

## **Canadian Fisheries Research Network: Final Report to NSERC (August 31, 2016) Executive Summary**

The Canadian Fisheries Research Network (CFRN), an NSERC-funded network which operated from 2010-2015, revitalized the traditional Canadian approach of research collaboration among the fishing industry, academia and government, re-established a tradition of academic participation in applied fisheries research, and integrated the social sciences to a greater degree than has been the case historically. The major success of the collaboration lies in the close and lasting relationships that were founded among more than 30 academic researchers, 50 students, numerous fishing industry associations and professionals, provincial governments, and Fisheries and Oceans Canada (DFO) representatives across Canada. These relationships were built across geographic, sector, disciplinary and linguistic divides. Engagement of partners was consistently high for the duration of the Network, with over \$7.3M in tracked cash and in-kind contributions.

The CFRN developed a “brand” of deep collaboration, building on the strength of industry, academia and government, addressing critical areas of need, and pushing disciplinary and institutional envelopes. The CFRN has been described by its members as a model for new science founded in collaborative, interdisciplinary, multi-stakeholder participation in research of relevance to management decision making. Success was strongly linked to a process that engaged all three partners in the development of research objectives (“co-construction”), and to practices and formats that encouraged collaboration and mixing across sectors and disciplines. For all projects, the CFRN facilitated collaborative construction of research objectives, project memoranda of understanding (MOUs), and project management to accelerate and strengthen the development of tripartite collaboration. The CFRN experiences related to collaboration and co-construction of research will be instructive in terms of best practices for future initiatives.

The CFRN trained a strong cohort of more than 50 students, postdoctoral fellows and research associates (“highly qualified personnel” or “HQP”) with the unique experience of working collaboratively with fisheries academics, industry and government. The CFRN also featured unique cases of HQP training that involved industry and government representatives conducting research. Through extensive interactions with the three partners and with other students from institutions across Canada, HQP acquired significant knowledge of other sectors and disciplines, enhanced their research, developed effective collaboration and communication skills, and built relationships with a vast network of fisheries contacts. The training and opportunities for HQP in the CFRN extended far beyond those of a traditional graduate studies program, and the experience sets them apart from other job market candidates. This unique group will be very valuable to Canadian fisheries going forward, and several CFRN alumni have already gained employment related to fisheries in various sectors.

The CFRN undertook research that was critically important to industry, relevant to management, and that required the close collaboration of all three partners (industry, academia and government) and diverse disciplines (natural and social science). The research generated new scientific information, tools and technology that have enhanced fisheries knowledge in Canada and worldwide. The knowledge and advances will provide environmental and socio-economic benefits, and help to improve the sustainability and viability of the capture fisheries industry. The Canadian Journal of Fisheries and Aquatic Sciences will dedicate an entire volume to the CFRN. The research results have been influential in the international fisheries literature, and they will have a positive influence on policy and management in Canada. The CFRN has created a platform for identifying issues and developing consensus around Canadian fisheries research priorities. As a national research network with representation from diverse sectors and disciplines, the CFRN is uniquely positioned to help address the changing needs of fisheries science and management going forward.

The final report presents and discusses the achievements and challenges of the CFRN. Based on the CFRN experience, the following recommendations and best practices are offered for future collaborative research networks.

- 1) **Network start-up phase:**
  - a. Anticipate and build in a network start-up phase (“Year 0”) devoted to co-construction of project details and signing the Network agreement, so that complex networks can be launched effectively – especially those networks for which no prior relationships among partners exist.
  - b. Provide separate NSERC funds for the start-up phase (\$100K for 1 year), in addition to the grant funding, so that complex networks can be launched effectively. In the absence of separate start-up funding, allocate time and funds within the existing budget for a start-up phase.
  - c. Align the network start date with that of the host university’s new fiscal year to help streamline financial reporting.
  - d. Hold a meeting of the NSERC manager, network manager, and university accountant to discuss capabilities and requirements around financial reporting and ways to streamline the process.
- 2) **Project administration:** Each project should have administrative/managerial support to help the Project Leader oversee project implementation and to improve communication and exchange with partners. This requires additional funding.
- 3) **Success from co-construction:** Facilitate co-construction of research objectives by all partners, project memoranda of understanding (MOUs), and project management to accelerate and strengthen the development of tripartite collaboration. Hold face-to-face project initiation meetings to co-construct the research objectives and complete the MOUs. Brief new project members who become involved later on the history of the project and the MOU.
- 4) **Manage expectations:** Discuss explicitly the different needs/timescales and expectations of the partners at the outset, and explore how best to work together in this context.
- 5) **Make communication a priority:**
  - a. Build in a network communications budget with a dedicated communications officer. Ideally this would include: i) communication within the network, including means to report back to partners appropriately, ii) communication with international communities of practice, and iii) communication of products both within and outside the network in various forms. This requires additional funding.
  - b. Discuss the challenges of effective communication explicitly and openly, especially at face-to-face meetings. Acknowledge the tendency to default to jargon and work toward finding a common language among partners.
- 6) **Students as partners:** Foster a culture of valuing students and their contributions as full partners in the collaboration.
- 7) **Cross-training:** Provide training and cross-training opportunities for all partners, beyond students, to develop an appreciation of diverse perspectives, an understanding of the complexity of interdisciplinary issues, and the capacity for each sector to participate effectively. This requires additional funding.

- 8) **Self-evaluation:** Discuss the challenges of the collaboration explicitly and openly, especially at face-to-face meetings. Have a process for self-evaluation and do not be afraid to show weakness.
- 9) **Industry participation:** Networks with industry partners that are not in a position to contribute significant cash should continue to be recognized as unique cases by NSERC and allowances made for funds to be used to support industry participation. Further, the amount of funds that can be used for industry participation should be at the discretion of the Board of Directors.
- 10) **Network wrap-up phase:** Provide separate NSERC funds for a wrap-up phase (\$50K for 6 months), in addition to the grant funding, so that research results and network outcomes can be delivered effectively. In the absence of separate wrap-up funding, allocate time and funds within the existing budget for a wrap-up phase beyond the official end date of the network.
- 11) **Interdisciplinary research funding:** Improve the opportunity for NSERC and SSHRC co-funding of projects that require both natural and social science contributions to enable fully integrated interdisciplinary and transdisciplinary research. We predict this will become increasingly important.
- 12) **Enhancement funds:** Continue to make NSERC Strategic Network Enhancement Initiative (SNEI) funds available to Strategic Networks and maintain the separate application process rather than rolling them into the network grant. This maximizes flexibility and provides the opportunity for partners to identify, prioritize, and respond to needs as the network evolves.

Partners are committed to building on the work and established relationships of the CFRN, and wish to engage managers and additional stakeholders in a future initiative. The CFRN is actively pursuing potential future collaborative fisheries research initiatives, for example through canvassing ideas and research priorities broadly within and outside the Network (especially during summer 2015), and holding exploratory workshops (autumn 2015 and another planned). Meanwhile, some CFRN projects have already taken steps to continue the research and build on established collaborations. The momentum generated by the CFRN and the enthusiastic support of partners to go forward is strongly indicative of the success and value of the Network.