

**Summary of ESSAS SSC Meetings
Victoria Conference Centre, Victoria, B.C., Canada
May 18 - 20, 2005**

❖ **Distribution list**

- **ESSAS SSC: Ken Drinkwater, Erica Head, George Hunt, Astrid Jarre, James Overland, Egil Sakshaug, Yasunori Sakurai, Kurt Tande, Kai Wieland, Olafur Astthorsson**
- **Others: Manuel Barange, Cisco Werner**

❖ **Pre-workshop meetings (May 18, 19)**

Present: Ken Drinkwater, Erica Head, George Hunt, James Overland, Egil Sakshaug, Yasunori Sakurai, Kurt Tande, Kai Wieland, Olafur Astthorsson, Manuel Barange; **Guests:** Hans-Jurgen Hirche, David Hyrenbach, Bern Megrey

Agenda:

- 1) Agree upon an agenda for the ESSAS Open Implementation Workshop
- 2) Discuss 10-year ESSAS Implementation Plan
- 3) Discuss International Polar Year (IPY) activities / updates
- 4) Discuss funding of ESSAS

1) Agenda for Implementation Workshop of May 20:

The SSC agreed to the following agenda: (1) a morning plenary session consisting of an introductory presentation by Ken Drinkwater, followed by a series of contributed talks (total of ~ 2 hours), summarizing the various regional / national contributions to ESSAS; (2) in the afternoon, breakout groups to address specific aspects of the program in a smaller group setting; (3) reconvene in plenary for a final discussion session in the late afternoon.

After great debate on the questions to pose to the break-out groups the SSC decided on the following:

1. Should ESSAS focus on (a) key processes, (b) key species, (c) population resilience, (d) events/regime shifts, or (e) some combination of these? What scientific issues should be given highest priority by ESSAS (no more than 5)?
2. How do we address these scientific questions – organization, methods and logistics?
3. How can comparative studies help disentangle climate impacts from human impacts?

4. Given that prediction of climate impacts on the marine ecosystems is one of the primary objectives of ESSAS, how should this be carried out?

Four breakout groups will be formed with each group charged with three questions. Two groups will tackle questions 1 through 3 and the other two groups questions 1, 2 and 4.

2) The Implementation of ESSAS will be built upon three pillars:

- i) Field programs will be undertaken to reach the goals of ESSAS, i.e. to help understand the effects of climate variability and global change on the structure and function of subarctic marine ecosystems. These will be carried out nationally with the focus determined by local requirements. However, a series of comparable measurements throughout the ESSAS domain, which will be used for inter-regional comparisons, will also be encouraged. Within the International Polar Year (IPY) activities (see further discussion below), there are plans for investigating the effects of changes in sea ice (cover and thickness) and light levels (intensity and wavelength) on the subarctic marine ecosystems as well as other field studies, which should provide a nexus to integrate different regional field programs. These will constitute the ESSAS legacy datasets.
- ii) ESSAS will coordinate regional syntheses and inter-regional comparisons. Modelling will play a leading role in the quantitative comparisons, under past, present and future climate conditions.
- iii) The synthesis products will feed back and provide more research questions for additional field, modelling and retrospective analysis activities.

3) ESSAS IPY activities:

The goal of ESSAS is to promote ecosystem comparisons and prediction. In particular, ESSAS has strong fisheries forecasting interests, which will require linking field activities and Intergovernmental Panel on Climate Change (IPCC) predictions.

ESSAS will play a lead role in IPY, assembling disparate regional programs under a single program. This large international program will add value to individual national field programs by facilitating inter-regional comparisons and synthetic activities across the ESSAS domain. In particular, ESSAS will provide coordination of field activities, and will facilitate an enhanced understanding via comparative studies.

In anticipation for the IPY (March 2007 – March 2009), 10 programs were identified from over 900 statements of intent. Collaborations with these potential partners are being developed, especially to coordinate field activities across programs and regions. In addition to this synergistic approach, IPY endorsement for ESSAS will come through the support of individual

national programs. In the U.S., for instance, IPY activities will focus on SEARCH, which encompasses BEST.

4) Funding of ESSAS activities:

ESSAS will require funding for meetings of its SSC, for coordination and synthesis of comparative inter-regional studies, and for research (fieldwork, modelling studies and retrospective analyses). It is expected that GLOBEC will provide modest monetary support for SSC meetings and possibly for workshops. However, the vast majority of the funds necessary to support ESSAS activities will have to be raised by national programs. Fieldwork will be funded primarily, if not exclusively, from national programs with IPY providing great potential. It is encouraging that the Research Council of Norway has already funded the Norwegian component of ESSAS (NESSAS), and also will participate through bilateral agreements with the U.S. and Canada.

After the Implementation Workshop, the SSC is to meet in the evening of May 20 at the home of Dr. Skip McKinnell of PICES for dinner and discussion.

❖ Post-workshop meeting (May 20)

Present: Ken Drinkwater, Erica Head, George Hunt, James Overland, Egil Sakshaug, Yasunori Sakurai, Kurt Tande, Kai Wieland, Olafur Astthorsson, Manuel Barange; Guest: Hans-Jurgen Hirche, David Hyrenbach, Skip McKinnell

The ESSAS SSC met at the home of Dr. Skip McKinnell on the evening of May 20 for dinner and discussions. The SSC thanks Dr. McKinnell and his wife for their warm hospitality.

The SSC briefly discussed the results of the Open Implementation Workshop. It was agreed that the ESSAS Implementation Plan had been generally well received and that the SSC had obtained useful feedback on the way forward. The high number of scientists in attendance and their enthusiastic participation at the end of a week of meetings attested to the community's interest in ESSAS and their desire for its success.

➤ Next Steps: Coordination of IPY proposal (New due date: 15 September 2005)

There was considerable additional discussion of the participation of ESSAS in IPY. It was agreed that ESSAS should move forward with taking a lead role in assembling an umbrella proposal that would integrate the original ESSAS proposal on sea ice and light measurements with other broader proposals that will include biological components of the subarctic marine ecosystems. Thus, ESSAS will provide an "organizing umbrella" for a set of the biological and climate impact studies in IPY involving ecosystem components from primary producers

to marine birds and mammals and people. This approach is especially attractive because these studies will generate datasets that will enhance the ESSAS legacy.

Considerable work will be required to align the various groups who will be joining the ESSAS IPY proposal. The requisites for studies to participate in IPY include: pan-arctic scope with international collaboration, developing a legacy of observations for future studies, and contributing to education / outreach activities. Thus, although there is currently a good international representation in the developing ESSAS proposal and pan-Arctic coverage in some disciplines, the various programs are very diverse, and none proposes to make ice and light measurements. However, many of these proposals are placeholders and rather unfocused. Because the proposers may change their emphasis, it may be possible for several of them to include measurements of sea ice and light, as proposed in the ESSAS letter of intent. To this end, it will be useful to compile a list of the nations which will contribute sea ice / light measurements in the IPY proposal.

Likewise, we will need to show how our proposed studies will be used and how we will disseminate the information developed by ESSAS during IPY. Justifying a broad constituency for the goals and products of the ESSAS program seems critical for the success of the IPY proposal. Politically, gaining the IPY “seal of approval” will be very beneficial for ESSAS.

To ensure that individual investigators participate in ESSAS, the IPY proposal needs to be coherent enough to garner support and funding from many different institutions and nations. The national projects will gain the benefit of participating in IPY activities, but there will be little monetary support. Thus the activities of ESSAS will depend on the availability of national funding.

ACTION:

- By August 2005: Revise and draft the ESSAS umbrella IPY proposal for circulation to the other IPY participants (Ken Drinkwater).
- By September 15 2005: Submit the IPY integrated proposal to the IPY office (Ken Drinkwater).
- By September 30 2005: Develop ESSAS proposal focusing on sea ice and light measurements. This is needed to develop national proposals that will be submitted to the funding agencies. This will be one component of the integrated proposal. (Ken Drinkwater is taking the lead).

Additional studies in IPY: – We anticipate that additional studies may wish to join the ESSAS IPY effort in the future. Thus, eventually, the ESSAS IPY program may become end-to-end, by integrating additional studies with the developing ESSAS IPY proposal. The paradigm of inter-regional comparisons will make ESSAS an integrative program that addresses climate questions over a circum-polar geographic scope.

- Critical questions include how to deal with individual projects, within the context of a larger ESSAS proposal. Namely, will this process be open to all who wish to participate? Will ESSAS issue invitations to individual national programs to participate? Will ESSAS

wait for individual investigators / national programs to inquire about how they can participate in ESSAS?

- The SSC agreed that ESSAS should adopt a step-wise approach: (i) reach out to those relevant projects which expressed interest in the IPY activities, (ii) invite other relevant programs with strategic value / importance due to their geographic scope, education / outreach potential, and clear legacy contribution, (iii) additional energy should go to support the national programs.
- After stages one and two above, 10 – 12 programs should be coordinated under the ESSAS umbrella: BEST (U.S.), the national programs of Norway and Iceland, and nine additional programs identified as part of the IPY proposal.
- The efforts to recruit additional nations to participate in ESSAS activities should focus on Korea, Russia, and China, which have expressed interest in IPY activities.

➤ **Next Steps: How to move ESSAS forward?**

1) Publish symposium (Progress in Oceanography): December 2006

Time-line: We have expressions of intent for the submission of about 50 papers from the Symposium. We expect to be able to publish about 40 to 45 papers, depending on length. Given that it is likely that some papers will not be received by the submission deadline of 15 September 2005 and that an addition few papers will not survive the review process, it seems best to encourage all prospective authors to go forward with submitting a paper. The guest editors for the volume will be: Ken Drinkwater, George Hunt, Dave Mackas, and Skip McKinnell. For the three “invited” inter-regional comparisons, it may be necessary to provide more time to complete their papers as they will need to have access to the regional comparisons. The intent is to have the papers approved by the guest editors and sent to the editors of Progress in Oceanography by June 2006, with an expected publication date of December 2006.

Content: Regional reviews and inter-regional comparisons, plus contributed papers.

- Regional Reviews:
 - * **Note:** Helle Siegstad will contribute a summary on West Greenland
 - Missing papers: Gulf of St Lawrence and Hudson Bay (Ken Drinkwater will contact appropriate persons)
- Inter-regional Comparisons:
 - Climate: Jim Overland / M. Wang
 - Physics (topography / circulation): Takashige Sugimoto will lead, but will need some help on the Atlantic side (Ken Drinkwater or George Hunt to contact).
 - Biology: Ian Perry and Olafur Astthorsson will lead.

* **Note:** The biology review will be particularly complex due to the lack of data for many taxa / regions. The paper will be organized in different trophic groups. For each trophic level, this paper will summarize data in tabular form, with entries such as “no available data” or “not known” exemplify the data needs / gaps. This paper should rely, to the extent possible, on other research programs and publicly available datasets on the web.

2) Establish Working Groups:

- Need to start outlining potential Working Groups to guide ESSAS activities. In particular, there is a need to digest the Implementation Plan to summarize the relevant regional materials for inter-regional comparisons
- The SSC will consider the formation of particular WGs and their objectives, possible participants and leaders. One particular WG that has been suggested is that on modelling. Such a working group could undertake the following: compare model assumptions and parameterizations of processes, apply similar models in different subarctic seas, determine quantitative methods of representing uncertainty, etc. Other WGS should also be discussed.
- GLOBEC may be able to help with travel expenses for 1 – 2 working group meetings per year. PICES may help coordinate these meetings.

3) Develop Workshops and Symposia to facilitate Inter-regional Comparisons:

Workshops and symposia provide the opportunity for scientists familiar with one region to exchange information and develop collaborations with those from other regions. Such collaborations will be at the heart of the ESSAS program. To facilitate the development of the ESSAS program and to accelerate the development of comparative inter-regional studies in ESSAS, it will be beneficial to convene a Workshop in the next two years:

There would be great value in holding a workshop in May or June of 2006 to continue building the momentum for inter-regional comparisons and collaborations in ESSAS. Although there was enthusiasm at the Victoria Symposium for developing a comparative approach for investigating the effects of climate variability on the productivity of the sub-arctic seas, there was not an opportunity to develop the detailed frameworks for building the comparative studies. Discussions are ongoing concerning the possibility that PICES might sponsor a 35-person workshop for developing comparative studies of several of the sub-arctic seas: the Bering, Barents, Okhotsk and the Newfoundland / Labrador shelf. A workshop would provide the opportunity to examine regions with some similarities (transport into the Arctic for the eastern Bering and Barents and transport from the Arctic for the Newfoundland / Labrador Shelf and the Sea of Okhotsk) and differences (out of phase forcing for the Barents-Newfoundland/Labrador and Bering-Sea of Okhotsk regions). It has been suggested that an appropriate venue might be St. Petersburg, Russia. Having the workshop in St. Petersburg might facilitate the attendance of Russians working in the Barents, Sea of Okhotsk and Bering Sea, assuming they can find travel funds across Russia. In terms of

Newfoundland/Labrador research, the Research Council of Norway has funded a joint meeting to get researchers from the Barents and Newfoundland / Labrador together to discuss a longer-term research program focusing on comparisons of these regions.

ACTION: George Hunt will take the lead on this with discussions with PICES. He will prepare a proposal to PICES for consideration at the PICES annual meeting in Vladivostok October 2005.