



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Shellfish Aquaculture Management Advisory Committee

AQUACULTURE



MANAGEMENT

Ensuring Sustainable Fisheries

March 6, 2014

Canada



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AMAC role in science related to aquaculture management

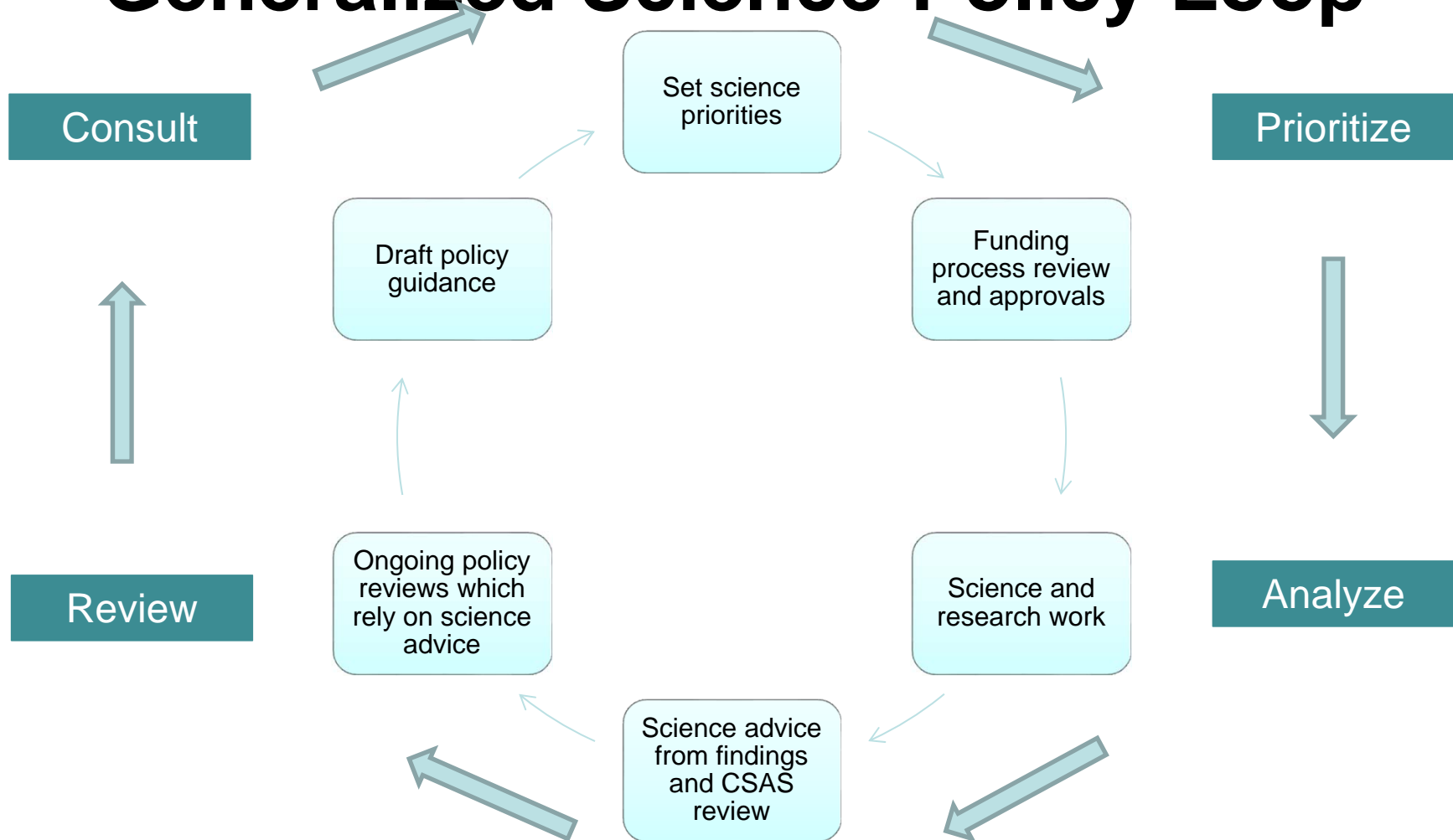
- Overview
 - Process
 - Funding
 - Canadian Science Advisory Secretariat
 - Link to Management (policy and decision-making)
- Priorities
- CSAS

- Questions and clarifications & discussion



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Generalized Science-Policy Loop





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Science & Aquaculture Management

- Science and research may be initiated either from within DFO or from academic institutions, industry, First Nations, or other stakeholder groups.
- DFO focuses on identified priority areas.
- Work may be completed collaboratively.
- Regular scientific reviews also look more broadly at science and research completed by a variety of researchers in jurisdictions around the world (eg. State of Knowledge Initiative, Aquaculture Pathway of Effects, PICIES Report of Working Group 24 on Environmental Interactions of Marine Aquaculture).



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DFO Aquaculture Science Funding

- Funding may come from internal DFO or external sources.
- DFO funding programs include:
 - Program for Aquaculture Regulatory Research (PARR) <http://www.dfo-mpo.gc.ca/science/enviro/aquaculture/parr-prra/index-eng.asp>
 - Aquaculture Collaborative Research and Development Program (ACRDP) <http://www.dfo-mpo.gc.ca/science/enviro/aquaculture/acrdp-pcrda/index-eng.htm>



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Science and Research Activities

- Science and research work may be carried out by scientists and researchers within DFO or with other organizations.
- Some work may take years to complete.
- Science work needs to be written up in a format appropriate for peer review (in a scientific journal or for the CSAS process).



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Canadian Science Advisory Secretariat

- There is an information page on CSAS available at the following link: <http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm>.
- The schedule of upcoming meetings is available online: <http://www.isdm-gdsi.gc.ca/csas-sccs/applications/events-evenements/index-eng.asp>.
- A separate presentation on CSAS will follow.



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Policy Review

- Policy review takes place on an ongoing basis within Pacific Region and nationally.
- New developments in research and science are considered as a part of these reviews.
- Reviews may be formal or ad hoc, and may precipitate new science work or be initiated by recent science findings.
- Policy review work generally includes a public consultation component, where it has the potential to impact clients, First Nations asserted rights, or the environment.



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Drafting of New Policy

- Following a review of science advice, and its possible implications for policy and decision-making, DFO will draft new or amended policies at the regional or national level.
- In the process of drafting new policy, additional science questions may arise, which again will go through the science process.



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Current Aquaculture Science Priorities

- **Fish pest and pathogen treatment and management approaches** (effects of sea lice management approaches, fish health zones);
- **Cumulative effects and ecosystem management strategies** (fish health zones, transfer zones, ecosystem assessment to support potential boundary delineations, cultivated/non-cultivated fish interactions);
- **Habitat impacts** (aquaculture activity effects assessment for different cultivation types, assessment of dynamics of effects from increased deposition, far-field and cumulative issues);
- **Interactions with wild stock populations** (non-indigenous species assessment, cultivated stock escape assessment, incidental catch evaluation, wild-cultivated interactions including sea lice).



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Canadian Science Advisory Secretariat



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Canadian Science Advisory Secretariat

- CSAS is DFO's National Secretariat that provides oversight and direction for the peer review and provision of Science advice in support of DFO Management Decisions.
- The Centre for Science Advice Pacific (CSAP) oversees the CSAS process in the Pacific Region
- The approach is based on the SAGE (*Scientific Advice for Government Effectiveness*) Principles and Guidelines
- The Six Core SAGE Principles are:
 - Early Issue Identification
 - Inclusiveness
 - Transparency
 - Sound Science and Sound Advice
 - Uncertainty and Risk
 - Review (as science advances and of the process)



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CSAS Peer Review Process

- Objective is to provide sound, objective and impartial science advice.
- Policy, allocation, economic and social advice is developed and reviewed through other processes
- CSAS Document(s) reviewed and the results of the meeting are preliminary until release of the official advice
 - Participants are asked not to share or distribute documents
- Final results are communicated in the form of:
 - Proceedings
 - Research Documents
 - Science Advisory Reports



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Role of Participants

- Participation in CSAS meetings is by invitation only.
- All participants are “reviewers” and are asked to be familiar with the material provided (Terms of Reference, working paper(s), supporting material) and participate fully in review discussions;
- Bring to bear their relevant expertise, experience data and knowledge on the review.
- Consider the appropriateness of the data, methods, and conclusions
- Contribute to developing consensus on the conclusions, recommendations, and advice



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Consensus for CSAS Processes

- Generally means agreement of group as a whole
- Often achieved through an absence of opposition
- Must be based on scientific data, information (including TEK) & analysis
- Application of the “weight of evidence” approach where multiple results are reported.
- Equally plausible conclusions can be reported.
- Management, economics, social considerations are not to bear on the conclusions and advice.



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CSAS Agendas & Participation

- Agendas for upcoming CSAS meetings are posted on their web page: <http://www.isdm-gdsi.gc.ca/csas-sccs/applications/events-evenements/index-eng.asp>
- Publications from CSAS proceedings are also available: <http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp>



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Management and Decision-Making

- Policy development can take place either within the Pacific Region, or on a national basis, largely dependent upon its implications or likelihood to set precedent.
- When new science or points of fact arise:
 - review and assessment may be undertaken
 - science advice can be sought
 - policy can be revisited.
- Policy is used to set up frameworks for decision-making.



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Management and Decision-Making

- Policies and Conditions of Licence for marine finfish aquaculture are set up in order to minimize or mitigate any potential risk.
- Where new information leads to new advice from Science on risk or mitigation strategies, policies and Conditions of Licence are revisited.
- Examples: geoduck management, escape recapture strategies, sea lice.



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Questions & Discussion

- How does the MF-AMAC see itself most effectively engaging in the process to help improve overall management?
- Can MF-AMAC identify some concrete objectives or examples that could help shape future participation or meeting agendas?