



NECAPA

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Let The Rivers Run Free

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There are many reasons why the damming of our rivers is a bad idea. Dams cause serious problems to our natural systems. The most common one everyone is aware of: Dams prevent migrating fish species like Salmon as they make their way up river to spawning grounds.

Removing the 100 mg watt limit will only lead to more fragmented and dammed Maine rivers, and last I heard, Maine was pulling down dams and NOT building new ones. Even though hydro remains on Maines RPS, it is far from renewable and it has many serious unintended consequences. And dams with stagnant reservoirs increase evaporation, water vapor a Green House Gas.

According to numerous studies dammed rivers hoard minerals, nutrients, elements and silica essential for marine life and their skeletal development. 80% of the oceans nutrient source comes from unobstructed rivers. If stranded behind dams, much of this critical marine food supply will be inadequate and unable to support a healthy marine population including shell fish and Lobsters.

According to NASA, phytoplankton algae, a species of Diatoms, can be found in the shallows along the continental shelves of our oceans, on ponds, and bogs. This organism sequesters up to 35% of all the Co2 on this planet, even more than all the rainforests combined. Diatom Phytoplankton is also responsible for producing 20% of all the air we breathe. NASA Satellite research in "Dwindling Diatoms Study" has shown a steady 1% per year decline in the world's diatom population since 1998. Our Research has shown that nutrient scarcity caused by damming rivers appears to be the main reason that marine life including Diatoms are starving and dying.

Damming whole rivers is outdated technology crippling ecosystems and impacting climate. This model which is mostly used by Brookfield, Maine's largest dam operator provides inadequate fish ladder technology. Here's a quote from Maine Public: "Brookfield renewable has shut down three of its four Hydro dams on the Kennebec River, after Federal regulators warned that the company was in danger of killing endangered Atlantic Salmon"

Much of Brookfield's damming approach for energy generation is antiquated. There is now new in-river technologies (<http://orpc.co>) that do not dam rivers to generate electricity. There's now a growing movement to restore rivers to their natural state, which has already delivered great outcomes for migrating fish and increases in healthy sea life populations that support our fisherman.

Furthermore, whether it is non-renewable or actually clean energy, adding more energy thru expanding the mega-watt capacity over 100 will not bring down the cost of electricity to Mainers . This is total misinformation and bull at its best. Energy costs are governed by the PUC, ISO N.E., and the International Hydroelectric Association. These, along with fossil fuels are the current market forces that we are not confronting! Until we stand up to these Goliaths we'll never bring down costs of electricity to Mainers.

Sources: <https://www.mainepublic.org/environment-and-outdoors/2021-05-06/brookfield-renewable-temporarily-shuts-down-3-kennebec-river-dams-to-protect-salmon-migration>

Diatoms dwindling 1% per year <https://search.app/ty8T3JB8aRjPTjxH7>

Nutrient levels River dam impacts on biogeochemical cycling

<https://uwaterloo.ca/water-institute-research/issue-2/feature/damming-rivers-drives-major-changes-global-carbon-cycle>

Water Vapor NASA Study: <https://climate.nasa.gov/ask-nasa-climate/3143/steamy-relationships-how-atmospheric-water-vapor-supercharges-earths-greenhouse-effect/>

A History on Dams

An interview with the late Hans Neu, chief researcher and director of the Bedford Institute Of Oceanography
Nova Scotia, Canada 1964-1984

The Sun Times (Owen Sound, Ontario, Canada) • 6 Mar 1974, Wed • Page 4

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Power dams threat to ecology of oceans

By BRUCE LITTLE, Southam News Services

DARTMOUTH, N.S. — Protests over the environmental effects of huge power dam developments usually focus attention on what happens to the land above the dams that will be drowned in water.

Apart from that, an energy-hungry world tends to see hydro projects as a source of power that is clean relative to nuclear reactors and oil-fired thermal generators.

Hans Neu does not go along with that assessment. He is an expert in hydrology at the Bedford Institute of Oceanography here and he feels hydro power may be far dirtier than most people realize.

Instead of looking upriver for the effects of a dam, Neu looks at the ocean into which the river waters eventually spill.

In his view, well-dammed rivers like the Manicouagan in Quebec have given man the power to drastically alter the entire ecosystem of the Gulf of St. Lawrence and the Atlantic coast.

His theories start with the hydrological cycle in which ocean waters evaporate, rise into the atmosphere and return to earth again inland in the form of rain that feeds the lakes with water.

In a southern climate, the process is continuous. But in the north, nature comes almost to a halt in the winter and doesn't need the water. Nature's solution is to store the water in the form of snow.

As a result, the flow of water from rivers to the sea falls off in the winter. In the spring, at the beginning of what he calls Canada's "very short but very strong biological activity season", the water is released.

It is nature's design to provide as much water as it can just at the time it is needed most. Before dams were

built, water flows from the St. Lawrence, into which the Manicouagan drains, rose to an immense peak in the spring, more than three times the level of winter.

This is where the other half of Neu's theory comes in.

As the fresh water of the St. Lawrence tumbles into the Gulf, it acts as a pump on salt water, drawing in salt water from the sea through deep gorges and pulling it up to mix with the new water on top.

This churning of the deep-running salt water brings to the surface the nutrients from near the ocean floor which fish and other forms of life need for food.

The relationship of the two systems meant that the strongest flows of water, coming as they did in the spring, helped bring near the surface abundant quantities of food and nutrients.

But the damming of rivers has changed that neat interaction.

Instead of letting all that power-producing water in the spring go to waste, engineers have built huge storage lakes behind the dams that can hold the water until the following winter. Then it can be released to create power when the normal river flows would be small.

The result of those storage lakes is a flattening of the wide swings in the flow of rivers. And that means more nutrients in the Gulf are brought up in the winter, when they are needed least, while fewer nutrients are supplied in the spring and summer, when they are needed most.

Manicouagan River dams cut the flow of the St. Lawrence River by as much as one-third in the spring, according to Neu's research, and he is worried that it could produce a

stagnant Gulf.

Wind and tides move the water to some extent, but fresh water flows into the Gulf, he says, strongly influence water movement.

"Stagnancy is the most poison condition of nature," Neu says. He fears that declining catches of fish may be one result.

"We may not only overfish; we also may starve nature during this period of its major peak activity with food. This is a suspicion. I have no proof. It's so complex to prove it."

Neu's theories are not new. He has been pushing them for more than 10 years. But now he is afraid that the mistakes of the past are being repeated in the James Bay power development and that the consequences could reach as far as here.

He does not think the James Bay project can be stopped. But he would like to see it scaled down with fewer storage lakes built to hold back water from Hudson Bay.

It would mean some interference with the hydrological cycle and some flattening of the swings in the river flow, but not so much to present a massive danger to the ecology of the ocean. It would also mean less power, but he figures the economics of energy have improved so much, it should still be feasible.

The aim of engineers on projects of this sort, he says, is to equalize the flow of water and "take it out of the hands of nature altogether and make it subservient to man's needs."

Unless those priorities are changed, he suggests, nature could have the last word by damaging the life systems of the ocean.

In a world that is looking increasingly to the oceans as a source of protein, it is a disturbing prognosis.