

CCAMLR SCHEME OF INTERNATIONAL SCIENTIFIC OBSERVATION

2.1 In accordance with CCAMLR's Scheme of International Scientific Observation, scientific observers were deployed on all vessels in all finfish fisheries in the Convention Area.

2.2 A total of 37 longline cruises were conducted during the 2005/06 season, with scientific observers (international and national) on board all vessels. Ten cruises were undertaken in Subarea 48.3 by 10 vessels, two cruises were undertaken in Subarea 48.4 by two vessels, two cruises were undertaken by one vessel in Subarea 48.6, six cruises were undertaken by five vessels in Divisions 58.4.1, 58.4.2, 58.4.3a and 58.4.3b, two cruises were conducted by one vessel in Division 58.5.2, two cruises were conducted by one vessel in Subareas 58.6 and 58.7 and 13 cruises were undertaken in Subareas 88.1 and 88.2 by 13 vessels.

2.3 During the 2005/06 fishing season, six vessels conducted nine trawl cruises targeting finfish. All trawlers fishing for finfish carried scientific observers. In total, three national and five internationally designated scientific observers participated in these operations. In addition, five scientific observation programs were conducted by one national and four internationally designated scientific observers on board krill vessels operating in the Convention Area (43% of vessels).

2.4 Three pot cruises were conducted in 2005/06, all targeting *Dissostichus eleginoides*. Two cruises were undertaken in Division 58.5.2 by the Australian-flagged vessel *South Princess*, with national scientific observers on board, and one cruise was undertaken in Subarea 48.3 by the Uruguayan vessel *Punta Ballena* with an international scientific observer on board.

2.5 The Scientific Committee considered and approved recommendations from WG-FSA concerning the following aspects of the CCAMLR Scheme of International Scientific Observation as follows:

- (i) Protocols should be developed so that levels of depredation in the *Dissostichus* spp. fisheries in the Convention Area can be estimated (Annex 5, paragraph 3.72), including provision within the logbook for observers to record the number and type of marine mammals observed during tally counts and whether the mammals were observed interacting with the fishing operation (Annex 5, paragraph 11.8).
- (ii) The instructions to observers with respect to sampling longlines for by-catch should be simplified as follows (see paragraph 4.229 and Annex 5, paragraph 6.39):
 - (a) Tally period –
 - 25% of hooks should be observed for tally counts each day
 - the tally period may be broken up into several periods each day
 - tally period to include counts of fish species, fish and invertebrate by-catch, and interactions of birds and mammal with the fishing gear.

- (b) Biological data –
 - Biological sampling periods and tally periods should be consecutive (the mean weight of by-catch is worked out during the biological sampling period).
- (c) Rajids –
 - Skate and ray observations should be conducted at least once every 48 hours and, if possible, should cover approximately 10% of the hooks hauled.
- (iii) Observers should be thoroughly briefed by technical coordinators, and guidelines for recording by-catch data be followed as closely as possible. In addition, the Scientific Committee reiterated the importance of using the most up-to-date forms (Annex 5, paragraph 6.40).
- (iv) Coverage of the krill fishery should be increased to allow for adequate and representative sampling across all trawl fisheries for monitoring of by-catch and efficacy of mitigation measures (Annex 5, paragraph 7.8).
- (v) Data collection needs, relative to several areas of seabird and marine mammal interaction and mitigation, required additions or changes to logbooks and cruise reports as detailed in Annex 5, paragraph 7.42.
- (vi) Members should increase the level of scientific observer coverage across the krill fishing fleet, and develop objectives for such monitoring to include both the target species and by-catch. To facilitate the correct recording of larval fish by-catch, the Scientific Committee requested the Secretariat to contact all CCAMLR technical coordinators to compile a standard methodology for sampling for fish by-catch and an identification guide for larval/juvenile fish likely to be found in krill trawls (Annex 5, paragraph 10.3).
- (vii) Observers should continue to collect and record tag data on their logbook forms, and periodically provide the vessel with the data on request (Annex 5, paragraph 3.42).
- (viii) Work should be carried out by Members in the intersessional period to determine whether methods could be developed in which the scheme could be used to determine levels of reporting and detection of tag-recapture events on board fishing vessels (Annex 5, paragraph 11.7).

2.6 Additional issues related to the Scheme of International Scientific Observation are contained in various areas of the WG-FSA report (Annex 5). These include:

- (i) depredation (Annex 5, paragraphs 3.66 to 3.72);
- (ii) by-catch (Annex 5, paragraphs 6.35 to 6.39);
- (iii) incidental mortality in fisheries (Annex 5, paragraphs 7.8 and 7.42 and Appendix D, paragraphs 117 to 124);

- (iv) krill trawling (Annex 5, paragraph 10.3);
- (v) tagging (Annex 5, paragraph 3.41).

2.7 The Scientific Committee considered the state of the scientific observer program, reviewed the data requirements from the krill and finfish fisheries and identified the need to determine priorities for observers in each fishery.

2.8 The Scientific Committee noted that observers may be involved in tasks for routine monitoring of fishing activities and catches and, under some circumstances, short-term experimental work to address specific questions of interest. The following paragraphs relate to routine monitoring by observers.

2.9 The Scientific Committee noted the following tasks that use observer data from finfish fisheries:

- (i) collection of biological samples and data for developing age–length keys, estimating selectivity and total mortality, length-at-age, length–weight relationships and maturity ogives;
- (ii) differences between vessels and gear configurations which need to be estimated for use in standardising time series of CPUE as well as for determining how fisheries data should be included in different integrated assessments;
- (iii) validation of releases, recaptures and scanning rates in tagging programs, and catch rates, in particular, by-catch species;
- (iv) condition of rajids cut from longlines;
- (v) accurate recording of incidental mortality of marine mammals and seabirds;
- (vi) implementation of mitigation measures for reducing incidental mortality;
- (vii) level of depredation in longline fishing (taking of toothfish from longlines by marine mammals).

2.10 The Scientific Committee also noted that WG-FSA had identified a number of inconsistencies in observer data and issues surrounding the observer program, including:

- (i) difficulties in implementing the observer program:
 - (a) difficulties in some divisions in the implementation of the tagging program, such as differences in understanding the roles of observers and vessel personnel (Annex 5, paragraph 5.42);
 - (b) mitigation measures – measurement of sink rates of longlines (Annex 5, Appendix D, paragraphs 118 and 119);

- (c) workload and priorities of observers (Annex 5, paragraphs 6.35 and 11.9);
 - (d) complexity of observer requirements (Annex 5, paragraph 6.35);
 - (e) inconsistencies in categorisation of the fate of rajids (Annex 5, paragraphs 6.26 and 6.32);
- (ii) inconsistent application of observer requirements:
 - (a) inconsistency in reporting on netbinding (Annex 5, Appendix D, paragraph 57);
 - (iii) inconsistencies in comparisons of observer data with other data sources:
 - (a) inconsistencies in estimates of by-catch from two sources within observer-derived datasets (Annex 5, paragraph 6.31);
 - (b) inconsistencies between observer data and fine-scale data, such as location of catches (Annex 5, paragraph 6.31);
 - (c) incomplete recording of by-catch (Annex 5, paragraph 6.40);
 - (d) lower than expected by-catch rates in exploratory fisheries (Annex 5, paragraph 5.42);
 - (e) differences in by-catch rates between vessels (Annex 5, paragraph 5.15).

2.11 The Scientific Committee noted that the implementation of the observer program and the application of observer requirements could be improved by adopting a standard approach to education and training for observers in these fisheries. It requested that the Secretariat undertake a review of how education and training of observers is undertaken and to work with Members to develop an approach for achieving a common level of education and training amongst observers and how to maintain a high quality and accuracy of observations in these fisheries. The Scientific Committee encouraged Members to work with the Secretariat on this matter. It asked that the Secretariat, at least, work with conveners of the working groups and the Members' technical coordinators to progress this work and to provide a paper for consideration at next year's meeting.

2.12 With respect to the krill fishery, the Scientific Committee noted that the following issues require data from observations (SC-CAMLR-XXIV, paragraph 2.10):

- (i) accurate catch rates used in standardising CPUE;
- (ii) biological samples and data, particularly length frequencies, for use in determining selectivity and total mortality of krill and for determining the overlap between fisheries and predators at small scales;

- (iii) differences between vessels and fishing methods which need to be estimated for use in standardising time series of CPUE as well as for understanding how to include fishery data in integrated assessments;
- (iv) by-catch rates of fish larvae;
- (v) incidental mortality of marine mammals and seabirds;
- (vi) understanding differences between the various vessels/gear configurations.

Review of the scientific observation program

2.13 The Scientific Committee reviewed the coverage of the krill fishery by observers to date. Table 1 summarises this coverage, showing the monthly catch for each Flag State in each subarea for the two most recent seasons, 2003/04 and 2004/05. Since 2000, 33 observer reports have been received by the Secretariat with 15 reports being received from the 2003/04 and 2004/05 seasons combined.

2.14 The Scientific Committee noted that both WG-EMM (Annex 4, paragraph 3.80) and WG-FSA (Annex 5, paragraph 10.3) recommended increased observer coverage across the krill fleet. It also recalled its discussion last year on the deployment of observers on krill vessels (SC-CAMLR-XXIV, paragraphs 2.7 to 2.24), including specific comments indicating the points of disagreement on compulsory deployment of observers on krill fishing vessels.

2.15 The Scientific Committee noted that three main issues are of high priority in the krill fishery at present:

- (i) understanding the differences in selectivity between the various krill fishing gear configurations (paragraph 2.9);
- (ii) determining the level of by-catch of fish larvae in the krill fishery (paragraph 2.12);
- (iii) determining the level of warp strikes by seabirds and incidental mortality of seals (paragraphs 5.31 and 5.32).

2.16 In considering these three issues, the Scientific Committee agreed that there may be differences in by-catch of fish larvae and incidental mortality of seabirds and seals between different trawl methods and gear configurations in this fishery. It therefore agreed that observations from all Members were important for addressing these issues.

2.17 Some Members, however, were of the view that the issues of by-catch of larval fish and the incidental mortality of seabirds and mammals do not outweigh the importance of more direct krill-related observations. They also noted that, at present, the effect of by-catch of larval fish on the dynamics of those stocks has not been assessed and that it would be desirable for the working groups to make this assessment using existing data before focussing on further monitoring of by-catch of

larval fish in the krill fishery. Dr M. Naganobu (Japan) noted that Japan has provided information from the scientific observation on krill vessels including the by-catch of larval fish for over 10 years. He further noted that the interaction with seabirds and mammals in the krill fishery is only modest or coming under control.

2.18 Most Members agreed that, as proposed last year (SC-CAMLR-XXIV, paragraph 2.16), a scientific study should be undertaken such that each vessel in the krill fishery should carry an observer at the same time in the same areas to enable a valid comparison of the different methods and that this study could be used to help determine the level of observer coverage that would be required in the future. It was noted from Table 1 that such a study might be undertaken in Subarea 48.2 during March–May when most Members fished in that area.

2.19 Some Members indicated that such an experiment is still unlikely to result in sufficient coverage of the features intended to be monitored, as the level of krill fishery is currently very low. Hence the justification of the cost that will incur is not sufficiently strong. They also noted that, should such a study proceed, the manner in which the study would be funded would need to be considered (for example, see the comments in CCAMLR-XXIV, paragraph 9.7).

2.20 The Scientific Committee agreed that the issue of by-catch of larval fish in the krill fishery could impact on the stock assessment of target species.

2.21 The Scientific Committee noted that there is a need to review the priorities of the observer program to ensure that the expectations and workloads of observers remain achievable. It requested that conveners of the working groups initiate discussions within their groups on priorities within the observer program so that the working groups can provide advice on the matter next year.

Advice to the Commission

2.22 The Scientific Committee recommended that:

- (i) WG-FSA's recommendations regarding the work of CCAMLR scientific observers be noted (paragraph 2.5 and Annex 5, paragraph 11.12);
- (ii) the deployment of scientific observers on krill fishing vessels should be a high priority to investigate the by-catch of larval fish in the krill fishery (paragraphs 4.7 to 4.10; see also paragraph 11.14);
- (iii) the priorities of the observer program be reviewed to ensure that the quality of the data being collected does not deteriorate (paragraph 2.21).