

Berkeley Group Recommends the use of Adaptive Management as part of a revised Columbia River Treaty

Since the Columbia River Treaty (CRT) was signed in 1961, much has changed in the world, so new interests and planning objectives will need to be incorporated into a modernized CRT. Addressing hydropower requirements and providing flood protection will remain central to the CRT, but addressing ecosystem and fisheries requirements will also need to be incorporated into regulating the water in this transboundary basin. First Nations and Columbia River Tribes are now recognized as having a say in the stewardship of these waters and will bring their perspective on future management. Finally, a changing climate will add to the complexity and uncertainty in regulating flows and water levels on the Columbia River.

A diverse group of experts met in Berkeley in May, 2019 to discuss the relevance and need for incorporating Adaptive Management (AM) into the CRT. They examined a number of examples of where AM was being applied in a transboundary setting and agreed that the application of AM in the regulation of Great Lakes - St. Lawrence system could well serve as a model for the Columbia River basin. There was general agreement that well-implemented AM might better enable river managers to more effectively balance future hydropower, flood protection, ecosystem function, and other needs with the reality of climate change. They also concluded that more substantial work would be required to make a strong case to justify the need and level of investment that would be required to effectively implement AM.

The Berkeley group agreed that financial resources would need to be secured to develop a comprehensive business case and will be raising this request with the Treaty negotiators, as well as exploring other possible avenues for funding this work.

The group recommends engaging a collaborative team of experts to assemble and document the wide range of integrated objectives associated with the Columbia River Treaty. Future uncertainties that could affect the desired Columbia basin outcomes and preliminary assessments of the ways AM could produce a better or more reliable mix of outcomes from the operation of Columbia River dams should be identified. Success in this step would mean producing something close to consensus that the investments in research, integrated modeling, network building and governance required for AM would *or would not* be justified by improved outcomes.

This evaluation would be based on a more detailed statement to be prepared by the Berkeley group over the next two months and would lead to preliminary recommendations on an adaptive governance framework, including specific tools and recommendations required for modernizing the Treaty regime.

The Berkeley Workshop participants listed below support the initiative to evaluate the implementation of AM and its associated governance in the Columbia River Basin.

Signatories:

Clint Alexander, President, ESSA Technologies Ltd, expert in cross-disciplinary facilitation, decision support tool design, and adaptive management planning.

Barb Cosens, Professor, College of Law, University of Idaho, expert in Columbia River Treaty issues, author of *The Columbia River Treaty Revisited*, expert on indigenous water law and the translation of adaptive governance in water basins into law.

Jim Heffernan, Columbia River Inter-Tribal Fish Commission (CRITFC).

Kim D Hyatt, Scientist, Department of Fisheries & Oceans Canada, Pacific Biological Station in Nanaimo, BC, Associate Editor, Canadian Aquatic Resources Journal and Past President of the Canadian Aquatic Resources Section American Fisheries Society.

G Matt Kondolf, fluvial geomorphologist and Professor of Environmental Planning at UC Berkeley, fellow of the Institute for Advanced Studies at the University of Lyon, and former member of the Environmental Advisory Board to the Chief of the US Army Corps of Engineers and Clarke Scholar at the USACE Institute for Water Resources.

Lynn Kriwoken, Executive Director, Water Protection and Sustainability British Columbia Ministry of Environment and Climate Change Strategy, and representative of British Columbia on the Mackenzie River Basin Board.

Kai N Lee, Packard Foundation (retired), formerly Williams College, University of Washington, member of the Northwest Power Planning Council, author of *Compass and Gyroscope*.

Wendy Leger, Head, Boundary Waters Issues Unit, National Hydrological Service, Environment and Climate Change Canada, Canadian co-chair of the IJC's Great Lakes-St. Lawrence River Adaptive Management Committee.

Bruce Maclock, Government of Alberta (retired), a professional geographer and former Managing Director of the Sustainable Forest Management Network of Centre of Excellence at the University of Alberta and Director of Water Resource Planning for the Province of Alberta.

Steve McCaffrey, Professor of International Law, University of the Pacific, McGeorge School of Law, former chair of the U.N. International Law Commission, and the Commission's special rapporteur on international watercourses, awarded Stockholm Water Prize in 2017.

Mike Miles, a fluvial geomorphologist and principal of M. Miles and Associates Ltd., consulting geomorphologists, formerly with the Canadian and BC governments, recipient of the CJ Westerman Memorial Medal, awarded for geoscience by Engineers and Geoscientists BC.

Tyler Nodine, Graduate student, UC Berkeley College of Environmental Design, formerly with the NOAA Northwest Fisheries Science Center in Seattle estimating floodplain restoration potential in Columbia River tributaries for Chinook salmon.

Jon O'Riordan, Research Associate, Polis Group on Ecological Governance, University of Victoria, former Deputy Minister in natural and environmental policy planning in the BC Provincial government.

John Radke, Professor, UC Berkeley College of Environmental Design, Canadian Studies affiliated faculty, development of metrics in GIS framework to recognize spatial structure and change in complex landscapes.

Anna Serra-Llobet, UC Berkeley Institute of European Studies, Sustainable Floodplain Initiative, co-chair International Committee of the Association of State Floodplain Managers, formerly with the Directorate General for the Environment at the European Commission (EU) in Brussels.

Elliott Smith, Program Manager, UC Berkeley Canadian Studies Program, author of *The Place of the Environment in the Columbia River Treaty*, drawing on original Treaty negotiation records and primary sources.

Greg Utzig, Conservation Ecologist, member of the BC Columbia Basin Regional Advisory Committee, consultant to the Upper Columbia Basin Environmental Collaborative and author of various reports related to dam impacts in BC.

Bill Werick, United States Army Corps of Engineers ,(retired), U.S. member of IJC's Great Lakes-St. Lawrence River Adaptive Management Committee.

Ted R Yuzyk, Director, Science and Engineering, International Joint Commission Canada (retired), former Canadian Chair of the International Upper Great Lakes Study.