Fact Sheet

The US Environmental Protection Agency (EPA) Proposes to Reissue National Pollutant Discharge Elimination System (NPDES) Permits for discharges to Rufus Woods Lake (Columbia River) from the following net pen facilities:

Pacific Aquaculture, Inc. – Site 1 (NPDES Permit #WA0026336)
3378 Columbia River Road
Nespelem, Washington 99155

Pacific Aquaculture, Inc. – Site 2 (NPDES Permit #WA0026328)
3560 Columbia River Road
Nespelem, Washington 99155

Pacific Aquaculture, Inc. – Site 3 (NPDES Permit #WA0026719)
Columbia River Mile 576.4
Nespelem, Washington 99155

Faith Frontier Ministries (NPDES Permit #WA0026379)
Chief Joseph Fish Farm
2500 Columbia River Road
Okanogan, WA 98840

Public Notice Start Date: February 4, 2020
Public Notice Expiration Date: March 5, 2020

Technical Contact: Cindi Godsey, 206-553-1676
godsey.cindi@epa.gov
1-800-424-4372, x1676 (within EPA Region 10)

The EPA Proposes NPDES Permit Reissuance

The EPA proposes to reissue National Pollutant Discharge Elimination System (NPDES) permits for the discharge of pollutants in wastewaters from the above-named facilities to Rufus Woods Lake (Columbia River) (waters of the Colville Confederated Tribes (CCT) and of the United States). In order to ensure protection of water quality and human health, the permits place requirements to minimize the discharge of pollutants.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures;
- descriptions of the facilities;
- a description of proposed permit conditions; and
- a technical discussion supporting the conditions in the permits.

Water Quality Certification

The EPA will request that the CCT certify the permits for these four net pen facilities under CWA § 401, 33 U.S.C. § 1341. Questions or comments regarding the certification should be directed to:

Confederated Tribes of the Colville Reservation
c/o Environmental Trust,
Douglas Marconi, Jr., Watershed Program Manager
PO Box 150
Nespelem, WA 99155

The EPA Invites Public Comment

If you wish to comment on the proposed requirements in the draft permits, you must do so before the end of the public comment period listed at the top of this notice. Comments will be most effective if they address specific permit requirements and include the justification for your recommendation. You must submit all comments to the EPA as described in the Public Comments section of the attached public notice. If comments are submitted, the EPA will prepare a response to comments document, and, if necessary, will make changes to the draft permits. After making any necessary changes, the EPA will issue the permits with a response to comments document unless public notice of new draft permits is warranted, pursuant to 40 CFR §124.14. If no substantive comments are received during the public comment period, the proposed conditions in the draft permits will be included in the final permits.

If you wish to request a public hearing, you must state the nature of the issues to be raised as they relate to the permit, as well as your name, address, e-mail address (if applicable), and telephone number. You must submit your request for public hearing to the EPA, as described in the Public Comments section of the attached public notice.

Persons wishing to comment on the CWA § 401 Certification should submit written comments by the public notice expiration date to CCT at the address above.

After the Public Comment Period

After the public comment period expires and all significant comments have been considered, the EPA Region 10 Director of the Water Division will make a final decision regarding issuance of the permits. If substantive comments are received, the EPA will address the comments. The permits will become effective thirty-three (33) days after the issuance date, unless the permit is appealed to the Environmental Appeals Board within 30 days, pursuant to 40 CFR § 124.19.

Documents Are Available for Review

The Administrative Record for these Permits primarily consists of the permit applications, draft Permits, Fact Sheet and the documents referenced in this Fact Sheet. These are available upon request by contacting Cindi Godsey at (206) 553-1676 or godsey.cindi@epa.gov or at the above Seattle address. The draft NPDES permits and related documents can be reviewed

or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday.

EPA Region 10
1200 Sixth Avenue, Suite 155 19-C04
Seattle, Washington 98101
(206) 553-0523 or 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The draft permits and Fact Sheet can also be found by visiting the Region 10 website at https://www.epa.gov/npdes-permits/washington-npdes-permits

The Fact Sheet and draft permits are also available by contacting Douglas Marconi, Jr., CCT Watershed Program Manager at the address above, by email at Douglas.Marconi@colvilletribes.com or by phone at (509) 634-2428,

For technical questions regarding the permits or fact sheet, contact Cindi Godsey at the phone number or e-mail address at the top of this Fact Sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384 and ask to be connected to the appropriate phone number. Additional services can be made available to a person with disabilities by contacting Audrey Washington at 206-553-0523 or by e-mail at washington.audrey@epa.gov

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I. APPLICANTS

This fact sheet provides information on the draft NPDES permits for the following facilities:

` **Pacific Aquaculture, Inc. (PAI)**

Permits:

PAI—Site 1 (Permit #WA0026336)
3328 Columbia River Road (River Mile 579)
Nespelem, WA 99155

PAI—Site 2 (Permit #WA0026328)
3560 Columbia River Road (River Mile 581.8)
Nespelem, WA 99155

PAI—Site 3 (Permit #WA0026719)
Columbia River Mile 576.4
Nespelem, WA 99155

Contact:
John Bielka, General Manager
3378 Columbia River Road
Nespelem, WA 99155
JBielka@pacseafood.com
509-631-1567

Faith Frontier Ministries

Permit:

Chief Joseph Fish Farm (Permit #WA0026379)
2500 Columbia River Road (River Mile 570)
Okanogan, WA 98840

Contact:
Dennis Delano, President Faith Frontier Ministries
2500 Columbia River Road
Okanogan, WA 98840
dennisndarlene@hughes.net
509-557-3734

II. FACILITY INFORMATION AND PERMIT HISTORY

A. History of the Facilities and Permits

All four net pen facilities are located in waters of the Confederated Tribes of the Colville Reservation in Rufus Woods Lake, an impoundment of the Columbia River behind Chief Joseph Dam in central Washington State. The reservation boundary is approximately in the middle of the lake/river and between 100 and 300 yards from the net pens. Beyond the reservation boundary, the waters are within the CWA jurisdiction of the Washington Department of Ecology, which has NPDES permitting authority within the State of Washington. Within the Reservation, the EPA is the CWA permitting authority.

The EPA issued permits to the three Pacific Aquaculture facilities and the Chief Joseph Fish Farm on July 12, 2012. The permits became effective on September 1,

2012, and expired on August 31, 2017. Since all of the facilities submitted NPDES permit applications in a timely manner, the permits are administratively continued pursuant to 40 CFR §122.6 until new permits are issued.

1. Pacific Aquaculture Site 1 (Site 1)

   The net pens at Site 1 are located at River Mile 579.5 and have been in operation since 1997; they are located about 15.5 miles downstream of Grand Coulee Dam. The previous owner was Columbia River Fish Farms (CRFF), under which name a permit application was submitted in August 1997. Ownership of CRFF changed in 2005 when CRFF was acquired by Fortune Bay Aquaculture, a Canadian corporation. In September 2008, Pacific Aquaculture, Inc. acquired the facility. As stated above, the NPDES permit was issued to Pacific in 2012 and it submitted a renewal permit application in March 2017. The site includes 20 cages, each 82 feet by 82 feet by 40 feet deep.

2. Pacific Aquaculture Site 2 (Site 2)

   The net pens at Site 2 are located at River Mile 581.8 and have been in operation since 1991; they are located about 14 miles downstream of Grand Coulee Dam. The first owner was Stolt Sea Farms, under which name a permit application was submitted in 1993. However, in 1993, new owners operating as Columbia River Fish Farms took over the operation. In August 1997, a new permit application was submitted under the name Columbia River Fish Farms, LLC. Ownership of CRFF changed in 2005 when CRFF was acquired by Fortune Bay Aquaculture, a Canadian corporation. In September 2008, Pacific Aquaculture, Inc. acquired the facility. As stated above, the NPDES permit was issued to Pacific in 2012 and it submitted a renewal permit application in March 2017. The site includes 20 cages, each 82 feet by 82 feet by 40 feet deep.

3. Pacific Aquaculture Site 3 (Site 3)

   Pacific Aquaculture Site 3 was a new site when it was proposed at about River Mile 576.4 and the permit application was submitted in November 2010. The site has been in production for several years. Site 3 submitted a renewal permit application in March 2017. The site includes 20 steel cages, each 100 feet by 100 feet by 50 feet deep.

4. Faith Frontier Ministries (FFM) Chief Joseph Fish Farm

   The Chief Joseph Fish Farm at Faith Frontier Ministries is located at approximately River Mile 570, approximately 25 miles downstream of Grand Coulee Dam. The net pens were first put into operation in 1995. The EPA first received a permit application in October 1997 and an updated one in December 2010. A renewal permit application was submitted in 2017. The site includes 27 cages; 17 steel cages which are 50 feet by 50 feet by 40 feet deep and 10 plastic cages which are 40 feet by 40 feet by 20 feet deep. The depth to the bottom in the area of the pens ranges from about 70 to 90 feet. Although the facility has not been in production in recent years, FFM would like permit coverage to continue in case that situation changes.

B. Description of the Facilities

Net pens are a type of aquaculture facility that take advantage of an existing water

body's circulation (or current) to disperse wastes and bring fresh water to the animals. Net pens, which are used primarily to grow finfish to suitable size for release or harvest, are typically suspended from a floating structure and anchored to the sea or lake bottom, while allowing some movement with tides or currents. These particular systems are located in a reservoir on the Columbia River called Rufus Woods Lake which has a constant current in the downstream direction (roughly westward at the net pen locations).

In these systems, uneaten feed and feces add solids, BOD_5, nutrients, and drugs or other chemicals that are applied to the fish directly to the water column. Management practices to minimize the discharge of pollutants from net pen systems focus on feed management and the proper use and storage of chemicals and therapeutic agents to avoid spills to the water.

The species raised at all four net pen sites is rainbow trout *(Oncorhynchus mykiss)*. These fish are triploid and cannot reproduce; therefore, any accidental release should not jeopardize any native fish stocks. Research shows that escaped farmed fish do not pose a significant threat of predation or food competition with native steelhead or other salmonid smolts. Existing research on the diets of rainbow trout in Rufus Woods Lake over a 2-year period (2010 and 2011) showed that the large triploid fish are not adapting well to being released and have a very low rate of forage fish predation (Richards et al. 2011). All released fish can be identified by the absence of an adipose fin (http://www.cctfwfishtags.com/).

Annual production at the facilities has been reported as follows:

Pacific Aquaculture Site 1	5 million pounds
Pacific Aquaculture Site 2	3 million pounds
Pacific Aquaculture Site 3	6 million pounds
FFM Chief Joseph Fish Farm	None at present

C. Characterization of Discharges

Net pen facilities discharge a variety of pollutants associated with (1) feeds, directly or indirectly (feces), (2) residuals of drugs used for maintenance or restoration of animal health, and (3) residuals of chemicals used for cleaning equipment and net pen structures. Aquaculture facilities have the potential to contribute significant amounts of nutrients (nitrogen and phosphorus) and solids to receiving waters. These pollutants may contribute to a number of negative water quality impacts related to eutrophication - algal blooms, increased turbidity, low dissolved oxygen and associated stresses to biota, increased water treatment requirements for users downstream, changes in benthic fauna, and stimulation of harmful microbial activity.

Under the conditions of Rufus Woods Lake, with a constant current in one direction, sedimentation of waste feed and feces occurs beneath the net pens under lower flow conditions. These wastes are not continuous across the river bottom but occur in current-sheltered areas such as depressions and downstream of sunken tree parts. When river discharge increases, it is probable that these wastes are resuspended and distributed further downstream. As the wastes move in a process known as “saltation” (particulate matter flowing above the bottom or at least “skipping” above it) the wastes are eroded and further dissolved.

Waste feed from fish farms sink relatively fast (about 10 cm/s) while waste feces of

salmonids such as steelhead trout sink much more slowly (approximately 3 cm/s) with some variation due to the size of fish being fed but also due to changes in the feed composition. As a result of this difference, waste feed tends to occur on the river bottom very near the pens while waste feces are transported much further downstream before touching the bottom. Near-bottom currents required to re-suspend these wastes are much higher for waste feed than waste fish feces, although there is limited empirical data regarding exact rates. The visible footprint of particulate wastes on the river bottom is relatively easy to observe or qualify, but the biological footprint is much larger and more difficult to quantify. (Rensel and Forster, 2008)

In addition, the potential discharge of chemical and drug residuals raises concerns for deleterious effects on biota and on subsequent human consumers of fish or water. The U.S. Food and Drug Administration (FDA) Center for Veterinary Medicine regulates animal drugs under the Federal Food, Drug, and Cosmetic Act (FFDCA). Extensive toxicity studies are required prior to drug approval from the FDA; however, limited data on potential environmental effects are available for some medications that are currently authorized for investigational use; and limited or no data are available characterizing the ecological significance of releases of drugs and chemicals at aquaculture facilities in the United States. The EPA recognizes, however, the general concerns with residual antibiotics and pesticides in the environment. Such residual materials may pollute receiving waters and immunize the organisms they are designed to control. These effects can be distributed well outside of the original areas of application. In addition, pesticides, such as a variety of copper compounds, can harm aquatic organisms in receiving waters, depending on the rates applied and the rate of breakdown of the product or the active ingredient. In the case of the net pen facilities on Rufus Woods Lake, the facilities have indicated that they do not use drugs or pesticides. Therefore, these issues appear to be moot in this situation.

Aquaculture facilities are not considered to be significant sources of pathogens that affect human health.

III. SUMMARY OF MAJOR CHANGES FROM PREVIOUS PERMITS

The EPA is proposing to allow the natural condition for Dissolved Oxygen to be taken into account in these permits as described in Appendix B of this Fact Sheet. The EPA has also removed Narrative Prohibitions that were included in the previous permits from the draft permits. These conditions may be reinstated if they are included in CCT's CWA § 401 Certification.

IV. RECEIVING WATER

All four facilities are located in the waters of the impoundment of the Columbia River behind Chief Joseph Dam, which is known as Rufus Woods Lake. The dam is operated for production of hydroelectricity as a run-of-the-river dam, primarily passing flow through the dam at a flow rate similar to that which enters the reservoir, not altering the elevation of the reservoir appreciably. According to Rensel (2010) in *Tracing Fish Farm Effects on Sediment and Food Web of Rufus Woods Lake, Columbia River,* the residence time in the reservoir is about one week; a gentle current downstream of about 50 - 100 centimeters per second is present at all times, bringing fresh water to the net pens and

carrying waste products away from them.

According to Rensel and Forster (2008) in *Biological Waste Guidance Document Development and Fish Farming in Rufus Woods Lake*, “monitoring studies and reporting show that solid wastes accumulate beneath the pens during low flow periods but are rapidly diluted and dissipated once flows resume more normal rates.” Some limited stable isotope tracing studies were conducted several years ago at Site 1 that indicated that nutrients are being sequestered by benthic invertebrates and bottom-dwelling (demersal) wild fish such as sculpins. However, the work was exploratory in nature and did not include a quantitative estimate of how much of the wastes were going into the food web. This is known as a “mixing model” and could be done if additional data were collected.

The outcome of such a model will likely show that most of the solid wastes discharged by the fish farms are not assimilated in the near vicinity of the fish farms. In part, this is because the biomass of demersal fish and invertebrates known to exist beneath and immediately downstream of the fish farm is not great compared to marine waters with soft sediments that have dozens of species of invertebrates and fish and a rich matrix of sediment to support the variety of organisms from macrofauna to bacteria, all of which help consume the waste nutrients and carbon. In contrast, most upper and middle region bottom areas of Rufus Woods Lake are barren inorganic sediment or hard clay substrate.

The knowledge gaps therefore include understanding the fate of the non-assimilated waste particles.”

In his 2009 study, Rensel concluded that the “data show that the wastes from the fish farm are being utilized in the system and not simply being accumulated downstream where they may have a biological oxygen demand from bacterial respiration. In a system that is generally considered nutrient starved, this may be viewed as a beneficial effect of the net pen operation.” (Rensel, 2010)

A. Tribal Water Quality Standards

CWA § 301(b)(1)(C) requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Federal regulations at 40 CFR § 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of the affected States and Tribes.

Water quality standards are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as drinking water supply, contact recreation, and aquatic life) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

1. Water Quality Standards adopted by the Colville Business Council

The Colville Business Council, governing body of the Confederated Tribes of the Colville Reservation, adopted water quality standards in 1984 and 1985; however, since the Tribe did not have Treatment as a State at the time, the Tribe did not submit these standards to the EPA. The Tribe was granted TAS on May

2, 2018.

2. Water Quality Standards promulgated by the EPA

   On July 6, 1989, the EPA promulgated water quality standards for the Colville Confederated Tribes Indian Reservation (CCT) (54 FR 28622 and 40 CFR § 131.35). The water body to which the facilities discharge (the Columbia River from Grand Coulee Dam to Chief Joseph Dam) is not assigned a specific classification. In accordance with the CCT water quality standards, all waters not specifically assigned to a classification are classified as Class II [40 CFR § 31.35(g)(8)].

3. Class II Standards include:

   a. Designated uses.

      The designated uses include but are not limited to, the following:

      i. Water supply (domestic, industrial, agricultural);

      ii. Stock watering;

      iii. Fish and shellfish: Salmonid migration, rearing, spawning, and harvesting; other fish migration, rearing, spawning, and harvesting; crayfish rearing, spawning, and harvesting;

      iv. Wildlife habitat;

      v. Ceremonial and religious water use;

      vi. Recreation (primary contact recreation, sport fishing, boating and aesthetic enjoyment);

      vii. Commerce and navigation.

   b. Water quality criteria.

      i. Bacteriological Criteria--The geometric mean of the *enterococci* bacteria densities in samples taken over a 30-day period shall not exceed 16/100 ml, nor shall any single sample exceed an *enterococci* density of 75 per 100 milliliters. These limits are calculated as the geometric mean of the collected samples approximately equally spaced over a 30-day period.

      ii. Dissolved oxygen--The dissolved oxygen shall exceed 8.0 mg/l.

      iii. Total dissolved gas--concentrations shall not exceed 110 percent of the saturation value for gases at the existing atmospheric and hydrostatic pressures at any point of sample collection.

      iv. Temperature--shall not exceed 18.0 °C due to human activities. Temperature increases shall not, at any time, exceed t=28/ (T+7).

         (a) When natural conditions exceed 18 °C no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3 °C.

         (b) For purposes hereof, “t" represents the permissive temperature change across the dilution zone; and “T" represents the highest existing temperature in this water classification outside of any dilution zone.

(c) Provided that temperature increase resulting from non-point source activities shall not exceed 2.8 °C, and the maximum water temperature shall not exceed 18.3 °C.

v. pH shall be within the range of 6.5 to 8.5 with a human-caused variation of less than 0.5 units.

vi. Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

vii. Toxic, radioactive, nonconventional, or deleterious material concentrations shall be less than those of public health significance, or which may cause acute or chronic toxic conditions to the aquatic biota, or which may adversely affect designated water uses.

c. Antidegradation Policy

The federally-promulgated water quality standards for the Reservation include an antidegradation policy that requires existing in-stream uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Furthermore, where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the Regional Administrator finds, after full satisfaction of the inter-governmental coordination and public participation provisions of the Tribes' continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development.

B. Washington State Water Quality Standards

In developing the permits, the EPA considered water quality standards of the State of Washington, Chapter 173-201A of the Washington Administrative Code. The State/Tribal boundary runs down the mid-line of the Columbia River. The facilities are located within Tribal waters, between 110 to 322 yards from the reservation boundary. Because of the large flow of the Columbia River and the unidirectional current parallel to the tribal boundary, the EPA has determined that pollutant levels will meet Washington water quality standards at the boundary.

C. Impaired Waters and Total Maximum Daily Loads (TMDLs)

CWA § 303(d) requires states and eligible Indian Tribes to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. For all 303(d) listed water bodies and pollutants, the NPDES authority must develop and adopt Total Maximum Daily Loads (TMDLs) that will specify wasteload allocations (WLAs) for specific pollutants for point sources and load allocations for non-point sources of pollutants, as appropriate.

CCT has not submitted and therefore the EPA has not approved a 303(d) list of impaired waters for the Reservation.

On July 22, 2016, the EPA approved Washington State's 2012 303(d) list of impaired water bodies; the summary of listings for the Columbia River (Rufus Woods Lake) is found at https://apps.ecology.wa.gov/ApprovedWQA/ApprovedSearch.aspx and

shown in the List below:

Parameter	2012 Category
Temperature	5
Dissolved Oxygen	5
Total Dissolved Gas	4A
pH	2
Ammonia-N	1
Bacteria	1
Arsenic	1
Silver	1
Lead	1
Chromium	1
Copper	1
Zinc	1
Nickel	1
Cadmium	1

Category 1: Meets tested standards for clean waters

Category 2: Waters of concern (some evidence of a water quality problem, but not enough to show persistent impairment)

Category 3: Insufficient data

Category 4: Impaired waters that do not require a TMDL
- 4a — already has an EPA-approved TMDL plan in place and implemented.
- 4b — has a pollution control program, similar to a TMDL plan, that is expected to solve the pollution problems.
- 4c — is impaired by causes that cannot be addressed through a TMDL plan.

Category 5: Polluted waters that require a water improvement project

Temperature (requires a TMDL) and total dissolved gases (have a TMDL) are not pollutants of concern from net pen facilities. Dissolved oxygen is listed as requiring a TMDL. Until the Tribe determines an impairment exists for any parameter in tribal waters and a TMDL is issued and approved by the EPA, the EPA will use the federally promulgated water quality standard as the basis for the effluent limitations in the permits.

V. REGULATORY FRAMEWORK

A. EPA Jurisdiction

The CWA requires an NPDES permit for the discharge of pollutants from a point source to waters of the United States (WOTUS). The EPA has delegated the NPDES program to the State of Washington, but the state program does not cover Indian Country, as defined in 18 USC § 1151, where the EPA retains the authority to administer the NPDES program if a tribal NPDES program has not been submitted to and approved by the EPA. CCT is considered Indian Country and does not have an approved tribal NPDES program; however, CCT obtained TAS, thus, the EPA is

seeking CWA § 401 Certification from CCT.

B. NPDES Permit Requirement

40 CFR §122.24 defines concentrated aquatic animal production (CAAP) facilities as point sources subject to the National Pollutant Discharge Elimination System (NPDES) permit program and further defines such a facility as a hatchery, fish farm, or other facility that contains, grows, or holds:

> Cold water fish species or other cold-water aquatic animals in ponds, raceways, or other similar structures which discharge at least thirty days per year, but does not include:
>
> a. Facilities that produce less than 20,000 harvest weight pounds of aquatic animals per year, and
>
> b. Facilities that feed less than 5,000 pounds of food during the calendar month of maximum feeding.

Cold water aquatic animals include, but are not limited to, the Salmonidae family of fish, e.g. trout and salmon.

The four facilities all raise trout and operate year-round. The following data for the facilities on annual production and food fed in the highest month of feeding were submitted on the 2017 permit applications:

Table 1
Production and Feed Levels

Facility	Annual Production (lbs)	Maximum Month Food Fed (lbs)
Pacific Aquaculture—Site 1	5 million	1.5 million
Pacific Aquaculture—Site 2	3 million	1 million
Pacific Aquaculture—Site 3	6 million	2 million
FFM Chief Joseph Fish Farm	No current production	

The Pacific Aquaculture facilities exceed the production and feed thresholds in the above definition, thus, the facilities are CAAP facilities that require a NPDES permit. When FFM was operating, the production and feed thresholds were exceeded so the EPA is proposing to reissue the NPDES permit for that facility in the event that production is restarted at the facility.

C. Effluent Limitation Guidelines

CWA § 301(b) requires industrial dischargers to meet technology-based effluent limitation guidelines (ELGs), established by the EPA for specific categories of industrial dischargers of pollutants; these limitations are enforceable through incorporation into NPDES permits. The 1972 amendments to the CWA established a two-step approach for imposing technology-based controls. In the first phase, industrial dischargers were required to meet a level of pollutant control based on the best practicable control technology currently available (BPT). The second level of

pollutant control was based on the best available technology economically achievable (BAT). In 1977, enactment of CWA § 301(b)(2)(E) allowed the application of best conventional pollutant control technology (BCT) to supplement BPT standards for conventional pollutants with cost effectiveness constraints on incremental technology requirements that exceed BPT. The BPT/BAT/BCT system of standards does not apply to a *new source*, defined by the EPA as a source whose construction commenced after publication of proposed ELGs prescribing a standard of performance for a specific category of dischargers, which will be applicable to the source. Direct dischargers that are *new sources* must meet new source performance standards (NSPS), which are based on the best available demonstrated control technology. In addition to BPT, BAT, BCT, and NSPS, the EPA may establish technology-based effluent limitations on the basis of best professional judgment (BPJ), pursuant to CWA § 402.

On August 23, 2004, the EPA published in the *Federal Register* technology-based Effluent Limitations Guidelines for the Concentrated Aquatic Animal Production Point Source Category. These regulations, codified at 40 CFR Part 451, became effective on September 22, 2004. A *new source* for purposes of this category is one that began construction after the effective date of the NSPS, in other words, September 22, 2004. The requirements of these guidelines and standards have been used in developing the requirements for the permits.

Those concentrated aquatic animal production facilities, as defined at 40 CFR §122.24, that produce, hold, or contain 100,000 pounds or more of fish during any twelve-month period are subject to the ELGs for the Concentrated Aquatic Animal Production Point Source Category. All four facilities exceed the 100,000-pound threshold when operating; therefore, the facilities are subject to the ELGs. Only one of the facilities, Pacific Aquaculture Site 3, constitutes a new source as it is the only one that was constructed after September 22, 2004.

The ELGs include narrative effluent limitations for flow-through and recirculating production facilities and for net pen production facilities, as well as general reporting requirements for all facilities subject to the rule. The ELGs specific to these four facilities are the net pen production facility ELGs that are found at 40 CFR Part 451, Subpart B. The ELGs do not include any numerical limitations for specific pollutants.

1. Reporting

   Under the ELGs at 40 CFR §451.3, all dischargers utilizing net pen or submerged cage systems that produce above 100,000 pounds annually must report to the permitting authority the use of an investigational new animal drug (INAD) or any extra-label drug, which may lead to the discharge of the drug to WOTUS. They also must report failure of or damage to a containment system that result in unanticipated discharges of pollutants to WOTUS and spills of drugs, pesticides, or feed that result in discharges to WOTUS.

2. Best Management Practices Plan

   Under the ELGs at 40 CFR §§ 451.3(d) and 451.21(a) through (h), dischargers utilizing net pen or submerged cage systems must develop and maintain a Best Management Practices (BMP) Plan, which addresses specific activities at the facility. These management practices represent the application of BPT, BAT,

BCT, and NSPS for the industry. The discharger must comply with requirements on feed management, waste collection and disposal, transport or harvest discharge, carcass removal, materials storage, maintenance, recordkeeping, and training.

3. Pollutants of concern

In the process of developing the ELGs, the EPA identified an extensive list of pollutants of concern in discharges from the aquaculture industry, including several metals, nutrients, solids, BOD_5, bacteria, drugs, and residuals of federally registered pesticides. The EPA did not include specific numeric limitations in the ELGs for any pollutants on this list, believing that BMPs would provide acceptable control of these pollutants.

D. New Source Requirements

Pacific Aquaculture Site 3 was constructed in 2015 and sent into production in September of that year, after promulgation of the NSPS ELGs. In addition, the facility exceeds the 100,000 pound production threshold in the ELGs. As such, the facility meets the regulatory definition of a new source and the issuance of the permit is subject to the National Environmental Policy Act (NEPA) pursuant to 40 CFR § 6.101. 40 CFR § 6.204(a) allows an action to be categorically excluded from the requirements of a NEPA analysis if the action fits within a listed category and the action does not involve extraordinary circumstances. 40 CFR § 6.204(iv) allows the exclusion for the reissuance of a new source NPDES permit providing that the conclusions of the original NEPA document are still valid, there will be no degradation of the receiving waters and the permit conditions do not change or are more environmentally protective. The original Environmental Assessment (EA) was prepared in November 2011 with the Finding of No Significant Impact (FONSI) being signed on January 31, 2012. Since that document was prepared, there have been no changes to the receiving waters or facility that would warrant any changes to the FONSI. As set out in the antidegradation analysis, below, there will be no degradation of the receiving waters. The permit conditions proposed in the draft permit have not been changed from the current permit. Therefore, the EPA will prepare a categorical exclusion for Site 3.

E. Permit Expiration

These permits will expire five years after their effective dates. In the event that a permit is not reissued before its expiration date, in accordance with 40 CFR § 122.6, the conditions of the permit will be administratively continued if the permittee was authorized to discharge under an expiring permit and submitted a complete permit application at least 180 days prior to the expiration date.

VI. PERMIT REQUIREMENTS

A. General Approach to Determining Effluent Limitations

CWA §§ 101, 301, 304, 308, 401, 402, and 403 provide the basis for conditions in the draft permits. The EPA has evaluated possible discharges from the net pen facilities with respect to these sections of the CWA and relevant NPDES implementing regulations to determine what conditions and requirements to include in the draft permits.

In general, the CWA requires effluent limits that are the more stringent of either technology-based or water quality-based limitations. Technology-based effluent limits (TBELs) are based on a minimum level of treatment for discharges from point sources that is provided by currently available treatment technologies. Water quality-based effluent limits (WQBELs) are developed to ensure that applicable water quality standards for receiving waters are met.

In the case of net pen systems, which are suspended in the receiving water body, the application of numeric discharge limits is not practical, since there is not a single discharge point into the receiving water where compliance with such limits might be measured. However, the EPA is requiring monitoring in the vicinity to determine compliance with applicable water quality standards as well as to determine any adverse effects on the water body or the nearby benthic community.

Pollutants of concern for the water column are turbidity, pH, dissolved oxygen, nutrients, and chlorophyll-A; sediment and benthic community effects will also be monitored on the lake floor below and downstream of the net pens.

B. Evaluation of TBELs

CWA § 301(b) requires industrial dischargers to meet technology-based effluent guidelines, established by the EPA, which are enforceable through their incorporation into NPDES permits. The requirements of the ELGs for the Concentrated Aquatic Animal Production Point Source Category have been used in developing the TBELs in these permits. See discussion of the ELGs in FS IV.C, above.

1. **Effluent Limitations Guidelines** and **New Source Performance Standards** for the Concentrated Aquatic Animal Production Point Source Category, Net Pen Subcategory. 40 CFR Part 451, Subpart B.

   The following narrative requirements are included in the permits

   a. Reporting requirements (40 CFR § 451.3)

      i. The use of an investigational new animal drug (INAD) or any extra-label drug, which may lead to the discharge of the drug to WOTUS. This reporting is not required for an INAD or an extra-label drug that has been previously approved by the Food and Drug Administration (FDA) for a different species or disease, if it is used at or below the previously approved dose rate and involves similar conditions of use.

      ii. Failure of or damage to a containment system that results in unanticipated discharges of pollutants to WOTUS

      iii. Spills of drugs, pesticides, or feed that result in discharges to WOTUS

   b. Best Management Practices (BMP) Plan (40 CFR §§ 451.3(d) and 451.21(a) through (h)). The discharger must meet the following requirements:

      i. *BMP Plan Development*:

         (a) develop and maintain a plan describing how the permittee will achieve the requirements of § 451.21(a) through (h) [§§ (b)(2) through (9), below];

         (b) make the plan available to the EPA upon request;

         (c) certify in writing to the EPA that a BMP plan has been developed.

ii. *Feed management:* must employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth. Strategies must minimize the accumulation of uneaten food beneath the pens through the use of active feed monitoring and management practices. These practices may include one or more of the following: use of real-time feed-monitoring, including devices such as video cameras, digital scanning sonar, and upweller systems; monitoring of sediment quality beneath the pens; monitoring of benthic community quality beneath the pens; capture of waste feed and feces; or other good husbandry practices approved by the permitting authority.

iii. *Waste collection and disposal*: must collect, return to shore, and properly dispose of all feed bags, packaging materials, waste rope and netting.

iv. *Transport or harvest discharge:* minimize any discharge associated the transport or harvesting of aquatic animals including blood, viscera, aquatic animal carcasses, or transport water containing blood.

v. *Carcass removal:* remove and dispose of aquatic animal mortalities properly on a regular basis to prevent discharge to WOTUS.

vi. *Materials storage*:

(a) Ensure proper storage of drugs, pesticides, and feed in a manner designed to prevent spills that may result in the discharge of drugs, pesticides or feed to WOTUS.

(b) Implement procedures for properly containing, cleaning, and disposing of any spilled material.

vii. *Maintenance*:

(a) Inspect the production system on a routine basis in order to identify and promptly repair any damage.

(b) Conduct regular maintenance of the production system in order to ensure that it is properly functioning.

(c) Because the FFM facility has not operated since at least 2012, an engineering integrity assessment report will be required prior to restocking the pens to assure that the structure of the pens is adequate to maintain compliance with the permit once the pens are restocked.

viii. *Recordkeeping*:

(a) Maintain records for aquatic animal net pens documenting feed amounts and estimates of the numbers and weights of aquatic animals in order to calculate representative feed conversion ratios.

(b) Keep records of the net changes, inspections, and repairs.

ix. *Training*:

(a) Adequately train personnel in spill prevention and how to respond in the event of a spill in order to ensure the proper clean-up and disposal of spilled material.

(b) Train staff on the proper operation and cleaning of production systems including training in feeding procedures and proper use of equipment.

2. Colville Tribal Pollution Discharge Permit

The EPA has also considered the precedent set by the Colville Tribal Pollution Discharge Permit issued for Pacific Aquaculture Sites 1 and 2 in 2009. CCT reissued the permits for all three Pacific Aquaculture Sites on August 8, 2019. Since the EPA does not have the authority to include these provisions in the permits unless the CCT includes these provisions in the CWA § 401 Certifications, the EPA is not including the following provisions as narrative effluent limitations on the permits. Instead, the facilities should consider these provisions in the development of the permittee's BMP plan (See Permit Part II.C.3.):

a. General Operating Requirements:

The Permittee must:

i. Use active feed monitoring and management strategies to minimize feed loss and to allow only the least possible uneaten feed to accumulate beneath the net pens.

ii. Take immediate action to correct noncompliance with Tribal surface water quality standards or significant accumulation of bottom sediments. Corrective actions may include methods such as reduction in feeding rate, removal of fish from net pens, or other remedies.

iii. Feed fish food in a manner that maximizes ingestion by the reared fish.

iv. Utilize properly sized feed for the size of fish in an individual net pen.

v. Utilize feed that is free of excessive fines and high in digestibility.

vi. Routinely collect environmental data and data on fish population, size, growth, and food conversion rates necessary to determine and update optimal feeding rates.

vii. Remove fish carcasses from the net pens once per week as a minimum and twice per week when feasible as weather permits.

viii. Collect and store fish carcasses in leak-proof containers.

ix. Maintain compliance with Colville Tribal Code (CTC) 4-5 and a Solid Waste Disposal Plan (SWDP) approved by the CCT Public Works Department (CTC 4-13: Solid Waste) by storing and disposing of fish mortalities, harvest blood and leachate from these materials in a manner that prevents such materials from discharging in the wastewater and entering Reservation waters.

x. Limit as much as possible wastewater discharges resulting from the transport or harvest of fish.

xi. Take no action that would result in a significant escape of fish (see d., below).

xii. Maintain compliance with Public Works SWDP by properly dispose of feed bags, packaging materials, waste rope, and netting.

xiii. Maintain compliance with CTC 4-16 by minimizing the storage quantities of all necessary chemicals, petroleum products, and potentially toxic substances essential to the day-to-day operation at the facility. These products shall be kept in leak proof storage areas, which provide secondary containment.

xiv. Maintain compliance with CTC 4-16 by not discharging hazardous materials or toxic chemicals in hazardous or toxic amounts to the receiving water.

xv. Maintain compliance with CTC 4-5 by not reintroducing or re-suspending collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters to the final effluent stream for discharge to Tribal waters.

xvi. Maintain compliance with CTC 4-5 by not discharging sanitary waste, floating solids, visible foam other than in trace amounts, or oily wastes, which produce sheen on the surface of the receiving water.

xvii. Not discharge soaps or detergents to the receiving water.

xviii. Recover floating debris and trash which enters the receiving water incidental to the operation of the facility.

b. Disease Control Chemical Use Requirements

The following requirements only apply to those drugs and chemicals included in feed or administered by a bath or dip treatment that results or may result in those materials being discharged to waters of the CCT. These requirements do not apply to drugs and chemicals administered by injections or by dip treatments that result in no discharge to waters of the Colville Indian Reservation.

i. Disease control chemicals and drugs approved for use by the United States Food and Drug Administration (USFDA) or the United States Environmental Protection Agency (USEPA) may be used.

ii. USFDA approved Investigational New Animal Drugs (INADs) may also be used at a facility provided the conditions detailed in a facility's INAD permit application are met.

iii. All disease control drug and chemical use must be done in conformance with product label instructions, approved INAD protocols, or be administered by or under the supervision of a licensed veterinarian.

iv. Disease control drug and chemicals which are not used in accordance with product label instructions, or under USFDA approved INAD protocols must be administered by or under the supervision of a licensed veterinarian and be approved in advance by the Department.

v. The use of disease control chemicals shall be reported on a form specified in the permit.

c. Pollution Prevention Plan

The Pollution Prevention Plan shall specify operating conditions that do not violate other conditions of this permit. This Plan shall address: operating,

spill prevention, spill response, solid waste, and storm water discharge practices which will prevent or minimize the release of pollutants from the facility to the WOTUS The Permittee shall operate the facility in accordance with this plan along with any subsequent amendments or revisions. The Permittee shall address the following in the Plan:

i. Fish feeding methods to minimize the discharge of unconsumed food;

ii. Net-cleaning methods to minimize the discharge of accumulated solids and attached growth;

iii. Use of disease control chemicals within the facility to ensure that the amounts and frequency of application are the minimum necessary for effective disease treatment and control; the concentration of disease control chemicals in the facility's discharge shall be minimized;

iv. Practices for the storage and, if necessary, disposal of disease control chemicals;

v. Practices for the collection, storage and ultimate disposal of solid and biological wastes; among the solid wastes of concern are:

(a) Any fish mortalities under normal operation;

(b) Fish mortalities due to a fish kill involving more than five percent of the fish; and

(c) Blood from harvesting operations.

vi. Procedures to prevent or respond to spills and unplanned discharges of oil and hazardous materials; these procedures must include a description of:

(a) The reporting system which will be used to alert responsible facility management and appropriate legal authorities;

(b) Facilities (including an overall facility site plan) which prevent, control, or treat spills and unplanned discharges and a compliance schedule to install any necessary facilities in accordance with the approved plan;

(c) The spill response procedures and equipment which will be used; and

(d) (A list of) all hazardous materials used, processed, or stored at the facility which may be spilled directly or indirectly into state waters.

d. Fish Escape Prevention and Monitoring Plan

The Fish Escape Prevention and Monitoring Plan is subject to review and further revision as necessary. The Permittee must apprise the Department and Tribal Department of Fish and Wildlife of any modifications to the plan and must maintain a copy of the most current version of the plan at the facility.

The Fish Escape Prevention and Monitoring Plan shall include, but not be limited to the following elements:

i. Identification and implementation of technology that will minimize fish escapements;

ii. Routine procedures and Best Management Practices used to minimize the risk of escapement from the pens during normal day-to-day operation. Procedures should include regular net condition inspections and planning/performing any repairs;

iii. Procedures to minimize escapements in the event that the net pens need to be moved, repaired, or manipulated in any manner, or during stocking or harvesting operations, which could result in a release of fish to Tribal waters; at a minimum, prior to the net pens being moved, a bathymetric analysis should be made along the intended travel route(s) to ensure adequate depth and the absence of underwater hazards or obstructions;

iv. Procedures to minimize escapements in the event water quality conditions require moving the pens; the procedures should include, as appropriate, actions to maximize the amount of time available to plan and execute the movement of the pens; these procedures may include the routine monitoring of water quality conditions;

v. Procedures for training of all employees, contractors, and subcontractors involved in the movement or manipulation of the pens; and

vi. Procedures for routinely tracking the number of fish within the pens, the number of fish lost due to predation and mortality, and the number of fish lost due to escapement.

C. Evaluation of WQBELs

In addition to the technology-based requirements discussed above, the EPA evaluates the facility discharges to determine compliance with CWA § 301(b)(1)(C), which requires all NPDES permits to contain limits that will ensure compliance with applicable water quality standards. NPDES permits must also implement conditions imposed to protect the federally promulgated Tribal water quality standards as part of the CWA § 401 certification.

CWA § 301(b)(1)(C) and its implementing regulations at 40 CFR § 122.44(d) require permits to include limits for all pollutants or parameters, which are or may be discharged at a level which will cause or contribute to an excursion above any applicable water quality standard, including narrative criteria for water quality. If the EPA determines that such water quality-based effluent limitations (WQBELs) are necessary, they must be stringent enough to ensure that water quality standards are met, and they must be consistent with any available wasteload allocation (in a Total Maximum Daily Load).

For pollutants with technology-based limits, the EPA must also determine whether the technology-based limits will be protective of the corresponding water quality criteria. (40 CFR § 122.44(d)(1)(vii)(B)).

1. Effluent Limitations

The following limits are applied for all four facilities for pollutants of concern to meet the federally promulgated CCT water quality standards.

Table 2 Effluent Limitations		
Pollutant	**Instantaneous Maximum Limit**	**Instantaneous Minimum Limit**
Turbidity— --when background turbidity is 50 NTU or less	5 NTU above background level	--
--when background turbidity is greater than 50 NTU	10% over background level	--
Dissolved Oxygen	--	8.0 mg/L*
* If the upstream DO measure is less than 8.0 mg/L, the sample taken at the edge of the net pen (as described below in FS Appendix B Section C.1) shall be considered in compliance with the permit requirement if that DO measure is no more than 0.2 mg/L less than the upsteam DO measure.		

2. Narrative Requirements

The draft EPA permits require that the facilities be operated following best management practices in order to minimize discharges to the receiving water. Specifically, the narrative requirements in 40 CFR § 451, Subpart B, which are listed in detail in FS V.B.1.b, above, are included in the permits. In addition, operational requirements in the previous CCT permits which do not duplicate those from 40 CFR § 451 should be considered in the development of the BMP Plan. This provides some consistency with the previous permits and prior requirements for the facilities already permitted by CCT and provides consistency across facilities in similar situations on the same water body.

VII. MONITORING AND REPORTING REQUIREMENTS

In accordance with CWA § 308 and 40 CFR § 122.44(i), monitoring requirements are included in NPDES permits to determine compliance with effluent limitations, to gather data to evaluate the need for future effluent limitations, and/or to monitor impacts on the receiving water. Monitoring in the proposed permits will provide data to evaluate water quality both upstream and downstream of the net pens as well as impacts on the lake bottom. All analyses required by the permit must be conducted in accordance with methods and procedures established at 40 CFR Part 136.

A. Monitoring Requirements

1. Water Quality Monitoring

Water quality monitoring requirements listed in Table 2 are included to assess the effect of each facility on the down-current water and on the lake bottom. Dissolved oxygen and turbidity were determined to be the relevant water quality standards that operation of the net pens might reasonably be expected to affect. Therefore, the EPA is requiring sampling at the edge of the pens on the down current side to determine compliance with the water quality standards. In the case of turbidity, the standard is stated in terms of the background values of

turbidity; therefore, the up-current sampling is also needed. In order to evaluate the effect of the pens on dissolved oxygen in the water column, the EPA has also included up-current sampling for this parameter.

Table 3
Required Water Quality Monitoring

WQ Parameter	Sampling Frequency	Sample Type	Locations
Dissolved Oxygen	Weekly, May thru October	Grab	50 to 100 feet up-current of the pens at each of the following depths: 1) at the surface, 2) at half the depth of the pens, and 3) within 3 feet of the lake bottom
			At the edge of the net pens at the mid-point of the down-current side, at each of the following depths 1) at the surface, 2) at half the depth of the pens, and 3) within 3 feet of the lake bottom
Turbidity[1]	Weekly[1], May thru October	Grab	50 to 100 feet up-current of the pens, at each of the following depths: 1) at the surface, 2) at half the depth of the pens, and within 3 feet of the lake bottom
			At the edge of the net pens at the mid-point of the down-current side, at each of the following depths: 1) at the surface, 2) at half the depth of the pens, and within 3 feet of the lake bottom

2. Lake Floor Monitoring

Because of the coarse bottom sites in the portion of Rufus Woods Lake where the net pens are located, it is presumed that the currents are too strong to allow significant deposition in the fish farm vicinity and that dispersion and dilution is more than adequate to spread the wastes out over large areas and allow aerobic assimilation of the wastes by the food web (Rensel and Forster 2008). Therefore, the EPA has determined that sediment sampling, which is common at other net pen facilities in Washington State, is not appropriate here. In order to evaluate bottom conditions, the lake bottom must be documented by video recording to the perimeter of the sediment impact zone, as prescribed in Table 4, below.

Table 4 Photographic Surveys		
Parameter	**Frequency**	**Location**
Diving and underwater photographic survey for sediment accumulation on lake bottom	Semi-monthly[1], June through October	Sediment observation stations at down-current edge of each net pen facility and downstream of the facility to the edge of the sediment impact zone, indicated in Appendix A
Remote survey of lake bottom	Continuous, June 1 through December 31 each year	Down-current of pens: at the edge of the facility and downstream to the extent of the sediment impact zone
1. Approximately two weeks apart.		

B. Reporting Requirements

Reporting requirements are included in the permits are the same as those in the previous permits. Major requirements include monthly reporting of monitoring, certification of completion of a Best Management Practices Plan and of a Quality Assurance Plan, annual report of operations, and reporting of INAD and extra-label drug use, of spills, and of structural failures.

VIII. BEST MANAGEMENT PRACTICES

The Clean Water Act authorizes and 40 CFR § 122.44(k) provides for requirements to implement BMPs in NPDES permits to control or abate the discharge of pollutants whenever necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. Best management practices are important tools for waste minimization and pollution prevention. Furthermore, the ELGs at 40 CFR § 451.21 require the application of certain BMPs, which are included in the permits. See FS V.B.1.b, above.

The draft permits require the permittees to review and modify any existing BMP Plans and implement the Plan within 60 days of the effective date of the permit. They must identify specific management practices and operating procedures to prevent or minimize the generation and discharge of pollutants including the specific best management practices listed in the permit.

The BMP Plan is an enforceable condition of each permit and must be amended whenever there is a change in the permitted facility or its operation which materially increases the potential for discharges of pollutants.

IX. STANDARD PERMIT PROVISIONS

A. Quality Assurance Plan

40 CFR § 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The permittee is required to develop or update the Quality Assurance Plan for the permitted facility within 60 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

B. Prescribed Regulatory Language

Permit Parts IV., V., and VI. of the draft permits contain standard regulatory language that is required to be in all NPDES permits. These permit provisions are based largely upon 40 CFR Part 122 Subpart C and include requirements pertaining to monitoring, recording, reporting, and compliance responsibilities.

- Duty to Comply from 40 CFR § 122.41(a)
- Proper Operation and Maintenance from 40 CFR § 122.41(e)
- Duty to Mitigate from 40 CFR § 122.41(d)
- Toxic Pollutants from 40 CFR §§ 122.41(a)(1-2), 122.44(b, e), and 125.3
- Need to Halt or Reduce Activity not a Defense from 40 CFR § 122.41(c)
- Bypass of Wastewater Treatment from 40 CFR § 122.41(m)
- Upset Conditions from 40 CFR § 122.41(n)
- Inspection and Entry from 40 CFR § 122.41(i)
- Penalties for Violations of Permit Conditions from 40 CFR § 122.41(a)(2-3)
- Duty to Provide Information from 40 CFR § 122.41(h)
- Records Contents from 40 CFR § 122.41(j)(3)
- Submittal of Reports from 40 CFR§ 122.41(h, j, and l)
- Retention of Records and Reports from 40 CFR § 122.41(j)(2)
- On-Site Availability of Records and Reports from 40 CFR § 122.41(i)(2)
- Availability of Reports for Public Review from 40 CFR §§ 122.1(e) and 122.7(1) and 40 CFR § 2.101
- Planned Changes from 40 CFR § 122.41(l)(1)
- Changes in the Discharge of Toxic Pollutants from 40 CFR § 122.42(a)
- Anticipated Noncompliance from 40 CFR § 122.41(l)(2)
- Reporting of Noncompliance from 40 CFR §§ 122.41(l)(6-7) and 122.44(g)
- Permit Actions from 40 CFR § 122.44(c) and 40 CFR §§ 122.61 - 122.64
- Duty to Reapply from 40 CFR § 122.41(b)
- Incorrect Information and Omissions from 40 CFR § 122.41(l)(8)
- Signatory Requirements from 40 CFR § 122.41(k)
- Property Rights from 40 CFR § 122.41(g)

•Transfers from 40 CFR § 122.41(l)(3)

•Oil and Hazardous Substance Liability from 40 CFR § 125.3, 40 CFR Part 300, 33 CFR § 153.10(e), and CWA § 311, and

•Reopening of the Permit from 40 CFR §§ 122.41(f) and 122.44(c).

X. OTHER REQUIREMENTS

A. Reports required by the CCT Office of Environmental Trust Permit

The EPA is aware of two reports required by the CCT permit for Pacific Aquaculture, Inc. that could inform the next reissuance of these permits. The EPA has included a requirement in the PAI permits to also submit these studies to the EPA with the next reapplication. The two studies are the Stable Isotope Study (due to CCT on April 30, 2021) and the Assessment of Nutrient Effects from Net Pen Operations (due to CCT by June 30, 2021).

B. Endangered Species Act

The Endangered Species Act requires the EPA to consult with National Oceanographic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (USFWS) to insure that this NPDES permitting activity will not jeopardize the continued existence of any endangered or threatened species or of any species proposed to be listed as endangered or threatened nor result in the destruction or adverse modification of critical habitat for such species.

To address the requirements of the Endangered Species Act, the EPA has evaluated effects on threatened species listed provided by the USFWS IPac report. A summary of the effects determinations on listed species is found in Table 5, below.

Table 5
Summary of Effects on Threatened Species

Species	Effects Determinations		
	NE [1]	NLAA [2]	LAA [3]
Fish			
Bull Trout - Columbia River Basin DPS [4]	X		
Birds			
Yellow-billed Cuckoo	X		
Terrestrial Mammals			
Canada Lynx	X		

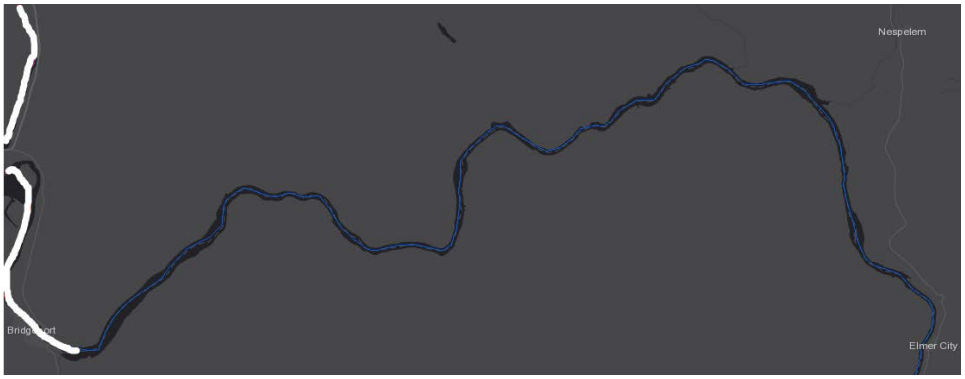
1. No effect
2. Not likely to adversely affect
3. Likely to adversely affect
4. Distinct population species

The Canada Lynx and Yellow-billed Cuckoo are not expected to be found in the area of the discharges from any of the four net pens. Therefore, there is no effect on these species. The Gray Wolf has been proposed for listing as endangered and the North

American Wolverine has been proposed as threatened. It is unlikely that these species would be found in the area of the discharges so there will be no effect on these species.

Bull trout are rare in Rufus Woods Lake (Douglas County 2009) and the Lake is not designated as critical habitat. Bull trout spawn in small streams with very cold clear water with clean gravel substrates − conditions that are not present at the project site. Spawning may occur in tributaries, but these would be several miles from the action area. In Rufus Woods Lake, only two juvenile bull trout (mean weight 107 grams) have been documented (Northwest Power Planning Council, 2000). Because of the lack of bull trout in this area and the fact that the conditions are inconsistent with bull trout habitat, the EPA has determined there is no effect on this species.

There is no critical habitat designated for salmon or steelhead above Chief Joseph Dam.



Steelhead habitat is thick white line to the left of the map.

https://www.webapps.nwfsc.noaa.gov/portal/apps/webappviewer/index.html?id=7514c715b8594944a6e468dd25aaacc9 (accessed on August 6, 2019)

C. Magnuson - Stevens Fishery Conservation and Management Act

The mandate of the Magnuson--Stevens Act at 16 U.S.C. § 1855 (b)(2) requires the EPA to consult with the NOAA Fisheries to ensure that this NPDES permitting activity will not adversely affect *essential fish habitat*. Because Chief Joseph Dam does not allow fish passage for migrating salmon, there is no *essential fish habitat* in Rufus Woods Lake. Therefore, the issuance of these permits to the net pen facilities in Rufus Woods Lake is not subject to this mandate to consult on *essential fish habitat.*

D. Antidegradation Analysis

The EPA is required under CWA § 301(b)(1)(C) and implementing regulations (40 CFR §§ 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure compliance with water quality standards, including antidegradation requirements. The CCT WQS contain an antidegradation policy; however, since the CCT do not have antidegradation implementation procedures and since Washington is a downstream state, the EPA utilized Washington's antidegradation implementation procedures as guidance.

The EPA referred to CCT's Antidegradation Policy 131.35(e)(2) and Ecology's Antidegradation Policy (https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-standards/Antidegradation) with the 2011 Supplemental Guidance on Implementing Tier II Antidegradation (https://fortress.wa.gov/ecy/publications/documents/1110073.pdf).

Determining the Applicable Level of Protection

There are three tiers of protection for surface waters of the Reservation:

- 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 to accommodate important economic or social development and is in the overriding public interest.
- Tier III prevents the degradation of waters identified as constituting an outstanding national or reservation resource and applies to all sources of pollution.

The receiving waters of the Columbia River, from Grand Coulee Dam to Chief Joseph Dam, qualifies for both Tier I and Tier II protection, as explained in more detail below.

Tier I Protection

A facility must first meet Tier I requirements. Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in Chapter 173- 201A WAC.

The segment of the Columbia River, from Grand Coulee Dam to Chief Joseph Dam, where all 4 discharges occur have the following designated beneficial uses: water supply; stock watering; fish and shellfish; wildlife habitat; ceremonial and religious water use; recreation; and commerce and navigation. The effluent limits in the draft permit ensure compliance with applicable numeric and narrative water quality criteria. The numeric and narrative water quality criteria are set at levels that ensure protection of the designated uses. As there is no information indicating the presence of existing beneficial uses other than those that are designated, the draft permits ensure a level of water quality necessary to protect the designated uses and, in compliance with 40 CFR 131.12(a)(1) and 131.35(e)(2)(i), also ensure that the level of water quality necessary to protect existing uses is maintained and protected.

If the EPA receives information during the public comment period demonstrating that there are existing uses for which the Columbia River segment from Grand Coulee Dam to Chief Joseph Dam, is not designated, the EPA will consider this information before issuing a final permit and will establish additional or more stringent permit conditions as necessary to ensure protection of existing uses.

Tier II Protection

A facility must prepare a Tier II analysis when the facility is planning a new or expanded action that has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone. A Tier II analysis consists of an evaluation of whether or not the proposed degradation of water quality that would be associated with a new or expanded action would be both necessary and in the overriding public interest. A Tier II analysis focuses on evaluating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with the lowering of water quality. New discharges and facility expansions are prohibited from lowering

water quality without providing overriding public benefits.

EPA determined that analysis for Tier II Protection is not necessary because the facilities are not new or expanded actions that have the potential to cause measurable degradation to existing water quality.

Tier III Protection

EPA determined that a Tier III antidegradation analysis is not necessary because the receiving water does not meet the conditions as an Outstanding Resource Waters pertaining to WAC 173-201A-330(1).

E. Water Quality Certification

CWA § 401 requires the EPA to seek certification from CCT before issuing a final permit. As a result of the certification, CCT may require more stringent permit conditions to ensure that the permit complies with WQS. The certification may also require additional monitoring requirements and authorize a mixing zone. The EPA shared the preliminary Draft Permit and draft Fact Sheet with CCT prior to this public notice and at this time is requesting a CWA § 401 Certification.

The EPA shared the preliminary Draft Permit and draft Fact Sheet with the Washington Department of Ecology in November 2019. This provided advance notification that input under CWA § 401(a)(2) could be provided for this permit action. The EPA also solicited comments on any issues of concern. The EPA is sending this draft permitting package to initiate the 60-day timeframe outlines in CWA § 401(a)(2)

F. Environmental Justice

As part of the permit development process, the EPA Region 10 conducted a screening analysis to determine whether this permit action could affect overburdened communities. “Overburdened” communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. The EPA used a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool is used to identify permits for which enhanced outreach may be warranted.

The facilities are located within or near a Census block group that is potentially overburdened. This is attributed to the EJ Index for Cumulative Direct Discharge Pollution which exceeds the 80th percentile with an 84 - 85 percentile rating. In order to ensure that individuals near the facilities are able to participate meaningfully in the permit process, the EPA will place a display ad in the local paper and work with the paper and the Tribe to disseminate the information on social media.

XI. DEFINITIONS AND ACRONYMS

"Administrator" means the Administrator of the United States Environmental Protection Agency, or an authorized representative (40 CFR § 122.2).

"Aquaculture facility" means a hatchery, fish farm, or other facility which contains, grows, or holds fish for later harvest (or process) and sale or for release.

"BAT" means best available technology economically achievable "BCT" means best conventional pollutant control technology

"Beneficial use" means a desirable use of a water resource, such as recreation (fishing, boating, swimming) and water supply.

"BMPs" (Best Management Practices) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "WOTUS". BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage of raw material storage (40 CFR § 122.2).

"BOD" (Biochemical oxygen demand) means the measure of the oxygen required to break down organic materials in water. Higher organic loads require larger amounts of oxygen and may reduce the amount of oxygen available for fish and aquatic life below acceptable levels. Unless otherwise specified, this term means the 5-day BOD incubated at 20º C. (BOD_5)

"BPJ" means best professional judgment.

"BPT" means best practicable control technology currently available

"CAAP" means concentrated aquatic animal production

"CCT" means Confederated Colville Tribes

"CFR" means the Code of Federal Regulations.

"CWA" means the Clean Water Act, 33 U.S.C. § 1251 et seq.

"Director" means the Director of the EPA Region 10 Office of Water and Watersheds

"Discharge", when used without qualification, means the "discharge of a pollutant."

"Discharge of a pollutant" means:

(a) Any addition of any "pollutant" or combination of pollutants to "WOTUS" from any "point source," or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes additions of pollutants into WOTUS from: surface runoff which is collected or channeled by humans; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger" (40 CFR § 122.2).

"Draft permit" means a document prepared under 40 CFR § 124.6 indicating the

Director's tentative decision to issue, modify, reissue, or reissue a permit (40 CFR § 122.2).

"Effluent" means wastewater discharged from a point source, such as a pipe.

"Effluent limitation" means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean (40 CFR § 122.2).

"ELGs" (effluent limitations guidelines) means regulations published by the Administrator under CWA § 304(b) to adopt or revise "effluent limitations." (40 CFR § 122.2).

"EPA" means the United States Environmental Protection Agency.

"Essential Fish Habitat" means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity, in particular in relation to federally managed fish species, such as Pacific salmon.

"FR" (or Fed.Reg.) means the Federal Register, the official daily publication for rules, proposed rules, and notices of Federal agencies and organizations, as well as executive orders and other presidential documents.

"Grab sample" means a single sample or measurement taken at a specific time over a period of less than 15 minutes.

"Indian Country" means

(a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation,

(b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and

(c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same." (18 USC § 1151)

"mg/L" means milligrams of solute per liter of solution, equivalent to parts per million, assuming unit density.

"Maximum" means the highest measured discharge or pollutant level during the time period of interest.

"Minimum" means the lowest measured pollutant level during the time period of interest

"NPDES" (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §§ 307, 402, 318, and 405 (40 CFR § 122.2).

"NOAA" means National Oceanic and Atmospheric Administration.

"NSPS" means New Source Performance Standards.

"NTU" means nephelometric turbidity unit

"Nutrients" means any substance assimilated by living things that promotes growth. The

term is generally applied to nitrogen and phosphorus in wastewater but is also applied to other essential and trace elements.

"Point source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (40 CFR § 122.2).

"Pollutant" means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 USC § 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. 40 CFR § 401.11(f).

"Pollution" means the man-made or man induced alteration of the chemical, physical, biological and radiological integrity of water. 40 CFR § 401.11(g).

"Production" means the act of harvesting, processing or releasing fish in a hatchery or the harvest weight of fish contained, grown, or held in a CAAP facility in a year. 40 CFR § 122 Appendix.C

"Technology-based effluent limits" (or limitations) means wastewater treatment requirements applied under Section 301(b) of the Clean Water Act that represent the minimum level of control that must be imposed in a permit issued under Section 402 of the Clean Water Act (40 CFR § 125.3(a)).

"TMDL" (total maximum daily load) means the sum of the individual wasteload allocations (WLAs) for point sources and land allocations (LAs) for nonpoint sources and natural background. (40 CFR 130.2(i)).

"Toxic pollutant" means those pollutants, or combinations of pollutants, including disease- causing agents, which, after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformation in such organisms or their offspring. (CWA § 502(13))

"Toxic substance" means substances that when discharged above natural background levels in waters of the state have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the Department of Ecology.

"Unit density" means the quality of a substance that weighs one kilogram per liter (1 gm/mL), typical of natural water systems and most wastewater.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations 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, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation (40 CFR § 122.41 (n)(1)).

"USC" means United States Code.

"WQBEL" (Water quality-based effluent limitation) means an effluent limitation that is applied to a discharger when technology-based limitations would cause violations of water quality standards.

"WLA" means wasteload allocation, the amount of pollutant assigned to a specific discharger in a TMDL or, in the absence of a TMDL, calculated by the permitting authority to comply with water quality standards in the receiving water.

"Waters of the United States" or waters of the U.S. (WOTUS) means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. (40 CFR § 122.2).

XII. REFERENCES

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Appendix A – Data from the Four Net Pen Facilities

The tables below show the effluent and receiving water data for the three Pacific Aquaculture, Inc. facilities. Frontier Faith Ministries has not discharged in the last five years.

The shaded areas in the dissolved oxygen upstream and effluent columns indicate the times when the DO measures were below the criterion of 8 mg/L. The shaded cells in the Natural Condition Difference column indicate where incorporating the natural condition with the criterion would have been beneficial to the permittee. The Effluent gross turbidity never exceeded 5 NTUs so the facilities were always in compliance with the effluent limitations.

Site 1	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
05/31/2014	1.1	.	NTU	11.5	10.9	mg/L	
05/31/2014	1.	.	NTU	12.6	12.	mg/L	
06/30/2014	1.	.	NTU	13.1	13.1	mg/L	
06/30/2014	1.	.	NTU	11.3	10.5	mg/L	
06/30/2014	.9	.	NTU	11.1	10.6	mg/L	
07/31/2014	.7	.1	NTU	10.9	10.3	mg/L	
07/31/2014	.7	.1	NTU	8.9	7.3	mg/L	
07/31/2014	.6	.	NTU	9.6	8.1	mg/L	
08/31/2014	.5	.1	NTU	9.8	9.	mg/L	
08/31/2014	.4	.	NTU	6.5	6.2	mg/L	0.3
08/31/2014	.4	.	NTU	7.5	6.9	mg/L	0.6
09/30/2014	.2	.	NTU	7.7	7.4	mg/L	0.3
09/30/2014	.3	.	NTU	6.8	5.9	mg/L	0.9
09/30/2014	.2	.	NTU	6.8	6.4	mg/L	0.4
10/31/2014	.3	.	NTU	7.1	6.7	mg/L	0.4
10/31/2014	.3	.	NTU	7.2	6.8	mg/L	0.4
10/31/2014	.3	.1	NTU	7.2	7.2	mg/L	0
10/31/2014	-	-	-	7.8	7.4	mg/L	0.4
05/31/2015	.97	-.08	NTU	9.5	9.1	mg/L	
05/31/2015	1.1	.11	NTU	9.9	9.3	mg/L	
05/31/2015	.98	.02	NTU	10.	9.6	mg/L	
06/30/2015	.73	.09	NTU	9.	8.4	mg/L	
06/30/2015	.68	.13	NTU	9.2	8.6	mg/L	
06/30/2015	.61	.07	NTU	9.3	8.9	mg/L	
07/31/2015	.6	.	NTU	8.5	8.6	mg/L	
07/31/2015	.6	-.1	NTU	8.7	8.5	mg/L	
07/31/2015	.6	.1	NTU	8.8	8.1	mg/L	
08/31/2015	.4	.1	NTU	6.5	6.2	mg/L	0.3
08/31/2015	.3	-.1	NTU	7.3	7.	mg/L	0.3
08/31/2015	.3	-.1	NTU	7.7	7.4	mg/L	0.3
09/30/2015	.2	.	NTU	6.6	6.2	mg/L	0.4
09/30/2015	.2	.	NTU	6.9	6.7	mg/L	0.2
09/30/2015	.2	.	NTU	7.3	6.7	mg/L	0.6

Site 1	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
10/31/2015	.3	.	NTU	7.3	7.	mg/L	0.3
10/31/2015	.3	.	NTU	7.5	7.3	mg/L	0.2
10/31/2015	.2	.	NTU	8.	7.5	mg/L	
05/31/2016	.97	-.02	NTU	9.5	9.1	mg/L	
05/31/2016	.99	.01	NTU	9.8	9.3	mg/L	
05/31/2016	.98	.06	NTU	10.	9.5	mg/L	
06/30/2016	.6	.	NTU	8.8	9.3	mg/L	
06/30/2016	.6	.1	NTU	8.3	8.9	mg/L	
06/30/2016	.5	.	NTU	8.3	8.6	mg/L	
07/31/2016	.56	.08	NTU	7.7	6.8	mg/L	0.9
07/31/2016	.57	.07	NTU	8.1	7.8	mg/L	
07/31/2016	.5	.05	NTU	8.7	8.6	mg/L	
08/31/2016	.5	.	NTU	7.7	7.2	mg/L	0.5
08/31/2016	.48	.06	NTU	8.6	7.8	mg/L	
08/31/2016	.4	.03	NTU	8.8	8.5	mg/L	
09/30/2016	.64	.21	NTU	7.9	6.9	mg/L	1
09/30/2016	.53	.11	NTU	8.4	7.7	mg/L	
09/30/2016	.46	.01	NTU	8.7	8.4	mg/L	
10/31/2016	.98	.16	NTU	8.2	7.7	mg/L	
10/31/2016	.73	.04	NTU	8.9	8.3	mg/L	
10/31/2016	.65	.15	NTU	9.1	8.9	mg/L	
05/31/2017	2.55	-.1	NTU	13.7	13.7	mg/L	
05/31/2017	2.49	.2	NTU	13.88	13.64	mg/L	
05/31/2017	2.6	-.02	NTU	13.2	12.88	mg/L	
06/30/2017	1.71	.1	NTU	13.1	13.7	mg/L	
06/30/2017	2.7	.91	NTU	13.98	13.84	mg/L	
06/30/2017	1.7	-.03	NTU	13.27	13.52	mg/L	
07/31/2017	.76	-.08	NTU	10.18	9.71	mg/L	
07/31/2017	.81	.04	NTU	10.14	9.78	mg/L	
07/31/2017	.88	.2	NTU	10.12	9.92	mg/L	
08/31/2017	.58	-.72	NTU	8.5	7.97	mg/L	
08/31/2017	.46	-.04	NTU	8.66	8.45	mg/L	
08/31/2017	.47	-.1	NTU	8.78	8.66	mg/L	
09/30/2017	.54	-1.17	NTU	7.67	7.5	mg/L	0.17
09/30/2017	.73	-.05	NTU	7.44	7.26	mg/L	0.18
09/30/2017	.81	-.1	NTU	7.45	7.45	mg/L	0
10/31/2017	.49	-.1	NTU	8.14	7.38	mg/L	
10/31/2017	.74	-.3	NTU	8.12	7.98	mg/L	
10/31/2017	.85	.04	NTU	8.31	8.03	mg/L	
05/31/2018	2.75	.03	NTU	11.83	11.78	mg/L	
05/31/2018	3.46	-.24	NTU	11.84	11.78	mg/L	
05/31/2018	3.38	-.16	NTU	11.05	11.09	mg/L	
06/30/2018	1.92	-.07	NTU	11.03	10.82	mg/L	
06/30/2018	2.98	.41	NTU	10.97	10.88	mg/L	
06/30/2018	3.7	-.12	NTU	10.82	10.72	mg/L	

Site 1	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
07/31/2018	1.78	-.23	NTU	8.38	8.36	mg/L	
07/31/2018	1.81	-.3	NTU	8.41	8.27	mg/L	
07/31/2018	2.08	-.13	NTU	8.39	8.18	mg/L	
08/31/2018	1.21	.99	NTU	7.99	7.69	mg/L	0.3
08/31/2018	.74	-1.06	NTU	8.03	7.77	mg/L	
08/31/2018	.96	-.12	NTU	7.98	7.69	mg/L	0.29
09/30/2018	1.53	-.25	NTU	7.68	7.46	mg/L	0.22
09/30/2018	1.12	-.14	NTU	7.64	7.53	mg/L	0.11
09/30/2018	1.15	-.15	NTU	7.64	7.6	mg/L	0.04
10/31/2018	1.	.31	NTU	8.6	8.3	mg/L	
10/31/2018	1.53	.4	NTU	9.3	8.9	mg/L	
10/31/2018	1.67	-.59	NTU	9.5	9.4	mg/L	
05/31/2019	1.27	-.16	NTU	10.92	10.76	mg/L	
05/31/2019	1.55	-.3	NTU	10.84	10.68	mg/L	
05/31/2019	1.65	.14	NTU	10.46	10.53	mg/L	
06/30/2019	.91	-1.04	NTU	9.7	9.29	mg/L	
06/30/2019	1.19	-.6	NTU	9.73	9.72	mg/L	
06/30/2019	1.3	-.65	NTU	9.71	9.7	mg/L	
Maximum	3.7						

Site 2	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
05/31/2014	1.2	.1	NTU	11.9	10.9	mg/L	
05/31/2014	1.2	.	NTU	12.9	12.1	mg/L	
05/31/2014	1.1	.1	NTU	13.6	13.	mg/L	
06/30/2014	1.	.1	NTU	11.2	10.4	mg/L	
06/30/2014	.9	.	NTU	11.5	10.4	mg/L	
06/30/2014	.9	.	NTU	11.	10.2	mg/L	
07/31/2014	.8	.1	NTU	9.6	8.4	mg/L	
07/31/2014	.8	.2	NTU	10.1	9.	mg/L	
07/31/2014	.6	.	NTU	10.	9.4	mg/L	
08/31/2014	.5	.1	NTU	6.8	6.1	mg/L	0.7
08/31/2014	.5	.	NTU	7.7	6.7	mg/L	1
08/31/2014	.4	.	NTU	8.1	7.7	mg/L	
09/30/2014	.3	.	NTU	7.1	6.7	mg/L	0.4
09/30/2014	.2	-.1	NTU	7.5	6.7	mg/L	0.8
09/30/2014	.3	.1	NTU	7.9	7.6	mg/L	0.3
10/31/2014	.3	.	NTU	7.2	6.2	mg/L	1
10/31/2014	.3	.	NTU	7.5	6.5	mg/L	1
10/31/2014	.3	.1	NTU	7.8	7.4	mg/L	0.4
05/31/2015	.77	-.19	NTU	9.8	9.2	mg/L	
05/31/2015	.84	-.15	NTU	8.9	9.6	mg/L	

Site 2	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
05/31/2015	.62	-.14	NTU	9.7	9.7	mg/L	
06/30/2015	.68	.16	NTU	9.	7.9	mg/L	
06/30/2015	.63	.02	NTU	8.9	8.3	mg/L	
06/30/2015	.67	.23	NTU	8.9	8.5	mg/L	
07/31/2015	.6	.1	NTU	8.6	8.4	mg/L	
07/31/2015	.6	.1	NTU	8.3	8.6	mg/L	
07/31/2015	.7	.1	NTU	8.1	8.2	mg/L	
08/31/2015	.4	.1	NTU	6.9	6.	mg/L	0.9
08/31/2015	.3	-.1	NTU	7.7	6.4	mg/L	1.3
08/31/2015	.4	.	NTU	8.1	7.5	mg/L	
09/30/2015	.2	.1	NTU	7.4	6.8	mg/L	0.6
09/30/2015	.2	.	NTU	7.6	7.	mg/L	0.6
09/30/2015	.3	.1	NTU	7.9	7.6	mg/L	0.3
10/31/2015	.3	.	NTU	7.4	7.	mg/L	0.4
10/31/2015	.3	.	NTU	7.8	7.	mg/L	0.8
10/31/2015	.3	.1	NTU	8.1	7.6	mg/L	
05/31/2016	.75	-.2	NTU	9.8	9.2	mg/L	
05/31/2016	.84	-.14	NTU	9.9	9.6	mg/L	
05/31/2016	.62	-.14	NTU	9.7	9.7	mg/L	
06/30/2016	.7	.	NTU	9.	9.7	mg/L	
06/30/2016	.7	.1	NTU	9.2	9.1	mg/L	
06/30/2016	.6	.	NTU	9.4	9.5	mg/L	
07/31/2016	.61	.01	NTU	7.7	7.4	mg/L	0.3
07/31/2016	.78	.22	NTU	7.9	7.9	mg/L	0
07/31/2016	.55	.04	NTU	8.7	8.7	mg/L	
08/31/2016	.5	.04	NTU	7.8	7.5	mg/L	0.3
08/31/2016	.48	.04	NTU	8.6	8.4	mg/L	
08/31/2016	.4	.08	NTU	8.8	8.6	mg/L	
09/30/2016	.51	.	NTU	7.6	7.4	mg/L	0.2
09/30/2016	.5	.03	NTU	8.3	8.	mg/L	
09/30/2016	.48	.05	NTU	8.6	8.4	mg/L	
10/31/2016	1.61	.06	NTU	7.9	7.7	mg/L	0.2
10/31/2016	1.65	.22	NTU	8.5	8.2	mg/L	
10/31/2016	1.1	.42	NTU	9.	9.	mg/L	
05/31/2017	1.89	.25	NTU	13.99	13.88	mg/L	
06/30/2017	1.84	.2	NTU	13.48	13.48	mg/L	
06/30/2017	1.58	.07	NTU	14.01	13.86	mg/L	
06/30/2017	1.84	-.02	NTU	13.48	13.48	mg/L	
07/31/2017	.8	.28	NTU	10.21	9.98	mg/L	
07/31/2017	.76	-.03	NTU	10.19	9.96	mg/L	
07/31/2017	.93	.16	NTU	10.15	10.01	mg/L	
08/31/2017	.49	-.14	NTU	8.57	7.96	mg/L	
08/31/2017	.48	-.05	NTU	8.69	8.22	mg/L	
08/31/2017	.67	-.1	NTU	8.85	8.65	mg/L	
09/30/2017	.75	.06	NTU	7.66	6.98	mg/L	0.68

Site 2	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
09/30/2017	1.38	-.29	NTU	7.64	6.67	mg/L	0.97
09/30/2017	1.07	-.47	NTU	7.68	6.39	mg/L	1.29
10/31/2017	.67	-.55	NTU	8.11	8.04	mg/L	
10/31/2017	.72	-.33	NTU	8.1	7.8	mg/L	
10/31/2017	.94	.02	NTU	7.92	8.03	mg/L	-0.11
05/31/2018	3.1	.59	NTU	11.84	11.73	mg/L	
05/31/2018	3.9	-.2	NTU	11.87	11.88	mg/L	
05/31/2018	4.28	-1.55	NTU	11.5	11.45	mg/L	
06/30/2018	1.87	-.63	NTU	11.03	11.	mg/L	
06/30/2018	2.73	-.24	NTU	10.94	10.94	mg/L	
06/30/2018	2.95	-.29	NTU	10.67	11.03	mg/L	
07/31/2018	2.21	-.3	NTU	8.57	8.49	mg/L	
07/31/2018	1.51	-1.51	NTU	8.68	8.48	mg/L	
07/31/2018	1.54	-1.53	NTU	8.71	8.52	mg/L	
08/31/2018	1.78	.82	NTU	8.05	7.89	mg/L	
08/31/2018	1.73	.82	NTU	7.99	7.95	mg/L	0.04
08/31/2018	1.83	.79	NTU	7.85	7.86	mg/L	-0.01
09/30/2018	1.29	-.56	NTU	7.57	7.27	mg/L	0.3
09/30/2018	1.06	-1.06	NTU	7.67	7.12	mg/L	0.55
09/30/2018	2.44	1.14	NTU	7.71	7.58	mg/L	0.13
10/31/2018	1.57	.74	NTU	8.5	8.3	mg/L	
10/31/2018	1.29	.1	NTU	9.3	9.1	mg/L	
10/31/2018	1.73	.8	NTU	9.5	9.4	mg/L	
05/31/2019	1.5	.29	NTU	10.84	10.43	mg/L	
05/31/2019	1.58	-2.26	NTU	11.05	11.09	mg/L	
05/31/2019	1.64	-.21	NTU	10.61	10.65	mg/L	
06/30/2019	1.51	.48	NTU	9.77	9.27	mg/L	
06/30/2019	2.3	.25	NTU	9.71	9.71	mg/L	
06/30/2019	2.24	.69	NTU	9.62	9.69	mg/L	
Maximum	4.28						

Site 3	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
09/30/2015	.2	.	NTU	6.7	6.4	mg/L	0.3
09/30/2015	.3	.	NTU	6.8	6.5	mg/L	0.3
09/30/2015	.2	.	NTU	7.1	6.9	mg/L	0.2
10/31/2015	.3	.	NTU	7.4	7.	mg/L	0.4
10/31/2015	.3	.	NTU	7.5	7.2	mg/L	0.3
10/31/2015	.3	.1	NTU	7.9	7.4	mg/L	0.5
05/31/2016	.97	-.02	NTU	9.5	9.1	mg/L	
05/31/2016	.94	-.07	NTU	9.8	9.3	mg/L	
05/31/2016	.96	.	NTU	10.	9.5	mg/L	

Site 3	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
06/30/2016	.7	.1	NTU	8.6	8.5	mg/L	
06/30/2016	.7	.	NTU	9.2	8.6	mg/L	
06/30/2016	.7	.1	NTU	9.1	9.2	mg/L	
07/31/2016	.57	.05	NTU	8.1	6.8	mg/L	
07/31/2016	.53	.01	NTU	8.4	7.5	mg/L	
07/31/2016	.51	.02	NTU	9.	8.6	mg/L	
08/31/2016	.45	.05	NTU	8.4	6.7	mg/L	
08/31/2016	.49	.09	NTU	8.9	7.5	mg/L	
08/31/2016	.44	.05	NTU	8.8	8.8	mg/L	
09/30/2016	.51	.04	NTU	8.	7.1	mg/L	
09/30/2016	.53	.09	NTU	8.8	8.	mg/L	
09/30/2016	.41	.02	NTU	9.1	8.8	mg/L	
10/31/2016	.68	.11	NTU	8.2	7.6	mg/L	
10/31/2016	.73	.11	NTU	8.9	8.3	mg/L	
10/31/2016	.65	.04	NTU	9.1	8.9	mg/L	
05/31/2017			NTU			mg/L	0
05/31/2017			NTU			mg/L	0
05/31/2017			NTU			mg/L	0
06/30/2017	1.53	-.37	NTU	14.05	13.89	mg/L	
06/30/2017	1.86	.23	NTU	13.31	13.9	mg/L	
06/30/2017	1.35	-.46	NTU	13.14	13.41	mg/L	
07/31/2017	.71	.05	NTU	10.12	10.11	mg/L	
07/31/2017	.73	.03	NTU	10.15	10.08	mg/L	
07/31/2017	.71	.05	NTU	10.07	10.18	mg/L	
08/31/2017	.49	-.06	NTU	8.52	8.09	mg/L	
08/31/2017	1.06	.61	NTU	8.66	8.3	mg/L	
08/31/2017	.76	-.17	NTU	8.73	8.78	mg/L	
09/30/2017	.82	.19	NTU	7.64	6.92	mg/L	0.72
09/30/2017	1.06	.39	NTU	7.6	7.41	mg/L	0.19
09/30/2017	.88	-.48	NTU	7.58	7.57	mg/L	0.01
10/31/2017	.56	-.03	NTU	8.24	7.93	mg/L	
10/31/2017	.7	.05	NTU	8.27	8.11	mg/L	
10/31/2017	.86	-.23	NTU	8.41	8.35	mg/L	
05/31/2018	2.85	-.64	NTU	11.86	11.78	mg/L	
05/31/2018	2.79	.03	NTU	11.93	11.81	mg/L	
05/31/2018	3.37	-.73	NTU	11.77	11.03	mg/L	
06/30/2018	1.91	.1	NTU	10.38	10.65	mg/L	
06/30/2018	2.21	-.64	NTU	11.03	10.88	mg/L	
06/30/2018	2.59	-.9	NTU	10.38	10.65	mg/L	
07/31/2018	1.36	-.13	NTU	8.52	8.54	mg/L	
07/31/2018	1.42	-.37	NTU	8.49	8.43	mg/L	
07/31/2018	1.74	.21	NTU	8.46	8.27	mg/L	
08/31/2018	1.04	.68	NTU	8.07	7.96	mg/L	
08/31/2018	1.02	-.18	NTU	8.13	7.98	mg/L	
08/31/2018	1.47	.38	NTU	7.99	7.83	mg/L	0.16
09/30/2018	1.22	.3	NTU	7.7	7.46	mg/L	0.24

Site 3	Turbidity			Dissolved Oxygen (DO)			
Monitoring Period End Date	Effluent Gross	Effluent Net	Units	Upstream Value	Effluent Value	Units	Natural Condition Difference
09/30/2018	1.7	.46	NTU	7.72	7.5	mg/L	0.22
09/30/2018	1.15	-.07	NTU	7.75	7.49	mg/L	0.26
10/31/2018	.91	.9	NTU	8.9	8.3	mg/L	
10/31/2018	2.57	1.11	NTU	9.4	9.1	mg/L	
10/31/2018	2.57	.18	NTU	9.8	9.7	mg/L	
05/31/2019	1.27	-.02	NTU	10.91	10.8	mg/L	
05/31/2019	1.56	.08	NTU	10.94	10.98	mg/L	
05/31/2019	2.14	.65	NTU	10.68	10.69	mg/L	
06/30/2019	.93	-.25	NTU	9.29	9.62	mg/L	
06/30/2019	1.21	.11	NTU	9.72	9.59	mg/L	
06/30/2019	1.55	.39	NTU	9.68	9.53	mg/L	
Maximum	3.37						

Appendix B — Basis for Effluent Limitations

A. Statutory and Regulatory Basis for Limits

CWA §§ 101, 301(b), 304, 308, 401, 402, and 405 provide the basis for effluent limitations and other conditions in the draft permit. The EPA evaluates the discharges with respect to these sections of the CWA and relevant NPDES regulations to determine which conditions to include in the draft permit.

In general, the EPA first determines which technology-based limits must be incorporated into the permit. The EPA then evaluates the effluent quality expected to result from these controls to see if water quality standards for the receiving waters may still be exceeded. If exceedances could occur, the EPA must include water quality based effluent limits (WQBELs) in the permit. The proposed permit limits will reflect whichever limits (technology-based or water quality-based) are more stringent.

B. Technology-Based Evaluation

CWA § 301(b) requires industrial dischargers to meet technology based effluent limitations established by the EPA. The CWA initially focused on the control of traditional pollutants (conventional pollutants and some metals) through the use of best practicable control technology currently available (BPT). CWA § 301(b)(1)(A) required industries to meet this level of control by July 1, 1977. CWA § 301(b)(3) allowed a deadline for achieving BPT of March 31, 1989 under certain circumstances, but that deadline has also passed. All permits issued after March 31, 1989 must include any conditions necessary to ensure that BPT is achieved.

CWA § 301(b)(2) requires that all permits contain effluent limitations which:

> control toxic pollutants and non-conventional pollutants through the use of best available technology economically achievable (BAT), and (2) represent best conventional pollutant control technology (BCT) for conventional pollutants by March 31, 1989. In no case may BCT or BAT be less stringent than BPT.
>
> In many cases, BPT, BCT, and BAT limitations are based on effluent limitations guidelines (ELGs) developed by the EPA for specific industries. Where the EPA has not yet developed guidelines for a particular industry or a particular pollutant, technology-based effluent limits must be established using best professional judgment (BPJ) (40 CFR §§ 122.43, 122.44, and 125.3). The ELG for the Concentrated Aquatic Animal Production category, which became effective on September 22, 2004, applies management practices rather than numeric limits on discharges from facilities that produce more than 100,000 pounds annually.
>
> Since all four facilities produce more than 100,000 pounds annually, the following narrative requirements from the ELGs are included in the permits:
>
> 1. Dischargers must report the following events to the permitting authority (EPA):
>   a. The use of an investigational new animal drug (INAD) or any extra-label drug, which may lead to the discharge of the drug to WOTUS. This reporting is not required for an INAD or an extra-label drug that has been previously approved by the Food and Drug Administration (FDA) for a different species or disease, if it is used at or below the previously approved dose rate and

involves similar conditions of use. [40 CFR § 451.3(a)]

b. Failure of or damage to a containment system that results in unanticipated discharges of pollutants to WOTUS [40 CFR § 451.3(b)].

c. Spills of drugs, pesticides, or feed that result in discharges to WOTUS. [40 CFR § 451.3(c)]

2. Dischargers must develop and maintain a Best Management Practices (BMP) Plan, which addresses the following activities at the facility**.**

a. Feed management. The discharger must employ efficient feed management and feeding strategies that limit feed input to minimum amount reasonably necessary to achieve production goals and sustain targeted rates of growth [40 CFR § 451.21(a)].

b. Waste collection and disposal. The discharger must collect, return to shore, and properly dispose of all feed bags, packaging materials, waste rope and netting [40 CFR § 451.21(b)].

c. Transport or harvest discharge. The discharger must minimize any discharge associated with the transport or harvesting of aquatic animals including blood, viscera, carcasses, or transport water containing blood [40 CFR § 451.21(c)].

d. Carcass removal. The discharger must remove and dispose of aquatic animal mortalities properly on a regular basis to prevent discharge to WOTUS [40 CFR § 451.21(d)].

e. Materials storage. The discharger must properly store drugs, pesticides, and feed in a manner to prevent spills, and implement procedures for containing, cleaning, and disposing of any spilled material [40 CFR §451.21(e)].

f. Maintenance. The discharger must inspect the production system on a routine basis to identify and promptly repair any damage and must conduct regular maintenance of, the production systems in order to ensure that it is properly functioning [40 CFR §451.21(f)].

g. Recordkeeping. The discharger must document feed amounts and estimates of the numbers and weights of aquatic animals to calculate feed conversion ratios, and must keep records of net changes, inspections, and repairs [40 CFR §451.21(g)].

h. Training. The discharger must train personnel in spill prevention and response in the event of a spill as well as on the proper operation and cleaning of production systems including in feeding procedures and proper use of equipment [40 CFR § 451.21(h)].

C. Water Quality-Based Evaluation

In addition to the technology-based requirements discussed above, the EPA evaluated the potential discharges to determine compliance with CWA § 301(b)(1)(C) and its implementing regulations at 40 CFR § 122.44(d), which require permits to include limits for all pollutants or parameters which are or may be discharged at a level which will cause, or contribute to an excursion above any state or tribal water quality standard, including

narrative criteria for water quality. The limits must be stringent enough to ensure that water quality standards are met and must be consistent with any available waste load allocation. For pollutants with technology-based limits, the EPA must also determine if those limits are protective of the corresponding water quality criteria.

In addition to WQBELs for pollutants that could cause or contribute to exceedances of standards, the EPA must consider applicable antidegradation policies, which must be consistent with the guidelines expressed at 40 CFR § 131.12. The draft permits will not result in the relaxation of effluent limits and have been written to maintain or improve the quality of effluent discharged from the aquaculture facilities. Therefore, they will not result in degradation of water quality and are consistent with the guidelines expressed at 40 CFR § 131.12.

To determine a WQBEL, when necessary, the EPA uses the following approach.

1. Determine Appropriate Water Quality Criteria

   The federally promulgated water quality standards for the Colville Confederated Tribes Indian Reservation are in 40 CFR 131.35.

2. Develop Wasteload Allocations (WLAs)

   The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A wasteload allocation is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water.

   In cases where a mixing zone is not authorized the criterion becomes the WLA. Establishing the criterion as the wasteload allocation ensures that the permittee will not cause or contribute to an exceedance of the criterion.

   Because of the unique nature of net pens, being immersed in the water body and consequently discharging to it through all sides and the bottom, the EPA has determined that the facility must meet water quality standards at the edge of the net pens, without the use of a mixing zone.

   The following discussion details the specific water quality-based effluent limits in the draft permit. Once a WLA is developed, the EPA calculates effluent limits which are protective of the WLA.

   Dissolved Oxygen

   Possible impacts on Dissolved Oxygen (DO) come from fish respiration, dead fish, and decaying food waste and feces. The impact from fish respiration will be minimal. The impact from dead fish and decaying food waste and feces should also be minimal because of required BMPs such as feed management and carcass removal. In addition, because of the strong, regular currents in Rufus Woods Lake, any waste and feces should be dispersed quickly and no build up should occur, further reducing the impact from these pollutants.

   Although the BMPs and site conditions suggest minimal impact of the net pens on DO, the EPA has determined that the discharges from the operation of the net pen facilities have reasonable potential to violate the DO criterion of 8 mg/L for Class II waters. Therefore, the permits include a limit for DO. Samples collected under the

previous permit, show that at certain times during the year (generally August through October of the sampling season), DO in the upstream samples does not meet the criterion of 8 mg/L (see data presented in Appendix A). The facilities are required to meet the DO criterion at the edge of the net pens except when DO in the waterbody is lower than the criterion and that condition is due to natural conditions, then human actions considered cumulatively may not cause the DO of that water body to decrease more than 0.2 mg/L (the level used to determine degradation). Monitoring upstream of the net pens and at the edge of the net pens is required between May and October, which is the season when the DO levels might approach critical levels.

Turbidity

Suspended solids (SS) are discharged from net pen facilities in the form of food waste and feces. SS can degrade aquatic ecosystems by increasing turbidity and reducing the depth to which sunlight can penetrate, thus reducing photosynthetic activity. The impact from the suspended solids should be minimal because of required BMPs such as feed management. There can be a strong correlation between SS and turbidity. CCT's water quality standards do not include a numeric standard for SS, but they do include a standard for turbidity. Therefore, the turbidity standard will be used to ensure CCT's water quality standards are being met.

The EPA has determined that the discharges from the operation of the net pen facilities have the potential to exceed water quality criteria for turbidity. Therefore, the permits include limits for turbidity. The facilities are required to meet turbidity criteria at edge of the net pens. Monitoring is required between May and October, which is the season when the turbidity levels might approach critical levels.

D. Proposed Effluent Limitations

As provided in the discussion above the proposed effluent limits are water-quality based.

Dissolved Oxygen:

Instantaneous minimum limit of 8.0 mg/L (except when DO in the waterbody is lower than the 8.0 mg/L and that condition is due to natural conditions, then human actions considered cumulatively may not cause the DO of that water body to decrease more than 0.2 mg/L)

Turbidity:

When the upstream turbidity is 50 NTU or less: Instantaneous maximum of 5 NTU above background level

When the upstream turbidity is greater than 50 NTU: Instantaneous maximum of no greater than 10% above the background level.

Appendix C — Lake Floor Monitoring

A. Underwater Survey for Sediment Accumulation

Background

Because of the frequently strong, regular and unidirectional currents at the net pen facilities in Rufus Woods Lake, feed and feces deposition is almost always in the same location (under or slightly inshore and downstream) relative to each cage. This easily defined 'sediment impact zone' allows for relatively simple monitoring of the impact.

Four primary factors affect feed/feces bottom deposition at the facilities:

1. Feeding practices: examples include total amount of feed, feeding rate, time of day and good fish observation.
2. Fish density: More fish and more feed result in more feces produced. Fish density that is too low can result in feed that sinks before it is eaten.
3. Water flow: The stronger the current, the less likely feces and excessive feed will settle on the river floor near the net pens.
4. Bottom topography: The bottom beneath the net pens consists of mixed-size cobble and well-washed sand. Feed and/or feces typically collect in depressions in the lee of cobbles, dead/waterlogged trees and branches, or other debris.

B. Past Study Results

Past survey work indicates that periodic strong currents, particularly in late spring and early summer, eliminate most of the sedimentation. Re-suspension of settled solids and minimal accumulation is to be expected given the frequency of strong currents (50-100 cm/sec or greater) that are well above re-suspension thresholds of 7-20 cm/sec, cited in literature. As far as can be determined, impacts of this transitory sedimentation on interstitial sedimentary fauna is negligible. Waste is either consumed by grazers (e.g. snails and amphipods that have increased in number as a result of increased waste) or abraded into smaller sized particles to the point they effectively become suspended solids. Calculations show that the possible range of sedimentation effects downstream is so small as to be virtually non-measurable. (CCT 2009)

Diver and Remote Observations: A Comparison

Monitoring of sediment build-up under and downstream of the net pens serves as the primary indicator of waste production in excess of the capacity of Rufus Woods Lake to assimilate it. The best form of observation is a combination of both remote observation using cameras and diver observation during dive surveys.

Diver observations for sediment accumulation combine the diving survey and underwater photographic survey using a hand-held camera. Diver observations supplement a remote underwater photographic system that continuously records conditions at the bottom of the pens.

Reports of lake floor monitoring must be submitted to the EPA and CCT Environmental Trust Department with DMRs each month and must be summarized in the Annual Report.

Monitoring Requirements of Dive Survey

The permittee must conduct a dive at the net pen facility twice a month, approximately two weeks apart between June and October, inclusive, each year. Divers must make and document observations from just upstream of the pens to about 150 feet downstream in accordance with the indexing method developed for compliance with the CCT discharge permit. Observations must be at indexed established reference points (at least 15), so that the same locations can be revisited on later dives. Divers will record a description of the lake bottom and biota for a radius of five feet from each reference point with respect to the presence of feed, feces, demersal fish (such as cottids), or other biota. Any feed, feces or out of the ordinary observations (e.g. *Sphaerolitus* growth) seen at the reference points or elsewhere must be recorded.

Divers must use an underwater camera or video camera to photograph the lake bottom at the 15 reference sites (at least) from a distance of 3-7 feet above the bottom, preferably on each dive. At a minimum, photographs must be taken at each station in late summer during low flow (worst case conditions). Artificial light (50 watt or greater) must be used at all times in taking 4-5 color photographs or 15-30 seconds of motion photography at each site; reference information on linear dimensions, time, date, station location, and net pen facility must be included with each picture or section of film footage. Photographs must clearly portray the appearance of the lake floor at each station.

After every dive, observations must be recorded. Records must be retained for at least five years, or longer upon request by the EPA or CCT. Photographs of each station must be compared to earlier photographs at the same station, and any feed or feces accumulations must be noted in reports. Temporal or spatial trends in sediment accumulations must be described.

At least once per year, photographs must be timed to capture conditions before, during and after feeding. In reports, each photo must have a caption indicating date, location including indexed referenced site, and an observation comment.

Remote observation.

In order to monitor the effect of the net pen operations on the river/lake bottom, the permittee must install and operate continuous river bottom monitoring camera stations at the down-current edge of pens. These cameras must be positioned near sediment observation stations established during the dive surveys. (CCT, 2011)

The permittee will record observations of bottom conditions as viewed by the cameras at least daily between June and December, inclusive, using a qualitative index of conditions, e.g., ranking on a scale of 0 to 3 for feed and feces occurrence and other conditions. Since fish fecal matter often appears similar to feed, this remote survey system must be evaluated and calibrated with diving observations and photography.

The location of diving/underwater and remote survey observation stations may be modified, if warranted by field conditions and bottom sediment accumulation patterns. The intent of the requirement is for the permittee to monitor areas of highest potential sedimentation.

Records of bottom surveys must be retained in accordance with Permit Part IV.F. (at least 5 years, longer if requested by EPA or CCT).