

Attachment I

Scientists: No Evidence CMP Project Dams Would Disrupt Vital Nutrient In Gulf Of Maine Food Chain

By FRED BEVER · MAR 27, 2019

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The Daniel-Johnson Dam in Quebec, Canada, is the largest arch and buttress dam in the world.

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As state regulators work through permitting decisions for Central Maine Power's proposed western Maine transmission line, numerous debates are emerging over whether the project will, in the long run, harm or help the environment.

Some opponents claim that the big hydroelectric dams in Canada that would supply the project's electricity are damaging an essential element in the Gulf of Maine's food chain. But leading scientists in Maine say the data don't back that up.

This line of argument first emerged during citizen testimony at the Maine Public Utilities Commission last October, from Steven Kasprzak, a retired engineer from Cape Porpoise and former president of the Friends of Sebago Lake.

“You constantly hear about the big fish declines. It’s because they’ve been starved to death,” he said.

Kasprzak said that rivers supply silica, an essential nutrient for single-cell algae called diatoms in the Gulf.

And he theorized that because Hydro-Québec’s dams hold back massive amounts of water, that silica supply is also held back, so it doesn’t get to the ocean, where diatoms need it to build their shells.

“The reduction of 50 percent is polluting the waters of the northwest Atlantic and the Gulf of Maine by starving the silica-diatom-phytoplankton populations, which is the foundation of the aquatic food web,” he said.

Kasprzak argued that regulators should oppose the project because of the dams’ damaging effect on the Gulf of Maine’s food chain. It’s an argument he took to the general public twice more last year, [in the form of op-eds published by the Portland Press Herald](#), and the argument continues to resurface in public hearings on the CMP project in various venues.

But scientists who study the Gulf say the data show no evidence that Canadian rivers are a major source of silicates for diatoms in the Gulf of Maine.

“They (silicates) are not coming from the rivers, with or without dams,” said William “Barney” Balch, a senior scientist at the Bigelow Laboratory for Ocean Sciences in East Boothbay. Balch specializes in the health of the Gulf’s phytoplankton.

Over two decades he has led some 200 sampling trips across the Gulf, and he said the availability of silicate material from short-term river flows is not significant enough to affect diatom growth.

Balch said there’s more than enough silica in the Gulf for diatoms to grow, and it comes from the mixing of water that enters the Gulf from a deep-water area called the Northeast Channel.

“That’s a huge source of silicate and it’s not originating from rivers,” Balch said.”

The amount of silicate that’s coming into the Gulf of Maine through the Northeast Channel is orders of magnitude larger than what you have coming in from the rivers.”

Balch's own work was actually cited in another op-ed on the diatom question, [which appeared in the Bangor Daily News](#).

In that piece, another Friends of Sebago member, Roger Wheeler, also argued that Canadian hydroelectric dams are harming diatom growth in the Gulf, although he did not mention the CMP project.

Balch said over geologic time periods, millions of years, river flows do play a vital role in silicate deposition in the world's oceans.

And he said it is correct to note that in recent decades there have been some notable decreases in size and numbers of many phytoplankton in the Gulf, including diatoms.

“But this is likely more related to the warming and stratification of the Gulf of Maine than it is to dams somehow restricting nutrient input into the Gulf,” he said.

Op-ed writers Wheeler and Kasprzak both said they are willing to defer to the credentialed scientists on the details, even as they continued to marshal various reports, some of them peer-reviewed, that they believe bolster their case.

Wheeler said their goal is also more general: to energize public discussion around the environmental effects of Canadian hydropower.

“The unnatural freshwater flow is very severe coming out of those hydropower dams, and just to say that it has no impact?” he said.

“The early warnings of the Canadian scientists of the early '70s said it's going to be critical and now there is nothing on it.

So we're kind of sounding the alarm.”

Andrew Pershing, chief scientific officer at the Gulf of Marine Research Institute, said he and Balch discussed the op-eds, which left them a bit flummoxed about how, or even whether, to respond.

“This gets sort of into the nature of science versus pseudoscience,” Pershing said. Pershing, who emphasized that GMRI takes no position on the CMP project, said he is wary of elevating the profile of pseudoscience.

But at the same time, he said, he does want to encourage public conversation about scientific issues.

The editorial page editors of the Bangor Daily News and the Press Herald said they share that goal, and would be happy to print responses from the scientific community to the op-eds.