



ESSAS (co-)Sponsored Activities

Conferences, Sessions, and Workshops

Recent Activities

2013

ESSAS Annual Science Meeting (Hakodate, Japan, January 7 – 9, 2013)

The ESSAS Annual Science Meeting was recently hosted by the Graduate School of Fisheries Sciences at Hokkaido University in Hakodate. The general theme of this meeting was "Spatial Dynamics of Subarctic Marine Ecosystems" with one oral session held on this topic. Other oral sessions focused on: bioenergetics of sub-polar fish species; Arctic-Subarctic interactions (atmospheric, oceanographic and/or ecological); and human dimensions of Subarctic seas exploring fisheries and fishing communities. A 1-day session related to the new Japanese research project dealing with climate change in the Arctic also began the meeting. Discussions on the future directions and activities of ESSAS also took place. Visit the link below to view the "Book of Abstracts" providing summaries of all presentations.

http://www.imr.no/essas/files/essas2013asm_pdf.pdf/en

2012

PICES Annual Meeting (Hiroshima, Japan, 12-21 October 2012)

ESSAS/PICES Workshop on Subarctic – Arctic Interactions

Ken Drinkwater (Norway), Jackie Grebmeier (USA), James Overland (USA), and Sei-Ichi Saitoh (Japan) co-convoked this 1-day workshop to examine the influence of warm Subarctic inflows on the physical conditions and biology in the Arctic basin and shelves, as well as the role of fluxes of water from the Arctic basin onto the surrounding shallow shelves and into the Subarctic. Nine oral and 2 poster presentations were given representing contributions from 4 different countries. Most were focused on the Pacific-Arctic sector but there were also two talks that made comparisons between regions within the Pacific and the Atlantic sectors. Topics included multiple trophic levels, biophysical coupling, observed changes, and possible scenarios under climate change. Relevant experimental studies, field programs, and modeling of Arctic-Subarctic interactions were featured. Emphasis was placed on the Arctic-Pacific Ocean linkages, but exchanges in the Atlantic were also presented. Discussion at the end of the session highlighted the need to further long-term observations, including flux measurements and the advection of fish larvae. In terms of modeling, increased effort is needed on sea ice and its variability. Finally, further comparative studies of the role of advection between the Arctic and subarctic were encouraged.

<http://www.pices.int/meetings/annual/PICES-2012/2012-background.aspx>

ICES Annual Science Conference (Bergen, Norway, 17-21 September 2012)

Subarctic-Arctic interactions: Ecological Consequences

Ken Drinkwater (Norway), Olafur S. Astthorsson (Iceland), George Hunt (USA), and Anne Hollowed (USA) co-convened this theme session to examine the influence of subarctic inflows on the physical conditions and biology in the Arctic basin and shelves, as well as the role of fluxes of water from the Arctic basin onto the surrounding shallow shelves and into the subarctic. Papers that cover multiple trophic levels or investigate biophysical coupling were presented, and papers presenting comparative studies between different Arctic and subarctic regions. Also presented were studies of observed changes that are occurring, and papers on possible scenarios under climate change. Relevant experimental studies, field programs, and modeling of Arctic–subarctic interactions were considered. Both Arctic– Atlantic Ocean and Arctic–Bering Sea linkages were of interest.

Conference Website

<http://www.ices.dk/iceswork/asc/2012/index.asp>

Abstracts of Presentations

http://www.ices.dk/iceswork/asc/2012/themesessions/Abstracts%20Session%20M_ED.pdf

2nd ICES/PICES/IOC International Symposium (Yeosu, Korea, 15-19 May 2012)

Effects of Climate Change on the World's Oceans

ESSAS scientists contributed substantially to the success of this follow-up to the first international symposium in 2008 (Gijón, Spain). The 2012 symposium aimed to examine the many issues relative to the role of climate change on the oceans — sea level rise; changes in thermohaline ocean circulation; acidification; oligotrophy of temperate seas; changes in species abundance; distribution and phenology; and loss of biodiversity — all of which will have serious implications for marine living resources. The Symposium brought together experts from different disciplines to exchange observations, results, models and ideas at a global scale and to discuss the opportunities to mitigate and protect the marine environment and its living resources. Specific ESSAS contributions, included:

Session 1

Climate variability versus anthropogenic impacts; analyzing their separate and combined effects on long-term physical, biogeochemical and ecological patterns

- Ken Drinkwater gave a presentation in plenary of Session 1 entitled “*Ecosystem responses to climate variability and anthropogenic-induced changes*”.

Session 3

Projections of climate change impacts on marine ecosystems and their uncertainty

- Enrique Curchitser (USA) and Shin-ichi Ito (, Japan) were co-presenters of a talk titled “*Development of a climate-to-fish-to-fishers model: Implementation in the eastern Pacific Sardine and Anchovy system*”.

Session 4

Climate change effects on living marine resources: From physics to fish, marine mammals, and seabirds, to fishermen and fishery-dependent communities

- Shin-ichi Ito was an invited speaker; his talk was titled “*Climate induced fluctuation of Japanese sardine, its influence on marine ecosystem and human being*”. Dr. Ito was invited to present another talk that he co-authored titled “*Climate induced fluctuation of Japanese sardine, its influence on marine ecosystem and human being*”.

- George Hunt, Franz Mueter (USA), and Ken Drinkwater co-authored a talk titled “*To migrate or not? When may we expect groundfish species to move poleward?*”
- Ken Drinkwater coauthored a talk titled “*Impact of Atlantic Multi-decadal Oscillation on marine ecosystems*”.
- Enrique Curchitser coauthored a talk titled “*Modeling fish and shellfish responses to climate change: trade-offs in model complexity*”.

Workshop 2

Climate change projections for marine ecosystems: Best practice, limitations and interpretation

- Enrique Curchitser co-convened this workshop

Workshop 4

Effects of climate change on advective fluxes in high latitude regions

- This 1-day ESSAS-ICED co-sponsored workshop was co-convened by ESSAS scientists Ken Drinkwater and George Hunt along with Eugene Murphy (UK) representing ICED and Jinping Zhao (PR China). It was held on 14 May prior to the PICES/ICES/IOC Symposium on Climate Change in the World’s Oceans in Yeosu, Korea and was attended by 32 scientists from 10 different countries, with another 20 scientists contributing input to the workshop presentations. The workshop reviewed the advection of water masses within and between polar and subpolar regions, examined their forcing mechanisms, and considered what their role is on the ecology of both the Arctic and the Antarctic. This included direct advection of heat, salt and nutrients, as well as direct and indirect effects on flora and fauna. For higher trophic levels, such as marine mammals and seabirds, the effects of advection are indirect. Comparisons were made between the forcing functions and responses in the Arctic and Antarctic regions. Recent ecological changes and their links to climate variability were investigated and likely scenarios of the advective fluxes and their possible changes under future anthropogenic climate change were presented. The main format of the workshop consisted of 11 commissioned disciplinary presentations by teams consisting of experts from both the Arctic and Antarctic. They covered atmospheric climate, physical oceanography, biogeochemistry, microbes, ice biota, phytoplankton, zooplankton, benthic pelagic coupling, fish, marine mammals and seabirds. These teams put together presentations on the climate as well as effects on organisms with special emphasis on the role of advective fluxes. Two presentations were also given based on submitted abstracts. At the end of the presentations, three participants provided their thoughts on what they considered to be highlights of the workshop and what future research was needed as a lead in to a general discussion. A paper synthesizing the workshop results are planned which will be the first activity of a working group under IMBER to carry forward further comparative studies of the Arctic and Antarctic.

Workshop 7

Beyond dispersion: integrating individual-based models for bioenergetics and behavior with biophysical transport models to predict influences of climate change on recruitment processes in marine species

- Shin-ichi Ito gave an invited talk titled “*Beyond dispersion: integrating individual-based models for bioenergetics and behavior with biophysical transport models to predict influences of climate change on recruitment processes in marine species*”. He presented another paper in the same workshop titled “*Beyond the dispersion: how to model migration of Japanese sardine (*Sardinops melanostictus*) in the western North Pacific*”.

http://www.pices.int/meetings/international_symposia/2012/Yeosu/scope.aspx

http://www.pices.int/meetings/international_symposia/2012/Yeosu/sci_program.aspx

Ocean Sciences Meeting (Salt Lake City, USA, Feb 2012)

Poster Session on Arctic-Subarctic Interactions

This poster session was jointly sponsored by ESSAS and the Arctic-Subarctic Ocean Fluxes (ASOF) program and co-chaired by Ken Drinkwater (ESSAS) and Tom Haine (AFOS, USA). The theme session focused upon the links between the Subarctic and Arctic regions in both the Pacific and the Atlantic, building upon ongoing studies and recent IPY results. A total of 9 posters were presented and ranged from pure physical oceanography to effects and transport of bacteria and zooplankton. Studies covered both the Atlantic and Pacific connections to the Arctic and included observational and modeling results. <http://www.sgmeet.com/osm2012/>

2011

ICES Annual Science Conference (Gdansk, Poland, Sep 19-23, 2011)

Surplus Production Models: Quantitative Tools to Manage Exploited Fisheries and Compare the Productivity of Marine Ecosystems

Jason Link (USA), Ken Drinkwater, and Jennifer Boldt (Canada) co-convened this Theme Session from an ESSAS sponsored project to emphasize a comparative quantitative approach to identify driving and controlling processes in large marine ecosystems. Three main groups of drivers include fisheries (human influences), trophodynamics (species interactions), and environmental (climate and ocean conditions). Surplus production models provide a simplified framework to examine the influence of these drivers on fishery production, are amenable for comparison and scaling, and allow for assessments of sustainability at multiple levels of organization beyond single target species. Therefore this theme session focused on production models to relate the triad of drivers to fisheries production and estimate appropriate biological reference points for various aggregated groups of species. This session also provided an opportunity to emphasize the major similarities and differences between different regional marine ecosystems. The nine papers presented covered a wide range of examples of production models, aggregation levels, and ecosystems. The presentations and discussions indicated that all aspects of the triad of drivers can be important; however, their relative importance in any given system varies. It is important to understand local dynamics and the unique histories of the ecosystems in the context of global “teleconnections”. In addition, ignoring tropho-dynamic and biophysical drivers when setting biological reference points appears to be imprudent. Finally, it appears that fundamental features are emerging from these comparative studies. Several of the papers from this workshop have been published in a special theme section within Marine Ecology Progress Series entitled Comparative analysis of marine fisheries production, Edited by A. Bundy, J. Link, T. Miller, E. Moksness, and K. Stergiou (2012, Vol. 459, 157–302).

<http://www.ices.dk/iceswork/asc/2011/index.asp>

ESSAS Open Science Meeting (Seattle, USA, 22-26 May, 2011)

Comparative studies of climate effects on polar and sub-polar ocean ecosystems: progress in observation and prediction

The 2nd ESSAS Open Science Meeting (OSM) was co-sponsored by the international organizations of PICES, ICES, IMBER, and GOOS as well as several U.S. marine science institutions. The theme of this symposium encompassed a wide diversity of studies, from climate and physical oceanography to fish, seabirds and marine mammals, and included a session on

socio-economic implications of climate change to remind us that people are a part of the marine ecosystems that we study. Eight sessions and five workshops addressed the state of knowledge on how climate change will impact the sub-polar seas and their diverse ecosystems. Connectivity within food webs from phytoplankton to zooplankton to fish was examined together with nutrient and carbon cycling, and other ecosystem determinants. Twenty papers from the meeting have been published in a special ESSAS OSM special issue in the ICES Journal of Marine Science (2012, Vol. 69, No. 7, 1119-1328). Read more below:

ESSAS Website OSM Article

http://www.imr.no/essas/files/article_essas_2011_osm_success.pdf/en

ESSAS OSM Scope of Meeting

http://www.pices.int/meetings/international_symposia/2011/ESSAS/default.aspx

ESSAS OSM Book of Abstracts

http://www.pices.int/publications/book_of_abstracts/2011-ESSAS-Book-of-abstracts.pdf

ESSAS OSM Presentations

<http://www.pices.int/publications/presentations/2011-ESASS/ESSAS-2011-presentations.aspx>