

**Proposed SOOS Capability Working Group:
Essential Ocean Variables for Southern Ocean Ecosystems (eEOVs)**

SOOS Request for Assistance.

The Southern Ocean Observing System (SOOS) is an international initiative that aims to facilitate the collection and delivery of essential observations on variability and change of the Southern Ocean ecosystems to all international stakeholders through the design, advocacy, and implementation of cost-effective observing and data delivery systems. SOOS requests assistance in developing the community, best practices, and initiatives through community Working Groups (WG). These WGs will provide critical information that will be incorporated into a maturing SOOS. SOOS will provide the WG with (i) a means of incorporating grass roots ideas into a lasting international system, (ii) mechanisms for enhancing collaboration and resources, and (iii) a means for achieving citations of developed products along with a presence on the world-wide web.

SOOS Working Group on eEOVs Objective

To design and facilitate the implementation of an observing system of ecosystem essential ocean variables (eEOVs) to support investigations on dynamics and change in Southern Ocean ecosystems, including the development of priority measurements for biological systems, standardized methodologies for collecting and archiving biological data, the optimal design of sustained field programs, and strategies for implementing field observations, including supporting regional working groups and networking with existing and emerging programs.

Terms of Reference

The working group (WG) will fulfill the following terms of reference over the next 5 years:

1. To facilitate the identification and development of candidate ecosystem essential ocean variables (eEOVs) and to progress these to a mature state of readiness for inclusion in the Southern Ocean Observing System;
2. For those eEOVs with a mature state of readiness, provide standardized methodologies for collecting and archiving data;
3. Facilitate the design and implementation, at appropriate spatial and temporal scales, of field operations needed to adequately observe selected eEOVs;
4. Provide support to regional working groups in the implementation of sustained biological observing systems;
5. Establish linkages with existing and emerging programs, such as the Global Ocean Observing System and the CCAMLR Ecosystem Monitoring Program, to facilitate standardized data collection on eEOVs;
6. Convene focussed sessions at national and international meetings, including SCAR and SCOR, and facilitate synthesis products, to increase the awareness of the science community to the importance of standardised biological observing. Provide annual reports to the SOOS SSC on activities and outcomes of the Ecosystems Working Group, and regular updates for the SOOS newsletter;
7. Develop a funding plan to sustain the Working Group activities;
8. Have products coming out of the WG acknowledging SOOS; and
9. Contribute to international initiatives assessing the state of Southern Ocean ecosystems

Participants

2 co-chairs and membership derived from participating groups.
(these will be approached in the next 2 weeks)

Products and Outcomes

In the first year, the following products will be delivered:

- publication of approach for developing eEOVs in the Southern Ocean

- compilation of existing methods on SOKI for obtaining time-series of biological variables, including identification of existing standard methods
- priorities for progressing other methods to standard methods.
- for commonly used methods, reviews of their state of readiness for the purposes of ecosystem observing
- workplan (strategy) for progressing the state of readiness of eEOVs.

Mode of Operation

The group will work remotely and opportunistically at scientific conferences until funding can be arranged for the group's activities. The SOKI wiki is proposed to be used to facilitate the delivery of the terms of reference.

The strategy will be divided amongst task teams and aim to harmonise with activities elsewhere including with GOOS, MEOP, AATAMS, OTN, CPR, IMOS, SCAR expert groups, ICED.

Strategy & Milestones

A strategy with milestones will be developed in the first 6 months to establish task groups and milestones with an achievable timeline for the following activities:

- Summarise from recent publications key end users of the products from the WG and their primary requirements from biological observing
- Determine the available variables including:
 - methods for their measurement and the degree to which they have been standardized
 - available archives of data
 - data discovery (summarise what is available, prioritise what we need, encourage data consolidation and publication – use SOOS DMC, SCAR research programs/expert groups, national data centres)
 - assessment of quality for the purpose of assessments, models
 - determine the ease to which they can be easily integrated into assessments with other data
 - identify the sampling strategies that were used to generate archived data (was there a strategy)
- Progress existing standard methods/strategies using GOOS biogeochemistry template
 - MEOP
 - CPR
- Document methods for integrating with/using other observing systems e.g. CEMP and CCAMLR to avoid duplicating effort.
- Review approaches for different regions at present and identify key lessons and gaps
 - How might feasibility differ between regions, strategies may need to be regionally specific (work with regional WGs)
- Use example archived data to see how well they address needs – use this as a part of identifying gaps
- Test existing data against models
- Develop a strategy for working through the candidate ecosystem Essential Ocean Variables (such as advance only a few each year), including
 - conceptual basis and standardization of methods
 - e.g. Assessments of priorities of variables taking account of their value in integrating many variables (criterion)
 - pilot (evaluation using existing data)
 - baseline data requirements

- design of sampling and evolution to maturity

Facilitator and SOOS SSC Sponsor

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