ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

ICES INSIDE OUT

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The abstract submission deadline has been extended until 30 November. The 7th International Fisheries Observer and Monitoring Conference will take place 8–12 April, 2013 in Viña del Mar, Chile.

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New horizons

ICES expands into aquaculture and Arctic waters

ICES is breaking new ground by enhancing its scientific activities in Arctic waters. The decision was made in Copenhagen at the 100th statutory meeting of the ICES Council, the principal decision- and policy-making body of ICES. The Council concluded that Arctic research is a priority for ICES from the perspective of better understanding ecological processes and human impacts in this ecosystem. ICES scientists already contribute to Arctic research and these efforts may be expanded to several other areas ranging from the hydrography and warming of the Arctic Ocean to evaluating the environmental risks of shipping and oil and gas exploitation.

The Arctic is now a focus for ICES.

"ICES was focused on the Arctic from the very beginning of its existence, proposing an international study of the Arctic Ocean and the North and the Baltic seas already in the years leading up to the organization's creation in 1902", explains Michael Sinclair, outgoing ICES President. Today, the Arctic offers opportunities for cooperation in several key areas, such as integrated observing systems and ecosystem assessments, survey coordination, and marine spatial planning.

In addition to the anticipated work in the Arctic, ICES will also expand its scientific and advisory role into aquaculture. "As this industry continues to grow rapidly in the ICES region, so too does the need for advice on its effects", states ICES General Secretary, Anne Christine Brusendorff, as she describes how ICES efforts will focus on the environmental impacts of aquaculture. "We will investigate how ICES can advise environmental managers. One example is using hydrographic models to establish the best locations for aquaculture sites. We will also look into the genetic impacts and how to ensure minimal influence on the environment". A new ICES Working Group on Aquaculture (WGAQUA) has now been established and will have a role in developing the science of sustainable aquaculture within ICES as well as providing specific advice on sustainability as requested by member countries and other clients.

The development of integrated surveys is a further area where ICES can lend its expertise. With the adoption and implementation of the European Marine Strategy Framework Directive (MSFD) there is a need to integrate fisheries surveys and environmental monitoring into ecosystem surveys. European Union member states have to implement MSFD monitoring programmes in 2014, and ICES is ready to offer its stewardship to member countries in implementing the directive and applying the ecosystem approach.

This was Brusendorffs first Council meeting and she remarked how impressive it was to see ICES twenty member states working together while still recognising their different points of view. "Coming from a much smaller organization, as I have, to one that is twice the size, it is wonderful that we can work together to define these priority areas where ICES as a scientific organization is capable of making a difference". Brusendorff also observed that the close cooperation between ICES Science Committee (SCICOM) and Advisory Committee (ACOM) played an essential part in strengthening the organization. "This, combined with the continued dialogue with our stakeholders, is very important and the way forward".

ICES elections

A newly developed electronic voting system was put to work as the Council held a number of elections. Paul Connolly was elected ICES President for a three-year term (November 2012–October 2015). Connolly, who is Director of Fisheries Services at the Marine Institute in Ireland, has been the Irish delegate to ICES since 1999. He was elected First Vice-President of ICES in 2003 and served on ICES Bureau until 2005. Connolly chaired the committee in charge of reforming the ICES advisory process from 2005–2008 and was then elected First Vice-President of Bureau in 2009. Connolly is enthusiastic about his new position and states, "There are great opportunities for ICES over the coming years as the demand for marine science and advice increases; our first job will be to renew the ICES strategic plan". Connolly also mentions that the external review of ICES advisory services presented during the Council meeting will be high on his agenda, "Following up on the recommendations with clear actions will be an important issue for ICES over the coming months".

The newly elected First Vice-President, Cornelius Hammer, Director of vTI Institute of Baltic Sea Fisheries, Rostock, Germany, is looking forward to working closely with Connolly, supporting and implementing the visions and goals of the new president. Hammer explains that the MSFD will change the working environment of ICES considerably, and comes in a situation where external economic instability is combined with serious internal workload and work allocation difficulties. "The next six years will inevitably influence and change the face of ICES and it will be a tremendous task to steer ICES through the rapids. This can only be done with very close cooperation between ICES Council, Bureau, Secretariat, First Vice-President, and President. I will devote most of my working time to achieve this".

Finnish delegate Eero Aro completed his term with Bureau and Piotr Margonski, Poland, was elected to take his place. Margonski was also, along with Russian delegate Konstantin Drevetnyak, appointed as a new member of the Finance committee.

A royal reception

To mark the occasion of the 100th statutory meeting, ICES, in cooperation with the Carlsberg Foundation, hosted an evening reception at Carlsberg Academy attended by His Royal Highness Crown Prince Frederik of Denmark. Invited guests were welcomed by ICES President Michael Sinclair and Chairman of the Carlsberg Foundation Flemming Besenbacher, and treated to an account of Denmark's contribution to global marine science by Bo Paulsen, Aarhus University, an ocean-themed musical presentation from The Science Fair, and a film, *Billeder fra Carlsberg Fondets oceanografiske Expedition omkring Jorden 1928-1930* (Photos from the Carlsberg Foundation's oceanographic expedition around the world 1928–1930).

ICES Council members with HRH Crown Prince Frederik of Denmark and Chairman of the Carlsberg Foundation Flemming Besenbacher at Carlsberg Academy. Photo by Pamela Juhl.

Read more about the connection between Carlsberg and ICES here. Please visit ICES Facebook page for more images of the evening.

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Thank you Bergen

The Institute of Marine Research (IMR), ICES Norwegian delegates, and record-breaking levels of September rain welcomed participants to Bergen for the ICES 2012 Annual Science Conference. The wet weather, however, did nothing to dampen the enthusiasm of those gathered. In total, 728 participants from more than thirty countries were treated to 329 scientific presentations and 77 poster presentations as well as stimulating lectures, discussions, and an ever-changing smorgasbord of cake.

This year, ICES experimented with a number of social media platforms to communicate lectures, thoughts, and images throughout the week. To relive your memories or catch up on what you missed, visit ICES Facebook, YouTube, and Twitter pages (all publicly accessible). Feedback on the introduction of an ASC App was also positive and this development hopes to be continued in coming years.

While the reports from all this year's theme sessions are now available online, a few highlights are mentioned below.

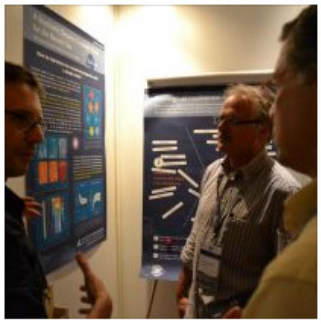
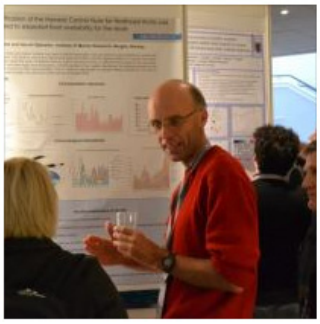
ICES Awards

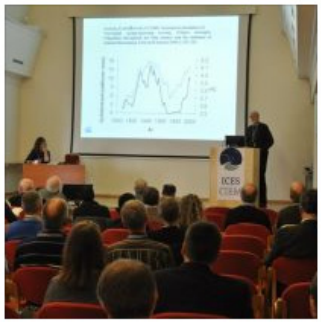
Best Presentation: Iratxe Zarraonaindia "Population genetic structure and traceability of the European anchovy (*Engraulis encrasicolus*) using SNP-type markers".

Best Poster: Benjamin Planque "A dynamic stochastic foodweb model for the Barents Sea ecosystem".

Early Career Scientist Best Presentation: Thomas Maes for his presentation "Fisheries cruises for marine litter monitoring" and Marie-Fany Recault "Challenges in the integration of ecological indicators within a network of Atlantic Ocean observations".

Early Career Scientist Best Poster: Marieke Desender "Evaluation of the impact of pulse fishery on a selection of North Sea fish and invertebrates".

Sustainable aquaculture

SCICOM hosted two open sessions on the theme of sustainable aquaculture. Chairs Erik Olsen (IMR) and Adi Kellerman (ICES) felt the sessions went beyond expectations. Representatives from industry, government, and science deliberated the beginnings of what will be a promising and timely process within ICES. The presence of both the European Commission and industry confirmed this with their encouragement in moving forward. ICES will cooperate with existing actors, while finding its niche and defining the organization's role.

The participation of industry has resulted in clear recommendations from its representatives as to the most important science needs, from developing our industry right through to environmental needs, which will now play a role in the process of defining terms of reference for the new expert group.

The chairs were extremely thankful to participants for their responses and comments on the way forward, what focus this group should have, and also for providing strategies on how to develop this groups role within ICES and the ICES member states. Commenting on the high attendance, Kellerman noted, "It is a positive measure and a strength that we have members from both Europe and North American in attendance; this is going to be a transatlantic exercise".

Integrated Ecosystem Assessments – observation capacities, integration tools, and the ICES EG portfolio

In 2006, ICES began to develop its capacity to conduct Integrated Ecosystem Assessments (IEAs). Several expert groups have been involved in these initiatives and work has been carried out in several regions.

An open session to inform the community about this work and discuss future steps in the integrated assessment work of ICES was hosted by the Science Steering Group on Regional Sea Programmes (Chair Yvonne Walther) and the Science Steering Group on Ecosystem Survey Science and Technology (Chair Bill Karp) at the ASC.

The session focused on three separate aspects of Integrated Ecosystem Assessment: addressing the integrated monitoring needs for integrated ecosystem assessment, how best to consider anthropogenic pressures such as those associated with contaminants during integrated ecosystem assessment, and moving towards advice.

The purpose of the session was to inform a wider audience including scientists, stakeholders, and managers about the work that has been done so far and to involve these participants in discussions regarding the next steps in the process for ICES. The conveners sought to encourage progress towards operationalization of integrated ecosystem assessments and related advice and to consider how involve stakeholders and managers in this process.

The session attracted a large audience who engaged in enthusiastic discussions following each of the panel presentations. The conveners felt that this was a successful and productive session and that there was strong support for ICES continuing to build its capacity for integrated ecosystem assessment in support of ecosystem-based management.

Advances in the traceability of fish and fish products: from species to populations

Illegal fishing and fraud along the supply chain makes traceability an important issue in the sector. This theme session looked at how modern molecule technology, particularly genetics and genomics, can support traceability of fish products as well as at how genetics can help to improve fishery management in general.

The work presented shows major progress. One factor for this is the immense achievement in the DNA sequencing field. DNA sequencing is becoming more influential and at the same time, prices are decreasing. DNA or genetic approaches can reveal fish population structures that on one hand help traceability in the fisheries sector, controlling enforcement and on the other hand, can help tackle challenging questions when it comes to fisheries management.

The application of genetics and genomics into fisheries management, control, and enforcement was another important focus of the session. While increased interdisciplinary scientific communication is always favoured, an improved dialogue between scientists, users, and policy-makers is necessary to improve governance using genetic technology.

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Nominations open for ICES Awards 2013

Recognising the work of our peers

Nominate your colleagues for the ICES awards.

Each year, ICES Awards recognize those among us who have made especially notable contributions to the ICES community and the wider marine science world. The recipients of ICES awards are some of the most deserving and distinguished people in their fields, proud in the knowledge that an ICES award is a sign of appreciation and respect from their colleagues. It is an estimable honour to receive one these awards, but to be nominated in the first place is a distinct honour in itself.

John Pope, recipient of the 2012 ICES Outstanding Achievement Award, felt honoured to have been nominated by his colleagues. "That is the really special thing because your peers are the people who know best what you've done and are therefore best able to judge you". Receiving the award in Norway added that extra special touch. "I used to teach at the University of Tromsø, so I have a strong relationship with Norway as well as the UK".

Pope was described as "an intellectual leader" by one of his nominators and by another as having made ICES "attractive to the best marine scientists", engaging them in work that "linked the best science to the most relevant and reliable advice". His problem solving ability, providing "simple yet elegant solutions to real world problems" ensured that he was at the forefront of developments within ICES. Pope was at the centre of multispecies virtual population analysis (VPA) developments, a founding member of ICES Working Group on Ecosystem Effects of Fishing Activities (WGECO), and Chair of the Consultative Committee.

John Pope, 2012 ICES Outstanding Achievement Award recipient.

Attending the ASC for the first time in several years, Pope commented that, "It was really nice to see everyone. If ICES has changed at all from my day, it is that there are more doctoral students and more presentations from young people than there used to be. It used to be a little bit of an old man's club so it has become more accessible to young people or at least it's a nice mixture of the old and the young. That's when most of us did our best work - in our twenties, thirties and forties. I think this is the great healthiness of science in the west, that the young generation do want to prove the old guys wrong - that's how science should be!"

ICES Awards

ICES presents two peer-nominated awards: the Outstanding Achievement Award and the Prix d'Excellence. The Outstanding Achievement Award is be presented every year and the Prix d'Excellence will be presented only every third year. The next anticipated Prix d'Excellence is in 2014. Nominations for both awards are now open.

ICES Outstanding Achievement Award

The ICES Outstanding Achievement Award recognizes a member of the ICES community whose career has been distinguished by a sustained commitment to excellence in endeavours of science, management, research, and leadership, and as such is the highest expression of recognition for a colleague. The nomination procedure for the Outstanding Achievement Award is as simple as following this link. Nominations require a name and a few sentences about the person you are nominating. Nominations are then followed up by the ICES Awards Committee.

The deadline for nominations for the 2013 Outstanding Achievement Award is 15 April 2013.

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Stocks on the move

The case of mackerel

ICES has just released advice for one of the largest and most economically important fisheries in the world: Northeast Atlantic mackerel. The advice is based on the management plan agreed upon in October 2008 by Norway, the Faroe Islands, and the EU, which ICES evaluated to be precautionary. In 2013, ICES advises that catches should not exceed 497–542 kilotons (kt). The expected catch for 2012 is 930 kt. Therefore, what ICES has advised for the coming year is a substantial reduction.

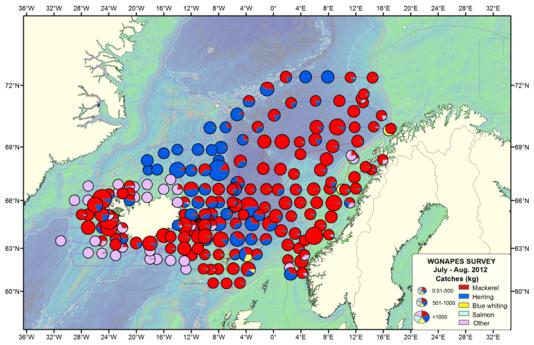

Figure 1. Distribution and spatial overlap between mackerel (red), herring (blue), blue whiting (yellow), and salmon (violet) from surveys conducted between 1 July and 10 August 2012.

Why such a reduction?

This situation is unusual: a management plan was agreed upon, but since 2009, it has not been followed. The explanation lies within the stock itself. Mackerel has recently, especially in the feeding season, spread further into the North Atlantic, moving into new regions such as Icelandic waters (Figure 1). The original management plan did not include these "new" mackerel countries, which have greatly expanded the fishery. Since 2009, this has led each mackerel fishing country/group of countries (old and new) to set their own quota independent of the management plan without ensuring that the sum of the quotas does not exceed the management plan catch limit.

In 2011, for instance, the sum of these new quotas and the catch (939 kt) far exceeded the ICES recommended catch (529–672 kt) according to the management plan.

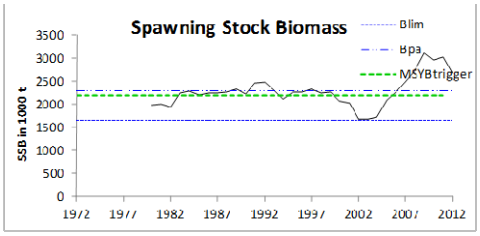

Figure 2. Mackerel stock size expressed as biomass of the spawning component (SSB). The horizontal lines represent the various biological reference points for management.

For managers, the current difficulty is agreeing what percentage of the total quota the "new" mackerel countries should have as this will result in a reduced share for the "old" mackerel countries. Fortunately, the mackerel stock has been robust enough to sustain this lack of management (Figure 2). However, if the stock is to be managed sustainably, managers will need to come to an agreement.

The reasons for the expansion of the mackerel distribution area are not fully understood but are thought to be related to changes in environmental conditions and the increase in stock size. When compared to the long-term average, the recently observed record-high summer surface temperatures in the Nordic seas (Figure 3) have largely increased the potential feeding habitat for mackerel. This includes a documented large northerly and westerly spatial expansion of mackerel.

A general phenomenon with marine fish stocks is that they increase their geographical distribution when they grow in number and they increase in abundance relatively more at the margins of the geographical distribution than at the centre. This is in line with the general ecological theory of "ideal free distribution", which states that the number of individual animals that will aggregate in various areas is proportional to the amount of resources available. As food decreases at the centre of the distribution area, the mackerel will then move to the margins.

This expansion of mackerel has also resulted in an increased spatiotemporal overlap with Norwegian spring-spawning (NSS) herring at the outer edge of their distribution area as well as other fish stocks

utilizing these feeding grounds. In the spring and summer of 2012, the measurements of plankton concentrations were among the lowest in the entire time-series for the Nordic seas. This appears to influence the feeding migration patterns of mackerel. It may also lead to increased competition for available food resources in the most productive surface waters, in the mackerel stock itself, and between mackerel and herring. This calls for an ecosystem approach to fisheries management and ICES is working on making this approach operational in the advisory process.

There is no ICES forecast for the spatial distribution of mackerel, but if climate change and food competition are involved, as indications imply, it is likely that mackerel will continue to be available in the northern and western areas for the coming years.

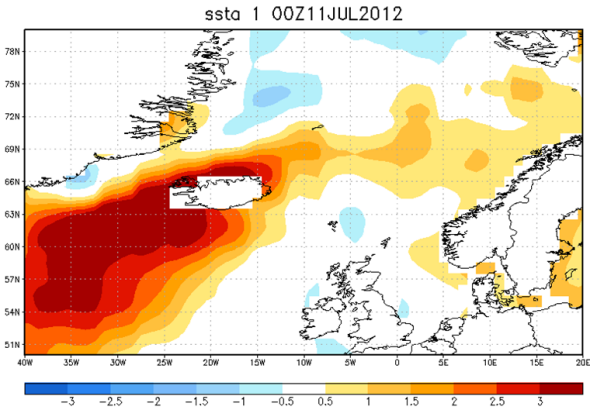

Figure 3. Sea surface temperature anomalies (°C; centred in week 28, mid July 2012) showing warm and cold conditions in comparison to a 20 year average.

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Counting the cost of coastal habitats

WKVHES finds that over 70% of fish landed in the ICES region are coastal zone users

Although the influence of coastal habitats on the survival, growth, and reproduction of exploited marine species has been demonstrated widely, the absolute value of these habitats to their population dynamics has rarely been quantified. This lack of quantitative information on the value or importance of coastal habitats for most, if not all, exploited marine species in ICES waters led to the ICES Workshop on the Value of Coastal Habitats for Exploited Species (WKVHES), which took place in June in Copenhagen.

In the ICES region, fisheries of the majority of exploited species are managed by stock assessments. To date, the effect of habitat type has not been incorporated into stock assessments or management efforts. Rom Lipcius, WKVHES chair, points out that, "This is a worldwide issue. This is not just a problem in Europe. While the US has identified this as a key issue, there is not a single stock assessment that has integrated habitat."

Madeira Archipelago, Portugal. Photo courtesy of Sofia Henriques.

Work on habitats is currently carried out in parallel. Great efforts are taking place regarding habitat conservation and there is a lot of effort in stock assessment and fisheries management of exploited species, but the two have not yet been combined. Traditionally, stock assessment has focussed on fishing mortality and the dynamics of a species but has been separate from the ecological approach; stocks are managed by managing the fishers. With WKVHES, the goal is to integrate the importance of coastal habitats to the fisheries management of exploited species and lay the foundations for future work. Lipcius explains, "Ecosystem-based management is trying to bring these together and what we are doing is taking it to the next, practical step: To what extent do we manage habitat and to what extent do we manage the fishers and to what degree do they interact? There is a link – but it's not there yet".

The workshop concentrated on reviewing three main issues: which ICES-relevant species have a strong link with coastal areas, published quantitative information on habitat-specific demographic rates (growth, mortality), and what types of models could be used to link habitat related information to population dynamics. Lipcius states, "We will provide a review of the different approaches designed to quantify habitat value in terms of exploited species and then prepare some recommendations on how we might go about incorporating their value in a quantitative manner, for example through population models".

Quantitative habitat assessment experts scanned the literature for studies that quantified the importance of habitats or compared habitats in relation to growth, concentrating mainly on the young stages, as coastal areas are mainly used as nursery grounds. This led to a list of 129 papers to be digested in order to identify gaps in knowledge; these could include either poorly studied habitats, species (groups), demographic rates, or a combination of these.

The first step for the exploited species experts was to investigate the percentage of species for which ICES gave advice in 2012 that use the coastal zone at some stage in their life cycle. This figure was then related to fish landings within the ICES area. The surprisingly high result of 71% was a key finding from the workshop.

Modelling experts provided a theoretical overview of the types of models that are appropriate for this kind of problem. Participant Jaap van der Meer pointed out, “We found that very few papers, in fact only eleven, have described models that address this issue”. The next step is to advise on which modelling approach is best suited to certain problems. This is work in progress, the eventual goal is to use these types of models so that the information can be supplied to management. This will offer a challenge to ICES as it would mean a change in the way stock assessment is dealt with.

For example: A certain species uses sea grass beds. If sea grass beds are degraded by 50%, how much production would be lost for that fishery or of that population? On the other hand, if funding was provided for the restoration of 25% of the sea grass areas, would production increase? The effect on population is unknown for most species. While it is possible to manage the fishery, production may remain limited by having insufficient sea grass beds for nurseries that will not increase if restoration is not implemented, for instance. Worldwide there have been very few attempts to incorporate this in statistical analysis. Lipcius explains, “This is what we hope to do as a working group over the next 2-3 years, especially the quantitative part, putting some numbers on how important these coastal habitats are”.

Workshop participants feel that through its network, ICES can support the integration of habitat features into quantitative models of population dynamics and add significant value to national and international research efforts.

WKVHES participants in Copenhagen earlier this year.

ICES Journal of Marine Science will publish a theme set on the value of coastal habitats for exploited species in 2013 featuring three papers from WKVHES as well as more from research throughout the globe. According to Lipcius, the collaboration of the group looks set to continue, “Many of us have never worked together before and we are now talking about not only a scientific publication but also grant proposals, both through the US and Europe, to continue the work so there is some real exciting potential for collaborations”.

Read the WKVHES report online.

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Investing in the future

Students and early career scientists in ICES

"To all young scientists out there: It is your job to prove that we were wrong". So came the challenge from the 2012 ICES Outstanding Achievement Award winner, John Pope. ICES is steadily becoming more and more accessible to early career scientists and students. Early career scientist conferences, travel funding, and awards are steps in this process.

At this year's Annual Science Conference, ICES hosted two special sessions that introduced the organization to students and early career scientists. ICES General Secretary Anne Christine Brusendorff and SCICOM Chair Manuel Barange explained to an audience of students and early career scientists the importance of new talent and thinking to the organization and asked what ICES could provide in return to support them in beginning their careers. Many ideas were put forward including more frequent early career scientist conferences, training opportunities, and general advice on how to find positions. ICES has established contact with both YOUMARES and EAS student groups in order to learn from and cooperate with at some future stage. Marc Einsporn, YOUMARES coordinator, spoke to students at the ASC about the opportunities and valuable experience to be gained from being involved with large networks.

Getting to know the ASC

While ICES welcomes new students and early career scientists at the ASC, it can remain a daunting experience to the uninitiated. Suggestions put forward on improving this experience included a mentoring session for first-timers, a special early career scientist theme session, and inviting local Bachelor/Master level students for an event. A few students shared their views on the conference with *Inside Out* along with their ideas on how ICES could encourage students and early career scientists to get involved with ICES.

1. What is your impression of ICES ASC 2012?

2. Which theme sessions most interested you?

3. Which scientific areas in ICES interest you?

4. Are you interested in getting involved with ICES work?

5. How do you think ICES could engage early career scientists to get involved with ICES work?

Arnault Le Bris, PhD student, Memorial University, Newfoundland, Canada. Currently studying the mechanisms resulting in complex population structure. Some side projects involve characterizing habitat association of fish communities from western Newfoundland and quantifying the spatial overlap between preys and predators.

1. This was my first ASC and I quite liked it. I was a bit lost the first day, but I quickly managed to network with some of my peers.

2. The obvious answer would be Theme Session N "Examining the implications of complex population structure on fish resources, fisheries, assessment and management" because I presented in it. Otherwise, I particularly enjoyed joint session M on the Arctic-Subarctic interactions.

3. I am interested in fish behaviour and the consideration of fish behaviour in spatial models for stock assessment. Other areas I am interested in are community responses to climate change

and the ecosystem approach to fisheries, although I am less involved in those areas right now.

4. I would like, later on, to participate in ICES working groups and maybe to chair ASC theme sessions.

5. First of all, I have to thank ICES for what it already does for early career scientists. Early career scientist awards and travel funds are great initiatives. Another way ICES could help would be by giving some advice on how to secure jobs, best practices in networking, etc. It would be interesting to get some stories from experienced ICES scientists about how they managed to secure their job positions, what made them competitive, and so on. I predict that there would be diverse trajectories and interesting stories.

Rebecca Lauerburg, PhD student, Institute for Hydrobiology and Fish-eries Science, University of Hamburg, Germany. Her main research focus is on the interactions between fish population dynamics and eco-system changes on biotic and abiotic levels. In particular, the growth of fish, selective mortality, and adaptation to changing conditions are the centre of her attention. She is working with the FACTS project to quantify and qualify the effects of forage fish availability on the growth, condition, and reproductive potential of whiting in the North Sea ecosystem.

1. This was the first ASC I had the opportunity to attend. It was really impressive and a great experience. To see hundreds of experts from all over the world meet, discuss, and do science was a great inspiration and motivated me to become part of such a vital community. It was great to get in touch with scientists that work in the same field and get new ideas and views. Moreover, I was impressed by all the well-organised social events such as the conference dinner in Håkon's Hall.

2. There were a lot of interesting theme sessions at the ASC; it was a pity I could only be in one place at one time. My main centre of attention was on Theme Session J "Beyond routine ageing: otoliths and other bony structures as windows into fisheries, fish ecology, and the environment", but there were other topics that I was interested in, such as the traceability of fish and fish products and the several management issues presented.

3. The international exchange and communication is the most interesting and central point in ICES work. To launch research in all scientific fields concerning the marine environment and to provide reliable information for political decisions is key to a healthy environment.

4. It would be a great opportunity to get involved with ICES work, to improve knowledge about our marine environment and to make a difference.

5. In order to engage young scientists in ICES it would be useful to spread more information about what kind of work there is and what needs to be done. Involving early career scientists in ICES working groups could also help give a better insight into and a more holistic understanding of how important ICES is.

Simon Dedman, PhD student, Galway Mayo Institute of Technology, Galway, Ireland. Simon is currently working on "Defining maximum sustainable yield for data poor fisheries: the case of the elasmobranch fisheries in the Irish Sea", a project funded by MYFISH.

1. This was my second ASC; my first was at the beginning of my masters course in 2006. ASC was interesting the first time around, but maybe it was too soon in my career. This time it was fantastic, completely relevant for me and the timing was perfect for my PhD start. It was great to meet

people and easier because I'm older, wiser, and less shy than I was back then.

2. I was especially interested in theme sessions L “Evolution management frameworks to prevent overfishing”, N “Examining implications of complex population structure on fish resources, fisheries, assessment, and management” and K “Managing in a complex environment – defining approaches for multiple species and ecosystems”.

3. Dealing with data-limited stocks because it's my project topic (multi-species/ecosystem management and new management ideas), which is a mix of my previous job in quota management and my current studies, as well as technical ideas for improving surveying or using existing data.

4. I’m very interested in getting involved with ICES, initially with WKLIFE (data-limited stock methodologies) and WGMARS (Working Group on Maritime Systems), and then potentially PICES stuff.

5. ICES could set itself up as a hub and be the go-to location for all marine academics to get news, collaborate, and interact. As long as it features high quality and regularly updated content, it should draw in young scientists and keep them throughout their careers. It seems to me that currently the vibrant, thriving community that comprises ICES is hard to appreciate or engage with unless you happen to be present at, for example, the ASC. Translating the enthusiasm and collaboration present at these events to the online realm would be a fantastic achievement. ICES could also use awards or travel funding, targeted at the needs of early career scientists, to incentivise people to engage through the various communications media ICES uses (LinkedIn, Twitter, Facebook, RSS, etc.) which would facilitate communications and improve engagement.

If you would like to contribute your views on how ICES can support students and early career scientists, please join the ICES LinkedIn discussion.

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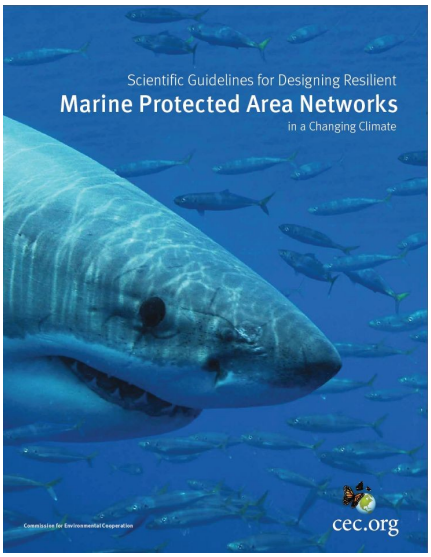
Designing resilient MPA networks in a changing climate

SGMPAN contributes to new guidelines



The recently published *Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate.*

Since 1994, Canada, Mexico, and the United States have collaborated in protecting North America's environment through the North American Agreement on Environmental Cooperation (NAAEC). The NAAEC came into force at the same time as the North American Free Trade Agreement (NAFTA) and demonstrated a commitment that the liberalization of trade and economic growth in North America would be accompanied by effective cooperation and continuous improvement in the environmental protection provided by each country. Accordingly, the NAAEC established an intergovernmental organization, the Commission for Environmental Cooperation (CEC), to support cooperation among the NAFTA partners and to address environmental issues of continental concern, including the environmental challenges and opportunities presented by continent-wide free trade.

Canada, Mexico, and the United States have taken significant steps in developing legislation to protect the marine environment and recognise that effective implementation of a regional network of protected areas requires transboundary cooperation and complementary conservation and management actions. In response to this challenge, the North American Marine Protected Areas Network (NAMPAN) was created in November 1999 under the auspices of the CEC. Its goal is to enhance and strengthen the conservation of biodiversity in critical marine habitats throughout North American MPAs and facilitate information exchange among experts.

NAMPAN represents a tri-national network of resource agencies, marine protected area (MPA) managers, and other relevant experts. It was formed to enhance and strengthen the conservation of biodiversity in critical marine habitats and help foster a comprehensive network of MPAs in North America. NAMPAN is a network of both important marine places and the institutions and people connected with those places. In May 2009, NAMPAN held a meeting in Halifax, Nova Scotia, Canada. Ellen Kenchington (Canada), John Loder (Canada), and Robert Brock (US) were amongst several scientists making presentations on work done elsewhere on the effects of climate change on MPA network design. The *ICES Cooperative Research Report No. 293: The effect of climate change on the distribution and abundance of marine species in the OSPAR Maritime Area* was presented along with the concept of working with ICES scientists to draw on a wide range of expertise to address scientific questions.

MPA size, placement, and their respective role in reducing pressures such as fishing and coastal habitat conversion, are just some of the considerations for designing resilient MPAs in light of climate change. CEC and NAMPAN formalized a joint study group with ICES the following year. The Study Group on Designing Marine Protected Area Networks in a Changing Climate (SGMPAN) chaired by Robert J. Brock (USA), Ellen Kenchington (Canada), and Amparo Martínez-Arroyo (Mexico) met at Woods Hole, Massachusetts, USA in November 2010 with the aim of developing general guidelines for MPA network design processes that adapt to and mitigate anticipated effects of climate change on marine ecosystems. The area of interest extended from the Western Tropical Atlantic, including the Caribbean Sea and the Gulf of Mexico, northwards to (and including) the Labrador Sea. A smaller group, including the chairs and theme leaders of SGMPAN met again at Woods Hole in August 2011, to incorporate changes to the SGMPAN report, resulting from a six-month peer review of the docu-

ment, including reviews by the ICES Working Group on the Ecosystem Effects of Fishing Activities (WGECO) and ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC) as well as invited international experts, and to turn the SGMPAN report into a set of guidelines.

The comprehensive report that resulted from SGMPANs review process is considered to be the reference document for the guidelines. However, an updated oceanographic report was created based on the comments of the ICES reviews. That work is summarized in the 2011 SGMPAN report and as an annex in the Scientific Guidelines for Designing Resilient Marine Protected Area Networks in a Changing Climate. In total, sixty-four ICES and NAMPAN scientists from Mexico, the United States, and Canada contributed to this publication through SGMPAN, which was formally released at the Restore America's Estuaries Conference in Tampa, Florida on 23 October.

The guidelines will help scientists, MPA planners, and managers improve their ability to design, connect, manage, assess, and adapt MPAs and MPA networks to potential climate change at national and continental scales. The guidelines are broken down into four sections:

- Protect species and habitats with crucial ecosystem roles, or those of special conservation concern;
- Protect potential carbon sinks;
- Protect ecological linkages and connectivity pathways for a wide range of species;
- Protect the full range of biodiversity present in the target biogeographic area.

In November 2012, the CEC will publish a companion piece: a guide for MPA managers and network planners on how to implement these guidelines.

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ICES Training Programme

2013 syllabus now available

2012 has proven to be another successful year for ICES Training Programme as participants from all over the world took part in the eight training courses on offer during the year. Initiated in 2009, the Training Programme has to date provided over 500 participants from more than 30 countries with training and continues to build capacity both in and outside the ICES community.

ICES Training Programme is proud to launch its 2013 schedule, which sees the programme spread its wings as Fontainebleau, France and Vigo, Spain play host to courses.

- AD Model Builder and Stock Assessment

  18–22 February 2013, ICES HQ, Copenhagen, Denmark.

- Stock Assessment (introduction)

  27–31 May 2013, Centro Oceanográfico de Vigo, Spain

- Fisheries Management to meet Biodiversity Conservation Needs

  18–20 June 2013, ICES HQ, Copenhagen, Denmark.

- Ecosystem Modelling for Fishery Management

  26–30 August 2013, ICES HQ, Copenhagen, Denmark.

- Trawl Survey Design and Evaluation

  4–8 November 2013, ICES HQ, Copenhagen, Denmark.

- Analysing and Visualization of VMS and EU Logbook Data using the VMStools R Package

  11–15 November 2013, ICES HQ, Copenhagen, Denmark.

- Application of Geostatistics to Analyse Spatially Explicit Survey Data in an Ecosystem Approach

  2–6 December 2013, Mines ParisTech, Geosciences Center/Geostatistics, Fontainebleau, France.

- Communicating Science and Advice (date and location to be decided)
- How to Lead an Effective Technical Meeting (date and location to be decided)

ICES Training Programme is always open to suggestions for new courses.

To find out more, please visit ICES Training Programme online.

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Puzzling posters!

How to make posters that convey your message?

At the ICES ASC in Bergen, the ICES Bestest Team investigated how to make posters that effectively convey a message. Perhaps the most important feature, it appears, is the enthusiasm of the presenter, making the poster session an important scientific communication tool in addition to the stand-alone poster.

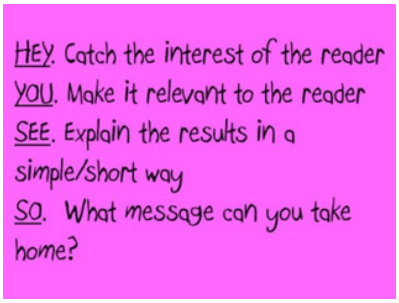
Posters play an important role in the communication of scientific results. Potentially a poster can transmit your research to an entire conference audience of scientists and stakeholders. An account of recent scientific findings is prepared in poster form with text, graphics, and pictures – this is the message to be broadcast. The audience then receives the information by reading the poster. At ICES Annual Science Conference, time is specifically allocated to a poster session at which poster authors can present their poster and discuss their work with interested viewers. Poster authors are also given the opportunity to give a brief oral presentation with a few slides at the relevant theme session. On both occasions, but primarily at the poster session, the audience has the opportunity to ask questions.

The implicit assumption is that the targeted audience receives the message that the poster author intended to broadcast. The ICES Bestest Team investigated this assumption at the ICES ASC Blind Date Poster Competition session as well as exploring what actually makes a good poster and what doesn't. The audience was asked to write down answers to three questions on pink sticky notes:

1. Which poster do you remember? 2. Why? 3. What was the message?

Some general features that the audience felt make posters attractive are:

- a little text
- attractive colour scheme
- nice pictures, e.g. of animals
- key message in the centre of the poster
- a photograph of the author (making it easy to find him/her)
- something unusual
- make the poster interactive!



Make your poster work for the audience.

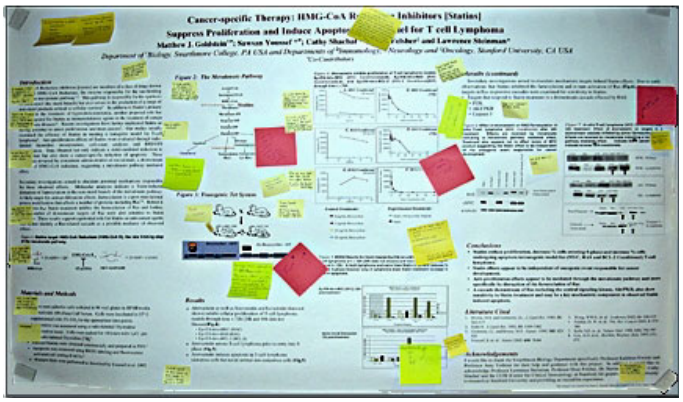
An attention grabbing example that uses a QR code to store the scientific information. Universal Pictures.

The most effective way to make a message memorable appears to be by connecting a conspicuous (visual or other) feature to the message. For example, at ICES ASC 2012 a poster on the harmful side effects of electrical pulse fishing featured an illustrative picture of a damaged fish. Another example used interactivity; viewers were asked to categorize concepts of ecological resilience using magnetic strips that attached to the poster from which the main conclusion was that there is no consensus about the categorization of these concepts. An example from another conference was a poster with white letters on a black background, which broadcast the message that nocturnal birds should be observed at night.

However, it may come as a shock that while people frequently remember an attractive poster the scientific message is often forgotten!

This finding should be food for thought. One may wonder whether it matters. Perhaps posters really are only about making an impression, so that the audience will be enticed to read or discuss the author's papers. One participant suggested making a poster that only draws the attention of the audience and uses a QR barcode to direct interested viewers to the scientific material, which they can then read elsewhere at their leisure.

Views on augmenting posters with conspicuous features were balanced by remarks that if a poster is too "funny" it may compromise the credibility of the scientist, and that scientists should not be encouraged to "dumb down" their posters to make them look splashy, because great science is often complex. True as this may be, the fact is that posters that are not attractive won't be read no matter how interesting the contents really are. The conclusion is that there is a real "art" to communicating complexities; there is no single answer. We hope the session encourages people to take the challenge



Get feedback! The example on the left uses "like" and "not like" sticky notes with comments. Courtesy of http://colinpurrington.com. On the right is an example of a feedback form that can easily be attached to your poster.

and experiment with forms and formats, and ask for feedback!

An effective "add-on" that poster authors can practice is the handout. Why not print an A4 (or smaller) mini poster on good quality paper that includes internet links and your business card? These can be placed in a small folder attached to your poster so casual passers-by may take your mini-poster home even when you are not there to hand it to them. In summary, make your poster work for your audience!

This year's ICES Bestest Team: Sarah Kraak, Martin Pastoors, Ingeborg de Boois, Jörn Schmidt, and Dorothy Dankel.

Would you like to share your views on posters? Join this discussion on ICES LinkedIn group.

For more resources and tips on how to create effective posters please visit Colin Purringtons page.

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