

APPENDIX D--RESPONSE TO COMMENTS

DRAFT NPDES PERMITS FOR FOUR ATLANTIC SALMON NET PEN FACILITIES

Applicant (Permittee) COOKE AQUACULTURE PACIFIC, LLC

Clam Bay Saltwater 1 - Permit no. WA0031526
Fort Ward Saltwater II - Permit no. WA0031534
Orchard Rocks Saltwater IV - Permit no. WA0031542
Hope Island Site 4 - Permit no. WA0031593

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Washington State Department of Ecology

March 15, 2019

Summary of Comments

Comments were recorded from December 27, 2018 to February 25, 2019 through eComments, email, mailed in letters and postcards, and testimony from three public hearings. There was a total of 90 comments. To view the comments submitted, follow either link:

- <http://ws.ecology.commentinput.com/comment/extra?id=7kdj4>
- <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=274012> (**Direct link to download document that is in PARIS**)

The breakdown of the commenters' status is described in the table below.

Opposed	In favor	Conditionally In Favor	Concerned
56	26	7	1

Of the 56 commenters opposed, we received comments from three organizations with multiple members and supporting organizations. They can be found below in the List of Commenters on lines 27, 66, and 67.

The majority of the commenters were opposed for several reasons. These opposing comments include issues with risk to native fish such as Chinook and the Puget Sound, disease transmission from net pen fish population, presence of any salmon farms but especially non-native finfish aquaculture, permittee past behavior, discharges of antibiotics, other chemicals, and fish waste, risk from escaped Atlantic salmon, risk to resident orcas, sea lice transmission, and that farms should locate to land-based operations.

Those in favor were pleased with the increase in regulation placed in the permit. A few were conditionally in favor of the draft permits and identified areas of improvement. Those areas included placing limits on pathogens, parasites, and antibiotic use, increased or specific (i.e., PRV) disease monitoring, concern with too frequent sediment monitoring, and corrections to the permit and fact sheets.

Ecology modified the permit based on comments received. Changes made to the permit in response to a comment are provided with the comment that initiated the change. Ecology made additional non-substantive changes to wording and punctuation in, and organization of the permit to improve the clarity and readability and correct formatting. The Summary of Permit Report Submittals was corrected to include all requirements.

FACT SHEET FOR NPDES PERMIT WA0031526
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 CLAM BAY SALTWATER I

List of Commenters

	Name	Date submitted	Comment Format
1	Annabelle Fox	2/23/2019	eComments
2	Annalee Depositario	1/3/2019	eComments
3	Bert Clay	2/25/2019	eComments
4	Bill Bryden	1/6/2019	eComments
5	Bill R.	2/25/2019	eComments
6	Bonnie Gretz	2/24/2019	eComments
7	Brenda Berry	2/7/2019	testimony
		2/25/2019	eComments
		2/25/2019	email
8	Brian Muldoon	1/16/2019	eComments
9	Brian Wetcher	2/5/2019	testimony
10	Bruce Freet	2/8/2019	eComments
11	Bruce Kreider	2/25/2019	eComments
12	Burt Suwade	2/5/2019	testimony
13	Carol Bordin	2/25/2019	eComments
14	Carol Sullivan	1/11/2019	postcard
15	Caroline Armon	2/22/2019	eComments
16	Coleman Byrnes	2/21/2019	eComments
17	Cooke Aquaculture Pacific - Kevin Bright	2/7/2019	testimony
		2/11/2019	eComments
		2/25/2019	letter emailed as PDF and original sent USPS
18	Dan Maul	1/2/2019	eComments
19	Daniel Swecker	1/8/2019	eComments
20	Darryl Pope	1/15/2019	eComments
21	Debra Kaukol	2/22/2019	eComments
22	Don Heppenstall	2/11/2019	email
23	Eleanor Mattice	1/5/2019	eComments
24	Ellen and Ernie Williams	2/22/2019	letter
25	Emily Mansfield	2/7/2019	eComments
26	Forest Shomer	1/5/2019	eComments

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27	Friends of the Earth-1,257 members and activists in WA state. Author: Hallie Templeton	2/25/2019	eComments
28	Hans Flockoi	1/5/2019	eComments
29	Heather Nicholson	1/4/2019	eComments
		2/25/2019	eComments
30	Howard Emery	2/20/2019	eComments
31	Howard Garrett	2/23/2019	eComments
32	Jamie Beckett	2/7/2019	testimony
33	Janise and Steve Hawes	1/22/2019	eComments
34	Jean Groesbeck	2/7/2019	eComments
35	Jeanne Kreider	2/25/2019	eComments
36	Jill Hein	2/25/2019	eComments
37	Jim Loring	2/25/2019	eComments
38	Jim Thomson	1/5/2019	eComments
39	John Dentler	1/10/2019	eComments
40	Joyce Berry	2/25/2019	eComments
41	Judith Baker	1/9/2019	postcard
42	Julie Rabeau	1/6/2019	eComments
43	Karen Gardiner	1/14/2019	postcard
44	Kari Koski	2/20/2019	eComments
45	Kathy Bailey	2/25/2019	eComments
46	Lance Magnuson	1/3/2019	eComments
47	Larry Demmert	1/20/2019	eComments
48	Larry Franks	1/23/2019	eComments
49	Laurie Watt	1/4/2019	eComments
50	Lynda Cole	2/21/2019	eComments
51	Lynn Murphy	2/22/2019	eComments
52	Maggie Santos	2/25/2019	eComments
53	Marie Gallagher	2/24/2019	eComments
54	Marlene Finley	2/10/2019	eComments
55	Marlene Hansen	1/14/2019	postcard
56	Martha and James Doane	2/25/2019	eComments
57	Martha Hall	2/19/2019	eComments
58	Marty Crowley	2/25/2019	eComments

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59	Mary Karen Brown	2/7/2019	testimony
		2/22/2019	letter
60	Maureen Hayden	1/9/2019	eComments
61	Maya Green	2/25/2019	eComments
62	Melinda Randles	1/14/2019	postcard
63	Nikolas Mardesich	2/10/2019	eComments
64	Norb Ziegler	1/24/2019	eComments
65	Northwest Aquaculture Alliance. Author: Jeanne McKnight	2/25/2019	eComments
66	Orca Conservancy-20,000 members and supporters. Author: Shari L. Tarantino	2/25/2019	eComments
67	Our Sound, Our Salmon Coalition-supported by Audubon Washington, Center for Biodiversity, Friends of the Earth, Friends of the San Juans, Olympic Environmental Council, Olympic Forest Coalition, Orca Conservancy, Puget Soundkeeper, Surfrider Foundation, Whale and Dolphin Conservation, Whale Scout, Whidbey Environmental Action, and Wild Fish Conservancy. Author: Kurt Beardslee	2/25/2019	eComments
68	Paul E Groesbeck	2/7/2019	eComments
69	Phyllis Starr	2/25/2019	eComments
70	Polly Derr	2/20/2019	eComments
71	RE Sources for Sustainable Communities. Authors: Kirsten McDade and Eleanor Hines	2/25/2019	eComments
72	Rich Passage Estates HOA. Author: Kathleen Hansen	2/22/2019	letter
73	Ruth Adams	2/23/2019	eComments
74	Sally Steen	1/9/2019	postcard
75	Scott Veirs	2/24/2019	eComments
76	Sea Shepherd Seattle-Christopher Joyce	1/4/2019	eComments
77	Sharon Fleming	1/4/2019	eComments
78	Sherri Stair	2/21/2019	eComments
79	Stephanie Ross	2/7/2019	testimony
		2/22/2019	email
80	Steve Miller	1/24/2019	eComments
81	Susan Marie Anderson	2/25/2019	eComments
82	Susan Sweetwater	2/22/2019	eComments
83	Tara Doran	1/4/2019	eComments
84	Tom Glade	2/5/2019	testimony

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85	Tracy McCallum	12/27/2018	eComments
86	Vanessa Castle	1/4/2019	eComments
87	Warren Carr	2/25/2019	eComments
88	Wendy Sampson	1/3/2019	eComments
89	Whidbey Environmental Action Network-Steve Erickson	2/24/2019	eComments
90	Wolfgang Rain	1/16/2019	eComments

Responses to General Comments

The majority of comments (56 out of 90) were opposed and included generalized concerns about the risk Atlantic salmon net pen aquaculture poses and those concerns were reasons that should be the basis to deny the reissuance of the NPDES permits. These included the following listed in increasing frequency:

1. Risk of disease transmission
2. Effects on native salmon
3. Effects on the Southern resident orca whales and Puget Sound ecosystem
4. Presence of escaped Atlantic salmon
5. Farmed non-native finfish or any salmon
6. Permittee past behavior
7. Net pen pollutant discharges and AKART
8. Effects from sea lice
9. Salmon net pen operations should locate to land-based operations

Below are responses to each of these general, summarized comments.

1. Risk of disease transmission

Commenters stated that Atlantic salmon net pen facilities and escaped fish are sources of diseases that risk exposure to native fish imperiling their survival. Several commenters were concerned with PRV and expressed concern for more disease monitoring.

Response:

In 2002, the National Marine Fisheries Service (NMFS) published its review (Waknitz et. al 2002 - NOAA Tech. Memo NMFS-NWFSC-53) of the impacts Atlantic salmon net pen aquaculture would pose to Puget Sound Chinook and Hood Canal summer-run chum salmon. This was done because the two native species were listed as threatened under the Endangered Species Act (ESA) in 1999.

The NMFS concluded there were no serious or moderate risks posed by the Atlantic salmon net pen industry. Their findings included that there was low and little risk regarding disease. Specifically noted, within their assumptions, were the following:

- There was low risk that Atlantic salmon will increase disease incidence in wild fish
- There was little risk that existing stocks of Atlantic salmon will be a vector for the introduction of an exotic pathogen

The authors also stated that “the specific diseases and their prevalence in Atlantic salmon stocks cultured in the net pens in the Puget Sound are no different than those of the of the more numerous cultured stocks of Pacific salmon in hatcheries”.

The Washington Department of Fish and Wildlife (WDFW) maintains that there is no evidence to date that Atlantic salmon pose a threat to native fish stocks in Washington from disease. In 1999, WDFW published a report reviewing Atlantic salmon in Washington State (Amos and Appleby 1999). They concluded, there was no evidence showing disease transfer from Atlantic salmon to native Pacific salmon. They also stated that fish pathogens infecting Atlantic salmon are endemic to Washington and may come from native fish.

The WDFW is the regulatory authority for fish health and biosecurity of aquaculture in Washington State. In accordance to WAC 220-370, all net pen facilities are required to obtain from WDFW a Marine Finfish Aquaculture permit. These permits have conditions directing their farming operations to conform with:

- Plan of Operation Atlantic Salmon Rearing

- Fish Escape Prevention, Response, and Reporting Plan
- Regulated Finfish Pathogen Reporting Plan

As a provision to the Marine Finfish Aquaculture permit, these plans need to be updated each year in consultation with the WDFW. Additionally, WAC 220-370 stipulates operators must report disease outbreaks to WDFW immediately and allow inspections and sampling by WDFW staff. The WDFW also has the authority to take emergency enforcement actions if there is evidence that the continued presence of Atlantic salmon in the net pens may cause severe mortality in native fish.

Prior to moving Atlantic salmon into the marine net pens to raise to market size, a WDFW Finfish Transport Permit is required. The permit is granted and the move can take place only if the lot of fish test negative for state regulated pathogens (WAC 220-370-050(20)), and beginning in 2018 for PRV 1, sampled at a rate of 2% Assumed Pathogen Prevalence Level (APPL). Additionally, prior to outplanting to the marine net pens, the permittee vaccinates each fish for furunculosis, two *Vibrio* spp. and infectious hematopoietic necrosis virus (IHNV).

The Washington Department of Ecology (Ecology) is the regulatory authority granting NPDES permits to net pen aquaculture facilities to ensure water quality standards are met and the waters' beneficial uses are maintained. In regards to disease, the NPDES permit requires the net pen operator to submit to Ecology annually the Fish Escape Prevention, Response, and Reporting Plan. Disease control chemical use is reported monthly. Fish mortality of 5% or more within one week at a net pen facility also requires the operator to notify Ecology.

2. *Effects on native salmon*

Commenters stated that Atlantic salmon net pens and their likely escapes pose a risk to native salmon in particular Chinook salmon.

Response:

Throughout the 20th century, multiple agencies on the Pacific coast attempted to introduce and establish Atlantic salmon stocks and runs. The most recent effort by WDFW was in 1981, when attempted introductions were made via the release of cultured Atlantic salmon smolts. No adult Atlantic salmon returned as a result of the releases.

In 1990, at the direction of the Legislature, WDFW published a programmatic environmental impact statement of net pen aquaculture (Parametrix 1990). Risk to native fish by Atlantic salmon was determined to be low.

In 2002, NMFS published its review (Waknitz et. al 2002, NOAA Tech. Memo NMFS-NWFSC-53) of the impacts Atlantic salmon net pen aquaculture would pose to Puget Sound Chinook and Hood Canal summer-run chum salmon. This was done because the two native species were listed as threatened under the ESA in 1999.

Their conclusions were caveated with three major assumptions: 1) the industry remains near the current size at the time of the assessment (2002), 2) the net pens only reared Atlantic salmon, and 3) no new Atlantic salmon stocks than already are present be farmed in the net pens.

The NMFS concluded there were no serious or moderate risks posed by the Atlantic salmon net pen industry to native fish. Their findings included that there was one element with no risk, some with low risk, and some with little risk.

There was no risk of adverse genetic interaction from transgenic salmon because there are currently no transgenic salmon being commercially cultured. Transgenic fish, as defined in WAC 220-370-100, are not permitted (the regulatory authority being WDFW) to be used in Washington State.

NMFS determined there was low risk associated with:

- escaped Atlantic salmon to increase disease incidence in wild and hatchery salmon.
- escaped Atlantic salmon to compete with wild salmon for food or habitat
- salmon farms adversely impacting Essential Fish Habitat when compared to other commonly accepted activities that also occur in nearshore marine environments.

NMFS determined there appeared to be little risk associated with:

- escaped Atlantic salmon hybridizing with Pacific salmon.
- escaped Atlantic salmon colonizing habitats in the Puget Sound Chinook salmon and Hood Canal summer-run chum salmon ESUs.
- escaped Atlantic salmon preying on Pacific salmon.
- Atlantic salmon being a vector for the introduction of an exotic pathogen into Washington State.
- the development of antibiotic-resistant bacteria resulting from use in net pen salmon farms or Atlantic salmon freshwater hatcheries, as similar antibiotic resistance often observed in Pacific salmon hatcheries has not been shown to have a negative impact on wild salmon. However, over-use of antibiotics in any situation may pose of a risk to either Atlantic or Pacific salmon.

More recent studies conducted by WDFW between 2003 and 2008 by the Aquatic Species Unit indicated that out of 882 surveys in 174 water bodies, 192 Atlantic salmon were found (WDFW 2008). All of the juvenile Atlantic salmon were from an upland hatchery origin and the adults were from marine net pens. During the study, no evidence was found indicating Atlantic salmon spawning or the presence of hybridized fish.

3. *Effects on Southern resident orca whales and the Puget Sound ecosystem*

Commenters stated that Atlantic salmon net pens and the likely escapes pose a risk to native salmon in particular Chinook salmon and in turn would affect the already endangered SRKW population and the Puget Sound ecosystem.

Response: See Response to Comment 2 above regarding the low risk posed by the salmon net pen industry to native fish.

4. *Presence of escaped Atlantic salmon*

Commenters stated concern about the presence of escaped Atlantic salmon and also the effects on the native salmon and risk of disease transmission and in turn the effect on the Southern resident orca whales and the Puget Sound ecosystem.

Response:

As stated in the responses above for 1. *Risk of disease transmission*, 2. *Effects on native salmon*, 3. *Effects on Southern resident orca whales and the Puget Sound ecosystem*, there is low or little risk from escaped Atlantic salmon. However, within the scope of this NPDES permit, the permittee is required to prevent, manage, and actively plan for escapes both small and large.

Conditions and requirements for escape prevention and response plans were developed by WDFW and codified in WAC 220-370-110 and WAC 220-370-120. Chapter 220-370 WAC gives WDFW the regulatory authority to set requirements and conditions for finfish net pen facilities regarding fish health and biosecurity through the Marine Finfish Aquaculture Permit. Escape prevention and response plans have been submitted over several permit cycles to WDFW and Ecology for compliance with both permits (Marine Finfish Aquaculture and NPDES). The previous owner of the current net pen facilities first

submitted escape prevention and response plans in 2005. These plans and their updated versions historically have been considered to satisfy the requirements of the NPDES permit, and are again incorporated in the 2019 NPDES permit reissuance, however, with improvements based on recent events.

In August 2017, approximately 250,000 fish escaped from Cypress Island Site 2 and was found to be directly related to the improper maintenance of the stock nets and subsequent engineering decisions leading to the total collapse of the net pen array. Many lessons were learned in the joint state agency investigation (Clark et. al 2018). The 2019 updated NPDES permits require more monitoring for escapes, better maintenance and assurances that structures are in good working order to prevent escapes, and a more detailed communication plan per site to notify WDFW, Ecology, Washington Department of Natural Resources (WDNR) and local tribal communities of an upset to the net pen structures that could potentially lead to a major release of fish. The following elements are special conditions called out in the NPDES permits and required for compliance:

- Increasing underwater video monitoring of net pens.
- Conducting inspections to assess structural integrity of the net pens and submit inspection reports certified by a qualified marine engineer to Ecology.
- Improving net cleaning and maintenance procedures to prevent biofouling and fish escape.
- Requiring the permittee to develop site specific response plans in the event of a fish release, and to conduct and participate in preparedness trainings.
- Requiring improved maintenance of the net pens.
- Maintaining contact information to notify area tribes in the event of a fish release

5. *Farmed non-native finfish or any salmon*

Commenters remarked that no non-native fish or any other salmon should be farmed in Washington State.

Response:

[House Bill 2957](#) was signed into law by the governor in March 2018. The law imposes the phase out of all marine non-native finfish aquaculture. Cooke Aquaculture Pacific will be allowed to raise Atlantic salmon in the current facilities until their DNR leases expire in the year 2022. They will not be able to obtain NPDES permits without a valid lease.

Non-native finfish aquaculture can legally operate until leases expire in 2022 at these four locations after which the WDNR is no longer able to extend current leases. Ecology is authorized to issue permits to facilities conducting legal businesses. Through these permits, the business is legally required to comply with environmental laws, standards, and limits.

6. *Permittee past behavior*

Commenters remarked that the permittee's past behavior and track record merited denying the reissuance of the updated permits.

Response:

As noted in the response to 4. *Presence of escaped Atlantic salmon*, the updated permits include many new and improved requirements that the permittee must comply with. Through compliance points set out in the permits, Ecology ensures permittees are fulfilling their legal obligations. Through progressive enforcement, which includes warnings, orders, and penalties, noncompliance is addressed.

7. *Net Pen Pollutant Discharges and AKART*

Commenters stated concerns about what the net pen facilities discharged into the water such as pesticides, antibiotics, fish waste, and "other chemicals" without current technological limits or controls.

Response:

Permittees are required to implement all known, available, and reasonable methods of treatment to control their discharges. The technology based limits are based on AKART. In 1995, Ecology determined the reasonable methods of treatment for net-pen facilities when the marine salmon net-pen waste discharge standards (WAC 173-221A-110) were developed and adopted. Currently, Ecology has conditioned the proposed permits to require compliance with these standards. All discharges must also comply with state water quality standards.

The NOAA Technical Memorandum (NMFS-NWFSC-49, September 2001) titled, “The Net-pen Salmon Farming Industry in the Pacific Northwest”, states that under any circumstances sediment degradation is ephemeral and conditions have returned to normal within a period of weeks to years during fallow periods in all cases studied. The study included some sites where extreme sediment degradation occurred. With proper siting, the sediment impact zones recover within a very short time. Additionally, rearing fish in net pens has progressed and since 2012 new practices such as single generation rearing, planned fallow periods, and the use of underwater cameras to manage feeding has been incorporated by the permittee, which leads to less waste and planned periodic recovery.

Water quality monitoring and limits for waste products from floating aquaculture, such as the nutrient nitrogen, is not done directly due to the nature of the net pens sites where water flow is not unidirectional nor predictable due to tides, currents, seasons, weather, and ocean fluctuations. Instead, the permit requires monitoring of proxies or indicators of nutrient and waste effects.

Monitoring for effects from excess waste or feed includes water quality monitoring for dissolved oxygen daily during the summer critical period (August 15 through September 30). Also, the Sediment Management Standards (WAC 173-204-412 Marine finfish rearing facilities) define a sediment impact zone that is 100 feet from the perimeter of the array and states regulatory criteria for routine, exceedance, and enhancement monitoring. Permit requirements include routine monitoring for total organic carbon, video documentation, and documentation of presence or absence of *Beggiatoa* to be done yearly and during times the net pens are at maximum capacity. If TOC exceeds the criterion, exceedance monitoring must be conducted and will include benthic abundance. If there are impacts documented in exceedance monitoring, (i.e., exceeds TOC and benthic abundance criteria), enhancement monitoring is triggered and actions to mitigate the impacts from the net pen effluent will be considered. Mitigation may include moving the net pen facility or removal of fish to a new location.

The following describes the discharges and the practices used to limit discharges, which are placed as conditions or requirement in the permits.

Fish Feed:

To raise fish in net pens, fish food is dispersed nearly daily to the fish in a highly controlled manner. Fish food is dry, solid pellets which contain protein and oil with additives that include the pigments canthaxanthin or astaxanthin, which are approved by the FDA for use in aquatic animal production for human consumption. Also added are antioxidants that include ethoxyquin, BHA, and vitamin E. The permittee must report its monthly biomass of fish and the amount of feed used at each facility through a Discharge Monitoring Report requirement. The Feed Conversion Ratio (FCR) ranges between 1.2 and 1.7 depending on age of the fish and the season.

Cooke reports in their 2017 Pollution Prevention Plan the Fish Feeding Procedures, which were submitted within their application. These procedures must be described in the facilities’ Operation and Maintenance Manual. They include:

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1. Properly sized, highly digestible feeds with a minimum of fines will be used to feed the fish. Feeding equipment is to be designed to minimize the occurrence of feed breakage.
2. The fish feeding process will be carried out by an experienced technician. The employee's main duty is to supervise the entire feeding process to ensure the maximum ingestion of feed by the fish stocks and to reduce the occurrence of excess feeding.
3. During periods of poor water quality conditions or other conditions that may affect the appetite of the fish, the feeding process will be modified with respect to the anticipated reduction of feed consumption by the fish.
4. Underwater cameras and/or other types of feed monitoring devices will be used to facilitate the feeding process by the technicians and minimize uneaten fish feed wastage.
5. Feed quantities are recorded for each fish pen every day. The Feed Conversion Rates (FCR's) and Specific Feed Rates (SFR's) are to be closely monitored for signs of over feeding or under feeding.

Fish Waste:

As noted in the Pollution Prevention Plan- Fish Feeding Procedures, feeding rates are highly monitored and controlled. Thereby waste is limited through available technology, which is AKART and in compliance with WAC 173-221A-110 (Marine finfish rearing facilities).

Disease Control Chemicals:

Fish are only medicated for an active infection, never are antibiotics given preventatively. Antibiotics are milled into the dry fish pellets after a veterinarian prescribes the medication. The antibiotics used are Romet 30, Terramycin TM 200, and Aquaflor. The USFDA has approved their use for aquaculture and Aquaflor must be used within USFWS INAD protocols. The permittee must report its medicated feed use at each facility through a Discharge Monitoring Report requirement. Permit Condition S2.L reserves Ecology's right to request that the permittee monitor for antibacterial resistance based on new information on the environmental impacts of antibiotics or unusually high use of antibiotics.

Cooke reports the following within their 2017 Pollution Prevention Plan descriptions of Disease Control Chemicals policy, which was submitted within their application.

1. Single generation stocking of fish at the marine farming areas has been incorporated into the production plans. Farm sites are fallowed at the end of the production cycle for a minimum of eight (8) weeks prior to restocking. Improved fish growing techniques, new technologies and improved bio-security measures are incorporated at the farm sites to reduce the use of disease control chemicals.
2. 100% of the smolts entering the site are vaccinated against fish pathogens prior to being transported to the net pen facilities.
3. Records of the usage of disease control chemicals are kept in the biological database. Information regarding the feed types, medicated feed treatment dates, the amount fed to each pen and the type of disease control treatment will be logged on a daily basis.
4. Fish feeds containing medication shall be used in a manner which minimizes the discharge of uneaten feed into the environment. Medicated feed treatments are done with a specified dosage rate and for limited duration (e.g., 5 to 10 day treatments). Fish feed bags containing antibiotics are clearly labeled with the type of medication. Fish that are being treated with medicated feed are identified as quarantined from harvest until the appropriate withdrawal period has been met.
5. The Fish Health Manager is responsible for instructing the Site Managers on the treatment type, length of treatment and the daily feed rations for any medicated feed treatments.
6. Disinfectants used for footbaths, dive nets and other equipment will be kept to a minimum and reused as much as possible.

Cooke's stock nets are constructed with mesh that do not contain antifoulants, specifically copper. The materials used in the twine of the mesh is hydrophobic, which prevents or delays biofouling. Aqua Des,

iodophor and sometime chlorine bleach are used as disinfectants. These are either neutralized and disposed to sanitary sewer or refreshed and reused. The anesthetic Finquel MS222 is used when taking samples of fish for disease. There are no pesticides applied to the water or to the fish. None of the abovementioned chemicals are considered carcinogenic in accordance with their Material Safety Data Sheets.

8. *Effects from sea lice*

Commenters stated concern about the net pen facilities and escaped fish as a source of sea lice to native fish.

Response:

Sea lice monitoring and reporting is a permit requirement. Any increase in occurrences, infestations, or outbreaks are monitored and recorded. Records are to be maintained on site and reported out to WDFW and Ecology if in one week the numbers of sea lice are above normal.

Unlike salmon aquaculture in the Brighton Archipelago of British Columbia and in Norway, sea lice (*Lepeophtheirus salmonis*) are not problematic in Puget Sound. Only one outbreak has been recorded since 1996 when Atlantic salmon aquaculture was first started in Washington. The lower prevalence of sea lice is most likely due to lower salinities experienced in Puget Sound affecting the free-swimming phase of the parasitic copepod (Bricknell et al. 2006).

Also noteworthy, sea lice affecting fish in net pens were found to originate from the surrounding environment such as was the case in British Columbia (Marty et al. 2010) and are commonly found on mature returning salmon (Beamish et al. 2005).

9. *Salmon net pen operations should locate to land-based operations*

Commenters remarked that net pens should not be allowed in the Puget Sound and shore based operations should be considered as an alternative.

Response:

In 1998, the PCHB listened to testimony by various experts regarding the use of shore-based facilities instead of floating, open water net pens. The Board made the determination that AKART (all known, available and reasonable methods of treatment) does not include relocating the net-pen operations to shore-based facilities. The evidence presented regarding upland tanks did not establish that they are technologically or financially feasible for raising Atlantic salmon (Order of Partial Dismissal - PCHB Nos. 96-257 and 96-268).

The reissuance of the 2019 updated NPDES permits are the last to be issued to Cooke to raise Atlantic salmon in net pens of Puget Sound due to the phase out. An evaluation of land-based operations found that they still appear economically infeasible to represent AKART. Specifically, land-based operations didn't perform at the same scale and they were all freshwater operations that required a large supply of water that would include pumping and pretreatment.

Responses to Specific Comments (alphabetical)

From the permittee *Cooke Aquaculture Pacific*, authored by Kevin Bright, letter sent to Ecology, postmarked 2/25/2019, additional comments made through oral testimony on 2/7/19 and via eComments on 2/11/19

General Comment Category: Sediment Monitoring Frequency

Comment: *A program of annual sediment monitoring is capable of determining whether a facility is operating within the physical and biologic capacity of the surrounding environment and allows regulators and operators to identify if any operational changes are necessary to meet the standards.*

Response: In addition to annual monitoring during the critical summer period, the new permit specifies that sediment monitoring will be necessary when the facility is operating at peak biomass. Atlantic salmon are harvested intermittently over the course of several months after the cohort gets to minimum harvestable sizes and harvest occurs at different weights depending on “number of harvestable fish at the site, seafood market conditions, and production strategies” so peak biomass is not easily identified. Ecology identified a period of time that would likely capture the peak biomass and is defined in this permit as a window of time that is 45 days after the first harvest. The purpose of peak biomass sediment monitoring is to characterize the sediment conditions during a time of maximum feeding and waste deposition in respect to the criteria specified in WAC 173-204-412. The intent is not driven by frequency but by compliance with sediment management standards when the facility is operating within a period of peak biomass. If this period of peak biomass overlaps the critical summer period sampling time then only one sampling is necessary.

Comment: *Additionally, the terminology in the sentence “within two weeks before or after each harvesting of fish” seems to imply that sediment sampling is to occur around “each fish harvesting”.*

Response: The draft permit language was amended to define more precisely when sediment monitoring is to be done during peak biomass. Peak biomass is defined as 45 days after the first harvest. Sediment monitoring will need to occur within 45 days of the first harvest.

Comment: *Cooke supports the concept of increasing the sediment monitoring frequency from every other year to annually but suggests maintaining the summer sampling period from July 1st to September 30th as has been the prior requirement for these permits since they were first issued in 1996.*

Response: It is required that NPDES permits that include a Sediment Impact Zone (SIZ) include sediment monitoring to ensure the SIZ is not impacted beyond the criteria. This monitoring is required to be done during the critical period indicative of high temperature and low dissolved oxygen. The Aquatic Lands Cleanup Unit at Ecology has determined this critical period is August 15 through September 30 and this NPDES permit is conditioned to include monitoring during this critical period.

Comment: *Comments on the Draft NPDES Permits: Page 6-7 S2.A – Cooke suggests the requirement of additional monitoring to occur around “each fish harvesting” be removed from the draft permit language.*

Response: Comment noted. See responses above. Also, better defined peak biomass, amending “each fish harvesting” to “within 45 days after first harvest”.

Comment: *Comments on the Draft NPDES Permits: Page 8 S2.C –Cooke suggests removal of the requirement for additional sediment sampling to occur that is based on the harvesting of the fish population.*

Response: Comment noted. See responses above.

General Comment Category: Discharge Limitations for Fish Escapement

Comments on the Draft Fact Sheets for NPDES Permits Page 7-

Cooke disagrees with the statements regarding the Cypress Island incident from August 2017, and these should be struck from the draft net pen Fact Sheets for each individual NPDES permit.

Cooke also disagrees with the statement in the Fact Sheet about Ecology's intent in 2007 with regard to accidental fish escapement when the permits were re-issued.

Cooke has found nothing in the prior permits that suggest each single fish is a separate permit violation.

Previous permit language subjected the permittee to violations of the permit for the intentional or negligent release of fish. By eliminating that important distinction in the proposed draft permits, Ecology creates undue risk for the permit holder.

Response: Comment noted. Ecology stands by its statements regarding the Cypress Island incident in August 2017, as well as statements regarding Ecology's intent regarding the prohibition of fish escapement in the 2007 Permit. Ecology has added language to the Permit to insure its intent is clear. In Section 5 of EHB 2957, the legislature directed Ecology to work with other agencies and stakeholders to update guidance for marine net pen aquaculture, and specifically directed that the guidance "must be designed to eliminate commercial marine net pen escapement." Given the legislature's direction to eliminate all fish escapement from marine net pens, Ecology believes it is appropriate for the Permit to include a prohibition on all fish escapements, rather than just intentional or negligent fish releases. If the permittee believes a release is due to circumstances beyond their control, they can use the upset defense under Condition G15.

Comment: Comments on the Draft NPDES Permits Page 6-

As noted above, the S1 discharge limitations have been changed significantly. The prior permits, following PCHB decisions, prohibited the negligent or intentional discharge of Atlantic salmon.

Response: See response above.

General Comment Category: Conditions for the Structural Integrity Assessment Report

Comments on the Draft Fact Sheets for NPDES Permits:

Page 15-Cooke disagrees with the additional requirement that the net pen Structural Integrity Assessment Report be carried out only when net pens are fallow".

Comments on the Draft NPDES Permits:

Page 22 Condition S7. Structural Integrity Assessment Report: As discussed above, requiring an engineering inspection within two years of issuance of the permit but only during a period when the site is fallow could significantly restrict the ability to accomplish this requirement in a timely manner. As there does not appear to be any benefit to this added language Cooke suggests removing the term "when the pens are fallow" in this condition.

Response: This requirement was codified in law in RCW 77.125.060 - Facility operator must hire marine engineering firm to conduct inspections. EHB 2957 was signed and it stated (bolded added): *A new section is added to chapter 77.125 RCW to read as follows: 1) For marine finfish aquaculture, the facility operator must hire, at their own expense, a marine engineering firm approved by the department to conduct inspections. Inspections must occur approximately every two years, **when net pens are fallow**, and must include topside and mooring assessments related to escapement potential, structural integrity, permit compliance, and operations.*

Ecology interprets and conditioned the permit to have the assessment done approximately every two years but more importantly when it's fallow. Ecology added more clarity to this special condition to better define. It now states ". Inspections must occur within two years of the effective date of the **permit if not completed and to be done routinely, approximately every two years**, when net pens are fallow, and must include current Doppler data, topside and mooring assessments related to escapement potential, structural integrity, permit compliance, and operations.

Comment: Comments on the Draft Fact Sheets for NPDES Permits:

Page 14-The reference to BMPs "effectively addressing DO during the critical period" is unclear. To what BMPs is this referring, and what is Ecology's definition of the critical period?

Response: This statement was corrected. The use of bubblers to create upwelling is not a BMP to add DO to the water column but is used to displace surface waters that have harmful algae from coming in contact with the fish. Additionally, the practice also aids with fish respiration and reduces stress during lower DO times of the year. The water current creates flow across the gills thereby reducing fish's need to use its gill plates to move oxygenated water.

Comment: Comments on the Draft NPDES Permits:

Page 6-7 S2.A – The sample locations refers to Appendix B. This should be Appendix C Which shows the sediment sampling station locations.

Response: Permit corrected.

Comment: Comments on the Draft NPDES Permits:

Page 9, comment on Table 1, Puget Sound TOC Reference Values. Cooke continues to express their concern regarding the Total Organic Carbon (TOC) threshold level in the 0-20% TOC level. Cooke believes Ecology should review the information used to establish the TOC criteria for the marine net pen sediment management standards and consider updating or modifying the 0-20% silt-clay TOC criterion.

Response: Comment noted. Revising the net pen sediment management standards is beyond the scope of this permit reissuance.

Comment: Comments on the Draft NPDES Permits:

Page 13 S3.A. Discharge Monitoring Reports. Number 6. Current: The Permittee must report the daily max and average current on the monthly DMR. Cooke believes this item was erroneously included in the draft NPDES permits by Ecology and believes the condition should be removed from the final permit. As Ecology is aware, Cooke has gathered Doppler current data for all of its sites, and is using those data to do further mooring analysis and engineering.

Response: Corrected and incorporated current monitoring into Structural Integrity Assessment reporting. Documentation of current velocities will be reported in the Structural Integrity Assessment through a Doppler current assessment conducted concurrently.

Comment: Comments on the Draft NPDES Permits:

Page 14-15 S3.A. Discharge Monitoring Reports. Number 13-18 in this section appear to be boilerplate language originating from other types of discharge permits issued by Ecology. These conditions do not appear to be applicable to marine net pen NPDES permits. Cooke suggests that these conditions be removed from the final permits to avoid confusion.

Response: Reordered these conditions to fall under expectations for Discharge Monitoring Reports generally and deleted number 18.

Comment: Comments on the Draft NPDES Permits:

Page 16 S3.E. Additional Monitoring by the Permittee. Cooke disagrees with the inclusion of the very broad term water quality monitoring into this condition of the draft permit language for several reasons.

Response:

Under 40 CFR § 122.41(1)(4)(ii), if a permittee monitors any pollutant more frequently than required by its permit, using test procedures approved under 40 CFR Part 136, the results of such monitoring shall be included in the DMR. Amended language to clarify.

Comment: Comments on the Draft NPDES Permits:

Page 18 S4. Operation and Maintenance: Language in this section discusses the requirement for back up or auxiliary systems. "This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the condition of this permit." Cooke is unaware of any way to operate a backup or auxiliary facility for each net pen site and believes this language does not apply to marine net pen permits. Cooke suggest roving it from the final permit to avoid confusion.

Response: Removed the sentence.

From the organization *Friends of the Earth*, authored by Hallie Templeton, letter uploaded to eComments 2/25/2019

Comment: *Escaped Atlantic salmon adversely affect wild fish stocks.*

Response: Comment noted. Please see General Responses #2 Effects on native salmon, #3 Effects on the Southern resident orca whales and Puget Sound ecosystem, and #4 Presence of escaped Atlantic salmon.

Comment: *Another vital concern is the discharge of excess food, feces, antibiotics, and antifoulants associated with industrial ocean fish farms.*

Response: Comment noted. This discharge is addressed through best management practices that are requirements of the permit. Please see General Response #7 Net pen pollutant discharges and AKART.

Comment: *Production of feed for farmed fish uses natural forage fish commercially harvested in unsustainable quantities and the switch from forage fish to genetically engineered ingredients such as corn, soy, and algae is also problematic.*

Response: Comment noted. At the recent World Aquaculture Conference in March 2019, the industry described through several sessions that they fully recognized consumer sentiment for sustainable, responsible production of feed. The industry is rapidly moving away from using forage fish products in the production of feed. Plant-based oils and protein are being utilized.

The industry must routinely test for pesticides, PCBs, dioxin, and metals providing assurances to aquaculture facilities of the purity of the feed.

From Martha Hall, eComment submitted 2/19/2019

Comment: *Permittee self-reporting, conflicts of interest, and accountability for the collapse and future compliance.*

Response: Comment noted. Please see General Response to Comments #6. The Department of Ecology and other regulatory agencies across the United States enforce NPDES compliance through self-reporting by the permittee and their contractors. Negligent or false reporting are not common and are subject to civil and criminal enforcement. Ecology takes compliance very seriously.

For instance for Cooke in particular, Ecology directed Cooke to fix water quality violations at their dock on Bainbridge Island near their net pen facility in Rich Passage once the agency began receiving citizen complaints in August 2016. As a result, the Washington Department of Ecology issued Cooke an \$8,000 penalty for violating state law. It is illegal to pressure wash or repair equipment, boats, nets, docks, vehicles, etc. over the water. In addition to the penalty, Cooke is required to immediately stop allowing pressure washing wastewater to enter Puget Sound.

In January 2018, Ecology penalized Cooke \$332,000 for the negligent release of Atlantic salmon into Puget Sound. Cooke violated their water quality permit leading up to, and during, the net pen collapse near Cypress Island in August 2017. Cooke was fined for violating the following conditions of their water quality permit:

- Poor net cleaning and maintenance
- Failing to follow required protocol for repairs
- Insufficient attention to engineering

In regards to the Cypress Island Site 2 net pen collapse, cleanup at the Cypress Island Site 2 has occurred to the specification of the lease terms for complete removal of the underwater structures and debris. The WDNR requires aquatic land lessees post a bond for cleanup obligations during and after use. WDNR conducted an underwater survey in April 2018 to confirm all debris from the collapse was removed from the bottom of Deepwater Bay.

Ecology requires through the NPDES permit that the sediment condition of Site 2 be returned to historic conditions of the area. The monitoring report was just submitted and compliance assessment is prescribed through requirements in the NPDES permit and Sediment Management Standards (WAC 173-204-412). This assessment is currently taking place by Ecology NPDES permit compliance staff.

The leases at Cooke's Cypress Island and Port Angeles sites have been revoked due to maintenance concerns. Cooke has appealed the Port Angeles revocation. After the Cypress Island Site 2 collapse, WDNR issued a net hygiene monitoring protocol for Cooke to implement to help protect against a similar failure in the future. Since June 2018, Cooke has been implementing the protocol.

Comment: *Ecology's Section 7(d) Obligations during ESA Consultation-OSOS requests that Ecology should defer issuing the permits until EPA and NMFS complete the ESA consultation on EPA's approval of Ecology's sediment management standards for marine finfish rearing facilities.*

Response: Ecology believes it is better to issue this updated permit now, rather than wait for EPA and NMFS to complete consultation on the sediment management standards that EPA previously approved. The permits have reopener clauses that can be invoked if necessary to modify or revoke a permit based on new information that may be developed as part of the consultation process.

Comment: *Discharge of Chemical and Pharmaceutical Pollutants*

Response: Comment noted. This discharge is addressed through best management practices that are requirements of the permit. Please see General responses #2, #3, and #7.

Comment: *Feed Discharge Impacts to Native Fishes*

Response: Comment noted. This discharge is addressed through best management practices that are requirements of the permit. Please see General response #2 #3, and #7.

Comment: *Attraction, Entrainment, and Discharge of Native Fishes*

Response: Comment noted. Please see General response #2 and #3. Telemetry work done by Rechisky et al. (2018) in the Discovery Islands of British Columbia indicated the majority of sockeye salmon swam past net pens. The median detection time near farms was approximately 4.5 minutes.

Comment: *Amplification and Discharge of Pathogens and Parasites*

Response: Comment noted. The WDFW has the authority to regulate fish health and biosecurity. Please see General responses #1 and #8.

From Mary Brown, oral testimony 2/7/2019 and letter sent to Ecology postmarked 2/25/19

Comment: *And so it is my understanding that the fish farm fish are fed herring and that means less herring in the waters for the wild salmon. And because they have less herring to eat, they are starving. And because the orcas have less salmon to eat that they are starving too. So I just want us to think more about the overall web of life in which we are participants.*

Response: Comment noted. Herring is not commercial harvested in state waters of Puget Sound or the Washington coast (up to 3 miles offshore).

From the organization Orca Conservancy, authored by Shari L. Tarantino, letter uploaded to eComments 2/25/2019

Comment: *Existing guidelines clearly state that open net fish farms should not be sited within 300 feet of habitat for threatened or endangered species and the farms are within the critical habitat for Southern Resident orcas.*

Response: Please see General Response #4 for more details. The Environmental Protection Agency (EPA) submitted a revised Biological Evaluation to the National Marine Fisheries Service (NMFS) on December 13, 2010 (EPA 2010 BE), as the result of a court ruling instructing the agency to incorporate new information and science. In accordance with the Endangered Species Act Section 7(a)(2), EPA requested concurrence from NMFS on its not likely to adversely affect determination for its proposed approval of the new and revised portions of Chapter 173- 204 WAC Sediment Management Standards (SMS), specifically WAC 173-204-412 Marine Finfish Rearing Facilities.

After reconsidering a previous Biological Evaluation (2008) along with additional analysis with the best available scientific information, EPA concluded that its proposed approval of the revised SMS provisions is not likely to adversely affect listed fish species or marine mammals or their

critical habitat. This included Chinook salmon, steelhead and orcas. The additional analysis used the best available science, such as the following two recovery plans:

1. National Marine Fisheries Service. 2007. Puget Sound Salmon Recovery Plan. Shared Strategy for Puget Sound adopted by National Marine Fisheries Service. Volumes I and II
2. National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington.

In April 2011, NMFS concurred with EPA's determination that the proposed approval action may affect, but is not likely to adversely affect listed fish species or marine mammals or their critical habitat in Puget Sound.

Comment: *Concern with use of SLICE® relative to listed salmon species.*

Response: SLICE® (active ingredient emamectin benzoate) is not listed as a disease control chemical in the application materials Cooke submitted. Ecology has conditioned the permits to include a provision that Ecology must approve the use of any USFDA or USEPA authorized drug prior to use if the drug is not listed in the permit application. Emamectin benzoate disrupts nerve signals in arthropods. SLICE® is a product that contains emamectin benzoate specially designed to apply to fish feed that is then fed directly to affected fish.

SLICE® is registered in the Investigational New Animal Drugs (INADs) Program. The permit allows the use of this category of drug. The Investigational New Animal Drugs Program is a program run by the US Fish and Wildlife Service (USFWS). There are limitations or restrictions on the use of INAD drugs like SLICE®. The permittee and the veterinarian must follow all the instructions in the Study Protocol regarding drug acquisition and handling, fish treatment and disposition, and data reporting requirements. ***Most importantly, the permittee must complete Facility Effluent Information Form and obtain NPDES acknowledgement/permission for discharge of SLICE® before use as prescribed under the INAD protocols.***

From the organization *Our Sound Our Salmon*, authored by Kurt Beardslee, letter upload via eComments 2/25/2019

Comment: *Ecology's Section 7(d) Obligations during ESA Consultation-OSOS requests that Ecology should defer issuing the permits until EPA and NMFS complete the ESA consultation on EPA's approval of Ecology's sediment management standards for marine finfish rearing facilities.*

Response: Ecology believes it is better to issue this updates permit now, rather than wait for EPA and NMFS to complete consultation on the sediment management standards that EPA previously approved.. The permits have reopener clauses that can be invoked if necessary to modify or revoke a permit based on new information that may be developed as part of the consultation process.

Comment: *Concern about Air and Noise Pollution Impacts to Adjacent Lands*

Response: Comment noted. NPDES permits (the permit under consideration for reissuance) is a water quality permit that is designed to regulate discharge of pollutants to waters of the state. Air and noise impacting the local land use is addressed through a local process through county or city planning regulated by the Shoreline Management Act and implemented by a Shoreline Management Program.

Comment: *Light Pollution Impacts to the Nearshore Environment + ESA-Listed Species-*
Response: Comment noted. Please see General response #2 and #3.

Comment: *Feed Discharge Impacts to Native Fishes*
Response: Comment noted. This discharge is addressed through best management practices that are requirements of the permit. Please see General response #2 #3, and #7.

Comment: *Attraction, Entrainment, and Discharge of Native Fishes*
Response: Comment noted. Please see General response #2 and #3. Telemetry work done by Rechisky et al. (2018) in the Discovery Islands of British Columbia indicated the majority of sockeye salmon swam past net pens. The median detection time near farms was approximately 4.5 minutes.

Comment: *Discharge of Chemical and Pharmaceutical Pollutants*
Response: Comment noted. This discharge is addressed through best management practices that are requirements of the permit. Please see General responses #2, #3, and #7.

Comment: *Amplification and Discharge of Pathogens and Parasites*
Response: Comment noted. The WDFW has the authority to regulate fish health and biosecurity. Please see General responses #1 and #8.

Comment: *Fish Flesh Discharge*
Response: This discharge is addressed through best management practices that are requirements of the permit. The permittee's Pollution Prevention Plan states "Normal fish mortalities (morts) are collected from each pen a minimum of three times per week. Frequency of mortality removal is to be increased as needed depending on the mortality rates."

Comment: *Revised Pollutant Reporting Requirements*
Response: Current biomass and feed reporting allows Ecology to calculate FCR providing a monthly monitoring point to compare with other months and note abnormalities. Currently, FCRs range from 1.2 to 1.7. Monitoring of the sediment bottom is used to determine effects of nutrients in the feed and waste within the SIZ. Temperature was previously determined to not be a pollutant produced by the net pen facility.

Comment: *Transition to Closed-Containment*
Response: Please see General response #9.

From the organization RESources for Sustainable Communities, authored by Kirsten McDade and Eleanor Hines, letter uploaded to eComment 2/25/2019

Comment: *A threat to native species: Net pens have the potential to have adverse effects on the orca food chain including ESA listed Chinook and forage fish.*

Response: See General Responses #2 Effects on native salmon, #3 Effects on the Southern resident orca whales and Puget Sound ecosystem, and #4 Presence of escaped Atlantic salmon

Comment: *Uncontrolled pollutants contaminating our ocean: We are also concerned with the pollutants that are associated with the net pens.*

Response: See General Responses #7 Net pen pollutant discharges.

Comment: *Unreliable technologies: We interpret the Pollution Control Hearings Board (PCHB) on three alternative technologies (potential AKART) that the current technology used at the net pen facilities may not be reliable to prevent or control waste discharges.*

Response: Prior to 2002, the PCHB determined that three closed containment technologies were not AKART. While closed containment or land based operations is being experimented with across the county and in Canada, the economic costs and scale up issues continue to indicate that the technology is not AKART. Through best management practices that are requirements of the permit, see General Response #7, pollutants are limited and effects monitored.

Comment: *Questionable record from Cooke Aquaculture and request for third party monitoring.*

Response: Comment noted. Please see General Response to Comments #6. The Department of Ecology and other regulatory agencies across the United States enforce NPDES compliance through self-reporting by the permittee and their contractors. Negligent or false reporting are not common and are subject to civil and criminal enforcement. Ecology takes compliance very seriously.

For instance for Cooke in particular, Ecology directed Cooke to fix water quality violations at their dock on Bainbridge Island near their net pen facility in Rich Passage once the agency began receiving citizen complaints in August 2016. As a result, the Washington Department of Ecology issued Cooke an \$8,000 penalty for violating state law. It is illegal to pressure wash or repair equipment, boats, nets, docks, vehicles, etc. over the water. In addition to the penalty, Cooke is required to immediately stop allowing pressure washing wastewater to enter Puget Sound.

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- Poor net cleaning and maintenance
- Failing to follow required protocol for repairs
- Insufficient attention to engineering

In regards to the Cypress Island Site 2 net pen collapse, cleanup at the Cypress Island Site 2 has occurred to the specification of the lease terms for complete removal of the underwater structures and debris. The WDNR requires aquatic land lessees post a bond for cleanup obligations during and after use. WDNR conducted an underwater survey in April 2018 to confirm all debris from the collapse was removed from the bottom of Deepwater Bay.

Ecology requires through the NPDES permit that the sediment condition of Site 2 be returned to historic conditions of the area. The monitoring report was just submitted by a contractor to Cooke and compliance assessment is prescribed through requirements in the NPDES permit and Sediment Management Standards (WAC 173-204-412). This assessment is currently taking place by Ecology NPDES permit compliance staff.

The leases at Cooke's Cypress Island and Port Angeles sites have been terminated due to maintenance concerns. Cooke has appealed the Port Angeles cancellation. After the Cypress Island Site 2 collapse, WDNR issued a net hygiene monitoring protocol for Cooke to implement to help protect against a similar failure in the future. Since June 2018, Cooke has been implementing the protocol.

From Rich Passage Home Owners Association, authored by Kathleen Hansen, letter sent to Ecology postmarked 2/16/2019

Comment: *At the end of the growing cycle all stock and predator nets must be removed from the facility by barge and transferred to an upland facility for complete cleaning and repair. And in-situ washing of nets with pressurized seawater may only be used during the growing cycle to minimize biofouling.*

Response: Comment noted. In the Pollution Prevention Plan submitted in the application materials Cooke identifies net washing practices that are similar to your request but do not specify barging nets offsite.

1. No anti-foulant paint will be used on the netting materials at the farm sites.
2. Fish containment nets are typically pulled to the surface once per year. Net rotations or net changes can occur during the production cycle of the fish and clean fish containment nets can be rotated into the farm during the growing period to minimize the amount of marine fouling growth on the nets.
3. Nets will be frequently rinsed in-situ with pressurized seawater to minimize bio-fouling growth. If large amounts of growth begins to occur it will be collected and taken to an upland soil composting facility.
4. At the end of the growing cycle after the fish have been harvested out, the nets are removed from the water and transported to a land based cleaning and repair facility.
5. Cleaning and repair of the nets is to be carried out by an approved net repair facility that is designed for this purpose. Materials washed from the nets will be captured and disposed of properly.

Comment: *During in-situ washing how are portions of the net pen structure itself not affected by underwater washing as reference in Section 2. O&M Manual Components, Subsection s? "The Permittee may not pressure wash any portion of the net pen structure or any equipment...."*

Response: Comment noted. This requirement is meant to prevent intentional washing of the structure.

Comment: *During potential net rotations, how are possible escapements monitored, reported, and prevented?*

Response: The Fish Escape Prevention Plan and the Fish Escape Reporting & Response Plan both lay out how the permittee will prevent, monitor, and report such escapes. These plans are submitted to Ecology annually and must meet the conditions of the current permit.

Comment: *Require notification to both Ecology and Cooke's permit coordinator when activities or maintenance by the net pen operator can affect water quality. Inspection or on-site verification of containment measures. Alternatively, video confirmation of processes could be utilized to demonstrate measures.*

Response: Comment noted. The permit states that the permittee must conduct maintenance to prevent operational debris from entering waters of the state.

Comment: *Why are fish mortalities pegged at 5%?*

Response: The current condition in the NPDES permit requires the permittee to contact the Washington Department of Health (DOH) and Ecology if within one week the facility experiences mortalities at 5% or greater. This is considered indicative of a harmful algal toxin exposure. Lower mortality rates are experienced and are attributed to other fish health issues. These are reported to and regulated by the Washington Department of Fish and Wildlife.

Comment: *Define when to remove solid waste, recyclable and operational materials such as pallets either in terms of time or quantity such as one week or no more than 220 pallets. Replace the use of the word routinely with specific times and require securing prior to storms.*

Response: Comment noted. The permit states that the permittee must operate in a way to prevent operational debris from entering waters of the state.

Comment: *Replace the words routinely, promptly, and periodically with more specific language related to the inspections of mooring components both above and below the water. The net pen operator should report any failures of the mooring points and anchor structures to Ecology which could reveal a pattern of deficiencies. Ecology should play a strong role in defining routine maintenance to ensure that all pollution prevention and containment measures are applied and verified.*

Response: Comment noted. The permit requires a structural engineering assessment every two years. This is a new permit requirement. With this requirement and the net hygiene protocol WDNR has required Cooke to implement, there is sufficient specificity in the NPDES permit.

Comment: *Cooke often runs generators to address Dissolved Oxygen levels outside the reportable August 15th to September 30th period. Why aren't they required to monitor and report whenever they are running their generators to address DO?*

Response: This activity does not manage for dissolved oxygen. It is to manage for harmful algal blooms by upwelling water from below to prevent algae-concentrated surface waters from entering the net pens. It also helps to create water flow to reduce stress by removing the fish's need to physically move their gill plates to pass water over the gills.

Comment: *How will Ecology ensure that refresher training does in fact occur and that new employees are trained in a timely manner? An Employee once admitted that he didn't know there was a plan of Operations as part of their DNR lease for example.*

Response: Comment noted. During inspections, records will be reviewed and staff may be asked about training they have received.

Comment: *The Pollution Prevention Plan that is included in the application is dated April 2017, before Cypress Island and the inspection that followed of other net pen facilities. We are asking that the Pollution Prevention Plan be updated to include the requirements in Ecology's NPDES Permit Draft and to include the recommendations that we outlined here that impact water quality.*

Response: Ecology requires updated Pollution Prevention Plans to be submitted annually that incorporate the current permit conditions. No matter when the plan is submitted, once the permit is active, the permittee must operate in accordance with current permit requirements and conditions. This includes using the required new best management practices stated in the permit under Special Condition S.8 (Pollution Prevention Plan).

Comment: *We are also recommending that any future consideration related to the rearing of native fish be viewed as a substantial modification to the NPDES permit. WDFW stated in testimony last year that they are much more concerned about the escapement of native fish and its effects on wild populations.*

Response: The NPDES permit requires the permittee to identify what species is to be raised in the net pen facilities. The permittee is required to submit a permit modification for a change of species. A change of species will be seen as a major modification by Ecology and require a public process. Additionally, the Marine Finfish Aquaculture Permit issued by WDFW that Cooke must maintain to operate will require a public process if a different species such as a native fish is considered to be raised at any facility. That public process would be led by WDFW.

From Stephanie Ross, oral testimony 2/7/2019

Comment: *I would like to start by submitting to the record a letter which was sent to congress by 130 different fishing organizations and fishermen representing thousands of people, which is a direct opposition to all marine fin fish aquaculture in US waters. I have 100 copies of those over there if anybody's interested so we have some kind of perspective about jobs here. I was authorized to do this by the Pacific Coast Federation of Fishermen's Association. So that's in the record. And I would like to just go over a few points in this very briefly. The people who submitted this in December 2018 said, "We depend on a healthy marine ecosystem to supply quality, abundant wild fish stocks. Marine fin fish aquaculture pollutes the natural ecosystem, degrades and threatens wild fish stocks, and challenges the economic stability of commercial fishermen, American commercial fishing, and marine fin fish aquaculture cannot coexist.*

Response: Comment and letter noted. The 1990 Environmental Impact Statement for Fish Culture in Floating Net Pens (Parametrix 1990), found through existing SEPA review, HPA, and Section 10 permitting with targeted public outreach to tribal and commercial fishers, net pens could be sited to avoid significant adverse impacts.

From the organization Whidbey Environmental Action Network, authored by Steve Erickson, letter uploaded to eComments 2/24/2019

Comment: *Ecology must apply "all known available and reasonable methods" (AKART) to the introduction and discharge of contagious pathogens which may infect native aquatic life, particularly salmonids.*

Response: Please see General Responses #1 Risk of disease transmission and #7 Net pen pollutant discharges and AKART. The WDFW is the regulatory authority for fish health and biosecurity of aquaculture in Washington State. In accordance to WAC 220-370, all net pen facilities are required to obtain from WDFW a Marine Finfish Aquaculture permit. These permits have conditions directing their farming operations to conform with:

- Plan of Operation Atlantic Salmon Rearing
- Fish Escape Prevention, Response, and Reporting Plan
- Regulated Finfish Pathogen Reporting Plan

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Dennis Clark-WDNR
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Bricknell1, I. R., S. J. Dalesman, B. O’Shea1, C. C. Pert, A. J. M. Luntz. 2006. Effect of environmental salinity on sea lice *Lepeophtheirus salmonis* settlement success. Diseases of Aquatic Organisms 71: 201-212.

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Parametrix. 1990. Final programmatic environmental impact statement fish culture in floating net-pens. Prepared by Parametrix Inc., for Washington State Dept. Fisheries, 115 General Administration Building, Olympia, WA 98504, 161 p.

PCHB Rulings:

Order of Partial Dismissal, PCHB Nos. 96-257 and 96-268, June 1, 1998

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