

## Canadian Reservoir Hydro Dam Developments are Wrecking Marine Ecosystems

Canadian hydro-electric dams with large reservoirs and unnatural flow regulation comprise one of the most destructive forms of energy generation on the earth. Thirty-seven years ago, in 1982, Dr. Hans Neu, a Canadian Senior Estuarine and Coastal Hydrodynamics Marine scientist warned in his report, **Man Made Storage of Water Reservoirs, a Liability to the Ocean Environment Part 1 and 2** <http://friendsofsebago.org/2019/01/19/neu/> , that Canadian reservoir hydro development would not only wreck freshwater ecosystems but also starve marine life. He stated that these large hydro projects would have dire consequences for marine fisheries and our climate and this required immediate scientific attention.

Dr. Neu wrote, “Obviously, these changes which are already implemented are a fundamental modification to the fresh water regime of Canada and to the physics and dynamics of its coastal regions. There is no doubt in the mind of the author that if Canada continues this development and the USSR follows its lead, the hydrological balance of our globe would be threatened and as a result the biological productivity of our oceans, primarily in their coastal waters, may be seriously jeopardized.”

Dr. Neu predicted the timing and magnitude of the permanent crash of fish numbers that occurred in 1991 <http://friendsofsebago.org/2019/02/06/hydro-dams-blamed-for-decline-in-fish-stocks/>. The blame for the magnitude and simultaneous timing of this crash in the Gulf of St. Lawrence, the coast of Newfoundland, and the Gulf of Maine was not due to overfishing or global warming but the blame rests with hydro reservoir projects and freshwater flow regulation.

He warned us about changes to ocean temperatures and consequential impacts on climate. He wrote, “It can be assumed therefore that fresh water regulation modifies the climate of the coastal region to be more continental-like in the summer and more maritime-like in the winter.”

Dr. Hans Neu made it very clear how critical the spring freshet is for the timing and extent of mixing of freshwater and saltwater, for the successful reproduction of marine life and movement in coastal and ocean waters, and for the seasonally timed delivery of silica and other nutrients which drive the richness of the food chain.

Speaking to the severe degree of freshwater flow regulation and hydropower's elimination of the spring freshet, Dr. Hans Neu wrote, "Run-off is transferred from the biologically active to the biologically inactive period of the year. This is analogous to stopping the rain during the growing season and irrigating during the winter, when no growth occurs."

In the February 9, 1977 Sherbrooke Record newspaper <http://friendsofsebago.org/2019/01/15/hydro-quebecs-dams-have-a-chokehold-on-the-gulf-of-maines-ecosystem-by-stephen-kasprzak/>, it was stated that, "Canada has more than 20 projects controlling flows at least as great as the Aswan Dam." Dr. Neu said, "There has been much concern over the effects of these dams on the inland environment, yet nobody has studied what harm they are doing to the ocean environment."

In 2019 we must ask why hydro power interests in their public outreach efforts [Commentary: Scientific knowledge about Québec hydropower must not be overlooked](#) occlude any study or mention of impacts of hydropower dams and regulation on the ocean environment. Something is very wrong with this strange absence of scientific inquiry and gives credence to past accusations of the deliberate silencing of scientists like Dr. Hans Neu [Canadian government hinders scientists from talking about climate change](#).

The predictions of Dr. Hans Neu are now a reality. Phytoplankton numbers have drastically declined <http://2dlgvp4fduka40wlm8205qew.wpengine.netdna-cdn.com/wp-content/uploads/sites/31/2019/01/Problem-is-Lack-of-Silica.pdf> .

Bigelow Laboratory for Ocean Sciences cites an 80 percent reduction in phytoplankton numbers <http://bangordailynews.com/2012/06/10/environment/study-finds-potentially-disastrous-threat-to-single-celled-plants-that-support-all-life-on-earth/>.

The Gulf of Maine, Gulf of St. Lawrence, and the Northwest Atlantic coastal waters are warming at an accelerating rate, and the fishing industry continues to decline. More mega hydro dams have been built since 1991 and more are planned. The consequences of freshwater flow alteration by the hydropower industry on the marine environment are difficult to understand. The hydropower industry takes advantage of the complexities and time frames of the impacts. In order to preserve our quality of life and the environment, our scientists must be protected from the influence of the hydropower industry. They must be able to pursue unbiased and accurate research on all the causes of the deterioration of our marine ecosystem, and the climate of the Gulf of Maine. If we do not act like Dr. Hans Neu forewarned us to, future generations will condemn us.

Roger Wheeler  
President, Friends of Sebago Lake