure that they have access to these forms and all pertinent reference materials from Parts II and III of this manual.

### THE FUNCTIONS AND TASKS OF SCIENTIFIC OBSERVERS

7. The list of current research priorities identified by the Scientific Committee for scientific observations on commercial fishing vessels is given in Part I, Section 2.
8. The tasks undertaken by an observer should conform with the scientific objectives of bilateral arrangements between designating Members and Members receiving the scientific observer, and depend on the type of vessel on which observation is undertaken, the number of observers involved and their professional skills.
9. Whenever possible, two scientific observers should be present on each vessel. This allows greater coverage of all fishing operations as well as collection of data relating to incidental mortality and by-catch.

## OPERATIONAL PROCEDURE

10. Observers must complete every field of their daily data sheets accurately; this will entail observations during all parts of the fishing operation. It should be remembered that the usefulness of an observer's work relies on his/her recording the duration of observation periods, the actual time at which events occur and on precise knowledge of fishing operations (e.g. the number of baited hooks set, the number of hooks hauled and the observed number of hooks hauled).

11. It is important to be able to distinguish between data collected by observers and by crew. For this reason, data derived from the crew should not be included unless verified by the observer (e.g. the setting positions from the track plotter). Data reported by the crew should be clearly indicated as crew-supplied data on scientific observer logbook forms. There are also fields on the relevant forms to indicate which observer collected particular data. It is important that these are completed accurately to allow data validation.

## SPECIAL DEFINITIONS AND TERMS

12. Specific terminology is used throughout the scientific observer logbook forms to describe the various fishing processes. The event of fishing with one longline once is called a single longline **set**. This single set is made up of three phases: **setting** the line (paying out the line with baited hooks attached), fishing (the time between setting and hauling, frequently referred to as 'soak' time) and **hauling** the line (taking the line back into the vessel, and removing fish from hooks). For the trawl fishery, a **trawl** refers to the act of setting, towing and hauling the gear. For vessels using the continuous fishing system for krill, a single 'trawl' may last for several days and therefore, for observation and catch reporting purposes, a trawl is defined as a two-hour period of continuous fishing.

13. A **streamer line** refers to any bird-scaring device which consists of a pole and long section of line with streamers attached. This is positioned over the stern during longline setting. This type of gear has also been described in other publications as 'tori pole', 'bird line' or 'pole and line'. The CCAMLR streamer line is the design adopted by CCAMLR and described in Conservation Measure 25-02 ([www.ccamlr.org](http://www.ccamlr.org)).

## TIME ZONE

14. It is very important that each observer maintains a constant time frame during the cruise. Because vessels move around the ocean through varying time zones, and because local time zones vary due to the imposition of daylight saving etc., observers are required to nominate the time zone they will use when completing their logs. It is usually most convenient to use the time zone that the vessel is using, irrespective of whether the vessel is actually in that time zone. The time zone used must be specified on the 'Vessel and Observation Program Details' form, and must be specified in the number of hours by which this time zone differs from GMT (refer to map of World Time Zones in Part III, Section 2). For instance, the time zone for South Georgia Island would be specified as GMT-3 hrs.

## UNITS

15. If units of measurement are specified beside a data field, care should be taken to record the information in those units, and also in the format indicated. If this is not possible, the field should be highlighted and the units used documented to enable conversion to be carried out later.

## GENERAL FORMATS

16. The following formats are used throughout the log:

Field	Format	Explanation
Date	ddmmyy	d = day, m = month, y = year
Time	hhmm	h = hour, m = minute
Latitude and longitude	-dd.mmm	degrees and decimal minutes (-ve for degrees west)

## OBSERVATIONAL GUIDELINES AND SPECIES IDENTIFICATION

17. A set of guidelines for scientific observation in the CAMLR Convention Area is given in Part II of this manual. For identification of seabirds, observers may refer to the seabird identification plates contained in the book *Fish the Sea Not the Sky* (CCAMLR, 1996), *Identification of Seabirds of the Southern Ocean* (Onley and Bartle, 1999), or any of the many species identification handbooks which are available. For identification of whales and seals, see other available publications, e.g. Volume II of the *FAO/CCAMLR Species Identification Sheets for the CCAMLR Convention Area* (Fischer and Hureau, 1985). *The Complete Guide to Antarctic Wildlife* (Shirihai, 2002) provides a very comprehensive overview and identification guide to most of the marine mammals and seabirds that observers are likely to encounter in the CAMLR Convention Area.