NSERC HYDRONET: A national research network to promote sustainable hydropower in Canada.

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The 470 hydroelectric facilities that have been developed in Canada produce 60% of the electricity used for domestic, commercial, and industrial purposes in this country. The capacity to generate renewable energy significantly contributes to the wellbeing and the prosperity of Canadians. However, the benefits provided by hydropower come at the cost of the effects on the physical, chemical, and biological attributes of natural ecosystems. It has long been recognized that reconciling the production of hydroelectricity with the conservation of aquatic ecosystems represents a major challenge requiring a collaborative structure that actively integrates industry, government, and academic partners. NSERC HydroNet constitutes the realization of this partnership. The general objective of this national research network is to provide new knowledge and tools that will permit us to better assess, minimize, and mitigate the effects of hydropower, and hence, permit the sustainable development of hydropower in Canada. Given its central role in the decision-making process, the productive capacity of fish habitats has been adopted as the central theme for NSERC HydroNet. Conceptual models developed to synthesize processes that determine the productive capacity of fish habitats in rivers, lakes, and reservoirs were used to develop 20 research projects. These projects are conducted with the support of funding sources such as, the Strategic Network Grants, the Collaborative Research and Development Grants, and Fisheries and Oceans Canada’s Center of Expertise of hydropower impacts on fish and fish habitats. These projects collectively involve 16 university scientists (from 12 universities), 7 industry collaborators (BC Hydro, Manitoba Hydro, Brookfield Power, and Nalcor), 9 scientists from Fisheries and Oceans Canada, 4 researchers from provincial agencies (Manitoba Water Stewardship, Ontario Ministry of Natural Resources, and Ministère des Ressources Naturelles et de la Faune du Québec), and 1 NGO (Saint-Lawrence Institute). The goals of the 1st Symposium of NSERC HydroNet are: 1) to communicate the most recent progress of ongoing projects; 2) to present plans for future years; 3) to receive comments/suggestions from collaborators, partners, and members of the Science Advisory Committee and the Board of Directors; and 4) to develop new projects with existing or future partners.