

STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

NORDIC AQUAFARMS, INC

Belfast and Northport
Waldo County, Maine

A-1146-71-A-N
L-28319-26-A-N
L-28319-TG-B-N
L-28319-4E-C-N
L-28319-L6-D-N
L-28319-TW-E-N
W-009200-6F-A-N

) APPLICATION FOR AIR EMISSION, SITE
) LOCATION OF DEVELOPMENT,
) NATURAL RESOURCES PROTECTION
) ACT, and MAINE POLLUTANT
) DISCHARGE ELIMINATION
) SYSTEM/WASTE DISCHARGE LICENSES
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PRE-FILED TESTIMONY OF DONALD W. PERKINS

December 13, 2019

Introduction & Qualifications

I have served as President/CEO of the Gulf of Maine Research Institute's ("GMRI") since 1995. Prior to joining GMRI, I instructed at the Hurricane Island Outward Bound School in Penobscot Bay, served as a financial advisor to Native American tribes at Tribal Assets Management, and managed the operations of Binax, Inc., a medical diagnostics company. I earned a B.A. in Anthropology from Dartmouth College and a M.B.A. from the Stanford University Graduate School of Business. I am an avid sailor on and swimmer in Maine's coastal waters. I am particularly familiar with and fond of Penobscot Bay.

I currently serve on the Gulf of Maine Lobster Foundation Board of Directors and chair the Maine Innovation Economy Advisory Board. I previously served on the Maine Legislature's Task Force on the Development of Aquaculture, co-chaired the Governors Ocean Energy Task Force, co-founded and chaired the Friends of Casco Bay and the Maine Marine Research Coalition, and served on the Gulf of Maine Council on the Marine Environment, Gulf of Maine Ocean Observing System Board of Directors, and Maine Department of Marine Resources Advisory Council.

In my leadership role at GMRI, I draw on the insight of 70+ staff who provide an unusual mix of oceanographic, ecologic, seafood supply chain, aquaculture industry, business management, and operations knowledge and insight. I also draw on the insight of our network of colleagues statewide and nationwide.

GMRI is an independent, non-profit corporation based at 350 Commercial Street, Portland, Maine. Our mission is to pioneer collaborative solutions to global ocean challenges. We're

focused on the waters and fisheries, wild and farmed, of the Gulf of Maine and Bay of Fundy. We take an interdisciplinary, human/natural ecosystem approach to understand and address challenges and opportunities related to marine stewardship and coastal community economic development. More information on GMRI's extensive activities to strengthen coastal communities through fishing industry innovation and developing our sustainable seafood supply chain as well as marine research and science education is found at <https://www.gmri.org/our-work>.

Several years ago, we examined the challenge of how Maine might diversify away from its dependence on lobstering as the economic mainstay of our fishing communities. We concluded that responsible aquaculture is the logical complement to our traditional fishing economy. Thus we've developed the resources to support the growth of responsible algae, shellfish, and finfish aquaculture.

Given our interest in aquaculture as a 21st century seafood opportunity and the increasing impact of climate change on our marine ecosystem, we've been closely following and, where appropriate, supporting strategies of responsible diversification from owner/operator lobstering into owner/operator algae and shellfish farming, modest expansion in net pen salmon farming at sea Downeast, and development of finfish RAS (Recirculating Aquaculture System) production on land.

Testimony

Given my personal and institutional background, I have assessed Nordic AquaFarms' (NAF) potential environmental impacts from a systems perspective – oceanographic, ecologic, biologic, operational, and economic – that are raised by NAF's Natural Resources Protection Act (NRPA) Permit Application.

Generally, I would note that NAF has taken a best practice approach to the design and permitting of its proposed facilities. They have selected an engineering and construction team who are knowledgeable in relevant fields and known for the quality of their work. NAF has been immediately responsive to my inquiries for information and direct access to engineering and construction partners. Over the course of the past 16 months of my substantive interactions with NAF and its engineering and construction team, they have displayed a continuous improvement approach to their design and construction strategies.

We decided to intervene in NAF's current permit applications on the premise that NAF's approach and the Maine Department of Environmental Protection's approach to the current permit applications will set best practice standards to guide the development of a responsible RAS industry in Maine.

I. Site Location of Development/Natural Resources Protection Act Application

A. Coastal Wetland Impacts:

- *Construction Impacts in the Intertidal Zone:*

Based on my review of NAF's proposed construction strategy and practices to lay intake and outflow pipes through the intertidal zone, NAF's characterization of impacted habitat, personal visual inspection to confirm NAF's characterization, discussion with Woodard & Curran and CIANBRO personnel about construction impact considerations, and prior personal experience working with CIANBRO on a large industrial process innovation project and a marine construction project, I would share the following points:

- The intertidal zone is comprised mostly of mudflats, with some cobble, a small quantity of salt marsh, and very little algae, for the 2,500 ft. North and South of the proposed construction corridor.
- The proposed 100 ft. intertidal construction corridor will be dug, filled, and covered during November 1 to April 1. This is a period of relatively low seasonal presence and use of the intertidal zone by wading birds and fish. While sea ducks overwinter in the area, there is no evidence of mussel beds, an important source of feed for sea ducks, in the intertidal zone.
- The construction corridor will temporarily impact approximately 81,081 s.f. (1.9%) of the salt marsh, cobble beach, and mudflat habitat in the vicinity of the project (4,260,000 s.f. estimated as the intertidal zone extending from the point East of the end of Hazeltine Road in a Southerly direction to Brown's Head) for a brief period of time with interruptions by tides and weather.
- CIANBRO plans to complete their intertidal construction work using best practices. My experience with CIANBRO is that their project managers and field supervisors are disciplined and responsible about following through on the use of best practices.
- As a result, the construction project impact in the intertidal zone will be temporary and insignificant from a habitat impact and ecological function point of view.

- *Construction Impacts in the Subtidal Zone:*

Based on my review of NAF's proposed construction strategy and practices to lay intake and outflow pipes through the subtidal zone, NAF's characterization of impacted habitat, discussion with Woodard & Curran and CIANBRO personnel about subtidal construction impact considerations, and prior personal experience working with CIANBRO, I would share the following points:

- The subtidal zone is characterized by mostly mud bottom with small cobble mixed in and little vegetation.
- The proposed subtidal construction corridor will be dug, filled, and covered during November 1 to April 1. This is a period of relatively low seasonal productivity and use by migratory fish (alewife, American eel, river herring). Winter flounder may be present and spawning in the construction corridor, but they will be mobile and able to flee to avoid temporary construction activity.
- A substantial portion of the local lobster biomass, the species of greatest human and commercial concern, move into deeper water (than the subtidal construction corridor) during proposed construction period.
- A small quantity of bivalves such as Atlantic scallops, blue mussels, and softshell clams may be crushed during subtidal construction, but they will recolonize the impacted bottom during the year following construction. Other benthic organisms such as nemerteans, annelids, and gastropods were found to be low in abundance by Normandeau Associates in their underwater survey completed on behalf of NAF.
- The construction corridor will temporarily impact 564,203 s.f. (0.0728 %, i.e., seven hundredths of a percent) and permanently impact 6,703 s.f. (0.0009%, i.e., nine ten-thousandths of a percent) in the transition and subtidal zones of Belfast Bay (approximately 775,000,000 s.f. measured from Belfast Harbor North to Searsport over to the West side of Islesboro and South to Northport).
- CIANBRO plans to complete their subtidal work over a brief period of time using best practices to minimize the direct impact on bottom sediment and the suspension of sediment in the water column.
- The intake and outfall pipes will be buried for approximately 2/3 of their length and suspended six to 12 inches above the bottom for approximately 1/3 of their length. They will not impede fish or shellfish behavior in any significant manner.
- During NAF operation following completion of construction, the intake pipe is not expected to adversely impact mature fish or shellfish. It will impact fish and shellfish larvae present in intake seawater, but the volume of intake seawater compared to the total volume of Belfast Bay is insignificant.
- As a result, the temporary and permanent construction project impacts in the transition and subtidal zones will be insignificant on Belfast Bay's subtidal habitat and ecological function.

- *Risk of Resuspending Mercury during Construction:*

As has been well-documented in the scientific literature and referenced in NAF's NRPA permit applications, the Penobscot Estuary was contaminated with Mercury discharged by HoltraChem chlor-alkali plant in Orrington during the late 1960's and 1970's. That contamination has persisted, in concentrations of concern, in bottom sediments and marshes in the Penobscot River between Orrington and the South end of Verona Island.

Members of the interested public have expressed concern whether Mercury may have migrated South of Verona Island from the Penobscot River into Belfast Bay and reside in the subtidal sediment that will be disturbed during the subtidal construction process. If Mercury does exist in the disturbed sediment, concern has been expressed that Mercury may be resuspended into the water column during construction and subsequently bioaccumulated by lobsters living in the vicinity of the construction site.


Having reviewed the relevant literature and discussed this risk with colleagues, I would highlight the following points:

- Mercury-contaminated sediment is substantially retained in the Penobscot River upstream of the tidal salinity front that moves North with the rising tide to the vicinity of Frankfort and South with the ebbing tide to the South end of Verona Island.
- Bottom sediment core samples taken in Belfast Bay over the period of the Penobscot River Study and by NAF in 2019 indicate that Belfast Bay is no different in its Mercury profile than any other bay in Maine and that Mercury levels are well below the level where Mercury is toxic for aquatic organisms.
- Even if Mercury were unexpectedly found to be present and suspended with bottom sediment particles during construction, those particles will be disbursed by the tidal current.
- A substantial portion of lobsters will move off into deeper water (than the construction site) during late fall and winter so they are unlikely to be present in large numbers during the proposed construction period.
- As a result of these factors, the risk to lobsters, or humans eating lobster, of bio-accumulating Mercury as a result of NAF's subtidal construction work is negligible.

II. Discharge Monitoring Requirements

Given the physically and biologically complex nature of NAF's proposed facilities, I would encourage the Maine Department of Environmental Protection to require higher frequency reporting of specified discharge parameters during periods of commissioning, during increases in scale of operations, during periods when discharge parameters increases toward specified threshold levels, and following any potential change in ownership from NAF to a successor owner that may lead to changes in experienced operating personnel.


December 13, 2019

By: 
Donald W. Perkins
President/CEO
Gulf of Maine Research Institute

STATE OF MAINE
County of Cumberland

The foregoing instrument was subscribed and sworn before me this 13th day of December, 2019.

By: 
Donald W. Perkins

By: 
Signature of Notary

