



FINAL REPORT

NSERC Canadian Fisheries Research Network

Post-CFRN Initiatives Workshop

Cornwall, Ontario

October 21-22, 2015



About the Canadian Fisheries Research Network

The Canadian Fisheries Research Network is a unique partnership among Canada's academic researchers, fishing industry, and government agencies to develop a national capture fisheries research capacity. The vision of the Network is to reshape fisheries research in Canada by establishing a tradition of enhanced collaboration across sectors.

The Network was launched in 2010 with five years of support from the Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Network Grants program. Designed to focus on issues of direct relevance to industry and management, the Network seeks to increase knowledge that will enhance the ecological sustainability, socio-economic viability and management of Canadian fisheries.

For more information, visit <http://www.cfrn-rcrp.ca>

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Cover photo: Pacific Node breakout group discussion (*photo: Susan Thompson*)

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1. Introduction

1.1 Context

The [Canadian Fisheries Research Network](#) (CFRN or “the Network”) has successfully linked industry, academia and government across Canada in collaborative research of direct relevance to industry and management. Funded by the [Natural Sciences and Engineering Research Council of Canada](#) (NSERC), the CFRN reached the end of its 5-year term in December 2015 and is currently in a wrap-up phase. There is interest in continuing the established research collaboration, thus the CFRN is exploring potential future collaborative fisheries research initiatives. Discussions to date have identified the need for strategic research to support fisheries management in responding to rapid ecological, community and institutional change. To that end, the proposed theme for a new initiative is “*Research to support fisheries management in a context of rapid change*”.

In June 2015, a *Call for Ideas* was issued to explore case studies under this theme (Appendix A). The response yielded a wide array of research priorities from industry, academia and DFO, demonstrating great interest in the process and validation of the theme. Rather than debating the relative strengths of individual ideas at that point, it was thought better to hold an initial workshop with a focused group of people to discuss a strategy for furthering the research collaboration through a network(s) and other means. Beyond simply stitching together diverse ideas, there is a need for a collaborative initiative that is integrated in approach. The challenge ahead is to develop a collaborative research strategy supported by case studies on important fisheries management issues under the proposed theme. This will be a multi-stage process leading to a final proposal.

Some key principles from the CFRN can, and should, be carried forward in the process of developing future initiatives, including:

- **Deep collaboration** – among industry, academia and government
- **Diverse participation** – research will be of critical importance to management and will require the collaboration of multiple partners (industry, academia, governments, First Nations, non-governmental organizations (NGOs)).
- **Co-construction** – research will be developed collaboratively from the beginning (‘co-constructed’) with ongoing agreement of the contributions and responsibilities of partners

1.2 The Workshop

The workshop was held on October 21-22, 2015 in Cornwall, Ontario. The purpose of the workshop was to bring together a representative group of Canada’s coastal fisheries (freshwater and marine), academic researchers, and government scientists and managers interested in collaborative research and motivated to discuss future fisheries research needs and initiatives. Specifically, the objectives of the workshop were to:

- 1) Develop consensus on the proposed theme and approach for a new collaborative initiative(s) that will undertake research to provide information on ecological, social and economic aspects of key fisheries that would be useful to managers and stakeholders in decision-making.

- 2) Discuss and begin to develop potential regional case studies related to key fisheries that will advance the theme.

Approximately 35 participants attended the workshop, including:

- representatives of industry, academia, and government from within the CFRN
- representatives of NGOs from within the CFRN
- representatives of other relevant strategic research networks from both within and outside the CFRN



Day 1 of the workshop began with a case study presentation by David Decker of the Fish, Food and Allied Workers on research needs for effective management of the return of cod and reduction of shrimp off the north coast of Newfoundland. This presentation demonstrated the importance of communities to successful research, management and policy, and served as an introduction to a brainstorming session on research needs in major geographic regions across the country. Breakout groups by region promoted further discussion of the major compelling issues and case studies that should be given priority in a future network.

Day 2 began with an open discussion about an overall strategy for a future collaborative initiative, framed by questions such as: *What are we trying to do? How are we going to do it? Who should be involved? What funding options do we want to pursue?* These questions were explored in more detail in regional breakout groups. The workshop agenda and participant list are provided in Appendix B.

2. Developing an Approach to a Future Network

Participants were introduced to the proposed theme and were briefed on the rationale, emergence of the theme, and potential for a common narrative. Reflections on the theme along with key attributes of a new fisheries research network were gathered through an open discussion and subsequent breakout group discussions. The host of ideas that emerged were summarized in a final roundtable discussion on Day 2, solidifying key components of a new network and defining a clear strategy for finding a common narrative. A number of topics for outlining a strategy emerged, as summarized below.

2.1 Theme

Regarding the proposed theme of *“Research to support fisheries management in a context of rapid change”*:

- emphasis should be placed on social, cultural, and institutional/governance change, in addition to ecosystem change;
- the theme must be relevant, clear and easily explained.

2.2 Vision

What are we aiming to achieve through a new fisheries research network?

- To make a positive contribution to science and management
- To plan for change and success together (shared responsibility)
- To design a science-based, transparent, and inclusive approach to managing fisheries in a sustainable way
- To build capacity for improved fisheries management
- To improve flexibility for a more adaptive system (adaptive management)
- To simplify the current management system while improving performance
- To create a new brand for Canadian fisheries that is proactive, progressive and pushes the research envelope

2.3 Guiding Principles

Participants identified a number of key guiding principles as critical to the success of a new network. This set of principles should be considered and applied to the design of a future network, drawing also from the lessons learned and insights gained from the CFRN experience.



“Word cloud” of guiding principles of a new network created from key words stated by participants during the workshop.

2.4 Strategy

Plenary and breakout discussions identified four main elements of a strategy for developing a proposal for a future network:

- 1) define objectives in terms of the future of fisheries management in Canada,
- 2) explore the new government's agenda and priorities for research,
- 3) develop cross-cutting themes, and
- 4) align case studies with common themes.

More details are provided below on some of the key components of the proposal as envisioned by workshop participants.

2.4.1 Definition of Objectives

The objectives of a new network will need to be clearly articulated, including a clear and common understanding of the end goal. Objectives will need to be expanded to include not only ecological but also social, economic, cultural, and institutional/governance objectives. Understanding the goals of each sector is critical to this process, recognizing that they may be quite different. Further discussion is needed to more clearly outline what we plan to do and why. Consider the following questions to assist with this process:

- *Why are we doing this?*
- *What are we trying to achieve?*
- *How are we going to do it?*

Research questions from industry and management must remain the primary driving force in shaping a new network. Consider the practical uptake of the proposed work: *What management tools do we want to come out of this? Which case studies require the most advice?* Focusing on high-priority research that is important to, and has practical applications for, all stakeholders will help further articulate the objectives.

2.4.2 Gap Analysis

There was strong support from participants to move forward with a comprehensive gap analysis to help determine what information/data is currently missing from fishery evaluation and management, and which issues are most urgent. This analysis will help to inform the type of network that is needed and desired, and which approach is likely to have the most positive impact on fisheries management. Part of this process also involves linking with other relevant networks and initiatives to find out what has already been done, what is currently being done, and ultimately what still needs to be done in relation to fisheries research in Canada.

2.4.3 Case Study Selection

Selecting case studies for a new research network is an important step and requires careful consideration. Several options were proposed during the workshop to carry out this task, with significant support from participants for the following approach:

- *Step 1:* Develop a framework for addressing a broader national fisheries problem.
- *Step 2:* Select compelling case studies that research priority aspects of that problem.

Once the case studies have been selected, national cross-cutting links will need to be identified among them by linking research to management decision needs within practical timelines. It will be important to work closely with DFO on this to outline both the process and key personnel involved in decision-making, and to work jointly on DFO priorities. Participants identified the need to determine which fisheries management issues require immediate attention and can be completed in a shorter term, versus those that require research over a longer term.

There was agreement that this process should continue to build on the work of the CFRN and consider what has been learned through the CFRN experience. In particular, participants expressed a desire to continue the work of CFRN [Project 1.1](#) and the Comprehensive Fisheries Evaluation Framework. It was also recommended that a new network not be confined to examples from within Canada, but also draw from international experience.

Participants brainstormed key research priorities in regional breakout groups, with the goal of developing a tentative list of case studies (see section 3.0 for details of case studies). Future discussions will need to determine the final complement of cases studies.

2.4.4 Capacity Building

Participants recommended that a new network emphasize building capacity through specialized training opportunities for students and fisheries professionals. DFO representatives noted a lack of capacity within the Department to effectively implement participatory management tools such as Management Strategy Evaluation (MSE). It is increasingly important to ensure training for all participants in the management cycle (managers, industry, academics and students) in the use of these concepts to achieve a streamlined, standardized approach nationally.

The NSERC Collaborative Research and Training Experience Program ([CREATE](#)) was offered as an example of an effective program that could fund training and professional development of students. The CREATE program encourages collaborative, integrative approaches that address significant scientific challenges associated with Canada's research priorities, making it well-aligned to the goals of a new national fisheries research initiative.

2.4.5 Communications

Incorporating a communications strategy into a proposal for a new network was another key recommendation by workshop participants. Transparency and open communication must occur at all stages of the research process. This is particularly valuable to industry partners who will need to be involved in the design of research projects and understand how final outcomes can be used to improve management.

2.5 Partners

Key strategic partnerships will need to be cultivated in the coming months and are essential to the success of a new network. There was strong support for the continued involvement of the three sectors that are central to the CFRN: the fishing industry, government (DFO), and academia (multidisciplinary including both social and natural sciences).

A desire to expand partnerships to include other groups was also articulated (listed below). Outreach to these groups is needed to cultivate new (or maintain existing) collaborative working relationships.

- Relevant research networks/initiatives – particularly those with a social or policy focus
 - Australian Fisheries Research and Development Corporation (FRDC)
 - Canadian Healthy Oceans Network (CHONe)
 - Ontario Ministry of Natural Resources (OMNR)
 - Marine Environmental Observation Prediction and Response Network (MEOPAR)
 - OceanCanada Partnership (OCP)
 - Too Big To Ignore (TBTI)
 - Centre for Fisheries Ecosystem Research (CFER)
- DFO Management
- First Nations
- NGOs
- Provincial governments
- International expertise (e.g., United States, Europe, Australia)
- Facilitators and leaders – independent and impartial person(s) to lead the research team

2.6 Duration

Three options were identified regarding the duration of a new network:

- 1) a shorter-term initiative(s): approximately 5 years, similar to the CFRN model
- 2) a longer-term initiative(s): 5-15 years, as with the National Centres of Excellence (NCE) model
- 3) a short-term initiative(s) leading to a strategic long-term plan for a more permanent structure that would institutionalize collaborative fisheries research in Canada

Gulf of St. Lawrence regional breakout group discussion (from left-right): Yvan Lambert (DFO), Robin Anderson (DFO), Marc Allain (CFRN) and Marc Lanteigne (DFO).

(photo: Susan Thompson)



3. Case Studies

Breakout groups were tasked with identifying major fishery case studies by region and included the following:

- 1) Newfoundland
- 2) Maritimes
- 3) Gulf of St. Lawrence
- 4) Central and Arctic
- 5) Pacific

Each group was asked to identify key research priorities, noting aspects that may be common to the other regions (cross-cutting themes), are unique or exceptional in a given area, and require the collaboration of industry, academia and government (*i.e.*, could not be done in the absence of any one partner). A summary of the major fisheries that were highlighted is provided in Table 1. Participants also shared general concepts and principles aimed at providing guidelines for the development of case studies under a final proposal, which are summarized in Table 2. Detailed reports from each breakout group are provided in Appendices C-G.

Table 1: Summary of major fisheries and issues identified for consideration in a new network

Fishery / Issue	Research Priority
Salmon	management and licensing alternatives
BC salmon, halibut, herring	access to resource, risk and licensing
Herring	co-management
Arctic char	collaborative approach and decision support tools
Lake Huron salmonids	decision support system
Georges Bank groundfish	management advice for multispecies fishery under environmental change
Gulf fisheries	incorporating environmental change, strategies, trade-offs and decision support
Gulf shrimp	redfish interactions, changing ecosystems (from crustaceans to groundfish)
Gulf crab	quality of carapace of snow crab to determine management decisions
American eel	elver
Lobster	stock structure and connectivity (range and abundance)
Newfoundland cod	management options in relation to ecological change and social and economic objectives
industry-funded research	evaluation of legal and policy framework
Marine Protected Areas	impact on fisheries
Fisheries in Integrated Management	fisheries decisions in relation to other activities

Table 2: Summary of general concepts and principles for possible study in a new network

	General Concepts of Study	Needs
Management Tools/Approaches	Ecosystem approach	Apply a holistic, multi-species approach to fisheries management paradigm.
	Social perspective	Improve management with regard to people who fish and communities that interact with the resource (principle of adjacency).
	Fixed season approach	Investigate alternatives to the fixed season fishery (e.g., lobster).
	Scenario-based management	Determine effectiveness as a tool used to make predictions and to compare scenarios.
	Risk assessment	Examine capacity for building a risk profile across assessment and management processes.
	Structured decision-making & MSE	Extend MSE to include social and economic aspects and further structured decision making.
	Reference points	Evaluate effectiveness and application in changing systems.
	CFRN Comprehensive Fisheries Evaluation Framework	Compare with current DFO and international frameworks.
	Monitoring	Develop strategies to simplify and reduce costs of monitoring.
General Concepts for Study	Institutional and governance issues	Further our understanding of institutional perspectives and fisheries management.
	Industry-funded assessments	Evaluate issues surrounding industry-funded assessments and decision-making (e.g. appropriate approach to, and timing of industry-funded multispecies stock assessments).
	Secondary stocks	Assessment and management strategies for 'secondary' stocks (new distributions are required).
	Data limited fisheries	Examine issues around how information is incorporated into assessments and management systems (e.g., the <i>Species at Risk Act</i>). Can this be improved?
	New and emerging fisheries	Develop science and management strategies including policy and governance processes for new fisheries and costs of implementation.
	Managing for change	Incorporate environmental change information into assessments and decision-making. Improve management system to effectively manage change.
	Access and distribution of benefits	Evaluate who has access to, and who is benefiting from, the resource.
	Fisheries in relation to other activities	e.g., Marine Protected Areas, other users, marine spatial planning and integrated management.
	Value of fisheries	Define mechanisms for measuring 'value' that include more than economic and ecosystem-based criteria.

4. Final Considerations and Next Steps

4.1 Funding

Participants recognized the need for creativity around funding such a network and the possible departure from traditional funding avenues. As the partners continue to define the research priorities of a new network at future meetings, a spectrum of potential approaches should be considered. These include:

- 1) DFO and industry request targeted calls for proposals by NSERC and SSHRC in the hope of attracting more applied academic capacity to work on priority questions (duration = approximately 5 years).
- 2) DFO, industry and academics work together to apply for project funding under the NCE program (duration = 15 years).
- 3) Work toward institutionalizing a national, collaborative applied research capacity as with the Australian FRDC model (duration = 15+ years).
- 4) A strategic combination of the above options (*e.g.*, #2 possibly leading to #3).

Participants also suggested exploring the possibility of some supplementary funding strategies:

- NSERC Industrial Research Chairs Grants
- NSERC CREATE Program for HQP training and development

4.2 Challenges

While enthusiasm for the proposed theme has been strong from the beginning, participants noted a few potential challenges worth considering:

- difficulty in assembling a team with interdisciplinary breadth
- absence of some key participants and stakeholders at the current workshop
- ensuring the right people are at the table from the beginning
- uncertain funding environment and need to align the goals of a new network with the objectives of a changing political landscape
- capacity limitations within DFO, notably a shortage of social and economic expertise available to the DFO regions

4.3 Proposal Considerations

The landscape of fisheries management and science is changing. When writing a final proposal, it will become increasingly important to emphasize a comprehensive, integrated approach that includes ecological, social, cultural, economic and institutional (governance) aspects. This will require academics, industry and government to work together in support of an evolving management regime. Inclusion of strategic language, research, management concepts, and partnerships and personnel is critical to the overall success of a proposal. Workshop participants made several suggestions that are likely to enhance the appeal of a final proposal:

- **Clearly identify the problem:** demonstrate how the research of the new network will improve fisheries management capacity.
- **Diverse collaboration:** involve existing CFRN partners (industry, government and academia) and expand partnerships to include other sectors (e.g., First Nations, NGOs).
- **Importance of language:** suggest rewording the theme to better represent all types of change including social and cultural change. Language should be streamlined around structured decision-making and MSE.
- **Think big:** emphasize the broader context (survival of species and communities) and the fact that a new network is addressing a national issue (fisheries are a national resource).
- **Capacity building:** capacity development and systematic training of all sectors including students is imperative to success.

4.4 Next Steps

The CFRN is committed to supporting a future initiative and will continue to work toward articulating a strategy for developing a proposal for a new network. At the end of the workshop, participants outlined a series of next steps:

- 1) Create a vision statement for a new network.
- 2) Set objectives in an inclusive fashion (co-constructed) ensuring relevance to all parties and a clear end point.
- 3) Integrate good communication, transparency and relationship-building into all case studies.
- 4) Form interdisciplinary teams that include natural and social scientists in all case studies.
- 5) Engage First Nations, industry, managers and policy makers, NGOs and non-profit organizations, and provincial governments.
- 6) Link strategically with other relevant initiatives/networks.
- 7) Build on past CFRN projects to leverage collaborative research opportunities.
- 8) Align objectives with new government agenda once available.
- 9) Select case studies for analysis. Determine the most critical research needs and evaluate those already submitted. Highest priority and most urgent fisheries management issues to be given prominence.
- 10) Create future opportunities for discussion (e.g., workshops, meetings, conference calls) to continue to develop case studies and a proposal for a new network.

“We need to agree on the destination first, then there will be less debate about the road we are going to take. There must be a willingness to walk the road together. The CFRN has opened new doors and created tremendous connections for its members.”