

**REPORT OF THE AD HOC TECHNICAL GROUP
FOR AT-SEA OPERATIONS**
(Hobart, Australia, 11 to 15 October 2010)

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INTRODUCTION

Opening of the meeting

1.1 The third meeting of ad hoc TASO was held in Hobart, Australia, from 11 to 15 October 2010. The meeting was co-convened by Mr C. Heinecken (South Africa) and Dr D. Welsford (Australia).

1.2 The Co-conveners welcomed participants (Appendix A).

Terms of reference, conduct of the meeting and adoption of the agenda

1.3 The Technical Group recalled its terms of reference as agreed by the Scientific Committee (SC-CAMLR-XXVII, paragraph 6.7).

1.4 The report was prepared by Mr M. Exel (Australia), Mr Heinecken, Dr S. Kawaguchi (Australia), Mr J. Moir Clark (UK), Ms K. O'Regan (Australia) and Mr B. Sims (New Zealand). Text that provides advice on future work to the Scientific Committee has been highlighted without repeating it in full in Item 5.

1.5 The provisional agenda was adopted (Appendix B).

Review of materials submitted by Members

1.6 Documents submitted to the meeting are listed in Appendix C.

1.7 The Technical Group noted that, in response to the request by the Scientific Committee (SC-CAMLR-XXVIII, paragraph 6.12), four Members (Australia, France, Spain and the UK) submitted materials to assist with the development of baseline requirements for accrediting observer programs. These submissions had been appended to TASO-10/5.

1.8 The Technical Group noted that the Scientific Committee recommended that the development of baseline requirements to accredit observer programs be undertaken in 2010 (SC-CAMLR-XXVIII, paragraph 6.11), and agreed that this would form the substantial part of its work at this meeting.

1.9 Mr Moir Clark presented the UK submission, annexed to TASO-10/5, which provided a framework for evaluating the assessment criteria set out in SC-CAMLR-XXVIII/BG/9, including how the baseline requirements can be qualitatively assessed.

1.10 The Technical Group noted that the UK submission provided a useful template which could be used as a basis to develop a matrix through which observer programs could be assessed. It was decided that each of the key assessment criteria would be scored on a three-tier basis:

- (i) exceed minimum standard
- (ii) meet minimum standard
- (iii) below minimum standard.

1.11 The Technical Group agreed that to be accredited, a program must achieve the minimum standard on each of the assessment criteria. Programs could also ‘exceed minimum standard’ on particular criteria if they were considered to show examples of best-practice.

1.12 The Technical Group also considered that accreditation should include a qualitative analysis of the training materials provided, including the training manual, training delivery material, descriptions of practical training and any associated assessment of learning.

1.13 Mr N. Gasco (France) presented a paper covering France’s observer program outlining the procedures it had in place for at-sea observer monitoring. This included giving observer feedback on both the quantitative and qualitative aspects of data collected on a weekly basis such as the number of toothfish measured, tagging rates and size of fish tagged. On a trip basis, photos taken for cetacean identification are assessed for quality. Debriefing procedures include rating the quality of the biometric data collected and testing seabird identification skills to assess the reliability of seabird data collected by each observer. In addition, France informs observers of ongoing scientific research and outcomes of recent meetings of interest through publication of an ‘Observer Bulletin’. This provides the observers with feedback on how data collected by them is being used.

1.14 Ms O’Regan presented a paper reviewing Australia’s observer program which focused on the recruitment and selection of observers, including any prior skills required. A second round of checks includes first aid and medicals. The initial training phase is run over a 2–5 day period that qualifies observers to work in the domestic fishery. After one year in the domestic fishery, and following additional training in relevant subjects, these observers would qualify for deployment in the Antarctic fishery. Data-quality reports are done for each observer, on a trip-by-trip basis, which includes information on any equipment or database problems during the trip. At-sea data checking includes analysis of data recording, positional data and the bin sizes of otoliths collected. Australia holds an annual conference which brings in experts from different fields, for example, fishery managers, biology experts, industry figures and observers.

1.15 Mr Sims recalled TASO-09/9 which provided a pro-forma framework for the provision of observer program information to TASO, and presented a summary of the New Zealand observer training program, including observer recruitment, observer assessment criteria, at-sea supervision and graduated deployment from simple to complex fisheries. The rigorous recruitment process requires observers to undergo two interviews, psychometric testing and three weeks of training, and they must pass a final exam before being employed. On average, less than 10% of applicants are selected for observer training. It was noted that experience of approximately six months of sea time, including at least 30 sea days’ observation of domestic within-zone demersal longline fisheries, is required prior to an observer being considered for deployment in Antarctic fisheries. During a season while at

sea, observers report in on a five-day basis; these reports can be used to cross-check vessel reports. To meet the CCAMLR requirements, all vessels have on board one national observer and one international observer who work in 12-hour shifts to collect the required data.

1.16 Mr Heinecken presented TASO-10/8, submitted by Chile, on its national observer program which deploys national observers over a wide range of regions along the Chilean coast. The emphasis of the paper was on data-checking and data-quality systems where a team of 11 staff are employed in the computer science department to carry out the required checks and analyses of submitted data. In outlining Chile's recruitment, it was noted that positions were publicly advertised and that observers are legally appointed by the Government.

1.17 The Technical Group noted that aspects of the Chilean observer programs are accredited to ISO 9001:2000. The Technical Group noted that ISO 9001:2000 is not an observer-specific standard, but rather applies to business and administrative processes and remarked that this sort of standard may be useful to apply to components of other observer programs. The Technical Group also noted that it was unclear in the Chilean submission as to whether it applies to CCAMLR observers.

1.18 On behalf of the authors, Dr Welsford presented the text of Spain's training course for its toothfish fishery. Although the paper included some details that helped the Technical Group understand observer programs from different Member States, the discussion was limited to the translation. However, it was noted that Spain's program was based around relevant sections of the conservation measures and resolutions.

1.19 Mr Heinecken presented TASO-10/9 on behalf of the authors. This gave information on the newly established Chinese course which was run earlier this year for krill fisheries. The observer training program is run under the auspices of the Bureau of Fishery, Ministry of Agriculture. It was noted that the two observer training courses were held in conjunction with the training courses for vessel crew members and included representatives from the fishing industry. A total of 150 people attended these two courses. To date, six observers have been placed on two vessels (three on each). Data have been submitted to CCAMLR in the correct format as specified in the Scheme of International Scientific Observation.

1.20 The Technical Group expressed its thanks to the People's Republic of China as a new Member for developing a program and submitting the information. TASO also noted that the observers had been certified by the Chinese Government and it asked for more information as to how this process may help with accrediting CCAMLR international scientific observer programs.

1.21 Mr Heinecken presented a description of South Africa's CCAMLR observer program. Where possible, observers are required to participate in the domestic fishery before being eligible for training for the CCAMLR program. The training includes specific instruction on the sampling requirements for CCAMLR fisheries and an understanding of the CCAMLR conservation measures. Assessment is based on practical case studies where the observers are required to conform to conservation measures for specific areas and capture 'dummy' data into the log sheets.

1.22 Dr T. Okuda (Japan) presented an outline of Japan's observer program for krill and toothfish fisheries in the CCAMLR area. The krill observer program has been operational

since the 1989/90 fishing season. It was initially focused on fish by-catch and has since been adapted to reflect the CCAMLR Scheme of International Scientific Observation. During 2009, the Japanese observer program was updated to ensure data that were collected from the 2009/10 season are submitted to CCAMLR according to the observer scheme. The toothfish observer program is run to assist the CCAMLR international observer who also works on the vessel. Japan's program is supported financially by the Government to ensure the independence of data collection and resource management. The Government issues a certification at the end of the course to show the observer has reached the required level of competency. The observer program consists of:

- nomination and selection
- training course work
- certification
- briefing for deployment
- support of on-board activities
- data and sample treatment
- debriefing.

1.23 Japan currently operates one vessel in CCAMLR toothfish fisheries and one vessel in CCAMLR krill fisheries. Observers are deployed on the krill vessel for one 70–90 day trip per season, with the vessel returning to port to embark and disembark observers. Observers are deployed on all toothfish trips and can be on board for up to five months.

DEVELOPMENT OF A PROCESS FOR ACCREDITING OBSERVER PROGRAMS PARTICIPATING IN THE CCAMLR SCHEME OF INTERNATIONAL SCIENTIFIC OBSERVATION

Development for an accreditation process and timeline

2.1 The Technical Group noted the need for an accreditation process for CCAMLR international scientific observer programs to review both program outputs in terms of data quality, along with program inputs, including institutional arrangements, at-sea support, briefing and debriefing, quality assurance and observer training.

2.2 The Technical Group recommended that initial accreditation be provided to successful programs for five years, after which time a program would be required to undergo a complete review and re-accreditation process.

2.3 The Technical Group recommended that the Scientific Committee consider establishing an annual review of a subset of data, target species data for example, collected by CCAMLR international scientific observer programs as a mechanism to monitor the performance of accredited programs for review and feedback purposes. A reduced annual review would require standardisation, potentially through the development of automated data-quality metrics. The Technical Group noted that WG-SAM has recommended the development of such data-quality metrics (SC-CAMLR-XXVIII, Annex 6, paragraph 5.10). Any such standardised data-quality metrics could also be used to review data collected by national observers and vessels if the Scientific Committee considered this useful. The Technical Group also recommended the Scientific Committee consider a process for

providing feedback to, and reviewing of, the CCAMLR international scientific observer programs whose data is found, through review or data-quality metrics checks, to be consistently below the minimum acceptable standard.

2.4 The Technical Group requested that the Scientific Committee consider the following process for programs seeking accreditation:

- (i) The CCAMLR Secretariat collate and hold information and materials submitted by Members' observer programs seeking accreditation. The Secretariat would undertake an initial determination as to the presence or absence of the component required of a CCAMLR international scientific observer program to achieve accreditation. If any components are missing, then the Secretariat will notify the applicant that they must be provided before review for accreditation is undertaken. The Secretariat will not make any evaluation as to whether those components present meet the minimum standard required.
- (ii) Once information is supplied on all the mandatory criteria to be assessed, a review panel, determined by the Scientific Committee, will review this material and evaluate whether the program meets the minimum standards required, using the baseline standards developed by TASO (Table 1). Representatives from the program seeking accreditation would be made available to the review panel so that any questions regarding the submission can be answered. Once the review is complete, advice will be provided to the Scientific Committee on the results of the review.

2.5 The Technical Group considered TASO could potentially undertake the review panel function in the accreditation process, and asked that the Scientific Committee gives consideration to the following issues:

- (i) the value of continuity in the participation of Members in TASO to ensure consistency in the accreditation review process;
- (ii) a mechanism for handling conflicts of interest amongst participants, such as commercial conflicts of interest;
- (iii) the financial implications for Members to participate in TASO for the purpose of observer accreditation review;
- (iv) the timing of submissions by Members' observer programs in relation to the timing and work program of future TASO meetings and other relevant bodies of the Commission.

2.6 The Technical Group requested that the Scientific Committee consider a dispute-resolution procedure, which could take the form of an independent and external panel, reviewing the material supplied by a program and the accreditation assessment under dispute, to determine a final outcome, where the review panel or the Scientific Committee is unable to do so.

2.7 The Technical Group agreed that accreditation of all current CCAMLR international scientific observer programs could be completed in 3–4 years, and that once the Scientific Committee has approved the baseline standards checklist and accreditation process, observer programs would be able to apply for accreditation immediately.

2.8 The Technical Group recommended that the accreditation process also include a requirement that feedback be provided to the Member if accreditation is declined, in order to support applicants to improve their program before reapplying.

2.9 The Technical Group agreed that accreditation will provide recognition of the quality of Members' programs.

2.10 The Technical Group noted that it could undertake a review of the baseline standards and accreditation process after the full implementation of the accreditation process, including feedback from CCAMLR and individual Members on the process and baseline standards developed by the Technical Group this year.

Establishment of baseline standards for observer recruitment, training and performance management

2.11 The Technical Group agreed that the table provided in the UK submission annexed to TASO-10/5 would provide a useful template as the basis for articulating all the elements of a baseline standard for accrediting observer recruitment, training and performance management, as well as for developing a checklist to accredit observer programs.

2.12 The Technical Group identified the management components of a CCAMLR international scientific observer program that CCAMLR would need to evaluate for accreditation. These components included institutional arrangements, recruitment checks, observer briefings, at-sea support, debriefing and quality assurance. A set of assessment criteria were then developed for each of these management components and added to the original assessment criteria developed in SC-CAMLR-XXVIII/BG/9 (see Table 1).

2.13 Each of the assessment criteria was categorised according to whether the Technical Group considered it to be 'Mandatory' or 'Desirable' for a CCAMLR international scientific observer program. Baseline standards for each assessment criteria were then developed and a description of what would determine whether an assessment criteria achieves 'Below minimum standard', 'Meets minimum standard' or 'Exceeds minimum standard'.

2.14 Where an assessment criteria was categorised as 'Desirable', the Technical Group identified that where a program provided evidence that it addressed such criteria, it should automatically be considered to exceed minimum standard.

2.15 Where an assessment criteria was categorised as 'Mandatory', the Technical Group identified that it could either fall below the minimum standard, meet the minimum standard or exceed the minimum standard. For some assessment criteria, however, the Technical Group agreed that it was only possible to evaluate whether an observer program either met or did not meet the minimum standard required.

2.16 The Technical Group agreed that for programs to be accredited it would need to achieve the minimum standard in all the mandatory criteria. The Technical Group considered that, although not necessary for accreditation, desirable criteria should also be included in the assessment matrix to demonstrate the components that contribute to what may be considered a best-practice program.

2.17 The Technical Group recognised that the training element of the observer program operates as a sub-component of Institutional Arrangements under the Management Components section of Table 1. The Technical Group considered that the observer training sub-components necessary for a CCAMLR international scientific observer program include the CAMLR Convention, Role of the Scientific Observer, Vessel and Fishing Operations, Species Identification, Sampling Techniques and Data Handling.

2.18 The Technical Group requested that the Scientific Committee consider the application of Table 1 as a checklist for the accreditation of any CCAMLR international scientific observer programs.

2.19 The Technical Group noted that the ultimate test of the success of an observer program would be the provision of comprehensive and consistently high-quality data for use by the Scientific Committee, such as in the stock assessments performed by WG-FSA. The Technical Group noted that data currently submitted to the Secretariat are routinely checked for basic errors (see also WG-SAM-09/5). The Technical Group agreed that a process whereby assessment of program data quality, to allow feedback to technical coordinators and the Scientific Committee and its working groups was needed.

2.20 The Technical Group requested that WG-EMM and WG-FSA consider which comprehensive data subsets should be reviewed at regular intervals (e.g. tagging data, target and by-catch length-frequency data), to provide this feedback. The Technical Group noted that such reviews would enable the review of the baseline standards for observer programs, along with the quality of data outputs with respect to their intended use.

2.21 The Technical Group noted that as the accreditation process was focusing on the CCAMLR Scheme of International Scientific Observation, it was important to be able to distinguish whether data were collected by national or CCAMLR international scientific observers on vessels where both operate. The Technical Group requested that the Secretariat modify the CCAMLR scientific observer forms to ensure this was possible.

INTERACTION WITH OTHER WORKING GROUPS

3.1 The Technical Group noted that the Scientific Committee and its working groups could all call on the expertise of TASO to address issues that fall under its terms of reference. It recalled that in previous meetings it had been able to successfully address specific technical questions referred to it by WG-FSA, WG-IMAF and WG-EMM.

3.2 The Technical Group further considered that meeting in parallel to working groups, such as WG-FSA in 2010, had advantages in that specific technical questions that arose in the working group could be referred to TASO and commentary could be provided effectively in real time. However, it agreed that, due to the contrast in the terms of reference for TASO and

WG-FSA, it would be inappropriate for joint sittings of WG-FSA and TASO without the endorsement of the Scientific Committee and consideration of the format and timing of future meetings.

PRACTICAL IMPLEMENTATION OF DATA COLLECTION AT SEA

4.1 Mr Moir Clark presented TASO-10/7 on the development of an observer educational DVD for CCAMLR observers deployed in the Subareas 48.3, 88.1 and 88.2 toothfish longline fisheries. The video material covers daily work schedule, biological sampling, specialised tagging/recapture and skates identification. The Technical Group noted that the DVD was still being developed and requested that on completion, the UK make it available to other Members through the Secretariat. The Technical Group suggested that other Members may consider developing similar training aids for other CCAMLR fisheries.

4.2 TASO-10/6 was also presented by Mr Moir Clark, proposing the inclusion of the identification of oiled birds in the training for CCAMLR scientific observers. As there is currently no specific requirement to record oiled bird sightings, observers have typically recorded sightings in the comments section of their cruise report. The paper noted that the CCAMLR Marine Debris Hydrocarbon Soiling form has been used for reporting oil, paint, tar or petroleum for land-based surveys and this could be used by observers to record soiled birds observed at sea.

4.3 The Technical Group agreed observers and operators be encouraged to report oiled birds and requested that the Secretariat link the form to the observer page for easy access. It also requested that WG-IMAF consider the utility of current data collected by observers on oiled birds.

4.4 TASO-10/4 was presented by Mr Gasco and provided detailed gonad-stage identification plates for *Dissostichus eleginoides*, and proposed collaborative work to develop a set of CCAMLR plates for use at sea to sex and stage toothfish consistently. The Technical Group agreed that compilation of such an ID guide should be undertaken and requested WG-FSA to assess the value of a standardised guide for gonad staging.

4.5 The Technical Group discussed the desirability of compiling other such observer ID guides and materials for observer reference, such as area-specific by-catch photoguides, and agreed this should be pursued as part of the medium-term strategic development of observer reference material.

4.6 The Technical Group agreed that the video and photographic materials presented during the meeting are also valuable for both observer training and as reference materials when deploying observers. It was requested that the Secretariat place such materials, submitted by Members, on the 'Members Only' section of the CCAMLR website and notify technical coordinators that this material is available.

Resources for species identification and observer training

4.7 Mr Gasco introduced a package of over 350 photographs that included, inter alia, pictures for species identification of fish, seabirds and marine mammals. The package also includes training pictures illustrating observers' tasks such as tagging, biological sampling and assessment of seabird abundance, with an electronic program which any series of photographs can be inserted into and used for self-training or testing. A further program was presented that can be used to calculate twilight at any selected geographical coordinates.

4.8 The Technical Group noted CCAMLR could, where appropriate, make such information available for training and educational purposes. It further noted that these materials could not be considered as CCAMLR-endorsed resources. The country of origin and contact information for each Member who submits material would therefore be required to be kept up-to-date to ensure enquires can be directed appropriately. The Technical Group requested the Scientific Committee to give consideration to hosting this material on the CCAMLR website, noting that this may have financial implications.

4.9 WG-FSA-10/25, presented by Mr A. Dunn (New Zealand), reported on fisheries and biological information for skates caught in the Ross Sea region during the Year-of-the-Skate, and provided parameter estimates, including tag loss rates. It noted that retardation of growth due to tagging was not detected. The paper recommended future focused research programs, such as Year-of-the-Skate, to be carried out at specific intervals, such as every five years.

4.10 The Technical Group noted that it is important for the observer workload to be taken into account when tasking observers to collect information, while ensuring consistent data is collected without compromising its accuracy. In response to the information provided in WG-FSA-10/25, the Technical Group agreed that it would be practical to:

- improve skate identification and recording;
- measure total length, pelvic length and disk width of all skates sampled;
- bring skates to the roller before release to improve tagging and help with tag identification;
- continue use of T-bar tags to ensure continuity in the data returned by skate tagging programs.

4.11 WG-FSA-10/32, presented by Dr S. Hanchet (New Zealand), summarised the current fishery-dependent data collection in the Ross Sea and proposed medium-term research objectives for this region. The proposal also included a draft fishery-dependent medium-term data collection plan. The Technical Group was asked to comment on any gaps, sampling rate adequacy and its approach to the items to be collected by observers. The paper further recommended the development of research plans for specific areas and fisheries.

4.12 The Technical Group noted that ensuring randomness when collecting a sample was more difficult when small sample sizes were required. The Technical Group noted that this should be taken into account when analysing such data. The Technical Group also agreed that sampling instructions need to be as clear as possible for the observer to understand and implement.

4.13 To facilitate clear instructions, the Technical Group agreed that the format of the template used in Table 3 of WG-FSA-10/32 provided a way of clearly articulating the different data types and sample sizes observers are asked to collect. The Technical Group also requested that the Scientific Committee consider using WG-FSA-10/32, Table 3, as a template to set out research plan collection requirements in the relevant sections of the fishery-specific conservation measures.

4.14 WG-FSA-10/23, also presented by Dr Hanchet, reported problems in distinguishing between the two toothfish species of smaller size (<100 cm TL) in Subareas 88.1 and 88.2. It noted that some reports of small *D. mawsoni* were likely to be *D. eleginoides*. The paper recommended that observers be made aware of this issue, and that the historical species identification be independently checked through examination of a subsample of otoliths collected from these small fish, noting that otoliths can be used to discriminate between toothfish species.

4.15 The Technical Group noted that scientific observers need to be able to distinguish between the two species when caught together, and that observer training should emphasise the importance of making this distinction. It was noted that guidance on distinguishing between the two species is provided in section 14 of the *Scientific Observers Manual* (Draft 2010).

4.16 TASO-10/10, presented by Dr S. Parker (New Zealand), reported on the accuracy of VME taxa classification by New Zealand scientific observers. The research showed that taxa classification was generally accurate, except for confusion between two sponge classes and stony and dead stylasterid coral. Misclassification of non-VME taxa as VME taxa was minor.

4.17 The Technical Group noted that VME taxa identification training increased the accuracy of identification in 2009/10 when compared to the identification success rates of New Zealand scientific observers in 2008/09. It was also noted that training should be region-specific due to regional difference in species composition.

4.18 In response to the information provided in TASO-10/10, the Technical Group agreed it was practical that:

- VME taxa by-catch be recorded for every observed line segment, including if by-catch was zero;
- the two classes of Porifera be combined as they cannot be reliably separated in the field;
- vessels record whether weight or volume was used to measure each VME indicator unit recorded.

The Technical Group also agreed that the name of the observer identifying the taxa on a line segment should be recorded to allow observer accuracy to be evaluated.

4.19 WG-FSA-10/33 submitted by New Zealand and presented by co-author Dr Welsford presented evidence for a new undescribed grenadier species (*Macrourus* spp.) found in the Southern Ocean using DNA barcoding as part of the IPY and the Bar Code of Life Database program. The conclusion was supported by meristic and morphological differentiation of the new species. *Macrourus* spp. had been identified as *M. whitsoni* in the past.

4.20 The Technical Group recommended that the *Scientific Observers Manual* should note areas where the distribution of *M. whitsoni* and the new undescribed species overlap, that a species code should be allocated, and the field characteristics such as difference in number of rows of teeth and body colour, be included in the species identification guide.

Request from WG-EMM

Manual for krill escape mortality observation

4.21 The Technical Group was requested by WG-EMM to review the manual for krill escape mortality observation by Russia and Ukraine (once developed) and comment on its practicality and implication for the workloads of scientific observers (Annex 6, paragraph 2.38). The manual was not received for consideration at the current meeting, so it was not possible for the Technical Group to comment on it. The Technical Group looked forward to receiving the manual for consideration in the future.

Time budget for krill observer coverage

4.22 WG-EMM requested that TASO consider the time budget for observers in the krill fishery and advise whether 20% haul coverage could be achieved by increasing the number of hauls observed per five-day period (Annex 6, paragraph 2.52).

4.23 TASO noted that there were different sampling regimes in place for fish by-catch and for krill biological sampling. The Technical Group agreed that from a workload point of view, in general, for conventional trawl, 20% haul coverage for biological sampling (fish and larval fish by-catch) should be feasible within the period when observers are on board. However, as the current number of days allocated for biological sampling for krill is restricted to five days within every 20-day period (as in the current instruction in the krill e-form), a maximum of 25% coverage in total would be achievable only if the observer sampled every haul during this period. Given that an observer has other tasks, it is unlikely that the observer can achieve a total of 20% by sampling only five days in every 20-day period.

4.24 The Technical Group further noted that vessels employing the continuous pumping method undertake 12 haul units per day since one haul unit is defined as a 2-hour period. Some trawlers using the continuous pumping method can tow two nets simultaneously, in which case 24 equivalent haul units occur per day. Achieving the same proportional level of coverage as the observers on conventional trawlers with a single observer may therefore be difficult. The Technical Group further noted that it is not possible to specify what level of haul coverage and data collection is achievable for the abovementioned continuous pumping trawl methods without further information about how the operational differences of each method variation is taken into account for percent coverage calculation.

4.25 The Technical Group requested WG-EMM to provide clearer descriptions of the data collection and coverage required for each of the observation items, for example, using the template as set out in WG-FSA-10/32, Table 3.

Estimation of drip loss from krill catch

4.26 Following a request from WG-EMM, a method to record the ‘drip loss’ of krill was presented by Mr Moir Clark. This allows for the accurate determination of the green weight of krill as it accounts for any excess water in the catch. Krill vessels are required to state in their notifications the method that they use to directly estimate the green weight of krill caught, however, at the moment it is unclear how the water content is reflected in the green weight estimate. It was requested that observers record if drip loss is taken into account when green weight estimates are made and, where possible, to measure it.

4.27 The Technical Group agreed that a section for recording drip loss should be added to the observer logbook and these data should be collected on a regular basis during the trip where possible.

Use of underwater camera for observation

4.28 The Technical Group was tasked by WG-EMM to comment on how readily the benthic impact camera system (BICS) might be deployed by CCAMLR scientific observers during commercial fishing operations (Annex 6, paragraph 3.26). The camera system was described by Dr Welsford and Ms O’Regan and they noted that it was relatively simple for vessel crews and observers to use. They further noted that it is provided along with an operations manual and a training DVD. Mr Exel also noted that Australian vessels had found the cameras straightforward to operate in Division 58.5.2 (Heard and McDonald Islands) when the vessel’s crew and observer work together. Mr Moir Clark noted that BICS had also been successfully deployed by an observer operating on an autoline vessel in Subarea 48.3.

4.29 The Technical Group noted that the Scientific Committee would need to consider if camera deployments would need to be a routine item for the CCAMLR observer program or a discrete research program undertaken by individual Members.

4.30 The Technical Group noted that so far BICS has been deployed on autoline and trawl gear in Division 58.5.2 and on autoline gear in Subarea 48.3, and its operation on other gear types, such as Spanish longlines, is untested. The Technical Group also noted the following potential issues in operating such a camera from commercial vessels operating in Olympic fisheries, and that these issues should be considered by CCAMLR:

- financial implications and liabilities for vessels deploying cameras;
- risks to the camera in deploying such a system in some high-seas fishery operations, such as where sea-ice is present;
- data storage, management and ownership;
- managing camera deployments alongside other observer tasks.

4.31 Dr Welsford noted that while the administration of routine camera deployments had not yet been resolved, any issues should not be insurmountable where there is a will to collect the data that SC-CAMLR requires to ensure its fisheries satisfy Article II of the Convention.

4.32 The Technical Group noted that future developments in electronic monitoring of fishery operations, and for research activities, was likely to make the use of such technologies more accessible. It was also noted that electronic technologies are being used in other fisheries for monitoring by-catch and wildlife interactions. The Technical Group requested that the Scientific Committee consider the evaluation, administration and application of such technologies as they are developed.

FORMAT OF FUTURE MEETINGS AND PRIORITIES FOR FUTURE WORK

5.1 The Technical Group agreed that its future work plan would be likely to continue to focus on evaluating the performance of the observer accreditation process it has developed this year, as well as items referred to it by the Scientific Committee and its working groups and SCIC under its terms of reference (SC-CAMLR-XXVII, paragraph 6.7).

5.2 The Technical Group noted that meeting for a full week had greatly assisted with addressing the issues on its agenda this year in greater depth, as well as facilitating the attendance of industry representatives and other experts that may not have been able to attend a shorter meeting. The Technical Group agreed, however, that as it was an ad hoc group and the Scientific Committee and its working groups had many other substantive issues to address, it may not be possible or appropriate to have a week-long meeting of TASO every year.

5.3 It also noted that meeting in parallel with other groups, such as WG-FSA in 2010, and between WG-SAM and WG-EMM in previous years, had enabled involvement by delegates from those meetings. It also recognised that some participants in the working groups may not have been able to participate in TASO discussions due to the workloads in those other groups.

5.4 The Technical Group also recalled that its meetings greatly facilitated the interaction of technical coordinators, observers, vessel operators, scientists and other experts, and that hosting of future meetings by a Member could make a significant contribution to the development of CCAMLR international scientific observer programs in that region.

5.5 Therefore, the Technical Group requested that the Scientific Committee consider an appropriate timing and location for its future meetings, taking into account the benefits of having meetings of sufficient length to hold substantive discussions and enable the appropriate experts to participate.

OTHER BUSINESS

6.1 There was no other business.

CLOSE OF MEETING

7.1 The report of the third meeting of ad hoc TASO was adopted.

7.2 In closing the meeting, the Co-conveners thanked the Secretariat staff for their work and support during the meeting and also for their work in supporting the observer program during the year.

7.3 The Co-conveners also thanked the technical coordinators and asked them to convey their appreciation to the observers for all their hard work during the year.

7.4 The Co-conveners also thanked the participants for their diligent work during the meeting.

7.5 On behalf of the participants, Dr Kawaguchi thanked the Co-conveners for their hard work. He noted that it was the first time that TASO had held a week-long meeting and the work and depth of the discussions had been very productive.

Table 1: CCAMLR international scientific observer program components and assessment criteria matrix for baseline standards consisting of (1) Management components and (2) Training. In the proposed process for observer program accreditation, a Member would submit evidence against which each criteria can be assessed.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
(1) Management components					
Institutional arrangements	Association and conflict of interest of the observer organisation with industry	M	Not applicable	Program has no financial interest in, or relationship with, any vessel or business harvesting or processing products from a CCAMLR fishery other than the provision of the observer service.	Program has direct/indirect financial interest in a company within or outside the CCAMLR fishery.
	Observer program national endorsement	M	Not applicable	Program has endorsement from a Member.	Program does not have endorsement from a Member.
	Training	M	Not applicable	Training program meets all mandatory training assessment criteria as laid out in section (2) Training.	Training program does not meet all mandatory training assessment criteria as laid out in section (2) Training.
	Infrastructure and record keeping	M	Program provides dedicated infrastructure to support observer deployment, logistics, record keeping and data management.	Program provides infrastructure supporting observer deployment, logistics, record keeping and data management.	Program does not provide sufficient infrastructure to support observer deployment, logistics, record keeping and data management.
	Information security	M	Not applicable	Protocols in place that conform to terms of the CCAMLR Scheme of International Scientific Observation, paragraphs D(d)(i–ii). Authorised access control to premises, data and information systems.	Insufficient protocols in terms of the CCAMLR Scheme of International Scientific Observation, paragraphs D(d)(i–ii). Insufficient access control to premises, data and information systems.
Recruitment checks	Observer Code of Conduct	M	Not applicable	Program has process in place to ensure that applicants conform to the CCAMLR Scheme of International Scientific Observation, as specified in paragraph D(a)(iv).	Program has no process in place to ensure that applicants conform to the CCAMLR Scheme of International Scientific Observation, paragraph D(a)(iv).
	Physical and mental health	M	Not applicable	Program has adequate physical and psychological health assessment requirements in place.	Program does not have physical and psychological health assessment requirements in place.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Briefing	Provision of gear and equipment	M	Program provides appropriate personal and safety gear for working in cold conditions unless predetermined that it is provided by the vessel. Sampling equipment provided that will facilitate optimum performance of tasks expected from observers.	Program provides appropriate personal and safety gear for working in cold conditions unless predetermined that these are provided by the vessel. Sufficient sampling equipment for observers to carry out their tasks.	Program does not provide adequate personal and safety gear for working in cold conditions. Gear provided is not sufficient for adequate sampling.
	Support literature and detailed sampling instructions	M	Program ensures observers are supplied with relevant up-to-date CCAMLR manuals and data reporting forms. Additional supporting literature is also provided.	Program ensures observers are supplied with relevant up-to-date CCAMLR manuals and data reporting forms.	Program does not supply relevant CCAMLR manuals and data reporting forms.
At-sea support	Monitoring observer performance	D	Program has processes in place to monitor observer performance (tasks and data collected) and provide rapid feedback.	Not applicable	Not applicable
	Communications	M	Program has established communication protocols for observers at sea; in addition, observers are provided with independent means of communication.	Program has established communication protocols for observers at sea to communicate with their controlling authorities.	Program has no established communication protocols for observers at sea.
Debriefing	Data submission and reporting	M	Not applicable	Program has protocols to ensure timely submission of CCAMLR data and reports to the Designating Member.	Program does not have protocols to ensure submission of CCAMLR data and reports to the Designating Member.
	Observer feedback on vessel	D	Program has protocols for internal observer reports on vessel performance and working conditions with respect to at-sea operations.	Not applicable	Not applicable

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Quality assurance	Data quality assurance	M	Program ensures comprehensive range and logic checks are performed on data prior to submission.	Program ensures basic range and logic checks are performed on data prior to submission.	Program does not perform checking of data.
	Observer performance feedback	D	Program has protocols in place to provide observers with feedback on performance for future skill development.	Not applicable	Not applicable
	Vessel operator feedback	D	Program has protocols for vessel operator feedback on observer performance with respect to at-sea operations.	Not applicable	Not applicable
(2) Training					
CCAMLR Convention	Membership, inception, structure, management	D	Observers are trained about CCAMLR, including the structure, history, ecosystem monitoring, Article II, processes, and how CCAMLR fits into the Antarctic Treaty System.	Not applicable	Not applicable
Role of CCAMLR observers	Duties and responsibilities of observers and the vessel's crew	M	Detailed briefings on key crew and observer roles (distinction / demarcation / shared components) provided. Knowledge of the importance of observers for CCAMLR and how their data are used by the working groups.	CCAMLR observer-specific responsibilities are explained to the observers, but no detailing of shared activities / research activities of the crew / vessel.	Lack of training in observer duties and responsibilities.
	Conservation measures	M	Not applicable	Trained in CMs for the fishery they will be working in and provided with reference material to help use them.	Provided copies of relevant CMs with no instruction or training on their applicability.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Role of scientific observers	Code of Conduct of observers as contained in the text of the scheme	M	Not applicable	Provides full briefing on the requirements of the observer Code of Conduct.	Provided copies of observer Code of Conduct with no instruction or training.
	Conflict avoidance and resolution	D	Training in conflict resolution and how working in a stressful environment impacts people. Observers briefed on the culture(s) on board the vessel they are to be deployed on.	Not applicable	Not applicable
	Functions, tasks and scientific priorities to be carried out on board vessels operating in the Convention Area	M		Training provided in relation to the fishery the observer is to be deployed in. This covers all requirements of the associated fishery CMs and scientific programs, including the most recent priorities / aspects from the last Scientific Committee meeting.	Provided with copies of CMs with no interpretation or training on CMs, functions, tasks and scientific priorities to be carried out on board vessels operating in the Convention Area.
Vessel and fishing operations	Fishing methods	M	Training in all aspects of CCAMLR fishing methods and practical training provided in gear configuration and deployment.	Sufficient training in specific aspects of CCAMLR fishing methods and gear with reference material provided for the fishery the observer is to be deployed in.	Instruction in gear terminology insufficient to understand key fishing methods.
	Location determination	M	Observers given good working knowledge of bridge electronics to allow them to independently determine vessels location (position, depth, course) and other fishing reference information. Carries own GPS.	Sufficient training given to allow observers to interpret GPS and other navigational instruments to determine and confirm position.	Insufficient training given in navigation skills to allow observers to reliably determine vessel location.
	Identification of various types of fishing gear, their component parts and how to measure these	M	Sufficient training to understand all fishing gears used in the Convention Area, whether they meet the requirements under the CMs and why it is important that they do so.	Training provided on the specific gear to be used by the vessel on which the observers will be deployed to ensure effective application of relevant CMs.	Insufficient training provided on the specific gear to be used by the vessel on which observers will be deployed to ensure effective application of relevant CMs.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Vessel and fishing operations	Construction and use of gear used for mitigation of by-catch to CCAMLR specifications	M	Training given on the requirements for mitigation of by-catch and how these are applied with respect to the CMs. Background given as to why these are necessary and the history of their development in the Convention Area.	Training given on the requirements for mitigation of by-catch and how these are applied with respect to the CMs.	Insufficient training provided to report on whether mitigation measures meet the minimum requirements according to the CMs
	Health and safety at sea	M	Observers instructed in the working conditions on fishing vessels operating in the Convention Area and potential health and safety issues. Observers participate in formal training courses (e.g. first aid, safe working practices in the seafood industry).	Observers instructed in the working conditions on fishing vessels operating in the Convention Area and potential health and safety issues.	Insufficient training provided to prepare observers for working safely on vessels in the Convention Area.
	Waste disposal	M	Instruction in MARPOL regulations and appropriate CMs, noting environmental effects of discarded waste.	Instruction in appropriate CMs.	Told to collect information on waste disposal with no supporting references / instructions provided.
Species identification	Identify target and main by-catch species within the Convention Area	M	Training provided to enable species identification to the level required by CCAMLR. Training provided in use of identification keys and morphometric analyses.	Training provided to enable species identification to the level required by CCAMLR.	Insufficient training to identify species or use charts / keys.
	Marine mammal and seabird identification and behaviour	M	Training provided to enable species identification to the level required by CCAMLR. Training provided in use of identification keys morphometric analyses.	Training provided to enable species identification to the level required by CCAMLR.	Insufficient training to identify species or use charts / keys.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Sampling techniques	Sampling and types of measurement	M	Training in the CCAMLR requirements as set out in the <i>Scientific Observers Manual</i> and updated annually. Training in statistical techniques and sampling theory, including their utility for CCAMLR.	Training in the CCAMLR requirements as set out in the <i>Scientific Observers Manual</i> and updated annually.	Insufficient training to effectively sample and measure.
	Obtaining and preserving samples	M	Practical and theoretical training to collect samples and preserve them as required by CCAMLR. Ability to reconcile samples with location data. Background given into why samples are collected.	Practical and theoretical training to collect samples and preserve them as required by CCAMLR.	Insufficient training to collect samples and preserve them.
	Determination of conversion factors from product to green weight	M	Training provided to enable accurate measurement of green and processed weights of products. Background given as to the use of conversion factors for quota management and stock assessment.	Training provided to enable accurate measurement of green and processed weights of products.	Insufficient training to identify processing types and product states.
	Sexing of species / Use of sexual maturity scales	M	Provide practical training in sexing and maturity stages of species. Provision of guides clearly outlining scientific requirements and instruction on how to use them. Explanation why the data are collected.	Provision of reference guides and instructions to sex and stage species.	Observers instructed to sex and stage species but no formal training provided.
	Tagging and tag retrieval	M	Observers instructed they must tag fish, record recaptures and photograph recaptured tags. Observers informed why they are tagging and how it is used in stock assessments.	Observers instructed they must tag fish, record recaptures and photograph recaptured tags.	Observers told they must tag fish and record recaptures with no instruction as to how to do it.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Sampling techniques	Observations of seabirds and marine mammals	M	Observers given practical training in identification of marine mammals and seabirds, dead or alive. Background information on mitigation measures and how CCAMLR's CMs have reduced mortalities.	Observers given training and guides in identification of marine mammals and seabirds, dead or alive.	Observers told to collect information on seabirds and marine mammals with no training.
	Determining species composition	M	Observers instructed to sample catch for species composition, details given on how to do it and how the information is used by CCAMLR.	Observers instructed to sample catch for species composition, details given on how to do it.	Observers told to sample catch for species composition with no training.
	Monitoring discards	M	Observers instructed to monitor discards, details given on how to do it and how the information is used by CCAMLR.	Observers instructed to monitor discards, details given on how to do it.	Observers told to monitor discards with no training.
	Monitoring effort	M	Observers instructed to monitor effort, details given on how to do it, what a standard unit of effort is and how the information is used by CCAMLR.	Observers instructed to monitor effort, details given on how to record this.	Observers told to monitor effort with no training.
	Gathering meteorological and oceanographic data	D	Being aware of meteorological and oceanographic instruments on board fishing vessels, how to read them and why the information is collected.	Not applicable	Not applicable
	Collecting data on vessel sightings	M	Observers told to collect information on vessels sighted and instructed what information to collect if possible. Instruction in recording specific vessel features.	Observers told to collect information on vessels sighted and instructed what information to collect if possible.	Observers told to collect information on vessels sighted, no instruction provided.

Observer program components	Assessment criteria	Desirable / mandatory	Exceeds minimum standard	Meets minimum standard	Below minimum standard
Data handling	Completion of cruise reports	M	Observers shown how to complete cruise report and encouraged to provide relevant supplementary information. Instructed on how the information in the reports is used.	Observers shown how to complete cruise report.	Observers given cruise reports without any training on how to complete them.
	Utilisation of CCAMLR data forms and importance of adhering to CCAMLR format	M	Observers given practical experience of entering data into electronic CCAMLR data forms. Training given in spreadsheet / database usage, including security and backing up data.	Observers given practical experience of entering data into electronic CCAMLR data forms.	Observers told to enter data into spreadsheet / database without any training.

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(Hobart, Australia, 11 to 15 October 2010)

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AGENDA

Ad Hoc Technical Group for At-Sea Operations
(Hobart, Australia, 11 to 15 October 2010)

1. Introduction
 - (i) Opening of the meeting
 - (ii) Terms of reference, conduct of the meeting and adoption of the agenda
 - (iii) Review of materials submitted by Members
 - (iv) Appointment of rapporteurs and overview of the process for developing and adopting the report
2. Development of a process for accrediting observer programs participating in the CCAMLR Scheme of International Scientific Observation
 - (i) Development for an accreditation process and timeline
 - (ii) Establishment of baseline standards for observer recruitment, training and performance management
 - (iii) Preparation of a checklist to accredit observer programs
3. Interaction with other working groups
4. Practical implementation of data collection at sea
5. Format of future meetings and priorities for future work
6. Other business
7. Close of meeting.

LIST OF DOCUMENTS

Ad Hoc Technical Group for At-Sea Operations
(Hobart, Australia, 11 to 15 October 2010)

TASO-10/1	Draft Agenda for the 2010 Meeting of the ad hoc Technical Group for At-Sea Operations
TASO-10/2	List of Participants
TASO-10/3	List of Documents
TASO-10/4	Gonad stages identification plate: proposal for collaborative work N. Gasco (France)
TASO-10/5	Information from Members on observer training programs Secretariat
TASO-10/6	Observer training: recording oiled birds J. Moir Clark (UK)
TASO-10/7	CCAMLR observer program training video J. Moir Clark and R. Benedet (UK)
TASO-10/8	Scientific Observer Program (SOP) in Chile O. Guzman (Chile)
TASO-10/9	The Chinese observer training program for the krill fishery in the Convention Area X. Zhao and L. Xu (People's Republic of China)
TASO-10/10	Evaluation of VME taxa classification by scientific observers from New Zealand vessels in the Ross Sea Antarctic toothfish longline fishery during the 2009/10 season D.M. Tracey, M.E. Carter and S.J. Parker (New Zealand)