



WP 7a
Agenda Item: 4.1.2

Person Responsible: G Hosie

**XXXIV SCAR Delegates Meeting
Kuala Lumpur, Malaysia, 29-30 August 2016**

SSG-Life Sciences

Executive Summary (items in blue are updates from the OSC business meetings 2016)

Authors: G. Hosie (CO), M. Shepanek (Deputy-CO), Y. Ropert-Coudert (Secretary), I. McDonald (Secretary), B. Danis, B. Raymond, M. Hindell, K. Takahashi, J. Ayton, H-U. Peters, S. Chown, G. Wilson, C. Cary, V. Cummings, J. Stefels, J. Markus Rintala.

Background: SSG-LS is primarily responsible for four Expert Groups (EG-ABI, EG-BAMM, EG-CPR and the SCAR-COMNAP JEGHBM) and four Action Groups (ANTOS, ISSA, Ocean Acidification and Remote Sensing). ANTOS and ISSA are cross disciplined with PS and GS. Ocean Acidification and Remoting Sensing are shared with PS.

Important Issues or Factors: It is proposed that EG-CPR transitions to a new Expert (or Task) Group, the SO-CPR Database Group, to focus on maintaining the highest methodological standards in CPR sampling and taxonomic methodology, and subsequently the QA/QC of the data entered into the SCAR Southern Ocean CPR Database (a SCAR Business Product). The group is expected to be long term but its continuation will be subject to review at the biennial SCAR Business Meeting. Similarly, AG-ANTOS is now ready to evolve to the Expert (or Task) Group level in order to further develop and implement the plans for the Antarctic Near-shore and Terrestrial Observing System. This group is expected to have an extended during of 4+ years subject to progress. EG-BAMM is asking to continue as an Expert Group. This highly productive EG is attracting external funds and new collaborators, developing new and innovative working groups (2 new working groups at the OSC in 2016), strengthening the links between SCAR and CCAMLR and is involved in several SCAR groups. ISSA is asking for continuation as an Action Group and that funds from 2015-16 be carried-over to 2017-18. In addition to these existing groups, it is proposed that a new action group based on an already-existing biogeochemical scientific community be created to fill a gap in SCAR Life Sciences' expertise. Full proposals are included in the respective group reports attached.

Recommendations/Actions and Justification:

We request the Delegates to approve:

- The continuation of the Birds and Marine Mammal group (EG-BAMM) as an Expert Group
- The continuation of the Integrated Science for the Sub-Antarctic Group (ISSA) as an Action Group
- The transition of the Continuous Plankton Recorder Expert Group (EG-CPR) to the Southern Ocean - Continuous Plankton Recorder Database Group
- The transition of ANTOS from an Action Group to an Expert Group
- The creation of a new Action Group Biogeochemical Exchange Processes at the Sea-Ice Interfaces (BEPSII)

- That SCAR sends a letter of commendation to Dr Graham Hosie for his decades of service to Life Sciences

Budget Implications: Budget requests for 2017 and 2018 from existing groups are \$41,000 (2017) and \$42,000 (2018).

SSG-Life Sciences

1. Chief Officers

CO: Graham Hosie (AUS); Deputy CO: Marc Shepanek (USA); Secretary: Yan Ropert-Coudert (FRA).

Election of officers – Yan Ropert-Coudert elected as CO and Ian McDonald as Secretary unopposed and unanimously voted in. Marc Shepanek to continue as a deputy CO.

2. Highlights – Action and Expert Groups

Details of activities, outcomes, publications and future plans are detailed in the individual AG/EG reports attached. This section presents highlights of each group.

EG-ABI – Antarctic Biodiversity Informatics

The Group has been involved in a series of projects and developments pertaining to the exploration of complex data to delineate patterns in ecological, biogeographic or taxonomic processes. The projects ABI was involved in include:

- The Biogeographic Atlas of the Southern Ocean (BASO)
- The Register of Antarctic Marine Species (RAMS), now expanding to terrestrial and limnetic realms
- The microbial Antarctic Resources System (mARS)
- The Retrospective Analysis of Antarctic Tracking Data (RAATD)

Its members have participated in several workshops dedicated to these projects, and met remotely on several occasions.

EG-BAMM – Birds and Marine Mammals

The group participated in several international forums, such as CCAMLR and SOOS, as well as being part of several SCAR programs, most notably SCATS, ANT-Eco and ANT-Era (participation to the Tri-SRP meeting, Barcelona, September 2015). One highlight of the year, was the workshop (full report available from the SCAR website) held at the Hanse-Wissenschaftskolleg, Delmenhorst, Germany in April 2016, for EG-BAMM's major project, the Retrospective Analysis of Antarctic Tracking Datasets. The RAATD dataset now consists of more than 3000 individual animal tracks from 14 species. The next meeting of the RAATD group will be in Kuala Lumpur. Besides RAATD, the health monitoring working group of EG-BAMM was commissioned to Antarctic to write an Information Summary section paper for the Environments Portal about Antarctic wildlife diseases. The group also organized a workshop entitled "Antarctic microbial/parasite impacts" that was held in August 2015 in Sydney, Australia. The trophic interactions working group set up the premise of a Stable Isotope database with on-going discussion regarding how to combine already-collected information with those contained in the Australian Antarctic Data Centre.

Future works include: i) The RAATD work has attracted a French CESAB funding (ca. 300,000US\$) which will support 4 more international workshops in France over the next two years, as well as a full time post-doc to work on the project; ii) Due to increasing demand, EG-BAMM will initiate an on-line tag and band re-sight portal with the help of an IT engineer who will be specifically hired for this occasion; iii) the Health monitoring WG will organize a workshop on disease and Antarctic wildlife in 2018, launch an exploratory activity based on "citizen science" to detect diseases and outreach the importance of disease on Antarctic wildlife, and finally propose the creation of an Adélie penguin network using this penguin as a sentinel for health surveillance. During the OSC meeting in Kuala Lumpur, two new working groups were created to create a biochemical marker database and to test a new methodology to sequence DNA in various biological samples in the field.

EG-BAMM has reached the nominal life span of an Expert Group. This is a highly productive and influential group, addressing numerous key issues. There is a clear on-going need for EG-BAMM activities in SCATs, SOOS, CAMMLR, ICED and CEP. There are a number of continuing projects (Health monitoring, RAATD, Outreach, Trophic interactions, Remote sensing). These projects have all been able to use SCAR to leverage for funding for their work. For example RAATD has held two

international workshops with help of EG-BAMM. There has been a successful bid to the Centre for the Synthesis and Analysis of Biodiversity to fund 5 more workshops and also a 2 year post-doc position. The group is continuing to grow and attract new initiatives. We recommend continuation of this group for the foreseeable future.

EG-CPR – Continuous Plankton Recorder

The SO-CPR Survey continues to expand. In the last two years the Survey has completed about 150 CPR tows during the 2014/15 and 2015/16 Antarctic field season from seven vessels from Australia, Japan, New Zealand, South Africa and France. Brazil has commenced its CPR tows. Approximately 250,000 nautical miles have been sampled since the commencement of the SO-CPR Survey in 1991, representing some 50,000 samples for nearly 250 zooplankton taxa coupled with environmental data. A methodology and taxonomy training workshop was conducted in March 2015 at the Cape Town for South African CPR personnel, via support from an inaugural the Scientific Committee on Antarctic Research (SCAR) Visiting Professorship awarded to Dr Graham Hosie and the support of the Departmental of Environmental Affairs (DEA) South Africa. A similar training workshop is planned for India at the National Centre for Antarctic and Ocean Research (NCAOR), Goa.

The EG-CPR proposes to transition to the SO-CPR Database (Task) Group focused on maintaining the quality control and assurance of data entered into the SCAR Southern Ocean CPR Database (a SCAR Business Product), achieved primarily through conducting standardisation and training workshops.

JEGHBM – Joint Expert Group on Human Biology and Medicine.

JEGHBM is looking to continue supporting SCAR, COMNAP and ACTM, the JEGHBM with peer professional and operational support for medical operations and programs. In order to honour individual, organizational, national priorities, boundaries, and confidentiality, JEGHBM provides input and analysis mostly upon request. SCAR Horizon Scan input with key questions 56 and 80 addressed climate change and infectious disease in Antarctica as well as how humans and disease adapt to Antarctica. The APECS group will interact with the JEGHBM to facilitate wider participation of the next generation of human biology and medicine researchers. The JEGHBM Telehealth Workshop was convened at Tromso Norway in 2015. JEGHBM National Medical Facilities Database fields developed under MEDINET were provided to COMNAP and implemented as a COMNAP facilities database resource.

JEGHBM is advising international research expeditions on medical support matters for the upcoming Antarctic Circumnavigation Expedition voyage. Encouraging collaborative and cross disciplinary research amongst member nations as part of the upcoming SCAR Biology symposium, Antarctic microbiome workshop and space analogue. JEGHBM is keeping abreast of upcoming threats and clinical evidence-base requirements from emerging infectious disease and changing operational paradigms for overwinter practice.

AG-ANTOS – Antarctic Near-Shore and Terrestrial Observing System

ANTOS is concerned with long term observation monitoring, involving a network of nodes that feed a variety of physical and biological data into a database being developed by KOPRI. An online survey was developed to identify long term sites for nodes. A workshop was held In August 2015 to develop an implementation plan for ANTOS. Pilot terrestrial and coastal observing systems have been installed at Cape Adare and Terra Nova Bay, respectively, in summer 2015/16. One of the terrestrial units is fully telemetered and has been providing a continuous data stream since deployment. The Group is now ready to advance to the implementation phase and request that it evolves to an Expert Group (extended Task Group) level to develop ANTOS. The group is working on the development of sub groups, writing a formal paper, and has proactive engagements with COMNAP. They will held their next workshop at SCAR Biology 2017 in Belgium.

AG-ISSA - Integrated Science for the Sub-Antarctic (report received during the OSC 2016)

The Integrated Science for the Subantarctic (ISSA) action group met in Cerro Castillo in advance of the Southern Connections Conference in Punta Arenas in January 2016. The group included representatives from Chile, New Zealand, Australia, South Africa, USA and the UK and the AntEco and AnT-ERA SCAR Scientific Research Programmes. The Goals of the workshop were to identify the scientific questions that are circum-Subantarctic in scale and global in impact, and how a common approach to addressing them at different Subantarctic sites can be further developed. Substantial

external funding was generated for the meeting, especially from New Zealand and Chile. In consequence, funds from SCAR were saved and a request is being made for a transfer to the next two-year period. The goals of the workshop were to identify the scientific questions that are circumsubantarctic in scale, global in impact and how can we develop a common approach to addressing them at different Subantarctic sites.

The growing interest in the region and its importance for understanding the way climate has changed (westerly winds especially), and for understanding the evolution of marine and terrestrial biodiversity means that a coordinated effort to facilitate integrated science is required. The ultimate aim of the Action Group is to provide a vehicle for an externally funded international science program. Some success has already been had via the Antarctic Circumnavigation Expedition, funded through a combination of support from a major philanthropic contribution and national programs. ISSA Request for carry-over of funds to 2017-2018 budget owing to success with outside funding and a plan for substantial activity in 2017 associated with the SCAR Biology symposium and the Antarctic Circumnavigation expedition.

AG-Ocean Acidification

No annual report was received as the Group is expected to present the principal report at the Kuala Lumpur Business Meetings.

AG-Remote Sensing

The Group has developed a session (No. 21) for the Kuala Lumpur OSC to highlight the remote sensing work. During the Business Meetings, the Group plans to hold a joint workshop with the new SOOS working Group Censusing Animal Populations from Space (CAPS). The Group has also been actively working on multi-disciplinary approaches to use new satellite remote sensing platforms to animal populations, glaciological, marine cryosphere, oceanographic, meteorological studies and interactions, plus the production of digital elevation models (DEMs) of Antarctic regions. The Group has also be working on the use and impact of Unmanned Aerial Vehicles (UAV, Rümmler et al 2016 Polar Biology), plus protocols, for the monitoring of bird and seal populations.

Proposal for a new Action Group Biogeochemical Exchange Processes at the Sea-Ice Interfaces (BEPSII)

BEPSII represents a group of researchers in sea-ice biogeochemistry that started as a group in 2009 and was formalized as a SCOR working group in 2012. It has since continued to grow. BEPSII serves as a unique forum linking modelers and field scientists studying sea-ice biogeochemistry. As a SCOR working group, BEPSII has been organized around three task groups, focused on: 1) improving observation methods; 2) building large-scale databases; and 3) upscaling processes within models. Now that the SCOR lifetime has ended, the community seeks support to continue and expand her goals and membership. Despite the increasing awareness of the important role of sea-ice biogeochemistry in climate-relevant elemental cycles, the subject is currently underrepresented in SCAR and we feel that BEPSII can fill this gap.

The aim of BEPSII is to support and further develop an international community on sea-ice biogeochemistry; to stimulate the interaction between experimentalists and modelers working on this topic and to help the community articulate research priorities and identify optimized and cost-effective approaches and research platforms in internationally resource-limited times.

Terms of Reference:

- Develop dedicated consistent methodologies for sea-ice biogeochemical research
- Establish effective sea-ice biogeochemical data archiving approaches and databases
- Summarize existing knowledge in order to prioritize processes and model parameterizations.
- Foster ecological process studies to determine their impact on biogeochemical cycles.
- Foster technological developments towards large-scale, autonomous and high-frequency sampling of sea-ice biogeochemical parameters
- Improve the representation and evaluation of sea-ice biogeochemistry in regional and Earth System numerical models
- Synthesize and integrate observational and modeling efforts
- Continually revise and renew scientific foci, teams, and objectives

Members:

- Jacqueline Stefels, University of Groningen, the Netherlands, PI
- Janne Markus Rintala, University of Helsinki, Finland, PI
- Jeff Bowman, Scripps Institute of Oceanography, USA
- Maria van Leeuwe, University of Groningen, the Netherlands
- Klaus Meiners, AAD, Australia

3. XIIth SCAR Biology Symposium

The XIIth SCAR Biology Symposium “Antarctic Biology it is a matter of scale” is set for 10 to 14 July 2017 in Leuven, Belgium. The Co-Chairs of the Local Organising Committee are Anton Van de Putte (RBINS), Bruno Danis (ULB). The contact person is Anton Van de Putte at antonantarctic@gmail.com. The venue in Leuven was presented. Preliminary budget aims at keeping the registration fees within the usual range of Biology Symposium (taking into account the inflation). Organizing committee and International Committee are almost constituted. Themes are defined and the website is launched.

4. SSG-Life Science Comments on Structural Review

(a) Task Groups instead of EG and AG

This change was apparently requested because there was little understanding of the need for these two groups despite their precise definition that can be found in the SCAR constitution. Life Sciences members showed a general preference for the accuracy and clarity of retaining AGs and EGs. AGs are focussed, short groups either addressing a specific task or preparing the transition to an EG. EG are broad groups of experts, sometimes complex in structure (several working groups within an EG like in EG-BAMM) and address longer-term issues. EGs can be consulted for their expertise. Task groups, on the opposite, seem vague and would introduce confusion rather than solutions.

(b) Midweek OSC format

The better and broader attendance at LSSG on Wednesday demonstrated the utility of this format and Life Sciences endorsed this change. The mid-week presentations allow for a wider community engagement (especially APECS). Yet, time allocated to business meetings and between business discussions need to be improved. It needs to be made clearer that SCAR Open Science meeting is not a five day meeting but closer to a 10-day meeting. There was substantial concern about having enough free time to explore, discuss, and develop ideas emerging from the open and science meetings. Some discussion around the structure of the mid-week meeting:

From Philippe Koubbi (France) - Have the LSG first meeting on the Saturday before the OSC to present current affairs that need to be discussed during the following week. Keep the SCAR symposium on Wednesday morning. New ideas: Afternoon for people to come to see the different representative of each AG, EG, programs, like having tables in front of posters of programs. The afternoon can be used also for APECS members also to get information in each program and develop networking. Then Finish the LSG on the next Saturday.

From Horst Bornemann (Germany) - Timing might not be optimal, given that Chief Officer YRC could not attend OSC / plenaries after the Wednesday meeting due to being too occupied/busy with meetings that proceeded from the Wednesday meeting and in preparation of the Saturday one. Hence, timing needs to be reconsidered and improved, e.g. by splitting MWOSC into two fractions. It would be also important to visualize early within the program that open side-meetings are an integrative part of the conference and encouraged to be attended by everybody (also yet accredited).

(c) Change of name of SSG-LS to LSG

This was not debated as all members think this is a good idea.

5. Budgetary Implications

Estimated budget requests for 2017 and 2018 from existing subsidiary groups are \$41,000 for 2017 and \$42,000 for 2018. ANTOS and Remote Sensing will receive funds from PS and GS as shown in parentheses.

Group	Contact	Purpose	2017	2018	
EG-ABI	Bruno Danis	ABI workshop July 2017, summer 2018	7000	7000	
EG-BAMM	Mark Hindell	CO to attend SCAR Biology in 2017 and OSC in 2018 WG Wildlife Disease Workshop 2018 Tag and isotope databases	12500	12500	
EG-CPR	Kunio Takahashi	Standardisation-Training workshops	3500	3500	
JEGHBM	Jeff Ayton	Secretariat support 2017 Meeting support 2018 Capacity Building Awards 2018	2000	3000	
AG Remote Sensing	Hans-Ulrich Peters	Travel for young scientists to conferences	500 (500)	500 (500)	LS PS
AG-ANTOS	Craig Cary, Vonda Cummings	Technical workshop July 2017 Database development June 2018	6000 (2000) (2000)	6000 (2000) (2000)	LS GS PS
AG-ISSA	Steven Chown, Gary Wilson	Carry-over from 2015-16 request to organize a workshop.	1500	1500	
AG-BEPSII	Jacqueline Stefels, Janne Markus Rintala	Young researchers support to attend workshops	3000	3000	
SSG-LS	CO	Travel for meetings, supporting early career/student travel, contingency	5000	5000	
Total			41000	42000	