# RSC/SRC Expert Panel on Ocean Climate Change and Marine Biodiversity

# November 26, 2009

Among the many public-service roles of national academies around the world, one of the most important is the preparation of expert assessments on critical issues of public policy. The national academies in the United States are the most active in this regard, but the senior academies in other nations, notably in England, France, and other European countries, have been very active on this front for many years. Such reports are designed to be balanced, thorough, independent, free from conflict of interest, and based on a deep knowledge of all of the published research that is pertinent to the questions that have been posed.

The Royal Society of Canada also has a long record of issuing definitive reports of this kind, either on its own initiative, or in response to specific requests from governments or other parties. The project being announced today, "Ocean Climate Change and Marine Biodiversity," is one of a new series that the Society has commissioned, at its own initiative, on issues of significant public interest and importance at the present time.

The Society relies on the advice of one of its senior committees, The Committee on Expert Panels (CEP), in formulating new projects of its own and in responding to requests for panel projects from external parties. In addition, the members of the Society's CEP are responsible for selecting the membership of panels, including the chair; overseeing the conduct of panel activities; managing the peer review of the draft final report; and assisting the panel members with any difficulties that arise during the conduct of their work.

Over the course of the past year, the CEP has brought forward suggestions on a new series of expert panel reports for consideration by the Society's governing board. The board has approved a number of these suggestions, including the project on "Ocean Climate Change and Marine Biodiversity." The additional information, attached, identifies the members of the panel who have agreed to write this report, as well as the preliminary terms of reference for this project.

This report is expected to be completed and released to the public toward the end of 2012.

**Questions about this project may be directed to:**

Dr. Jeffrey A. Hutchings (panel chair), Dalhousie University:jhutch@mathstat.dal.ca
Telephone: Office (902) 494-2687

Dr. William Leiss, Chair, RSC/SRC Committee on Expert Panels:wleiss@uottawa.ca

Telephone: Office 613-562-5800, x2116 Cell 613-297-4300

**RSC/SRC Expert Panel on Ocean Climate Change and Marine Biodiversity**

Panel Composition Note: This panel will commence its activities in June 2010.

The expertise of the panel members encompasses the following areas of research specialization: fisheries and stock assessment; aquaculture; marine conservation; marine fish biodiversity; ocean climate change; and marine law.

**Chair: • Jeffrey A. Hutchings,** Professor and Canada Research Chair in Marine

Conservation and Biodiversity, Dalhousie University:

http://biology.dal.ca/People/faculty/hutchings/hutchings.htm

Current Chair of COSEWIC, The Committee on the Status of Endangered Wildlife in Canada, a 31-member committee reporting to the federal Minister of Environment, and a panel member on the RSC/SRC Expert Panel on Food Biotechnology (2001).

**Panel Members:**

- **Isabelle Côté,** Professor, Department of Biological Sciences, Simon Fraser University: http://www.sfu.ca/biology/faculty/cote/Tropical_Marine_Ecology_Lab/Isabelle_Cote.html

- **Julian J. Dodson,** Professeur titulaire, Département de biologie, Université Laval, et Membre Titulaire, Centre Interuniversitaire de Recherche de Saumon Atlantique (CIRSA): http://www.bio.ulaval.ca/no_cache/fr/departement/professeurs/fiche_des_professeurs/professeur/11/24/ http://www.bio.ulaval.ca/no_cache/en/department/professors/professors/professeur/11/24/

- **Ian Fleming,** Professor, Ocean Sciences Centre, Memorial University of Newfoundland: http://www.mun.ca/osc/ifleming/index.php

- **Simon Jennings,** Government Fisheries Scientist, Centre for Environment, Fisheries and Aquaculture Science (CEFAS), Lowestoft, UK, and Honourary Professor of Environmental Sciences at the University of East Anglia: http://www.uea.ac.uk/env/people/facstaff/jennings

- **Nate Mantua,** Associate Research Professor, Aquatic and Fisheries Sciences, University of Washington: http://www.fish.washington.edu/people/mantua/

- **Randall Peterman,** Professor and Canada Research Chair in Fisheries Risk Assessment and Management, School of Resource and Environmental Management, Simon Fraser University: http://www.rem.sfu.ca/people/peterman/

- **Brian Riddell,** CEO, Pacific Salmon Foundation, Vancouver, British Columbia: http://www.psf.ca/

- **Andrew Weaver,** FRSC, Professor and Canada Research Chair, School of Earth and Ocean Sciences, University of Victoria: http://climate.uvic.ca/people/weaver/

- **David VanderZwaag,** Canada Research Chair in Ocean Law and Governance, Marine & Environmental Law Institute, Schulich School of Law, Dalhousie University: http://law.dal.ca/Institutes/Marine%20&%20Environmental%20Law%20Institute/Faculty%20&%20Staff/David_VanderZwaag.php

- Draft Terms of Reference Note: Final terms of reference for this expert panel report will be prepared at the first meeting of the panel (June 2010) Canada has the longest coastline in the world, giving us the geographical, if not moral, imperative to be leaders on matters pertaining to ocean health and marine biodiversity. Instead, our responses to anthropogenic stressors on the oceans (e.g., climate change, overfishing) have been lamentable. Oceanic climate change, for example, rarely makes ripples in the national press or in the House of Commons (with the exception of loss of sea ice), yet it almost certainly warrants considerably greater attention given the consequences of oceanic climate change to temperatures, salinity, sea level changes, acidification, primary and secondary productivity, shifting oceanic water masses, and the effects that these will have on our weather patterns and on marine biodiversity. Such a panel would address (a) climate change, (b) overfishing, and (c) biodiversity, all of which are related to various international treaties and conventions to which Canada is a signatory. **Questions:** 1. What are the physical, meteorological, and geochemical consequences of climate change to Canada's three oceans? 2. What are the consequences to Canadian marine biodiversity associated with climate change (e.g., spatial shifts in species distributions; increases/declines in species abundance; altered competitive/predator-prey interactions among species)? 3. One consequence of Canada's declining marine biodiversity is an increase in aquaculture (e.g., salmon, mussels, cod, halibut). To what degree does aquaculture represent a neutral or negative influence on marine biodiversity?

4. Given that Canada's fisheries are a common-property resource belonging to the people of Canada, to what degree has the Canadian government fulfilled the Supreme Court of Canada's (1997) decision that it is the Minister of Fisheries and Ocean's duty to manage, conserve and develop the fisheries on behalf of Canadians in the public interest?

5. Is proscriptive legislation, as opposed to our current discretionary fisheries legislation, required to prevent overexploitation in Canadian waters, and to protect and recover marine biodiversity?

6. To what extent has Canada fulfilled, or is likely to fulfil, its international responsibilities to the protection and recovery of ocean biodiversity, as reflected by treaties and conventions to which Canada is a signatory, e.g., Convention on Biological Diversity (1992), United Nations Fish Stocks Agreement (1995)?