

Department of Fisheries and Oceans
Science Management Board

Meeting Minutes

October 13-14, 2005

The Science Management Board

The newly-formed Science Management Board (SMB) is responsible for identifying issues of importance to the achievement of the mandated objectives of the Department, selecting and assessing departmental and government-wide priorities needing science support, and providing strategic direction on the work planning of DFO Science.

The Board will meet twice a year, to ensure Science priorities are consistent with Departmental and government-wide objectives.

1. In the fall, the SMB will use integrated risk management to identify and assess departmental and government-wide priorities needing science support. The consensus direction of the Board, together with further consultation, will be used by DFO Science to develop its work plan for the coming year.
2. In the winter, the SMB will review the DFO Science work plan against the stated priorities and undertake any necessary adjustments.

The first meeting of the SMB was held in Ottawa on October 13-14, 2005.

Members of the SMB at the meeting

Deputy Minister (chair) – Larry Murray

ADM, Fisheries and Aquaculture Management – Kevin Stringer (for David Bevan)

ADM, Oceans and Habitat Management – Sue Kirby

ADM, Science – Wendy Watson-Wright

Regional Director General, East – Jean-Guy Beaudoin

Regional Director General, West – Paul Sprout

Chair, Science Advisory Council – Ron Bulmer (for Dr. Arthur Collin)

Senior DFO Research Scientist – Dr. Richard Beamish

Also present at the meeting

For Science Sector

Serge Labonté

Ron Pierce

Helen Joseph

Karen Davison

For Sussex Circle

Jim Mitchell (Discussion Leader)

Nigel Chippindale (Reporter)

Day 1: Understanding the Issues

In his opening remarks, the Deputy Minister and chair, stressed that the SMB is a decision-making body. Its aim is to develop a clear sense of the DFO and Government of Canada priorities to be served by DFO Science, both in the medium-term (the Business Plan framework) and in the longer term (strategic planning). He said it was essential for the Board's deliberations to rise above the details of individual projects to provide broad, clear direction for the strategic priorities to be served by DFO Science.

The Deputy noted that the membership of the Board had been kept relatively small to facilitate discussion and decision-making on these broad issues.

ADM-Science, Wendy Watson-Wright, talked about the kind of guidance the Science Sector was seeking from the Board. She hoped, above all, that the discussions would establish clear priorities to assist the Sector in developing its work plans for presentation to the SMB at its January 23, 2006 meeting. She also noted the links between the SMB and Science Renewal, specifically the need to reconcile expanding demands for science support with constrained resources. It was agreed that the purpose is not to spread the resources more thinly but to do better science more efficiently.

Presentations

In advance of the meeting, Board members were asked to detail their priorities and expectations for DFO Science in relation to departmental strategic outcomes. These presentations were used to focus and guide the discussions.

Oceans and Habitat Management

Science priorities must reflect the transformation plans that are part of departmental renewal. A key theme is the increasing application of risk management and ecosystem science to areas of responsibility such as habitat management, stock assessment, and species at risk.

Transformation means not separately assessing individual species or fish stocks; rather, focusing effort on the critical and sensitive areas of fish habitat and understanding the pathways of effect whereby human activities and natural events impact on the environment.

Clearer definitions of ecosystem objectives for environmental science with respect to productivity and biodiversity are needed, which should lead to strengthened monitoring activities and indicators on which science support can be based.

Fisheries and Aquaculture Management

Science priorities should be linked strongly to the transformation agenda, especially in the areas of precautionary approach, stable access to and conservation of fisheries resources, and shared stewardship based on co-management.

There is a need for a more rigorous precautionary approach to fisheries management that will require Science to provide ecosystem indicators. However, Science must continue to meet the demand for stock assessments of individual species; science support for an ecosystem approach cannot move too far from the needs of industry and of Canadians generally.

A balanced approach will also address the recovery of species at risk, including some non-fished species. It will be important to identify the stable core of DFO science and have a strategic communications strategy to explain the new emphasis on ecosystems.

Science input is important for such issues as the perceived links between aquaculture and sea lice in wild salmon on the West Coast and links between seal predation and northern cod in the

East. Further, in view of the International Polar Year 2007-2008, science in the North should be given higher priority. Other important issues are international cooperation, aquaculture, and the effects of ocean conditions on fisheries.

Western Regions

A series of “strategic categories” for science priorities were outlined for the Pacific and Central & Arctic Regions, including cross-cutting issues such as SARA, which relate to more than one category.

Specific issues include: shifting priorities could, potentially, damage relations with such partners as First Nations; the potential of a biological risk approach to focus resources for best effect; the need for additional tools for Integrated Oceans Management; and the need for more attention to International Leadership, especially with respect to the Arctic.

Change and Emergency Preparedness were identified as two emerging priorities. With respect to Public Good Monitoring and Data Management, the Regions are planning modest reductions in stock assessment while clients are demanding more stock assessment science. The risks in this area must be carefully considered in addressing the issue in the next five years and beyond. Recruitment and development of a new generation of scientists is critical. It is essential for DFO to define strategic directions by engaging clients but that this does not mean that client approval should be required.

Eastern Regions

Quebec, Gulf, Maritimes, and Newfoundland and Labrador Regions noted that 44 “priorities” were identified, clearly showing that the demand for science far outstrips the available capacity. About half of the identified priorities relate to the Sustainable Fisheries and Aquaculture strategic outcome and while Coast Guard has not yet expressed much need for science support, this is likely change as the possibilities of science are recognized.

Other issues include: an increasing number of requests related to risk assessment; the need to include regional considerations when developing and implementing a science-related strategy; the need to support an integrated and proactive approach to SARA; and the increasing importance of aquaculture/environment interactions.

The need to develop more resource flexibility to respond to unforeseen demands by reducing fixed costs was emphasized. Fisheries assessment work, which is relatively flexible, may suffer as ad hoc requirements arise. Reduced levels of funding for science is a reality and new resources are likely to be earmarked for specific tasks. Therefore, it is essential to define the core of DFO science and make sure it is supported. Finally, science tends to be driven by researcher interests so stronger top-down direction is needed.

Science Sector

The main categories of DFO science issues are: Climate Change and Variability; Northern Aquatic Ecosystems, Biodiversity; Species at Risk; Aquatic Invasive Species; Biotechnology and Genomics; and Aquatic Animal Health. Invasive species is an exploding issue, especially in relation to its impact on shellfish aquaculture, and has important linkages to aquatic animal health. Biotechnology and genomics will be important tools for DFO in the area of regulation rather than research.

The enormous scope of these issues, and the fact that they may extend far beyond the DFO mandate, was noted. In many cases, a collaborative approach is crucial because the federal lead is not DFO and DFO interest may be peripheral; yet, in some cases, DFO has been “the

only voice in town.” A more explicit approach to defining issues such as climate change, both inside DFO and across government, is essential.

DFO Science Advisory Council

The Science Advisory Council stressed the need to identify priorities for what science DFO will do and for how it will do the job better. Given that an ecosystem approach had been raised several times, attention should be focused on how the various approaches will be coordinated. Great importance was placed on addressing DFO Science human resource challenges.

Senior DFO Research Scientist

DFO needs to recognize that aquaculture is the only way to meet growing demand for seafood at a time of declining wild stocks. This should be seen as a major economic opportunity for Canada and everything necessary should be done to support it. Concerns were expressed that the symbolic aspects of the sea lice debate on the West Coast replaced science and that greater efforts at strategic communication are required.

DFO faces a very difficult situation with virtually all of its senior people retiring within a very few years. The crucial challenge is in the middle ranks, from where replacements will be drawn. Greater recognition of scientists is needed and the Tim Parsons award is a good step.

It is essential to include scientists in the discussion of science priorities and strategic plans, including addressing the human resources problem. There are too few opportunities (like the DFO seminar series) for scientists to get together because of limited operations and maintenance resources. Further, meetings between scientists and industry clients have been severely cut back. Scientists have lost contact with senior management and, therefore, feel disconnected by a lack leadership and direction. Despite these problems DFO Science could again become a world leader, if the department can attract good young scientists and engage them in the issues..

General Discussion

The following are the main themes that arose from the discussion.

Identifying the Science Core

Participants repeatedly emphasized the need to identify the core science to which DFO will remain committed. This will help to identify the areas where the department can partner with industry, universities, and non-government organizations to undertake monitoring, research, and surveillance. It was agreed that this should be discussed at the next meeting.

Linking Research to Advice

It was suggested that DFO science has gone its own way, although no specific examples were given. While this has resulted in some very good science, it has not always met the department's needs for advice. Advice must drive DFO Science, not be a by-product. In other words, it was agreed that the research agenda must serve the advice agenda.

It was noted repeatedly that good, credible advice requires good science. This means mainstream, published science that is done by recognized, credible scientists. This requires the ability to forecast, with reasonable accuracy, the advice that will be needed in five years time. It also requires integration within and across client sectors, disciplines, and issues to avoid serving a series of disconnected requests. DFO needs a risk-based approach to deciding what matters.

Serving Longer-Term Needs for Science

While a research agenda will assist in determining the future needs for scientific advice, it was pointed out that an agenda will also challenge the department's ability to anticipate changing demands several years in advance. If the research agenda is not effective, it will not be possible for the Science Sector to focus its efforts where they are most needed.

Ensuring that long term needs for science are not lost in obtaining short- and medium-term results is essential. Research priorities are set by DFO Science, providing some assurance that long-term considerations are taken into account and that there is a healthy tension between top-down and bottom-up ideas.

While some countries, notably Australia, have established consolidated science capacity to serve the specific needs of government departments, the general view was that this is not the right approach for DFO. Such an approach would not allow DFO to develop the necessary specialized expertise or capacity to respond to emerging requirements and that the approach would not address vital, long-term issues.

Serving and Engaging Clients

The relationship is changing between DFO and its clients. While the primary clients of DFO Science are the programs that are represented on the SMB, the ultimate clients are the full range of partners and stakeholders affected by DFO activities, which include not only industry but various other stakeholders such as the general public, Aboriginal peoples, and the international community. It was agreed that stakeholder relations have become more difficult in recent years, and that it is essential to use science, where possible, to engage clients as strategic partners.

To keep the emphasis on science-based discussion will require special efforts at explanation and consultation. The department must interact with its clients before the directions are firmly set. DFO scientists and managers need to bring the knowledge base to the clients and help them understand it.

More attention needs to be given to addressing the varying needs of different interests and stakeholders. For example, while DFO works closely with industry on fisheries management, industry is not the only interested party. With respect to wild salmon on the West Coast, a major client is the BC public and Aboriginal groups require specific attention. Similarly, some complex issues such as oil in the Gulf of St. Lawrence, required different parts of DFO relate to different clients (oil industry, fishing industry, public). This re-emphasizes the need for coordination and integration across the department.

Top-Down Priority Setting

There was general agreement on the need for science priorities to be set at senior levels and communicated clearly and strongly through the organization. The kind of scientist that DFO needs welcomes direction as a positive challenge.

Partnerships

Current partnerships are too often *ad hoc*, opportunistic arrangements and more thought needs to be given to how partnerships fit with priorities. Principles and priorities for partnerships will be useful and it might be worthwhile to explore the issue further.

Enabling Financial and Administrative Environment

The vision of the new Science Program includes financial and administrative arrangements that facilitate science, not hinder it.

Human Resources

There is a virtually universal concern about the need for new human resources across the department but especially in the ranks of scientists. The DM pointed out that human resources planning is one of the two top priorities for DFO and a national strategy is needed.

DFO needs to provide incentives for DFO scientists to produce work that is relevant to DFO priorities. Currently, scientists are only recognized for their publications.

Strategic Communications

A stronger commitment to strategically communicating DFO science to industry, the public and other stakeholders is needed. Not only do the findings of science need to be shared, but the rationale for the approaches being taken need to be explained. Strategic communications on matters involving science must include a well-defined role for the scientists themselves.

More effort needs to be put into showing how the ecosystem approach answers the need for effective stock assessment and is not a substitute for individual species work. Communicating with DFO employees was identified as another key aspect of strategic communication, particularly on science priorities.

Ecosystem Approach, Precautionary Approach

Wording on this in the Transformation Plan is misleading – the ecosystem approach is complementary to the need for stock assessment for individual species. We need to show that an ecosystem approach is likely the best way to do stock assessment.

Resolving this apparent conflict for stakeholders is a high priority. The ecosystem approach must be shown to include and support the needs of individual species for fisheries management purposes.

Species at Risk

There was general agreement that a more strategic and integrated approach is needed to addressing species at risk issues. This should include not only the identification of species and the understanding their situation but the development of recovery plans. Sound science is an essential ingredient in the effort.

Science Issues on the Edge of the DFO Mandate

How DFO should address issues where it does not have a formal mandate or direct responsibility but for which it provides essential input was discussed. Climate change and disaster warnings were the key examples. The discussion centred around the appropriate level of spending on issues where the department and its clients are not the primary beneficiaries. Building partnerships with other government departments, as with species at risk, will be key.

It was noted that these are largely core science issues for the Government of Canada that are peripheral for DFO. For example, climate change and variability affect virtually all areas of government and are very important to DFO even though they are not a direct DFO responsibility and DFO does not have the capacity support them.

Strategic Research Plan

There was general agreement on the need for a Strategic Research Plan for the next five years. This is expected to take several months to develop as it requires extensive consultation. The plan will be complementary to the Science Sector Strategic Plan (which is part of the department Plan), not stand-alone.

Priority Input Process

The ADM Science invited suggestions on how the approach to gathering input may be improved for future meetings.

Priorities – Types and Approaches

The idea of dividing priorities in to “what” and “how” categories emerged early in the discussion and was confirmed as the basic organizing principle.

The Purpose of DFO Science Priorities

The **nature and purpose of the science priorities** that the SMB was seeking to identify was discussed. The emphasis was on priorities as a means of demonstrating leadership by communicating a sense of renewal and direction with which staff can align themselves.

It was agreed that:

- the list of priorities should be reasonably brief, not attempting to cover all DFO activities. It should serve as a guide to making choices among competing demands and as a basis for saying No to some of them.
- Priorities should not be just a way to decide how to “use spare cash” but should drive the major DFO effort. Priorities must have real consequence in terms of reallocating effort.
- Priorities should also be a major factor guiding the renewal of human resources in DFO science, helping to select the needed skills and knowledge and to develop the right capacities.
- Priorities are not just about choosing what you want to do, but must also cover requirements that can’t be avoided.
- Priorities must address the needs of programs and clients, both in the near term and over five years or so. They should transcend DFO organization and address needs in an integrated way.

Priorities are a way of getting out ahead of the demands of clients, not just being reactive to them. Science priorities must be seen as a logical extension of strategic plans, Science Renewal, and the DFO Transformation Agenda. Consistency matters. Priorities define where science is going in support of DFO strategic outcomes.

Finally, there was strong agreement that Science priorities must be communicated as part of a larger strategic communications effort. The sense of real change in direction that they represent needs to be made clear. As the first step in this communication, it was agreed that the Deputy Minister should share the results of the meeting with staff.

Day 2: Identifying the Priorities

Day 2 focused on identifying medium term priorities to guide the development of Science Sector plans. It became clear that there are two broad types of priority issue:

- Substantive issues on which science input is required, whether in the form of monitoring, research, advice or products and services (the “what” issues).
- Process issues, which concern the way in which science activities are conducted, seeking to improve effectiveness or efficiency and to ensure that the necessary resources are available (the “how” issues).

From the discussion emerged a small number of priorities for DFO Science. These priorities are consistent and aligned with the Departmental Strategic Plan and the Transformation Plan.

“What to Do”: Priorities for Science Work

The Board explored various ways of consolidating its findings into a relatively small number of priorities that can provide a clear sense of direction to the work of the Science Sector. While the priorities do not cover the full range of science activities in DFO, they will provide guidance in making difficult choices in allocating resources and focussing efforts.

1. Science in Support of Ecosystem-based Management

This priority was described as the key overarching focus for DFO Science programs. Within this overall priority, special attention will be paid to:

- Setting clear ecosystem objectives for monitoring and protection
- Developing ecosystem indicators and reporting systems
- Developing risk-based frameworks
- Generating integrated ecosystem information for fisheries management
- Identifying habitat of special importance and sensitivity
- Considering impacts on aquatic biodiversity (including species at risk and invasive species)
- Understanding the pathways of effect-driving changes in ecosystems
- Understanding climate variability and impact on resources

2. Science for Sustainable Aquaculture

Given the complexity surrounding impacts of aquaculture and the environment, science for sustainable aquaculture was recognized as a priority, with focus on the interactions – in both directions – between aquaculture and the environment.

3. Science in Support of National Priorities

A few key national issues were seen to need special attention, even though some of them may be partly covered by the overall emphasis on ecosystem-based science.

A. Emergency Preparedness, Navigation and Sovereignty

- Early warning systems (tsunami, storm surges), navigation safety (climate change, ice coverage) and Canadian sovereignty (UNCLOS)

B. Studies of Northern Aquatic Ecosystems

- Linking to issues of sovereignty (UNCLOS); impacts of climate change on northern ecosystems; impacts of increasing economic development activities

C. Aquatic Animal Health

- In support of aquaculture production and to protect wild populations

D. Species at Risk (SARA)

- A cross-cutting issue of growing importance and complexity, with implications throughout DFO and for other government departments and international agencies
- Involves both identifying species at risk and developing recovery strategies

4. Science in Response to Special Issues

Given the nature of the management agenda within DFO, the Department will continue to face operational issues needing science input. Those identified by the SMB as current priorities were:

- A. The rebuilding of Cod Stocks on the East Coast*
- B. The conflict around Wild Pacific Salmon and aquaculture*
- C. The impact of Seal on fish stocks*

“How to Do It”: Priorities for Meeting Science Challenges

All participants agreed that the number one challenge to DFO Science is the management of human resources in a manner that provides direction and leadership, values employees, and regenerates staff in the face of anticipated departures over the next few years. There are as well other urgent requirements for effective and efficient science.

1. Managing Human Resources of DFO Science

In order to provide the best science advice, products and services to DFO, we need to have the best science employees. To achieve this, we will:

- Maximize current human resources by developing and rewarding our staff
- Attract , develop and mentor a new generation of science workers
- Identify the skills we have and those we will need for a changing set of tasks

2. Integrated Risk-Management

- Assess science needs and plan activities on the basis of priorities
- Limit fixed costs to generate flexibility

3. Strategic Research Plan

- Priorities and future directions for Science should be articulated in the development of a five-year research plan.

4. Strategic Communications and Consultations on Science Issues

- Internally, across sectors and with all staff
- With other government departments and agencies
- With clients and partners who need to understand our science results

Conclusion

With the SMB priority recommendations agreed, next steps were briefly discussed.

It was concluded that the results of the SMB meeting should be reported to DMC and shared with staff.

It was also agreed that the issue of defining core science should be on the agenda for the next SMB meeting (January 23, 2005).

The Deputy Minister concluded that the first meeting of the SMB had been very successful. He thanked the members of the Board for their engagement in the process and their insights into

the issues and how best to tackle them. He also thanked all those who had helped prepare for and organize the meeting.