To: Senator Dill, Representative Hickman and Members of the Agriculture, Conservation, and Forestry Committee
From: John Krueger, Resident of Northport Maine
RE: LD 620 An Act Regarding Licensing of Land-based Aquaculture Facilities
Date: February 27, 2019

Clerk **Dylan Sinclair**
Cross Building, Room 214, 287-1312
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My name is John Krueger, from Northport Maine, and am here in support of LD 620.

My concern lies with the fact that there are now two large land based salmon farms being proposed for the lower Penobscot River and the Upper Penobscot Bay. The one in Belfast (we should include Northport as well as the proposed Nordic Aquafarm is actually on the very southern border of Belfast and the plan is to send the Waste Discharge into Northport) is either the largest or second largest in the world, processing some 190,000 lbs a day of salmon with 7.7 million gallons a day of waste water discharge. Adding a second very large land based aquaculture industry only adds to the potential risk.

In order for such large wastewater discharge permits to begin to provide necessary protections to the Penobscot Estuary it is necessary for the applicants to incorporate some of the most highly technical treatment systems in the world. Examples include using Recirculating Aquaculture Systems (RAS), Moving Bed Bofilm Reactors, and Hollow Fiber Membrane Bio-Reactors to reduce nutrient loads from the discharge. These treatment systems require complex balancing of specialized organisms to biologically reduce nutrient loads in the discharge.

Currently there are few environmental standards developed to regulate the effects of these discharges to such an important ecosystem as the Penobscot Estuary. From what I have been able to ascertain, even under the best of circumstances when all treatment systems are working at top efficiency, the loads to the Penobscot Estuary are high with little room for error. At this time we really lack a clear understanding of a complete picture of what will be in the outfall as we do not know the feed. We also do not know exactly where all the discharge will go, as modeling needs to better address currents, temperature stratification, wind shear etc. Even background levels of pollutants are not clearly understood. Contingency plans for how to contain treatment failures have not been provided.

As an example of the consequence an "honest" error in treatment: If a 99% reduction in a nutrient is proposed (NAF has offered this), the effect on the pollutant discharge at 98% means that the pollutant amount would be doubled, at 97% it would mean a tripling!

If applications are reviewed separately without taking into account accumulative effects from multiple sources regulators may not be able to adequately protect our Penobscot resource. While it seems potentially unfair that one industry could be penalized for the malfunction of another, our Penobscot resource needs some additional assurance that two large experiments can operate without either one or both destroying any of the resources we take for granted. Ultimately the issue has a lot to do with the standards that are being used or will be used to permit very large (as in largest in the world) aquaculture operations near each other.