

Wood, Gregg

From: Holly Faubel <hollyfaubel@gmail.com>
Sent: Sunday, October 28, 2018 10:29 PM
To: Wood, Gregg
Subject: [EXTERNAL SENDER] My comments on the Whole Oceans permit application

Here are my comments with the expectation that these and Whole Oceans responses will be included in Item 10 of the application for permit as per DEP guidelines.

TO: Gregg Wood
FROM: Holly Faubel
RE: Whole Oceans, LLC Pollution Discharge Elimination and Maine Waste Discharge Permit

10/28/2018

In accordance with *Application Processing Procedures for Waste Discharge Licenses*, 06-096 CMR, 522, I am submitting these comments on the revision of the draft permit amended on Sept. 10th 2018 before close of comment period, end of day Oct. 29, 2019, for inclusion in Item 10 of DEP's 9/28/18 Proposed Draft Fact Sheet, ME0037478, W00910-6F-A-N. (1)

I was in receipt of this Amended permit after two requests and it was delivered on 10/26/2018. Like many members of the public, I was under the impression, that Whole Oceans would be discharging their effluent into a greenhouse facility as per their publicly posted website materials, rather than into Penobscot Bay

As the comments, issues, and questions outlined below are to be addressed by Whole Oceans in Item 10, I am requesting either a 14 day extension to have written responses submitted by Whole Ocean, or a public hearing to allow Whole Oceans to respond verbally, on behalf of the public's interest and right to know.

Whole Oceans proposed facility would appear to be an untested, highly experimental facility as indicated by Whole Oceans own technology consultant, Billurd Aquaculture Services (2) <http://www.tidescanada.org/wp-content/uploads/2015/03/Bjarne-Hald-Olsen-Developments-in-Recirculating-Aquaculture-Systems-for-Salmon-Grow-out-in-Europe-and-Asia.pdf>.

While the systems that Billurd has designed and consulted on have been used either as hatchery only applications (eggs to smolds) or in limited production 1,000 tons of salmon. These are five times smaller than what Whole Oceans is proposing for their Phase 1 grow-out of 5,000 tons. In Billurd's review of their experience on the Langsand Salmon grow-out of 1,000 tons they identified numerous problems with this more limited grow out which began in July 2011.

As per Billurd, *"In November 2012 the farm is hit by furunculosis, in Spring of 2013 Vaccination of fish started. In winter 2013 Disease starts to severely affect growth. In May of 2014 Mortality in the grow out system increases due to furunculosis. Antibiotic resistance detected on some individuals"*.

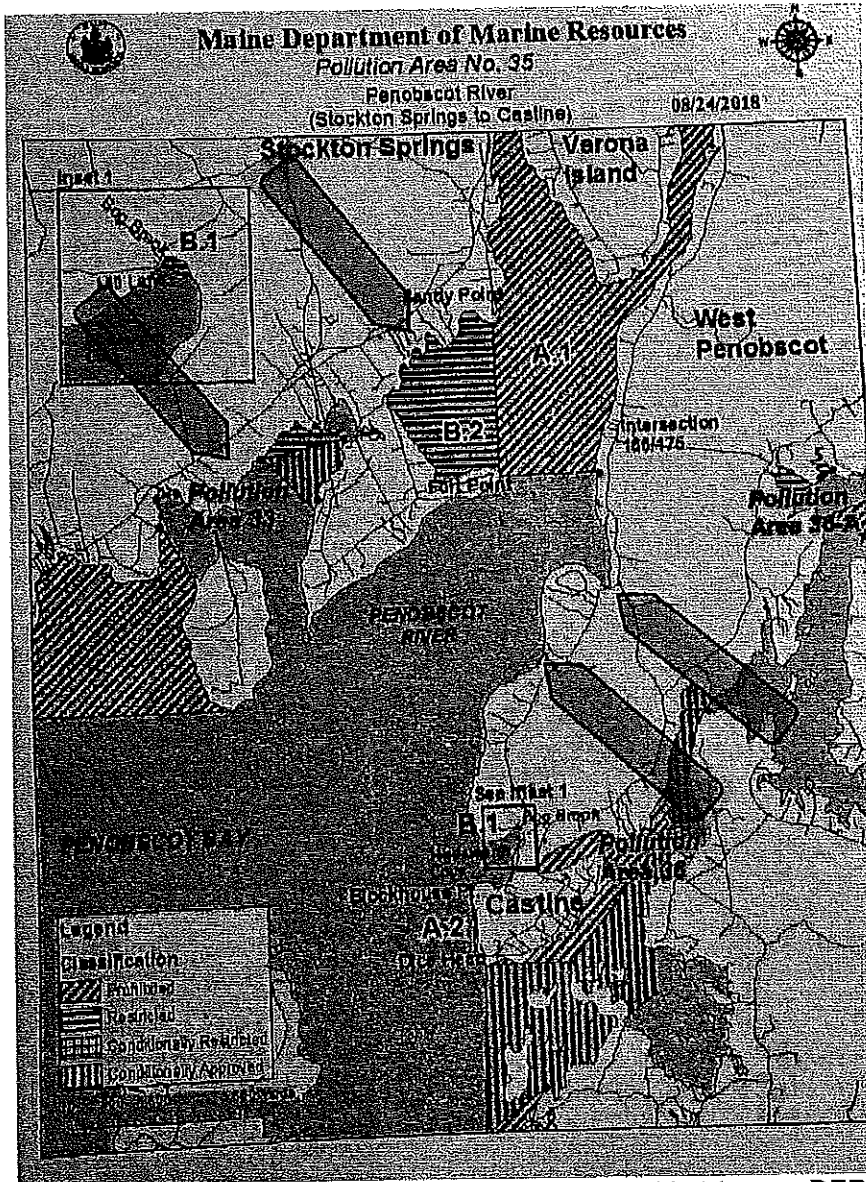
The data read-out from Billurd, available to the public, stops at Sept. 2015. This data, notably is for a 1,000 ton grow-out facility. Whole Oceans has stated that they have data from their work with the Conservancy Funds Freshwaters group and the University of Maine's Center for Cooperative Research in Franklin that proves that Whole Oceans premise that what works in a 1,000 ton grow-out facility translates to a 5,000 ton (WO Phase 1) grow out facility.

PUBLIC COMMENTARY/RESPONSE REQUEST: That the data that proves, and provides assurance beyond linear extrapolation. be documented and provided by Whole Oceans as part of the public review process.

The concern is that, to date, the US/Maine DEP has only had the experience and opportunity to observe, monitor and review land based egg to smolt grow-out. Hence, the summation that this is an experimental project, which is using the waters of the Penobscot River and Bay as a test bed by Whole Oceans.

As per DEP's statement on Page 3 (1) "Where high quality waters of the State are an outstanding resource, that water quality will be maintained and protected".

The receiving waters immediately at the outfalls indicated are listed as SC Waters, Maine Department of Marine Resources Pollution Area 35 as shown in the photo below:



These waters are designated as Critical Salmon Habitat (as per DEP's Penobscot Rivershed, with Licensed Dischargers and Critical Salmon habitat overlay) for the endangered Wild Atlantic Salmon whose numbers are just beginning to recover. It is also habitat and migratory path for Endangered Atlantic and Short Nosed Sturgeon.

The orange arrows in the diagram (left) indicate those areas just below the proposed measured outflow that could be further restricted due to the discharge of Whole Oceans operation. This discharge won't even be measured for the first two years of operation.

In Whole Oceans' permit submittal, the only reference to protecting "Atlantic Salmon" revolves primarily around limiting escape of smolt and grow-outs. Yet, according to DEP (1) *Fish waste products that are treated with RAS technologies include TSS, BODs and ammonia*", And during the flushing process used to clean tanks, bio-reactor and filters, "...some of the waters containing these contaminants along with untreated micro-contaminants, will be flushed into the waters". Yet the testing of effluent waters will only be done from May-October, even though Whole Oceans will be producing a steady state of effluent 12 months of the year.

While warm weather testing might suffice for nitrogen levels, ammonia by DEPs own statements, is one of the most toxic pollutants in terms of the fish and shellfish health in the receiving waters. There are scientific reports (University of Illinois, Urbana) that show ammonia, the most toxic pollutant, is more hazardous to fish at colder temperatures.

Micro-contaminants, which in Whole Oceans proposal go untreated, can contain chondroitin that can discourage the migration of other anadromous fin fish are not addressed.

While it may not be Whole Oceans intent to flush larger amounts of these contaminants during the 6 months that monitoring and testing is not being done, due to the experimental nature of this proposed operation, this would seem to present an unnecessary hazard to the health of native finfish and shellfish, as well as other native farmed sea products such as kelps and seaweeds.

PUBLIC COMMENTARY/RESPONSE REQUEST: That Whole Oceans provide a testing regime for the full 12 months it will be producing effluent to DEP for evaluation by DEP and review by third party independent labs. Or to provide scientific data, which can be peer reviewed, as to why this should not required.

The presence of mercury in all of Maine's waters is well documented. Yet the design of Whole Oceans proposed facility does not take mercury mitigation into consideration. Indeed, the location of the intake pipe sandwiched between the two outflow pipes of Whole Oceans proposed facility would seem to be problematic. The mercury that is present in Maine's surface waters combined with the remnants of the residual mercury in the bed of the previous industrial paper factory, would seem to serve as a concentration source point.. This mercury, constantly recirculated in the grow-out tanks over the several year life of the fish, becomes concentrated in the fish muscle, fat, and internal organs.

When the gutting of those fish occurs during processing, the waste from that activity is proposed by Whole Oceans to be sent to the existing Bucksport Sanitation facility for mitigation and return to the river/bay in it's effluent. Yet by DEPs own statement (1) this facility is the primary cause of pollution in the River/Bay in terms of nitrogen. To date there is no documented plan as to how the Bucksport Sanitation facility will mitigate the large volumes of mercury that will be delivered to it, in concentrated form, via the stream of mercury contaminated/concentrated waste stream.

According to the DEP "To date the waters of Maine, due to mercury pollution are only approved for hatcheries".(1)

PUBLIC COMMENTARY/RESPONSE REQUEST: That Whole Oceans develops a plan that includes and supplies the technology to mitigate the concentrated waste stream of mercury that it's proposed facility will generate to the Bucksport Sanitation facility.

According to Whole Oceans public presentations, "no antibiotics" will be used. Yet oxytetracycline usage is planned, and as per Billurd's documentation regarding their projects that grew out only a fifth of what Whole Oceans is projecting for Phase 1, antibiotics were indeed required for not only the hatchery operation from egg-smolt, but for full grow-out. The residual from this antibiotic usage will be sent through the screens of the effluent systems in fish waste and the backwashing of filters and tanks. .

PUBLIC COMMENTARY/RESPONSE REQUEST: For Whole Oceans to provide data that quantifies residual antibiotics in their waste streams in terms of effluent from grow-out tanks and effluent from Bucksport Sanitation facility.

Given the quarantine tank size are not sufficient to handle a full outbreak that infects all of the fish in the facility, and given that outbreaks of diseases that have affected entire populations of Billurd-designed RAS systems, what does Whole Oceans do in the event of a massive die-off.

PUBLIC COMMENT/RESPONSE REQUEST: For Whole Oceans to provide a plan for handling complete die-off of their total tonnage of fish grow-outs

As per the permit request by Whole Oceans, drugs not identified as being cleared by the FDA for treatment of diseases can be used, and discharged, for up to 29 days with no monitoring. Thereafter DEP has stated it will only "restrict", not "cease" their continued usage. In the case that a full outbreak throughout the facility, which would exceed the capacity of the quarantine tank, it has to be assumed that the outflow from the use of these chemicals will be discharged into Penobscot River and Bay.

PUBLIC COMMENT/REQUEST FOR RESPONSE: That Whole Oceans document its plan for management of non-FDA approved drug containment as it relates to non-FDA post 29 day usage.

The Whole Oceans proposed permit specifies the use of highly experimental drugs under the INAD program. Where does the outflow of that go -- to the Bucksport Septic System or directly into the River? If it is to the Bucksport Septic System, how is the Bucksport Septic System supposed to handle volumes of experimental drugs.

PUBLIC COMMENT/REQUEST FOR RESPONSE: That Whole Oceans documents its containment strategy for participation in the INAD program.

In DEP's review of Whole Oceans preliminary draft they noted, "*If necessary additional treatment such as ozone treatment*" to counter pollutants is not in the current plan. Yet the necessity of ozone treatment will not be known until the biological testing of the operation to full grow-out, requiring two years, has been completed.

PUBLIC COMMENT/REQUEST FOR RESPONSE: Has Freshwater, or UMO at Franklin modeled the use of ozone for Whole Oceans operation and if so please provide the data.

DEP has stated (1) "*The permittee discharges into estuarine waters of the Penobscot River which is strongly influenced by fresh water during high spring flows, large rainfall events, and during ebb tides. These conditions make it difficult to accurately define the mixing characteristics of the permittees facility at any given point in time*". "*Given the uncertainty of river flows to the east and west of Verona Island this permittee is to conduct a dye study once Phase 1 operations have commenced and steady state conditions with eggs, fry and smolts and adult fish in grow out tanks have been achieved.*" The process of going from eggs to adult is going to take two years at a minimum. In the meantime, what assurances and bond does Whole Oceans give to the public local residents, recreational users, shellfish gatherers and growers, and sea vegetable farmers that their waters are not going to be polluted due to a lack of testing.

PUBLIC COMMENT/REQUEST FOR RESPONSE: That Whole Oceans provide a bond of insurance which will cover any losses during this "experimental phase" of operation.

According to DEP "*The eastern side of Verona Island consists of expansive tidal flats*". "*These tidal flats have experienced significant algae blooms in the past...not associated with the operation of the paper mill*" What modeling has been done by Whole Oceans, perhaps in conjunction with Fresh Water or UMO Franklin to show this will not occur in the operation of this facility at this site, either in the "pre-testing" stage or post DEP evaluation of effluent flow.

PUBLIC COMMENT/REQUEST FOR RESPONSE: That Whole Oceans provides either peer reviewable modeling or a security bond to address algae blooms taking into account historic and predictive modeling of river and bay temperatures.

In answer to the questions posed at the first public review, Whole Oceans summary of responses as identified in their application included:

Mercury - no answer

BODs & TSS - "just want to keep those numbers down"

Food Source and makeup - not answered

These are still open questions.

The purpose of Public Comments and Answers is to give the public at large input into the application process, and hopefully more than rudimentary responses. As such, the above Comments and Request for Response are being submitted in order to address public concerns in a manner that will elicit specific data that will address these important issues. The intent is that by doing so the public's concerns can be addressed, the public and DEP will have more substantive quantitative data to evaluate, and in the long run Whole Oceans operations will be the better for it.