



CARING FOR THE WATERS OF MIDCOAST MAINE

A Partial List of Issues Concerning Nordic Aquafarms Proposal

Penobscot Bay is a rich marine environment that has recovered significantly over the past years. Several rivers drain into this bay in the Belfast region, all providing potential habitat for wild fish recovery. These rivers could significantly increase the health of the Bay, provide numerous good jobs at all phases of restoration efforts, help maintain cool water temperatures, and increase the chances of recovering endangered Atlantic salmon and shortnose sturgeon.

Discharge Impacts

The discharge pipe would be located a half-mile off shore from the Little River, at Brown's Head in Belfast Bay. It would empty into lobstering and fishing grounds, as well as a popular swimming area. According to the current data on record, this daily discharge will contain:

- 1,484 pounds of nitrogen
- 408 lbs of solids (fish feces and fish food waste)
- 13 lbs of phosphorous
- 0.2 lbs of ammonia

- ▶ It is rare that filtration targets are always reached. If only 98% of the target is reached, the quantities of solids and phosphorus double, at 97% they triple, and so on. Nitrogen will only be removed to the 85% level.*.
- ▶ If the factory's Partial Recirculating Aquaculture System (PRAS) is performing at full capacity, one percent of the discharge will enter the bay daily, or 7.7 million gallons. It is important to note that this figure is a goal, not a guarantee. Failures in the system may require larger discharge quantities. There are no contingency plans for system failures.
- ▶ Water circulation patterns of the bay will result in a continuous plume of approximately 108 million gallons of effluent that will take 14 days to move out into the deeper waters of the Gulf of Maine. Conditions of the plume will differ from natural conditions including in temperature, salinity, pollutant concentrations, nutritive value, and diseases. The effects on wildlife have not been addressed.

Mercury

Nordic's original application did not provide mercury testing from the actual location where the dredging would take place. Concerns were expressed by Upstream and other experts that the proper method of analysis was not followed.

Filtration

Nordic insists that the filtration systems it proposes will be sufficient, Upstream's scientists disagree on several points.

- ▶ Viruses are too small to be removed by filters, and may escape UV treatment due to screening by suspended solids, turbid water and the shortcomings of UV systems. Ultraviolet (UV) systems can lose up to 40% of their efficiency in one year, and not all viral strains respond well to UV disinfection.
- ▶ A small percentage of contagions will bypass the sanitation system. Some of these will be viable and infectious. Wild fish exposed to these contagions will be susceptible. This puts the endangered wild salmon, the endangered wild shortnose sturgeon, lobsters, and other sea life at risk.
- ▶ Pathogens are extremely difficult to clear from PRAS, and usually require moving or killing all the fish and bleaching the system. There are over 50 known pathogens at this time in the aquaculture industry, with new ones being continuously discovered. No information is provided on how errors in the PRAS will be contained.

*By its sworn data, Nordic proposes to discharge nitrogen into Penobscot Bay at twice the legal limit. In May, Nordic asked DEP to change the dilution number in the closed application from 300:1, (a number provided by Nordic, under oath, and a number that went through the public hearing in February), to 530:1. This number was not verified, not under oath, not subjected to cross examination, not subject to rebuttal and, most importantly, entered into the official record six months after the record was closed.



CARING FOR THE WATERS OF MIDCOAST MAINE

Higher Temperatures in the Ocean

The alarming warming of Maine's ocean is well documented, Nordic's effluent would increase the temperature of the bay. Calculations for thermal discharge below the surface show Nordic's discharge will fail the state regulatory limits. Additional concerns include needing the state to establish appropriate monitoring and sampling protocols so that permit requirements and goals can be enforced.

- Nordic's discharge will be, on average over a year, 10 degrees C (18 degrees F) warmer than the bay. Warm waters with effluent also promote the growth of viruses and pathogens, and contribute to the climate crisis.

Fresh Water

Nordic requires 1,250 gallons per minute of fresh water, or 657 million gallons a year. Fresh water would be drawn from the Belfast water supply (the Goose River aquifer).

- The record indicates that in order for the Belfast Water District to supply Nordic's needs, it's necessary to put the Talbot Well online. This well isn't licensed by the state for use as a public water supply, and the recent pump tests conducted by the BWD have not been made public.
- Testing of the Little River aquifer resulted in salt water intrusion from the Belfast Bay in one test well, and a draw down of 15 feet in other wells.
- The planet can not sustain this approach to food production. Rather than being about "feeding the world" this business model is about producing expensive protein for those who can afford it, through the use of massive amounts of water and power.*

Carbon Footprint and Air Pollution

The factory would cover an area larger than Bath Iron Works.

- The factory requires 8 diesel generators, each with a 67 foot smoke stake, an on site concrete plant for construction, and a waste disposal facility.
- The 8 diesel generators could supply 14 megawatts, but the facility's peak demand will be at least 28 megawatts. This is equal to the energy use of Belfast, Northport, Lincolnville, Camden, Rockport and Rockland combined, and would require a \$63,000,000 rebuild of the CMP power grid. The Office of the Public Advocate and the Efficiency Maine Trust issued a statement in February urging the Public Utilities Commission to deny Central Maine Power's to build this expansion.
- The factory will add between 550,000 and 759,000 metric tons of carbon dioxide equivalents to the atmosphere each year. (This is a conservative calculation.)
- Forest liquidation, and the removal of 35 acres of soils, from 8 to 52 feet deep (the soils are unsuitable and must be replaced) will equal a loss of 13,465 metric tons of carbon above and below ground.
- The forest is currently estimated to be sequestering 42.9 metric tons of carbon each year, and will sequester more as it ages. (Please see Wild Carbon: A Synthesis of Recent Findings by Dr. Mark Anderson, <https://newildernesstrust.org/about/wild-works/>)

Upstream Watch is a small, grassroots nonprofit organization based in Belfast, Maine. The purpose of Upstream Watch is to advocate for the health of Midcoast Maine rivers and watersheds through science, education, and public action. Currently, the organization is focused on the Nordic Aquafarms proposal to create a Concentrated Aquatic Animal Production facility or "CAAP" on 40 acres of forest, wetlands and streams at the edge of the Little River.

*This Reuters article reveals the impact in West Africa. Latin America is suffering similar consequences. The response from the industry is that they will be creating novel food sources, including industrial scale insect farms. Not only are these insect factories nowhere near online, but the potential dangers of this dystopian concept seem numerous. The bottom line is the fishmeal business is a multibillion dollar endeavor that won't end until the "stocks" run out. <https://www.reuters.com/investigates/special-report/ocean-shock-sardinella/>