Theme Session G
Observation and monitoring needs to support ecosystem-based management – preparing to serve the current of data coming upon us

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Session synopsis

"There is a tide in the affairs of men. Which, taken at the flood, leads on to fortune. But omitted, and the voyage of their life is bound in shallows and miseries. On such a full sea are we now afloat, and we must take the current when it serves -- or lose the ventures before us." -- William Shakespeare, "Julius Caesar".

Ecosystem-based management is a central paradigm in the effort to rebuild and keep a sustainable ecosystem. The legislation of MSFD and other worldwide strategic initiatives enshrines the need for covering relevant elements of the marine environment, some already monitored and operational but others perhaps not addressed to full extent in sampling programmes.

The tenet of EBM includes the synthesis and quantitative analysis of various parameters specified to management objectives. The integrated ecosystem assessment (IEA) work in ICES is an approach where scientific understanding of the ecosystem can feed into the management choices and decisions. This approach is dependent on continuous and effective monitoring. Such monitoring is costly but will be even more expensive if it is done inefficiently and poorly documented and delivered to the expert fora. The conclusion is that we stand before a large shift in data needs to fulfil the commitment of EBM and continue the IEAs. Do we have the framework and resources needed to serve the current of data coming in our direction?

Important monitoring programmes are run in short-term projects and on a national or regional basis. A future of sustainable data collection scheme needs a long-term strategy and support by setting up networks and logistic coordination.

How do we assure accuracy, credibility and above all availability of data? Can we through harmonization of monitoring and data storage increase our value for money spent on data collection?

In this theme session we would like to invite presentations on the data need, storage, and presentation in relation to EBM and IEA. Examples of topics:

- Data, products, and services made available by national and regional coastal and ocean observing systems;
- Harmonizing data from heterogeneous sources, turning data into information using new media and visualization techniques;
- Optimizing data collection by collaboration and new design of sampling programmes;
- Inventory of existing data collection programmes.

The session is a joint initiative from WGDIM and SSGRSP and intended as a follow up the Open Session on Integrated Ecosystem Assessments – observation capacities, integration tools and ICES EG portfolio held in ASC Bergen, 2012.

Summary of the presentations

Data integration , integrated monitoring and MSFD choices (G:01, G:03, G:05, G:17, G:18, G:11, G:19, G:02, G:21, G:24, G:25)

The presentations showed that different institutes try to combine datasets and data collections. Some good examples were shown of products intending to serve e.g. policy makers. In many cases however, steps still have to be made to really integrate and/or harmonize data from different origins.

New data sources (G:04, G:13, G:12, G:14, G:23, G:26, G:28)

There is much out there what we do not measure; we often still rely on current data sources. It is worth to reflect on current data collection: do we collect what we need, is it still up to date? Using rapidly evolving technologies and techniques like chemical detection, camera data, and acoustic information might add information to the current data collections and can collect much data and information at relatively low costs. The amount of data collected by new data sources is too much to treat it manually. Automating data processing is the main challenge for this field.

User guidance (G:06, G:07, G:15, G:16, G:08, G:20, G:27)

There is much development going on in this field. The ICES data portal has hugely improved, and gives users the possibility to make their own maps and data extractions from the data available via ICES. Olrac-RTI might be a good way forward to let fishermen decide on their fishery strategy based on economic incentives.

Data management framework (G:09, G:10, G:22)

It is important to have a good data management framework, as it will encourage people to use the data. To get and maintain a well-functioning management framework time, manpower and effort should be made available. This pays back however as it saves a lot of time, manpower and effort in searching for the data, and develop methods to process those.

Special papers for a more thorough review

Data integration

By focusing on the potential of the current plankton datasets, a new approach was chosen to come up with indicators for MSFD in the UK: the life-form approach. With this approach is it possible to combine different datasets into indicators for descriptors biodiversity, foodwebs, and seafloor integrity.

Comments from the conveners: this approach shows that it is worth to spend time and effort in data exploration and data harmonization before starting new time-series when management targets are being set.

User guidance

In the recently proposed Real-Time Incentives (RTI) fisheries management system, fishers would be allocated fishing-impact credits ('RTIs') to spend according to spatiotemporally varying tariffs, replacing the conventional landings quota. The presenters showed a demo of a complete electronic logbook, vessel tracking, data recording and reporting system (Dynamic Data Logger, DDL) linked to an onshore data management system (Dynamic Data Manager, DDM). The fisher can decide where to go fishing based on a trade-off between costs, expected catches, and RTIs still available. DDM will also provide the managers with detailed and summary reports of RTI uptake and reported catches in time and space. This management approach provides fishers with a practical and simple management regime, in contrast to the current micro-management. The talk was unusual in structure as it had two time slots where the first was a background of the system and the second an actual live demonstration. It was much appreciated and got a lot of comments afterwards.

Conclusion

Discussion at the end of the session

When limited (financial) resources are available, time and effort should be spent to integrated data from different sources and to improve and automate data processing. Data availability will increase when information is stored using a data framework. Data accessibility is sometimes limited due to permissions or lack of good data frameworks. See also discussion◎ shift focus from new data collection to investing in harmonizing datasets/bases/collections.

When starting new data collection, one should think very carefully about the objectives. Only when those are clear, data can be collected in the most useful manner. Good data exploration of the current datasets will help defining the objectives for new data collection.

Data users can be divided into two main groups: those who like to play around with the data themselves (e.g. scientists), and those who need a ready-for-purpose product from the data (e.g. managers). Both should be able to use the data in the best way for their needs. It should though be prevented that users not using standard products keep their own datasets without sharing with the wider audience.

The way forward (conclusions)

"How do we assure accuracy, credibility and above all availability of data?"

From the presentations as well as the discussion it became clear that a good data framework is necessary when collecting data. A good data framework will ensure that data are stored sustainably, that results can be reproduced and data can be used for future purposes. Data availability and accessibility is crucial to improve and use the data.

This means that investments not only should be made in data processing, but also in software development as this will facilitate standard product, preferably using open source formatting.

"Can we through harmonization of monitoring and data storage increase our value for money spent on data collection?"

Harmonization of monitoring data might lead to better use of the current data resources. Time-series are valuable, but only when they are available to everyone. Additional monitoring techniques/platforms (like commercial fishing vessels) might add valuable information to current data series for a relatively low price. The new techniques however create a large amount of data to deal with so automated data-processing is very import. Larger framework projects with public funding should have a good strategy on how to secure the data for wider and future use after the project period is over.

See also report on session P as similar topics were discussed in that session.

Use for ICES Science, Advisory and/or Data function

The session proved that there is a need for a central place to find data collected by ICES member countries and to use the data for more purposes than only stock assessment. Providing the users with data and data products matching their needs is crucial. This means that there has to be an on-going dialogue between ICES Data Centre and data users (i.e. expert/working groups) about the needs, wishes and possibilities for data storage and data products.

The presentation on data type guidelines showed that ICES is not the only place where guidelines have been developed. One should question if the ICES community always should re-invent the wheel or just make better use of existing guidelines.

Notes

Social media

The unique #asc_sessionG was created to tweet during the session. Using social media to communicate with the wider world was actively stimulated by the conveners, using #asc_sessionG and #ices_asc. The hashtags were placed on the conveners' desk and visible for everyone. Five people sent 18 tweets during the session. It appeared that people joined the session based on some of the tweets. Tweets help the conveners to keep track of the opinion of the audience even when room for questions is limited. It is worth to consider to hand out a unique hashtag to all sessions so ICES, the merit awards committee as well as the audience can keep track of the topics by session.

Attendance

The session was attended by 75 people on average on Monday, reaching a peak halfway (92 people). As people kept on walking in and out –sometimes initiated by tweets- we assume in total about 120 people have attended the Monday meeting. On Tuesday morning the session started off with about 120 people during the RTI presentation and the numbers decreased towards the end to 25 people joining the discussion. Apart from the conveners, five people joined the full session.