FACT SHEET FOR NPDES PERMIT WA0031534
COOKE AQUACULTURE PACIFIC, LLC
FORT WARD SALTWATER II

Purpose of this Fact Sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Cooke Aquaculture Pacific, LLC, Fort Ward Saltwater II.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least 30 days before issuing the final permit. Copies of the fact sheet and draft permit for Cooke Aquaculture Pacific, LLC, Fort Ward, NPDES permit WA0031534, are available for public review and comment. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Cooke Aquaculture Pacific, LLC, reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as **Appendix D - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

Summary

Cooke Aquaculture Pacific, LLC (Cooke), Fort Ward is a marine net pen facility rearing Atlantic salmon *(Salmo salar)* to market to market size. This facility is located in Rich Passage near Fort Ward and adjacent to Bainbridge Island in Kitsap County.

There are 12 cages at the Fort Ward location and the aggregate length and width of net pens is 650 feet x 185 feet. The individual pens are approximately 82.5 feet square and 35 feet deep. The minimum depth at the site (at MLLW) is 45 feet.

The previous permit for this facility was issued in 2007, and administratively extended in 2012. In 2018, following the collapse of Cooke's net pen facility Cypress Island—Site 2 and the resulting escape of approximately 250,000 Atlantic salmon, the Washington State legislature passed Engrossed House Bill 2957, phasing out marine rearing of non-native finfish as the facility aquatic lands leases expire. Under the provisions of EHB 2957, Ecology is authorized to renew the NPDES permits for the marine Atlantic salmon net pens until the leases, administered by Department of Natural Resources (DNR) expire. Once the lease expires, the NPDES permit remains in effect

through facility closure to ensure protection of water quality. Ecology anticipates this to be the final reissuance of this permit for this facility to raise non-native fish. If the facility elects to raise native finfish in the future, Ecology will consider a permit modification and may apply the discharge limits and requirements of this permit to native finfish.

This permit increases the frequency of sediment sampling from twice per permit cycle to annually during the critical summer period between August 15 and September 30. Also, additional sediment monitoring will be conducted during the period of estimated peak biomass that is defined as 45 days after the first harvest. Harvests can take place for several months (up to 4-5 months) as the permittee coordinates harvest with market activity that impacts size of fish needed. Underwater video survey is also required annually rather than twice per permit cycle. Daily dissolved oxygen (DO) sampling at the edge of the pens in August and September has been added to the permit. Documentation of current velocity has been added to this permit, which is part of the structural assessment report, as strong currents contribute to wear on the net pen structures. With this issuance of the permit, the Permittee is required to use the Water Quality Permitting Portal to submit electronic discharge monitoring reports (DMRs) and other required permit submittals and reports.

As part of the required pollution prevention plan, fish escape prevention plan, and fish escape reporting and response plan, this permit adds requirements related to engineering documents, notification of structural issues and repairs, net cleaning to prevent excess biofouling, and staff training in escape prevention and response.

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I. INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC)
- Water quality criteria for ground waters (chapter 173-200 WAC)
- Whole effluent toxicity testing and limits (chapter 173-205 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix D**.

The presence of Atlantic salmon rearing in Washington State dates back to the 1970s when the first Atlantic salmon farm was established by the National Oceanic and Atmospheric Administration (NOAA) at their Manchester facility. Atlantic salmon farms became economically viable in the 1980s, and in 1991, the Net Pen Advisory Workgroup (NPAW) was formed to provide input for a model NPDES permit for marine Atlantic salmon net pens. The group consisted of state and local regulators, tribes, industry, and environmental groups. The permit developed by NPAW was used as a model for 12 individual marine salmon net pen NPDES permits issued in September 1996. Ten of those permits were appealed to the Pollution Control Hearings Board (PCHB) by environmental groups based on challenges citing the Clean Water Act, the state Water Pollution Control Act, and the State Environmental Policy Act (SEPA).

Between 1996 and 1999, three separate large escapes occurred, totaling approximately 590,000 fish. In November 1998, the PCHB issued its final ruling, raising concerns about large escapes of Atlantic salmon from net pen facilities and remanded the permit to Ecology with directions to incorporate additional conditions. Requirements for escape prevention and response plans were developed by the Washington Department of Fish and Wildlife (WDFW) and codified in WAC 220-370-110 and WAC 220-370-220. Escape prevention and response plans developed to comply with these WACs were submitted by the previous owner of the net pens, American Gold Seafoods, in May 2005. These plans and their updates have historically been considered to satisfy the plan requirements of the NPDES permit, and were incorporated in the reissuance of the permit. The permit was reissued in 2007, and upon timely submission of reapplication, was administratively extended in 2012.

The net pens in Puget Sound have changed owners several times since the original permits were issued in 1996. In April 2017, the current owner of the eight marine Atlantic salmon net pens in Puget Sound, Cooke Aquaculture Pacific, LLC (Cooke), submitted applications for renewal of the NPDES permits.

In August 2017, Cooke's Cypress Island Site 2 facility experienced a catastrophic structural failure that caused the release of approximately 250,000 Atlantic salmon into Puget Sound. Following the Cypress Island 2 escape, the 2018 Washington Legislature passed, and Governor Inslee signed, Engrossed House Bill 2957 , prohibiting the use of non-native finfish for commercial marine net pen aquaculture, and requiring the phase-out of Atlantic salmon facilities on state aquatic lands as their leases expire, over the next four to seven years. Under the bill, Ecology is authorized to issue and administer NPDES permits to the Atlantic salmon net pen facilities for the duration of their operations, as long as they have valid aquatic lands leases with the Washington Department of Natural Resources (WDNR) in effect on June 7, 2018 (RCW 77.125.050). This reissuance of the permits is intended to continue to ensure compliance with water quality and sediment quality standards, as well as apply the lessons learned from the 2017 Cypress Island Site 2 failure, in order to prevent fish escapes for the duration of the marine Atlantic salmon net pen industry in Washington State.

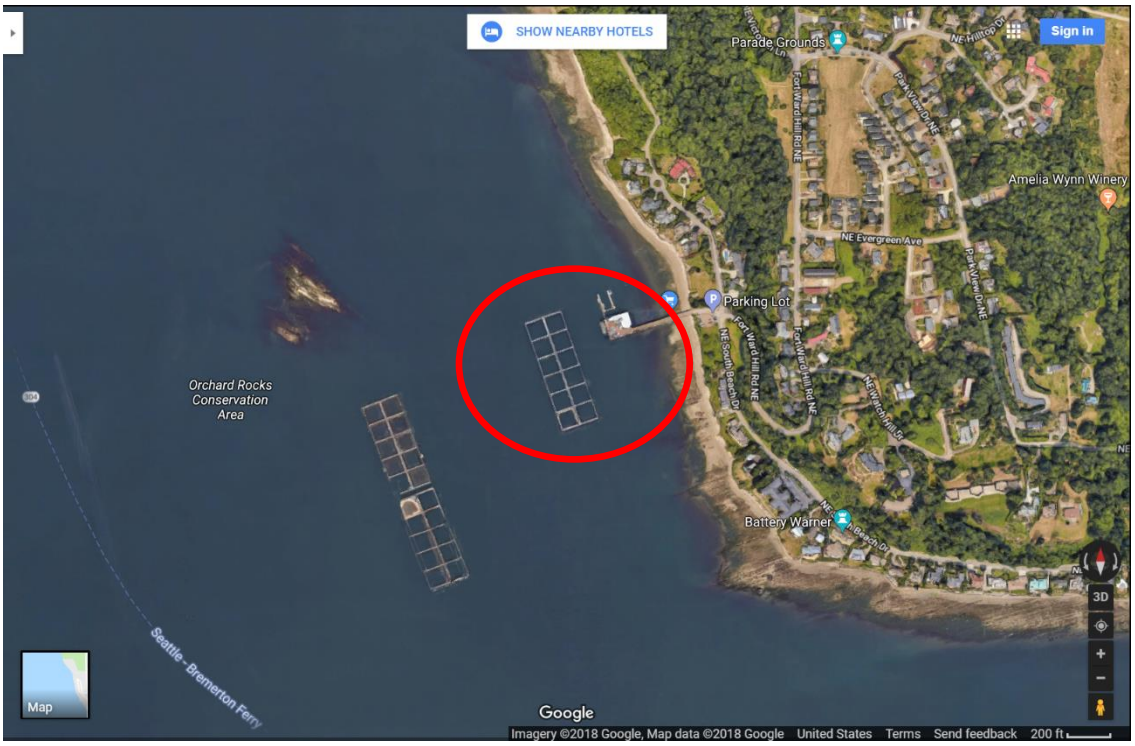
II. BACKGROUND INFORMATION

Table 1 General Facility Information

Facility Information	
Applicant:	Cooke Aquaculture Pacific, LLC
Facility Name and Address	Fort Ward Saltwater II PO Box 79003 Seattle, WA 98119
Contact at Facility	Name: Kevin Bright, Permit Coordinator Telephone #: 360-391-2409
Responsible Official	Name: Rodney D. Gould Title: Chief Legal Officer Address: P.O. Box 79003, Seattle, WA 98119
Industry Type	Marine Atlantic salmon net pen
SIC Codes / NAICS Codes	0273 / 112511
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47° 34’ 30” N Longitude: 122° 31’ 30” W
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Rich Passage Latitude: 47° 34’ 30” N Longitude: 122° 31’ 30” W

Permit Status	
Issuance Date of Previous Permit	October 26, 2007
Application for Permit Renewal Submittal Date	April 17, 2017
Inspection Status	
Date of Last Non-sampling Inspection Date	September 28, 2017

Figure 1 Facility Location Map



A. Facility Description

History

Cooke Aquaculture Pacific, LLC (Cooke), Fort Ward is a marine net pen facility rearing Atlantic salmon (Salmo salar) to market to market size. This facility is located in Rich Passage near Fort Ward and adjacent to Bainbridge Island in Kitsap County.

There are 12 individual stock pens at the Fort Ward location with the aggregate length and width of the array totaling 650 feet x 185 feet. The individual pens are approximately 82.5 feet square and 35 feet deep. The minimum depth at the site (at MLLW) is 45 feet.

Industrial Processes

Marine salmon net pens fall under the definition of marine finfish rearing facilities, defined by RCW 90.48.220 as "those private and public facilities located within the salt water of the state where finfish are fed, nurtured, held, maintained, or reared to the size of release or for market sale.

Marine salmon net pens located in state waters are operated to rear fish for eventual release (enhancement) or rear fish for eventual market sale (commercial).

Marine salmon net pens which produce more than 20,000 net pounds of fish annually or feed more than 5,000 pounds of fish food per calendar month meet the federal and state NPDES discharge permit threshold requirements and are required to obtain permit coverage (WAC 173-221A-110). Most of the

enhancement facilities are presently not required to obtain an NPDES permit because their production levels are below the current permit threshold requirements.

The descriptions and requirements of this permit are intended to solely address commercial rearing of Atlantic salmon in marine net pens.

Atlantic salmon are reared in marine net pens for eventual harvest and market sale. Harvesting is an iterative process sometimes taking up to four months to completely harvest out the fish of a single age class or cohort. The pens operate year-round. The rearing densities at these facilities range from 1 to 1.5 pounds of fish per cubic foot. Marine net pens may have a measurable environmental effect on the seafloor in the immediate vicinity of the pens due to the accumulation of fish waste and uneaten fish food

Cooke Aquaculture Pacific, LLC, based in Washington State, bought its Washington farms from Icicle Seafoods in May 2016 in an acquisition valued at $70 million. The company has fish farms in multiple countries and employs about 5,000 people worldwide. Cooke used to employ over 80 individuals in Washington State. However, the number of employees is reduced due to layoff after cancellation of DNR leases.

Cooke imports eggs from Iceland which are reared in freshwater hatcheries for 12 to 16 months. The smolts are then transferred to the net pens and reared in the marine environment for 18 to 24 months until they reach harvest size (approximately 10 pounds). The fish are harvested prior to reaching sexual maturity.

The following state and federal agencies have regulatory authority over the marine salmon net pen industry in Washington State:

- Washington State Department of Fish and Wildlife (WDFW) – Management and regulatory authority over commercial aquaculture for genetic, ecological, or fish health risks to naturally occurring fish and wildlife, their habitats, or other fish rearing programs.
- Department of Agriculture – Jointly develops regulations for commercial aquaculture with WDFW.
- Department of Ecology – Regulates the discharges from net pens by issuing NPDES permits containing operational conditions to protect water quality and sediment standards.
- Department of Natural Resources (DNR) – Leases aquatic lands to net pen operators.
- Washington State Counties – Issue Shoreline Permits to net pens to operate in State waters.
- Treaty Tribes of Washington State – Tribes co-manage natural resources in Washington and have input into aquaculture disease control regulations developed by WDFW.
- National Marine Fisheries Service (NMFS) – NMFS administers Endangered Species Act (ESA) for anadromous salmonids.
- Army Corps of Engineers – The Corps requires net pens to have a “Section 404” navigation permit.

Solid Wastes

The Permittee is required to handle and dispose of all solid waste material in such a manner as to prevent its entry into state waters. Solid wastes of concern for marine salmon net pens include fish mortalities under normal operations, fish mortalities due to a fish kill involving more than five percent of the fish, blood and waste from harvesting operations, and sanitary waste and operational debris. The Permittee is required to develop a pollution prevention plan that addresses how solid and biological wastes are collected, stored, and ultimately disposed of at an upland facility.

Ecology has guidance related to net pens at https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Aquaculture/State-guidance-for-net-pens.

B. Description of the Receiving Water

The Cooke Aquaculture marine salmon net pen facilities are located in marine waters designated as excellent (Hope Island) or exceptional (Orchard Rocks, Clam Bay, Fort Ward). The characteristic uses of these designations are:

- Aquatic life uses. Salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

- Shellfish harvest

C. Discharge Characterization

Discharges from these facilities may contain the following potential pollutants: uneaten fish feed, fish feces, disease control chemicals administered in feed, marine fouling organisms displaced from the nets during routine net cleaning, and escaped fish.

The primary water quality concerns associated with marine net pens are nutrient loading and sediment organic enrichment.

The following categories of conventional and nonconventional pollutants are based on federal NPDES regulations (40 CFR 401.16):

- Nonconventional pollutants: turbidity, disease control medications (Romet 30 and Oxytetracycline), nutrients (including nitrogen compounds), and settleable solids.

- Conventional pollutants: biochemical oxygen demand (BOD), total suspended solids (TSS), pH, fecal coliform, oil and grease.

D. Summary of Compliance with Previous Permit Issued

Cooke Aquaculture is the current owner of the eight marine Atlantic salmon net pens at various locations in Puget Sound after purchasing those facilities from the previous owner American Gold Seafood Company in 2016. American Gold, previous owner of the net pens conducted sediment sampling at all the net pen sites during the summer of 2007, 2010, 2011, 2013, 2015 and 2017. Test results indicated all the sites complied with the DO limit and sediment criteria except that two sites at Cypress Island exceeded sediment Total Organic Carbon (TOC) criteria. The Cypress Island facilities have had their DNR lease terminated. Ecology will not re-issue the NPDES permits for those facilities. In addition to the TOC issue at Cypress Island, Cooke also has two violations of its NPDES permits listed as follows.

On August 19, 2017, Cooke's Cypress Island Site 2 facility experienced a catastrophic structural failure that caused the release of approximately 250,000 Atlantic salmon into Puget Sound. Three state agencies with regulatory and proprietary responsibilities over net pen operations, Department of Ecology (water quality), Department of Fish & Wildlife (fish health), and Department of Natural Resources (land leasing), formed an Incident Investigation Review Panel to investigate the failure. As a result of the investigation, the Department of Ecology determined Cooke violated provisions of RCW 90.48, 173-220 WAC and several conditions of NPDES permit WA0031577 and issued a penalty in the amount of $332,000 against Cooke on January 30, 2018. Cooke appealed the penalty and a hearing is scheduled to be held in April 2019. As part of its appeal, Cooke has argued that the release of approximately 250,000 Atlantic salmon into Puget Sound constitutes a single violation of Cooke's Permit. This was not Ecology's intent when it issued the Permit in 2007, and this reissuance of the Permit clarifies that the release of each Atlantic salmon is a separate violation of the Permit.

On December 12, 2017, after multiple conversations, email correspondence, warning letters, and a Notice of Violation regarding Cooke staff's illicit discharges at the Bainbridge Island service dock for the three facilities in Rich Passage, Ecology issued Cooke a penalty of $8,000 for violations of RCW 90.48. Though the service dock was not included in the NPDES permits for the facilities, this reissuance of the permit requires, as part of the pollution prevention plan, that Cooke include procedures for conducting routine maintenance of the facility and supporting structures (including barges and docks) and equipment in such a way as to prevent pollutants from entering state waters in violation of RCW 90.48.

E. State Environmental Policy Act (SEPA) Compliance

State law exempts the issuance, reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges.

III. PROPOSED PERMIT LIMITS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).

- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the National Toxics Rule (40 CFR 131.36).

Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports. Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Technology-Based Effluent Limits

The 1972 amendments to the Federal Clean Water Act (CWA) established a two-step program for the reduction of the discharge of pollutants into the nation's waters. The first step required dischargers to meet a level of conventional pollutant control based on the application of best practicable control technology currently available (BPT). The second step required effluent limitations to be achieved by the application of the best available technology economically achievable (BAT). The 1977 amendment to the CWA redefined BAT to include only toxic and nonconventional pollutants and best conventional pollutant technology (BCT) for the conventional pollutants. Ecology must also ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit. Currently, there are no federal effluent guidelines or standards for discharges from the marine Atlantic salmon net pen industry. When the previous permit was issued in 2007, Ecology determined that for conventional pollutants, BCT is the equivalent to BTP. A normally operated marine salmon net pen should not generate or discharge toxic pollutants in toxic amounts as defined in 40 CFR Prt 401.15. Based on monitoring data from the previous permit cycle, Ecology has determined that Best Management Practices to minimize the discharge of nonconventional pollutants such as escaped fish, turbidity, disease control chemicals, nutrients, and settleable solids, represent BAT.

In 1995, Ecology adopted discharge standards representing AKART for marine salmon net pens as part of chapter 173-221A WAC. The adoption of these standards was required by RCW 90.48.220. In accordance with the marine salmon net pen discharge standards, the permit requires the same operational requirements applicable to all facilities (WAC 173-221A-110(4)). These requirements address feeding, disease control chemicals, chemical storage, and the development and implementation of a Pollution Prevention Plan designed to reduce or prevent the discharge of pollutants.

Prior to the issuance of the previous (2002) permit, the PCHB heard testimony on three alternative technologies to marine net pens. The Board ruled that none of the technologies constituted AKART because they were not technologically reliable and/or economically feasible, and dismissed with prejudice all AKART issues relating to all structural alternatives to net pens. Ecology will implement AKART in this permit by requiring compliance with the requirements in WAC 173-221A-110(4).

B. Surface Water Quality-Based Effluent Limits

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numeric Criteria for the Protection of Aquatic Life and Recreation

Numeric water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect

aquatic life and recreation in and on the water. Ecology uses numeric criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numeric Criteria for the Protection of Human Health

In 1992, U.S. EPA published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State in its National Toxics Rule (EPA 1992). Ecology submitted a standards revision for 192 new human health criteria for 97 pollutants to EPA on August 1, 2016. In accordance with requirements of CWA section 303(c)(2)(B), EPA finalized 144 new and revised Washington specific human health criteria for priority pollutants, to apply to waters under Washington's jurisdiction. EPA approved 45 human health criteria as submitted by Washington. The EPA took no action on Ecology submitted criteria for arsenic, dioxin, and thallium. The existing criteria for these three pollutants as adopted in the National Toxics Rule (40 CFR 131.36) remain in effect.

These newly adopted criteria, located in WAC 173-201A-240, are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1)) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200) and of all marine waters (WAC 173-201A-210) in the state of Washington.

Antidegradation

Description--The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.

- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).

- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.

- Ecology regulates or authorizes the action.

- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Facility Specific Requirements--This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

In accordance with Ecology Tier II guidance manual, a Tier 2 analysis is required when:

- A physical expansion of the facility (production or wastewater system expansions with a potential to allow an increase the volume of wastewater or the amount of pollution) or activity.
- An increase (either monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a water body greater than 10%.

In its 2017 NPDES permit applications for the four net pens, Cooke requested some increase in their maximum net pounds of annual fish production for three net pens but the production increases are all below the criteria stipulated in Ecology's guidance manual.

Ecology determined that this facility does not need to complete a Tier II analysis at this time. The receiving water quality constituents have not been demonstrated to be higher than the criterion designated by state water quality standards. Ecology is increasing monitoring during the permit cycle. Conditions in the reissued permit protect existing and designated uses of the receiving water.

Mixing Zones

This permit does not authorize a mixing zone. The permit requires that the discharge comply with the water quality standards at the edge of the net pens.

C. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

- Aquatic life uses are designated using the following general categories. All indigenous fish and non-fish aquatic species must be protected in waters of the state.

  a. Extraordinary quality salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

  b. Excellent quality salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

  c. Good quality salmonid migration and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

  d. Fair quality salmonid and other fish migration.

The Aquatic Life Uses and the associated criteria for this receiving water are identified below.

Table 2 Marine Aquatic Life Uses and Associated Criteria

Extraordinary Quality	
Temperature Criteria – Highest 1D MAX	13°C (55.4°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	7.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.2 units.

- To protect shellfish harvesting, fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, and not have more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL.

D. Water Quality Impairments

Ecology has not documented any water quality impairments in the receiving water in the vicinity of the net pen.

E. Evaluation of Surface Water Quality-Based Effluent Limits for Narrative Criteria

Ecology must consider the narrative criteria described in WAC 173-201A-160 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

In addition, Ecology considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when there is a reasonable potential for the discharge to contain toxics. Ecology's analysis of the need for WET testing for this discharge is described later in the fact sheet.

F. Evaluation of Surface Water Quality-Based Effluent Limits for Numeric Criteria

Ecology has not authorized a mixing zone in the permit. The permittee must comply with applicable water quality standards at the edge of the net pens.

Dissolved Oxygen—The impact fish respiration may have on receiving water ambient dissolved oxygen (DO) levels will be minimal. The ambient DO level required in the water quality standards was based upon what is necessary for maintaining healthy fish. Operators of these facilities employ management practices to minimize DO impacts at times of low ambient DO. One practice is the suspension of fish feeding activities. Under critical conditions there is no predicted violation of the water quality standards.

pH – There are no activities in a normally operated net pen facility which will result in a measurable change in pH.

Temperature—There are no activities in a normally operated net pen facility which will result in a measurable change in temperature.

Turbidity—Net cleaning activities could have an impact on receiving water turbidity. The permit requires the use of net cleaning practices which prevents to the maximum extent practicable the discharge of accumulated solids and attached marine growth without prior treatment. There are net cleaning practices currently in use by the industry which should reduce impacts to ambient turbidity levels. Regardless of the method used, the permit requires that the net cleaning discharge comply with the water quality standards for turbidity at the point of discharge.

G. Human Health

Washington's water quality standards include numeric human health-based criteria for 97 priority pollutants that Ecology must consider when writing NPDES permits.

Ecology determined the effluent may contain chemicals of concern for human health, specifically federally-approved antibiotics for fish. These approved antibiotics have the potential to create antibiotic resistant bacteria in the sediment, and that resistance could be transmitted to human bacteria. Used in accordance with product label instructions and/or under the supervision of a veterinarian, Ecology has determined that these antibiotics should not represent a threat to human health.

Ecology continues to require reporting of disease control chemical use in the permit, and reserves the right to require sediment antibiotic resistance monitoring. No new information has been brought forward in the past permit cycle to indicate a threat to human health exists from the discharges from marine Atlantic salmon net pens.

H. Sediment Quality

Ecology has promulgated sediment management standards (chapter 173-204 WAC) to protect sediment biota and human health. These standards have a section (WAC 173-204-412) which regulates marine salmon net pen sediment impacts. The section designates an explicit sediment impact zone (SIZ) and a total organic carbon (TOC) standard to use as a screening tool for determining compliance for these facilities. The marine salmon net pen standards were established as a result of rulemaking required by RCW 90.48.220.

In accordance with WAC 173-204-412, Ecology placed conditions in the proposed permit which requires the Permittee to meet the sediment standard numerical criteria 100 feet from the outer edge net pen rearing area and monitor the sediments for compliance. If routine sediment monitoring indicates the discharge has violated the listed standards, Exceedance Monitoring is required, as outlined in the permit, which included benthic infaunal abundance analysis. If those limitations are not met Enhanced monitoring is required.

I. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in chapter 173-205-040 WAC, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that BMPs are being successfully implemented and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under condition S2. Specified monitoring frequencies take into account the critical period for the receiving water, the variability of the discharge based on production, past compliance, significance of pollutants, and cost and feasibility of monitoring. The use of sediment silt-clay particles/TOC monitoring as a trigger for benthic infaunal compliance monitoring is required by WAC 173-204-412, and is included in the permit. The frequency of sediment monitoring has been increased to annually between August 15 and September 30, and during the period of fish harvesting for each generation of fish.

Monitoring for DO in the water column at the SIZ sediment monitoring stations will continue to be required in this permit. A requirement for daily monitoring of DO at stations at the net pen array corners from August 15 through September 30 has been added to this permit.

This permit continues to require monthly reporting of biomass, feed fed, and disease control chemicals, but requires the Permittee to use the Water Quality Web Portal for electronic reporting. Annual summaries and reports continue to be required.

V. OTHER PERMIT CONDITIONS

A. Reporting and Record Keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Pollution Prevention Plan

The Permittee is required to develop and implement a pollution prevention plan under WAC 173-221A-110(4)(c). The pollution prevention plan components are specified under permit section S8. The Permittee is required to submit the plan with issuance of the new permit, and review the plan at least annually. The plan must be updated when changes occur, and changes sent to Ecology. The plan must be implemented, and staff trained in the procedures. A copy of the plan must be posted at the facility.

This permit adds a requirement to include in the plan procedures for conducting routine maintenance of the facilities, including barges and service docks, and equipment in such a way as to prevent pollutants from entering state waters in violation of RCW 90.48. This requirement was added following prior instances of power washing over water and equipment maintenance conducted over water at the Rich Passage service dock during the prior permit cycle.

C. Fish Escape Prevention Plan

The Permittee is required to review, update, and maintain a fish escape prevention plan as detailed in permit section S9. Plans developed for WDFW that comply with Chapter 220-370 WAC may be submitted, provided the conditions of section S8, S9, and S10 of this permit are addressed in the plan.

This permit incorporates lessons learned from the Cypress Island Site 2 failure into the fish escape prevention plan requirements. The Permittee is required to address structural issues and repairs to the facility, including notification to Ecology, procedures for documenting the efficacy of net cleaning at the facilities, and procedures for documenting suspected escapes due to holes in the nets, and when to notify Ecology and WDFW.

D. Fish Escape Reporting and Response Plan

The Permittee is required to review, update, and maintain a fish escape reporting and response plan as detailed in permit section S10. Plans developed for WDFW that comply with Chapter 220-370 WAC may be submitted, provided the conditions of section S8, S9, and S10 of this permit are addressed in the plan.

This permit incorporates lessons learned from the Cypress Island Site 2 failure into the fish escape reporting and response plan requirements. The Permittee is required to develop site-specific response plans, identify resources in advance that can be called upon to recover escaped fish, and commit to have personnel trained in participating in a Unified Command under the National Incident Management System (NIMS) and consistent with the Northwest Area Contingency Plan. The permit also requires the plan to contain commitment from the Permittee to actively and cooperatively participate in or establish a Unified Command Structure in the event of a large escape, and to conduct and participate in preparedness training such as tabletop exercises and/or active drills.

E. Operation and Maintenance Manual

Ecology has placed operating requirements in the permit as required in the Waste Discharge Standards and Effluent Limitations for marine finfish rearing facilities (WAC 173-221A-110(4)). The Permittee is required to review the manual at least annually and submit changes or updates to the manual to Ecology for review and approval.

With this permit, the manual is required to address structural maintenance, documentation of net cleaning, and documentation of the efficacy of the net cleaning. Requirements of the plan also include clarification that the Permittee may not pressure wash any portion of the net pen structure or apparatus associated with the operation of the facility that could cause water from pressure washing to enter waters of the state. In situ washing of stock nets and predator exclusion nets is the only permitted use of pressure washing. The manual must also address procedures to keep items associated with the net pens secured on the structures and associated service areas, in order to prevent debris from entering the water.

F. Net Pen Structural Integrity Assessment Report

The permit requires the permittee to hire a marine engineering firm to conduct inspections to assess structural integrity of the net pens. Inspections must occur within two years of the effective date of the permit if not completed and routinely every two years. This assessment is to occur when net pens are fallow and must include Doppler current monitoring, topside and mooring assessments related to escapement potential, structural integrity, permit compliance, and operations. The net pen structural integrity assessment reports must be certified by a licensed engineer and submitted to Ecology within 60 days of the completion of the inspections.

G. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numeric limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwaters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of five years. During the five year term, the DNR lease will expire after which Ecology will ensure the permittee complies with closure monitoring permit requirements for the purpose of returning the sediment bottom to background conditions. After the expiration of the lease, RCW 90.48.225 prohibits Ecology from issuing a permit to a net-pen facility that raises non-native finfish.

VII. REFERENCES

Permit:

PSEP. 1986. *Recommended protocols for measuring conventional sediment variables in Puget Sound*. Prepared for Puget Sound Estuary Program by Tetra Tech, Inc. In: Recommended Protocols for Measuring Selected Environmental Variables in Puget Sound. U.S. Environmental Protection Agency Region 10, Seattle, WA.

Ecology. 2017. Sediment Cleanup User's Manual II: Guidance for Implementing the Cleanup Provisions of the Sediment Management Standards, Chapter 173-204 WAC. Washington State Department of Ecology. Olympia, Washington. December 2017 revision.

Fact Sheet:

Clark, D., 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.

Engrossed House Bill 2957, Nonnative Finfish--Marine Aquaculture--Escape, 65th Legislature-2018 Regular Session, Session Law, effective June 7, 2018. (2018 c 179 § 3)

National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

Revised Code of Washington (RCW) https://apps.leg.wa.gov/rcw/

Chapter 43.21 RCW, Department Of Conservation

Chapter 77.175 RCW, Fish and Wildlife, Marine finfish aquaculture programs

Chapter 90.48 RCW, Water Pollution Control

Washington Administrative Code (WAC) https://apps.leg.wa.gov/WAC/default.aspx

Chapter 173-200 WAC, Water Quality Standards for Groundwaters of the State of Washington

Chapter 173-201A WAC, Water Quality Standards for Surface Waters of the State of Washington.

Chapter 173-204 WAC, Sediment Management Standards

Chapter 173-205 WAC, Whole Effluent Toxicity Testing and Limits

Chapter 173-220 WAC, National Pollutant Discharge Elimination System Permit Program

Chapter 173-221A WAC, Wastewater Discharge Standards and Effluent Limitations

Chapter 173-240 WAC, Submission of Plans and Reports for Construction of Wastewater Facilities

Chapter 220-370 WAC, Aquaculture

Washington State Department of Ecology (Ecology).

2007a. National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331593. Site 4-Hope Island, Deepwater Bay, Washington State Department of Ecology. Bellevue, Washington. May 2008 modification.

2007b. Fact Sheet for National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331593. Site 4-Hope Island, Deepwater Bay, Washington State Department of Ecology. Bellevue, Washington. May 2008 modification. 2007c. National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331526. Clam Bay – Saltwater I, Washington State Department of Ecology. Bellevue, Washington. January 2011 modification.

2007d. Fact Sheet for National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331526. Clam Bay – Saltwater I, Washington State Department of Ecology. Bellevue, Washington. January 2011 modification.

2007e. National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331534. Fort Ward – Saltwater II, Washington State Department of Ecology. Bellevue, Washington. May 2008 modification.

2007f. Fact Sheet for National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331534. Fort Ward – Saltwater II, Washington State Department of Ecology. Bellevue, Washington. May 2008 modification.

2007g. National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331542. Orchard Rocks – Saltwater IV, Washington State Department of Ecology. Bellevue, Washington. May 2008 modification.

2007h. Fact Sheet for National Pollutant Discharge Elimination System Waste Discharge Permit No. WA00331542. Orchard Rocks – Saltwater IV, Washington State Department of Ecology. Bellevue, Washington. May 2008 modification.

2011. *Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation*. Publication Number 11-10-073, September 2011 (https://fortress.wa.gov/ecy/publications/summarypages/1110073.html)

2018. *Permit Writer's Manual*. Publication Number 92-109. January 2018 revision (https://fortress.wa.gov/ecy/publications/documents/92109.pdf)

Water quality permits guidance. (https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance) Last accessed April 2019.

U.S., Code of Federal Register (CFR)

40 CFR 131.36

40 CFR 401.16

40 CFR 125.3

40 CFR 122.42(a)

40 CFR 122.41

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to Cooke Aquaculture Pacific, LLC, Fort Ward. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on October 25, 2018, in the *Skagit Valley Herald* and the *Kitsap Sun* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology placed a Public Notice of Draft on December 27, 2018, in the *Skagit Valley Herald* and the *Kitsap Sun* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period
- Tells how to request a public hearing of comments about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

Ecology accepted comments from Dec. 27, 2018 until 11:59 p.m. on Feb. 25, 2019 both online through eComments and by mail. We also accepted in person comments from oral or written comments during public hearings. During each, staff explained the proposed changes to the permits and answered questions. Written comments received the same consideration as oral testimony. The hearings were conducted on the following dates:

Jan. 30, 2019 – Webinar 1:00 p.m.
Feb. 5, 2019 – Anacortes, WA 6:00 p.m.
Feb 7, 2019 – Bainbridge Island 6:00 p.m.

Ecology published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html Obtain further information from Ecology by telephone, 360-407-6280, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is Gary Lee, P.E.

APPENDIX B--YOUR RIGHT TO APPEAL

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive Southeast Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel Road Southwest, Suite 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

APPENDIX C--GLOSSARY

1-DMax or 1-day maximum temperature -- The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures -- The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity --The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART -- The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate point of compliance -- An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient water quality -- The existing environmental condition of the water in a receiving water body.

Ammonia -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF -- average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly (intermittent) discharge limit-- The average of the measured values obtained over a calendar months time taking into account zero discharge days.

Average monthly discharge limit -- The average of the measured values obtained over a calendar month's time.

Background water quality -- The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically up-gradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass -- The intentional diversion of waste streams from any portion of a treatment facility.

Categorical pretreatment standards -- National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine -- A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic toxicity -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean water act (CWA -- The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity -- Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring -- Uninterrupted, unless otherwise noted in the permit.

Critical condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of receipt – This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit -- The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution factor (DF) -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Distribution uniformity -- The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early warning value -- The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit -- The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report -- A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal coliform bacteria -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab sample -- A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater -- Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial user -- A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial wastewater -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water

Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local limits -- Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Major facility -- A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum daily discharge limit -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum day design flow (MDDF) -- The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum month design flow (MMDF) -- The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum week design flow (MWDF) -- The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method detection level (MDL) -- See Detection Limit.

Minor facility -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing zone -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations (chapter 173-201A WAC).

National pollutant discharge elimination system (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

Non-native finfish -- Non-native finfish are fish that are not naturally occurring in the waters of Puget Sound, which include Atlantic salmon.

pH -- The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak hour design flow (PHDF) -- The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak instantaneous design flow (PIDF) -- The maximum anticipated instantaneous flow.

Point of compliance -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly down-gradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Potential significant industrial user (PSIU) --A potential significant industrial user is defined as an Industrial User that does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation level (QL) -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1,2, or 5) x 10^n, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

Reasonable potential -- A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible corporate officer -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sample Maximum -- No sample may exceed this value.

Significant industrial user (SIU) --

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge -- Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

Soil scientist -- An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid waste -- All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

Soluble BOD_5 -- Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD_5 test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD_5 test is sufficient to remove the particulate organic fraction.

State waters -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based effluent limit -- A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria--A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) --A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total suspended solids (TSS) -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory

passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit -- A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

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

Prepared by: Laurie Niewolny
Aquaculture Specialist and Permit Lead
Water Quality Program
Southwest Regional Office
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/DocumentSearch.aspx?PermitNumber=wa0031534&FacilityName=&City=&County=&Region=0&PermitType=0&DocumentType=82

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.

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

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 Becktell	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

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

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 where 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:

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 permitee 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(l)(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 permitee 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 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: *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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