

Open session

Ecosystem data collection, integrated assessments, and management: Can or should we make it one process?

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The questions asked were:

- Can we afford to treat data collection and assessment as separate activities?
- Is integration a largely passive incremental process driven by policy need and innovation?
- How much needs to be 'integrated' in monitoring to make it worthwhile?
- If a more 'directive' approach is needed to overcome isolationist views, who should take action / responsibility?

The open session sought to make progress on how to bring together the important elements of monitoring and assessment to develop a coherent program. In a 30-minute presentation, it tried to show the benefits of integrating these processes in terms of efficient data collection and effective advice. We can continue to independently monitor different ecosystem components without consideration of the assessment process needs. It will still be possible to fortuitously integrate some data, where it exists, into ecosystem assessments. Similarly, we could develop much more advanced monitoring programs that would in some way still support the current ecosystem assessment program, but not have that as their focus. Neither is very efficient, but it is possible. What we should not do though is promise the ecosystem approach based on current monitoring programs.

The session was attended by 80 - 100 people from all the relevant backgrounds (monitoring, stock assessment, ecosystem assessment, human dimension, and ecosystem modeling as well as some policy / decision makers). Due to a lack of technical interactive tools, responses and discussions were driven by a relatively small number of contributors, despite a relatively long discussion part to the meeting (1 hour). Discussions were lively as may be expected with people who have a vested interest in their own activity. The nominal issues that prevented progress were the old staples of, historic deliverables, current advice, timeseries, scales of relevance, budgets, lack of clear responsibilities, lack of convergence between a bottom up and top down approach on monitoring priorities.

The main aim of the session was to present the scientific arguments for integrating the monitoring and assessment process and to examine if consensus could be reached amongst a balanced subset of stakeholders given their current understanding of the advisory process at large. In terms of addressing this aim and in terms of the breadth and magnitude of the attendance the session was successful. There was also consensus that we should not treat monitoring and assessment as separate processes. Surprisingly many participants were unaware of the divergence between the monitoring and assessment processes due to the change in focus from fisheries questions to more general ecosystem ones. There was little consensus amongst the wider group as to how a realignment could be achieved (change monitoring / change assessment / change both). In many ways, this was an expected result at the specific or detailed level, i.e. the 'survey level' where there is considerable self-interest. What was less expected was that the discussions did not provide more indications on how to address the problem at the larger scale.

Comments suggest that everyone believes we should be doing more towards implementing the EA. People generally believe that they understand the link between monitoring and assessment / advice. However, their responses and past actions seem to suggest otherwise. We think therefore that ICES may not be sufficiently clear in its strategy towards the EA and in the role of monitoring in this. At the open session, and the conference at large, 'ICES representatives' indicated different views on the subject matter. Different viewpoints are necessary for a robust scientific process, and different options not only exist but are sensible under different objective scenarios. What we are missing, is the necessary broad scale scientific discussion to evaluate the choices and ICES to provide clear advice on how scientific priorities set the monitoring priorities, and the consequences of failing to follow these priorities due to independent actions of independent monitoring actions. It seems a full scientific evaluation of this is being hampered by the availability of the appropriate data to do so. How to solve this critical issue was not further discussed during the open session. Instead we focused on some suggestions as to how to make progress in spite of this:

1) Include the human dimension. In this case, this refers to resolving the conflict between different interest groups. I believe there is opportunity for this and should be pursued. But before doing so it needs to be decided how the process could be isolated from the divergence of scientific understanding. The ICES Strategic Initiative on the Human Dimension is about increasing communication and could perhaps contribute to this process.

2) Take a year out from normal monitoring and do an integrated survey. This suggestion seems to largely support the lack of understanding of the monitoring and assessment process.

3) We need to subdivide the overarching problem without destroying the integrative nature of the question. Some elements of the larger process are further along than others and there is the risk of making decisions that will later need to be reversed.

4) Waiting for all processes to reach a decision-making state at the same time is unwise. If possible, it may be best to do incremental steps toward integration rather than re-designing the monitoring programs completely to focus on ecosystem assessments and integration.

5) Observation monitoring versus hypothesis monitoring – oftentimes we say we wish we had collected certain data, but at the time we were unaware of the need. More fundamentally, we need monitoring to be structurally more dynamic. If we have a discussion and come up with a new static process, we are likely no better off. We do not want to ossify this process. (Can ossification be overcome with regular review/adaptive management)

6) Integrated surveys vs integrated ecosystem monitoring programs- as different levels of organizing ecosystem monitoring. This would focus the problem in a more manageable portion, but at some unknown cost to monitoring efficiency.

There is a need to acknowledge the diversity of understanding and perspective against the background of the scientific facts highlighted by the discussion (as summarised below):

- There needs to be consideration of not only what you survey, but also where and when you survey; e.g. not surveying shallow coastal areas or different bottom types. You cannot extrapolate monitoring and assessment findings to other areas when you know there are differences in key ecosystem characteristics, e.g. bottom type, bottom depth, coastal shelf versus offshore.
- The questions being asked of scientists and the advice given to managers are more complex and integrated than they have been before and we need to integrate assessment and monitoring to effectively meet these requirements.

- We need to identify key processes/measurements required to undertake an ecosystem approach. Those engaged in monitoring programs are rightfully attached to their time-series, but we need to have a conversation and make joint decisions about the extent to which we can modify existing monitoring to maintain critical time-series while increasing integration.
- There is always consideration for the ecosystem components that we are legally required to assess and monitor. These components are the top priorities for monitoring programs. Currently, these components are 1) stock assessments; 2) protected, threatened, and endangered species; and 3) marine protected areas; but emerging priorities make these priorities dynamics
- The monitoring and assessment programs should be determined by the objectives of the management program.
- We will have change no matter what and we need to be prepared for it. We want to make changes to lead to better results, but we will also have changes due to budgets and funding priority changes. We need to prepare for the change regardless of which way it goes.
- We need to increase communication across assessors, monitors, modelers, and policy. This is key and we need to survey the interested parties to understand their perspectives and how we can better approach integration.
 - What is important to you as an ecosystem modeler or data assessor or whoever you might be?
 - Do you think, open data / big data is the way forward in EA?
 - Do you think, new technology will save the day?
 - Do you think, it is possible to integrate data?
 - Do you think, ICES is providing the best possible advice?
 - What does ICES need to provide better ecosystem advice?
 - Do you think, ICES has the ability to address or alter monitoring short falls?
- On the question of whether the integration of monitoring, assessment, and advice should be bottom-up or top-down, working-level scientists need to bubble up ideas about how to do this integration, but ultimately we need to convince somebody at the top to tell everyone they should do the integration. We may be approaching this process to democratically by trying to get everyone to agree on how to do integration.
- We need to ask the assessment scientists before changing monitoring. This allows us to know the effects of the proposed changes on assessment.
- We need to show policy and management communities why there is a benefit to include ecosystem indicators into stock assessment. We should identify priorities and make them functional realities to prove there is utility in doing this integration. Thus, we will achieve political aims through sound delivery of science, which is dependent on the proper monitoring observations.
- We need to track our own progress towards integrating these process. This will enable us to know how well we have integrated and how much further we need to go. It also can be used to determine at what degree of integration we achieve non-linear benefits.