



EXCOM/COs Meeting 2011
Edinburgh, 16,18,19th July 2011

Agenda Item: 2.3.2
Person Responsible: K. Conlan

SSG-Life Sciences



EXCOM/COs Meeting 2011
Edinburgh, 16,18,19th July 2011

Agenda Item: 2.3.2
Person Responsible: K. Conlan

Executive Summary (1 page)

Title: SSG-Life Sciences

Authors: K. Conlan (chief officer), M. Hindell, G. Hosie, I. Grant, M. Sparrow

Relevant URLs or references to other reports: <http://www.scar.org/researchgroups/lifescience/>

Introduction/ Background: Important Issues or Factors: see following

Partners: Various, including CCAMLR, ACAP, SCOR, WCRP...

SSG-Life Sciences

Life Sciences groups

(i) Expert Group on Birds and Marine mammals (EG B&MM) – Mark Hindell

The EG-BAMM is tasked with providing expert knowledge and research leadership in all matters related to birds and mammals in the Antarctic, in order to support research that will quantify the role of birds and marine mammals in the Antarctic marine and terrestrial ecosystems. The group works with other components of SCAR towards a multidisciplinary synthesis of biophysical and biochemical coupling mechanisms in the Antarctic and to help collate and provide information on the status and trends of populations of specific species in the SCAR area of interest based on needs identified by SCAR or by the group. EG-BAMM also contributes to the conservation and management of Antarctic and subantarctic birds and mammals through the appropriate utilisation and interpretation of currently available scientific data.

One of the exciting prospects of EG-BAMM is the opportunity to develop new synergies within the wider Southern Ocean science community. This is particularly true in the area of ecosystem structure and dynamics, bearing in mind that these predators can provide an integrated signal of changes in distribution and abundance of prey. Further, the physical and biological coupling mechanisms can be elucidated in these species, due to our ability to track them accurately, measure relevant life history characteristics, and collect pertinent biological data and scales relevant to the organism.

For further details see: <http://www.egbamm.scar.org/>

(ii) Expert Group on the Continuous Plankton Recorder (EG CPR) – Graham Hosie

The Southern Ocean CPR Survey completed 44 tows from five vessels during the 2009-10 season. Australia and Japan completed 30 tows south and west of Australia, 11 tows were made south of New Zealand and three tows were conducted across Drake Passage by Brazil. A dedicated CPR session was convened at the SCAR OSC in Buenos Aires, highlighting the achievements of the Survey over the last 20 years. The Survey's 20th anniversary was in January 2011. The EG and NIPR, Tokyo, hosted a highly successful CPR standards workshop in November 2010, to ensure all personnel involved with CPR operations were maintaining the correct methodology and taxonomic accuracy. The CPR data were a central component of the Biogeographic Synthesis workshop convened by SCAR-MarBIN in Villefranche-sur-mer in May 2010. The focus of the analysis was on modelling and predicting distribution patterns of whole zooplankton assemblages around Antarctica. This builds on the recently published CPR zooplankton atlas (McLeod et al., 2010, *Polar Science* 4, 353-385) and modelling the circum-Antarctic distribution patterns of the copepod *Oithona similis* (Pinkerton et al., 2010, *Deep-Sea Research* 57, 469-485). These have shown a number of persistent hot spots of high zooplankton abundance. The EG has been working with the Sir Alister Hardy Foundation for Ocean Science and other CPR surveys to develop a global CPR survey and a global CPR database, which will place our Antarctic results in a global context. For further details see: <http://data.aad.gov.au/aadc/cpr/index.cfm>

Update June 2011:

1. The SCAR Biogeographic Synthesis Atlas Workshop has just concluded in Brest, expertly convened by Philippe Koubbi. The CPR data set was the star again because it is the most geographically extensive data set with a consistent and systematic methodology ideal for the biogeographic work. Analyses of the CPR data is complete. I just need to finish writing the chapter for the Synthesis Atlas. The focus is on predicting biogeographic patterns of whole zooplankton assemblages rather than individual species. This will build on the CPR atlas published last year.

2. The various CPR survey around the world, including SCAR SO-CPR, have been successful with a joint funding application to NERC UK to develop a global CPR survey. We don't know the exact amount that will be given, we understand that some travel has been reduced, but we hope the funding will be sufficient to build a global CPR database, and provide the support for the operation, expansion into unsurveyed areas (e.g. I'm targetting the Amundsen and Bellingshausen Seas) and governance of the global survey for the next two to three years. This SCAR SO-CPR data will be contributed to the global network and will provide the opportunity to put our observations in a global context.

3. During the Biogeographic Workshop I got Pierre Helaouet over to Brest from the Sir Alister Hardy Foundation for Ocean Science in Plymouth - they run the northern CPR survey. Pierre is a young modeller/number-cruncher and I wanted him to meet the team working on the Synthesis Atlas, especially Ben Raymond (AAD), Sophie Mormede (NIWA), Huw Griffiths (BAS) and Bruno Davis (MarBIN). Pierre is developing a method to identify and monitor plankton indicators that can be applied to the various CPR datasets. Pierre is now going to test his method on the SO-CPR data set in concert with Ben and Sophie via electronic communication. At some stage I hope to get them all together for a week or more for a round table analysis session and I hope to use the EG-CPR funds to support that. We are expecting that Pierre's method will work and we will have a common method applicable to whole global CPR data. In time I hope this team will form the foundation of the global CPR quantitative analysis group.

On separate news, the CEAMARC Special Issue is on track and we expect it will be published this June in Polar Science. All papers are online now able on the Polar Science website. So far CEAMARC has produced 40 publications for CAML.

(iii) Expert Group on Biology and Human Medicine (EG B&HM) – Iain Grant

The expert group met in Buenos Aires in Association with SCAR OSC. A joint meeting with the COMNAP MEDINET group was again held, and members participated in the Open Science Forum. It was noted that from a medical viewpoint, the IPY had not been as successful as had initially been hoped largely because of difficulties in securing funding for the umbrella project “Taking the Arctic and Antarctic Polar Pulse”. Several national representatives however presented their work.

Long standing discussions with SCAR and COMNAP about the constitution and membership of their respective groups, have this year come to fruition. It has been agreed in principle that the EGHB&M and MEDINET will merge into a single entity encouraging wider participation and reducing duplication of effort. The details of the Terms of Reference of the new group have been worked out, maintaining links to both parent organisations. It is felt by EGHB&M members that this will encourage both applied and academic research. For further details see: <http://www.scar.org/about/introduction/organization/>

Cross-disciplinary groups – M. Sparrow

(iv) Expert Group on Oceanography (joint with PS)

The major focus of the SCAR/SCOR Oceanography Expert Group has continued to be the Southern Ocean Observing System (SOOS). After a period of community consultation and specifically commissioned reviews, the SOOS plan has been finalised. The final design plan is currently being designed (as of May 2011) and will be made available both online and as hard copies.

In order to aid implementation of the SOOS an International Project Office (IPO) is being established in Australia, supported by the new Institute for Marine and Antarctic Studies at the University of Tasmania in Hobart. The SOOS IPO will be co-located with Australia's Integrated Marine Observing System (IMOS). An Executive Officer has been appointed and will commence in August 2011.

The SCAR/SCOR Expert Group on Oceanography will act as a Scientific Steering Committee for SOOS. John Gunn (Aus, biology) was appointed as Co-Chair with Mike Meredith (UK, physics). The intention is now to review and revise membership during 2011 to enable the group to fulfil its remit, in particular by promoting the implementation of SOOS in the first instance.

(v) Integrating Climate and Ecosystem Dynamics in the Southern Ocean (ICED)

ICED is an international multidisciplinary programme launched in response to the increasing need to develop integrated circumpolar analyses of Southern Ocean climate and ecosystem dynamics. Southern Ocean Sentinel, which is being developed under ICED will be a pillar of the biological component of the SOOS. For further details see: <http://www.iced.ac.uk/>

(vi) Advancing TecHnological and ENvironmental stewardship for subglacial exploration in Antarctica (ATHENA) (joint with GS)

This new expert group emerges in the wake of the recently disbanded Scientific Research Programme, SALE. It is not a new version of SALE, but will take subglacial aquatic research in Antarctica in a new and important direction, by coordinating and facilitating collaboration in Antarctic subglacial aquatic science and specifically technologies and environmental stewardship, both of which are required to underpin current and future subglacial aquatic environment exploration.

]ATHENA Terms of reference

- To establish the critical environmental and technological infrastructure for the future access, sampling and monitoring of Antarctic subglacial aquatic environments (SAE)
- To work with SCAR action groups, expert groups and research programmes to promote interdisciplinary science on Antarctic SAE, and specifically by developing linkages with research on Antarctic climate (via ACE), Biodiversity (via EBA) and sub-ice geological exploration (via SieGE).
- To provide an independent and international forum for the sharing of information and data during the run up to and execution of funded lake access drilling campaigns (e.g. US-WISSARD, UK-Lake Ellsworth and Russia-Lake Vostok).

(vii) SCAR MArBIN and ANTABIF

2010 saw the integration of [SCAR-MarBIN](http://www.scar-marbin.be) (Scientific Committee on Antarctic Research - Marine Biodiversity Information Network, www.scar-marbin.be), with the biodiversity databases managed by the [Australian Antarctic Division](http://www.biodiversity.aq), resulting in the Antarctic Biodiversity Information Facility (ANTABIF, www.biodiversity.aq). ANTABIF is a dedicated Antarctic biodiversity data portal giving access to a distributed network of contributing database, according to the principles of the [Global Biodiversity Information Facility](http://www.gbif.org). ANTABIF will use the best available technology to integrate, share and disseminate all available information on Antarctic Biodiversity. Its implementation by the Belgian Biodiversity Platform ensures that ANTABIF can take advantage of the relevant experience of the Belgian [GBIF](http://www.gbif.org) node. SCAR-MarBIN will continue as its independent website. The taxonomic information in SCAR-MarBIN and Register of Antarctic Marine Species (RAMS) is updated with that of the World Register of Marine Species (WoRMS; www.marinespecies.org). A new feature under construction in SCAR MarBIN is the Antarctic Field Guide (afg.scar-marbin.be).

(viii) Action Group on Antarctic Fuel Spills (AGAFS)

Reformulation of the SCAR contaminants interests is being discussed and may involve a coalescing of AGAFS and the Expert Group on Environmental Contaminants in Antarctica with a broad ToR to cover contaminants from local to global sources and processes. For further details see: <http://www.scar.org/researchgroups/lifescience/fuelspills/>.

(ix) Seeps and Vents in Antarctic (SAVAnt) (joint with GS)

To assist CCAMLR, the SCAR Geoscience and Life Science SSGs have started an Action Group that aims to identify areas within the CCAMLR region likely to contain Vulnerable Marine Ecosystems around cold seeps and hydrothermal vents.

The SAVANT Project will be handed over to Dr Jodie Smith. The need for field guide to seep communities has been met by the organisation that prepared the original CCAMLR guide to Vulnerable Marine Ecosystems so SAVANT will concentrate on compiling the location of known seep and vent occurrences. For further details see: <http://www.scar.org/researchgroups/savant.html>

(x) Prediction of Changes in the Physical and Biological Environment of the Antarctic (PCBEA) (joint with PS)

This SCAR Action Group is concerned with trying to improve our ability to predict how the Antarctic environment will evolve over the next century. It is a cross-disciplinary group that brings together meteorologists, oceanographers and marine and terrestrial biologists. It was formed at the SCAR Delegates' meeting in Moscow, Russia in July 2008 and will have an initial lifetime of 4 years.

The group is leading the preparation of the SCAR Data Atlas and a test version is now online (http://www.antarctica.ac.uk/met/SCAR_ssg_ps/Atlas/). The atlas aims to present various key fields concerning the past, present and possible future evolution of the Antarctic environment. It is complementary to the SCAR READER database that contains mean climate data for the Antarctic research stations. For further details see: <http://www.scar.org/researchgroups/pcpbea.html>

(xi) Ocean Acidification Action Group (joint with PS)

The initial form of the action group will consist of a cross-disciplinary team of ocean acidification experts representing the fields of marine carbonate chemistry, global and regional modelling, marine ecology, marine ecology, ecotoxicology/physiology and paleoceanography. The group is led by Richard Bellerby, Bjerknes Centre for Climate Research, Norway (Richard.Bellerby@uni.no).

The Action Group will:

- Define our present understanding of the contemporary rates and future scenarios of Southern Ocean acidification.
- Document ecosystem and organism responses from experimental perturbations and geological records.
- Identify present and planned observational and experimental strategies
- Identify gaps in our understanding of the rates and regionalities of ocean acidification
- Define strategies for future Southern ocean acidification research

(xii) Coordination of Scientific Activities on King George Island Group (joint with PS and GS)

Progress has not been as fast as had been hoped with this group. It was recognized that one of the problems for this group to accomplish its terms of reference is the fact that individual scientists may not have access to all the required information about programmes and scientific equipment and facilities actually present on the island. Such information is often with national Antarctic programme managers or science program directors. The leadership of the group and terms of reference (<http://www.scar.org/researchgroups/lifescience/>) remained unchanged. A discussion on the future of this group will be held at the SCAR Executive Committee Meeting in July 2011.