Matching Content of Integrated Assessments to Intended Uses

Jake Rice

Chief Scientist – Fisheries and Oceans Canada, Ottawa, Ontario tel 1-613-990-0288 email: jake.rice@dfo-mpo.gc.ca

There are three reasons for conducting integrated assessment; to provide information on:
1. What's Happening: Describing the status and trends of the components of a socio-ecological system, often going beyond phenomenological descriptions to account for what is happening as drivers, pressures, states, and impacts.
2. What should be done: Exploring what policies need to be developed or modified (adding the Response to the DPSIR framework):
3. How are we doing: Evaluating the present status and trends in the socop-ecological relative to our expectations/

For all three uses, Integrated Assessments have to have the three features that give assessments impact on both dialogue and decision-making – Credibility, Legitamacy and Relevant. In turn, both properties of the assessment and the process that produces it have to apply best practices for assessments in general. These are available in several sources, with the UN Assessment of Assessments (2009) presenting the best practices specifically in an ocean socio-ecosystemic context.

Of course there is overlap among these uses of an integrated assessment, and any reasonable integrated assessment could contribute to all three uses. The issue I focus on here, though, is that these different uses have implications for how to scope or bound what should be considered in the "integrated" aspect of an IA. I focus on scoping, as the Assessment of Assessment Best Practices explains, an incorrectly scoped IA can loss all three properties of of valuable assessment, with relevance often the greatest casualty. Scoping an IA inappropriately for the intended use will result in product that may have taken a lot of time to produce, and have significant expert buy-in, but provide an insufficient foundation for addressing the intended uses.

If the main information desired from the integrated assessment is just what's happening (use 1) then the IA should focus on really quantifying the trends in key components of the socio-ecological system, and the interactions and relationships among those components. The ecological relationships, such as how oceanographic conditions affect animal populations, and whether the affects are first order (direct effects of transport of fish larvae, for example) or mediated by trophodynamics (such as changes in primary productivity altering food supply for larval fish). However, even if the only intended use is better understanding of the system, an IA has to include the human dimension to be of any real value. The footprint of human uses on ecosystem components must be included in any explanation of changes in the ecosystem, and the status of the ecosystem components t influence the operation of ocean industries need to be part of the assessment, for any constructive conclusions to be drawn from the work.
Although this is a broad mandate for an IA, it is a scope fully determined by the knowledge-generation world. The scope of the IA can be determined by those doing the assessment. If they leave out important parts of the socio-ecological systems, then the quantification of patterns is incomplete as is the ability to attribute trends to their respective drivers and pressures. However, being incomplete is not a failure, as long as inferences are appropriately qualified. And if the incomplete scope of the IA actually leads to incorrect inferences about trends and their causes, the knowledge-generation world has well-

established tools for detecting errors in scientific explanations of natural phenomena. Over time IAs done to generate knowledge should show progressive improvement. That may lead to in the scope of what is and is not included int eh IA, but the scope remains in the judgement of the experts doing the assessments.

Skipping to use three, we are not in the mature policy world. Concrete operational objectives have been set for the system, and the IAs are reality checks on whether the objective are being delivered. The scoping of the IA is streamlined and determined by the objectives. There have to be components in the IA (often, but not necessarily always, as explicit indicators and reference points) that map directly onto each social, economic and ecological objective, and the dominant linkages among those components must be in the IA, as must the key drivers of each. So the IA may be structurally complex, but it still can receive a great deal of pruning of unnecessary "foliage" in the socio-ecological system, as long as the objectives can be tracked dynamically. It is not at the discretion of the assessors to drop components from the IA if they are essential to assessing progress towards agreed objectives, nor is the body for whom the assessment being done obligated to fund building and running parts of an IA that are not readily linked agreed objectives.

It is in use 2 that we find the intersection of the policy and knowledge generation worlds. These are the IAs that actually inform what policies are sound to adopt individually, and what combinations of objectives are feasible to achieve together. Policy is usually made for, and almost always delivered by, regulating where, when, and how much of what human activity can occur, and activates are managed sector by sector. The major ecosystem components and linkages among them must be part of the scope IAs for objective setting, but so much the socio-economic aspects of the relevant ocean industries and their uses of and footprints on the ecosystem. All the key linkages have to present in these IAs, for at least three reasons. The first reason is so trade-offs of various mixes of human uses can be explored – how increasing or decreasing the operations of one industry will affect the ecosystem, and through those effects, possible impact other industries. The second is so that scales of industry operations in aggregate can be bounded, as their cumulative effects on ecosystem components move some components towards their ecological tipping points. The third is to provide the foundation for the typoe three IAs – inform the "pruning" of this *fully* integrated assessment to something less demanding that is still sensitive and robust in tracking progress towards the objectives.

The scoping here is not at the discretion of either the experts or policy makers. The "socio" part of the "socio-ecological system must be represented well and dynamically if the IA is going to be legitimate and relevant. Part of the ecological system that reveal "uncomfortable truths have to be represented if the IA is to be credible and legitimate. This is by far the most demanding use of IA, but it because it is also the most important. Done well, we actually inform , sustainable and achievable management objectives for our oceans and ocean uses.