

# Jim Loring

Rich Doenges  
Washington State Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504 In

25 February 2019

RE: NPDES Draft Permits on net pen aquaculture

Dear Mr. Doenges

Thank you for this opportunity to comment on the Washington Department of Ecology's proposed permits pertaining to net pen aquaculture. Having had the chance to review the documents resulting from the state's investigation of the collapse of Cooke Aquaculture's Cypress Island Atlantic salmon net pen #2 [1] and the company's response of 29 January 2018, I feel the four draft permits - Clam Bay (WA0031526), Fort Ward (WA0031534), Orchard Rocks (WA0031542), Hope Island (WA0031593) – adequately address the factors contributing to the catastrophic failure and Atlantic salmon release of 19 August 2017.

The state's investigation determined that the probable cause of both the preceding July incident and the August collapse was the failure of Cooke to adequately clean the nets containing the fish. Biofouling of the containment nets in essence made the structure unstable. The draft permit requirements address this at several points in an attempt to prevent similar events in the future.

Of major concern is animal health and aquaculture practices which are only in part addressed in the draft permits. Monitoring for sea lice and antibiotic use are both identified as conditions for permitting, and in particular – under Sec L on p. 12 – that new information on the environmental impacts of antibiotics be taken into account over the duration of the permits and that unusually high usage levels of antibiotics be disclosed by the permit holder. Subtherapeutic antibiotic use in agriculture to increase animal growth is coming under increasing scrutiny, the cumulative effects on the environment potentially disastrous. Heighten use of antibiotics to treat acute infection is a good proxy for overall fish health, as is the required reporting of sea lice infestations.

## Sec. G12. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification

PRV (Piscine Reovirus) and HSMI (Heart and Skeletal Muscle Inflammation) are of great concern on the Pacific Coast. PRV was not considered harmful until it was determined that it may cause HSMI. Recent study indicates that in Chinook salmon, PRV causes red blood cells to rupture resulting in anemia and potentially lethal kidney and liver disease. [2]

Further, WDFW denied a recent transport permit after samples taken from the Atlantic salmon hatchery in Washington state tested positive for an "Icelandic form" of piscine reovirus (PRV). WDFW determined that introducing an exotic strain of PRV into Washington's marine waters would represent an unknown and unacceptable risk of disease transmission.[3]

The use / overuse of antibiotics and monitoring for sea lice are the only aspects of fish health

specifically identified as a condition of net pen permitting. Other aspects of animal health, such as the monitoring for piscine orthoreovirus (PRV), should be required as a condition of Ecology's NDPES permit, as it is with other state agency permits necessary in net pen aquaculture in Washington

Thank you for your time and consideration of these concerns.

Regards – Jim

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[1] D Clark, K Lee, K Murphy, A Windrope. 2017 Cypress Island Atlantic Salmon Net Pen Failure: An Investigation and Review. Washington Department of Natural Resources, Olympia, WA.

[2] Di Cicco, Emiliano et.al.. "The same strain of Piscine orthoreovirus (PRV-1) is involved with the development of different, but related, diseases in Atlantic and Pacific Salmon in British Columbia, Facets, 23 April 2018, DOI 10.1139/facets-2018-0008

[3] WDFW denies permit for company to place 800,000 Atlantic salmon into Puget Sound net pens." Washington Department of Fish and Wildlife, 17 May 2018. (<https://wdfw.wa.gov/news/may1718c/> )