



Fact Sheet

November 3, 2008

NPDES Permit Number: **WAG-130000**

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The U.S. Environmental Protection Agency (EPA) Region 10

Proposes to Issue a General Wastewater Discharge Permit
for Discharges from

**Federal Aquaculture Facilities
and
Aquaculture Facilities
Located in Indian Country,
As defined in 18 USC § 1151,**

and

the Lummi Nation, the Makah Tribe, and the Tulalip Tribes

Propose to Certify the Permit for Discharges to

Waters in Indian Country

EPA Proposes NPDES Permit Issuance

EPA proposes to issue a National Pollutant Discharge Elimination System (NPDES) general permit (GP) to establish conditions for the discharge of pollutants in wastewaters from federal fish hatcheries and from aquaculture facilities in Indian Country, as defined in 18 USC §1151, to waters of the United States within the boundaries of the State of Washington. Many of these discharges were covered by previous individual NPDES permits issued by EPA Region 10. In order to ensure protection of water quality and human health, the GP places limits on the types and amounts of pollutants that can be discharged and places other conditions on such activity.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures
- a description of the industry
- a description of proposed permit conditions
- technical discussion supporting the conditions in the permit
- a list of known facilities subject to the General Permit

Tribal and State Certification

Section 401 of the Clean Water Act (CWA) requires that EPA-issued draft permits be reviewed by the State and affected tribes that have been approved by EPA for Treatment as a State under Section 518 of the CWA, 33 U.S.C. § 1377. The tribes that EPA has approved for Treatment as State under the Clean Water Act are: Chehalis, Kalispel, Lummi, Makah, Port Gamble S’Klallam, Puyallup, Spokane, Swinomish, and Tulalip. EPA does not believe that any facilities eligible for coverage under this permit discharge to waters of the Kalispel or the Swinomish Tribes. The facilities on the Port Gamble S’Klallam and Puyallup Reservations are smaller than the threshold to be covered under this permit. Therefore, these tribes will not be involved in certification of the permit.

Under Section 401 of the CWA, the State and tribes must either certify that the GP complies with State or tribal water quality standards, as applicable, or waive certification before the final permit is issued. This serves as Public Notice of the EPA’s intent to request Section 401 Certification of the State of Washington, Department of Ecology and of the Chehalis, Lummi, Makah, Spokane, and Tulalip tribes that the discharge will comply with the applicable water quality standards. The tribes and Ecology may, as a condition of final certification, require that the proposed permit include more stringent limitations or monitoring requirements needed to comply with the CWA or tribal or State law. EPA is required to include any such limitation or requirement in the final permit.

Both the State of Washington and most of the tribes have provided input which has been

incorporated into the draft permit. Draft 401 certifications were provided by the Lummi, Makah, and Tulalip tribes. The conditions of the draft certifications have been incorporated into this permit. Public comments may be submitted to these entities on their intent to certify the permit.

Public Comment

EPA Invites Public Comment

If you wish to comment on the proposed requirements in the draft permit, you must do so before the end of the public comment period 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 EPA as described in the Public Comments section of the attached public notice. If comments are submitted, EPA will prepare a response to comments, and, if necessary, will make changes to the proposed permit. After making any necessary changes, EPA will issue the permit with a response to comments unless issuance of a new proposed permit 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 permit will be included in the final permit.

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 EPA, as described in the Public Comments section of the attached public notice.

Comments on EPA's Request for Certification: Persons wishing to comment on the request for certification under Section 401 of the CWA must submit written comments within 45 days of the date of this public notice, to the appropriate address below:

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Bellingham, WA 98226-9298

Jim Medlan,
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The proposed General Permit will become effective thirty (30) days after the publication of the final permit in the *Federal Register*, unless an appeal is filed in the United States Circuit Court of Appeals and the Court issues a stay, in accordance with Section 509(b)(1) of the CWA.

Documents Are Available for Review.

The draft permit and fact sheet can be found on the EPA Region 10 website at <http://yosemite.epa.gov/R10/WATER.NSF/NPDES+Permits/General+NPDES+Permits>

The proposed permit and Fact Sheet can also be reviewed at EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday. These materials are also available for public review and copying at the following location.

Northwest Indian Fisheries Commission
6730 Martin Way East
Olympia, WA 98516

For technical questions regarding the permit or fact sheet, contact Sharon Wilson 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. INTRODUCTION

A. Industry Description

At 40 CFR §122.24, EPA 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.

Warm water fish species or other warm water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:

- a. Closed ponds which discharge only during periods of excess runoff; or
- b. Facilities which produce less than 100,000 harvest weight pounds of aquatic animals per year

Cold water aquatic animals include, but are not limited to, the Salmonidae family of fish, e.g. trout and salmon. Warm water aquatic animals include, but are not limited to, the Ameiuride, Centrarchidae and Cyprinidae families of fish, e.g., respectively, catfish, sunfish and minnows.

The proposed General Permit will apply to facilities that meet the definition of CAAP facility that produce or hold cold water species. The permit will not authorize discharges from a CAAP facility that produces or holds warm water species. If there are hatcheries that raise warm water species that are federally owned or that discharge to waters in Indian Country, as defined in 18 USC § 1151, within the boundaries of the state of Washington, **we invite submittal of that information as soon as possible**, so that appropriate requirements for warm water facilities can be incorporated into the permit.

The terms “aquaculture facility” and “hatchery” are used interchangeably to be synonymous with “CAAP facility”.

Aquaculture facilities may use one of several types of production systems, including ponds, flow-through systems, and recirculating systems. Pond systems are usually aerated and characterized by the lack of a continuous discharge. Infrequent discharges may occur as a result of a storm event or draining for harvest or repairs. Due to decomposition of biological material and settling of solids (feces, uneaten feed, and sediment), ponds are capable of

treating and removing pollutants in the water; and when discharges occur, pollutant loads are often relatively low because of the settling that has taken place within the pond.

Management practices to minimize the discharge of pollutants from pond systems focus on minimizing disturbance of sediments, reducing drainage frequency, managing water levels, minimizing erosion in and around pond banks, feed management, and the proper use and storage of chemicals and therapeutic agents.

Flow-through production systems provide an environment that imitates the natural environment. In such systems, fresh water, diverted from streams and/or wells, enters continuously at the top of the system near the water source. Smaller, younger fish are typically held at the top of the system near the water source, which provides the highest quality water. As fish grow, they can tolerate lower quality water, and they are moved to downstream units. Some flow-through systems are full-flow, discharging a single combined effluent stream with large water volumes and dilute pollutant concentrations. Others have two or more discharge streams, with the primary discharge from the flow-through production units, and smaller discharges from off-line settling basins. The most significant pollutants discharged from flow-through systems are solids from uneaten feed and feces, which are primarily organic matter with high 5-day biochemical oxygen demand (BOD₅) and organic nitrogen and phosphorus content.

Recirculating production systems utilize tanks with continuously flowing water and side stream treatment technologies, which continuously treat a portion of the flow and return it to the production system. Due to high capital costs, such systems are used infrequently and generally for high valued species.

Net pen and open water systems take advantage of an existing water body's circulation 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 and currents. In such systems, uneaten feed and feces add solids, BOD₅, nutrients, and drugs or other chemicals that are applied to the fish directly to the water column. Net pens are not covered under this general permit.

B. Characterization of Discharges

Aquaculture facilities may discharge a variety of pollutants attributed to: (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 or for maintaining or enhancing water quality conditions.

Aquaculture facilities may generate and/or contribute significant amounts of nutrients (nitrogen and phosphorus) and solids to receiving waters. These pollutants have the potential to contribute to a number of negative water quality impacts related to eutrophication - algal blooms, increased turbidity, low dissolved oxygen and associated stresses to stream biota, increased water treatment requirements for users downstream, changes in benthic fauna, and stimulation of harmful microbial activity. 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 is available for some medications that are currently authorized for investigational use; and limited or no data is available characterizing the ecological significance of releases of drugs and chemicals at aquaculture facilities in the United States. 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 of the active ingredient.

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

II. PERMIT COVERAGE

A. EPA NPDES Permit Authority

EPA retains the authority to administer the NPDES program in Indian country, as defined in 18 USC § 1151, and for federal facilities in Washington State. The NPDES program implements the Clean Water Act's (CWA's) prohibition on unauthorized discharges by requiring a permit for every discharge of pollutants from a point source to waters of the United States. Although NPDES permits are typically issued to individual dischargers, a general permit may be issued to cover a category of discharges within an existing political boundary, in accordance with 40 CFR §122.28 (a), that:

1. involve the same or substantially similar types of operations,
2. discharge the same types of waste,
3. require the same effluent limitations,
4. require the same or similar monitoring, and
5. are more appropriately controlled under a general permit than under individual permits.

EPA has determined that upland aquaculture facilities involve similar enough facilities and discharges that they may be appropriately covered under a general permit.

The geographic area of coverage is within the outer boundaries of Washington State; many facilities are in Indian country. Most of the federal facilities that are included in this permit are located outside Indian country within the State of Washington. EPA issues permits to

these facilities because the State of Washington does not have the authority to issue NPDES permits to federal facilities.

B. Facilities and Discharges Covered

The General Permit will apply to all federal aquaculture facilities that discharge to waters of the United States and all aquaculture facilities that are located in Indian country within the boundaries of the State of Washington. A list of the existing facilities that are expected to be covered under this permit is included in Appendix A of the draft permit. **We invite updated information on these facilities or any other facilities that may fall under the proposed scope of this permit. If facilities listed in Appendix A are not in Indian country or are not federal facilities, we would appreciate receiving accurate information on their status.**

Aquaculture facilities will be authorized to discharge under the General Permit regardless type of species being reared, type of production system, or whether discharges are to fresh or marine waters if they hold at least 20,000 pounds of fish at their maximum and feed at least 5,000 pounds of feed in the maximum month of feeding. EPA developed the requirements for this permit assuming that only cold water facilities would request coverage under this GP. **EPA requests submittal of additional information about the facilities, including the existence of any warm-water facilities that should or might be within the scope of this permit.**

"New Sources" are defined as any facility that discharges pollutants where construction commenced after promulgation of effluent limitation guidelines (ELGs). See 40 C.F.R. §122.2. Thus, new aquaculture facilities that are constructed after September 22, 2004, are "new sources." See 40 CFR §122.29(b) and (c). Before EPA can issue an NPDES permit to an aquaculture facility that is a "new source", the agency must comply with the National Environmental Policy Act (NEPA). See 40 CFR §122.29(c).

C. Facilities and Discharges Not Covered

A facility with any of the following types of discharges cannot be covered under this permit and must apply for an individual NPDES permit.

- 1.** Discharges from aquaculture facilities that hold less than 20,000 pounds of fish at their maximum or whose month of maximum feeding is less than 5,000 pounds, unless they are designated significant contributors of pollution by EPA. Such facilities may submit the information in a Notice of Intent and request an EPA letter confirming that they do not need to be covered under this permit;
- 2.** Discharges that do not consist solely of effluent from aquaculture facilities. If a discharge from an aquaculture facility mixes with other wastewater (e.g., domestic wastewater) prior to being discharged, the combined discharge is not covered;
- 3.** Discharges from facilities where an NPDES permit has been terminated or denied until EPA expressly issues an authorization to discharge;

4. Discharges that will adversely affect a listed endangered or threatened species or its critical habitat;
5. Discharges that contribute to, or may reasonably be expected to contribute to, a violation of an applicable water quality standard;
6. Discharges to impaired waters, designated as such pursuant to Section 303 (d) of the CWA, which are water-quality limited for a pollutant of concern evaluated in the development of this permit (BOD₅, total suspended solids, settleable solids, nutrients, ammonia, copper, chlorine), unless a wasteload allocation (WLA) has been given to the facility in a TMDL and is applied in this permit. In this draft permit, no such WLAs have been applied; if EPA receives information that a WLA has been assigned for a pollutant of concern before this permit is finalized, EPA may apply a limit based on the WLA in the final permit. After this permit is issued, any further facilities with WLAs would be considered for individual permits. **We are inviting comments and information about these provisions;**
7. Discharges from processes not associated with fish hatcheries or farms;
8. Discharges from fish hatchery or farm processes where the General Permit does not adequately address the environmental concerns associated with the discharge, as determined by EPA at the time a discharger seeks coverage under the General Permit;
9. Discharges to land or to publicly owned treatment works;
10. Discharges to waters that constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance;
11. Discharges to waters that constitute special resource waters in Indian country -- waters that comprise a special and/or a unique resource to the Reservation.

D. Permit Expiration

This general permit will expire five years after its effective date. In the event that the permit is not reissued before its expiration date, in accordance with 40 CFR §122.6, the conditions of the General Permit will be administratively extended for permittees who meet certain conditions. They will continue in force and effect until a new general permit is issued for only those facilities that were authorized to discharge under the expiring General Permit and who submit a Notice of Intent (NOI) at least 180 days prior to its expiration date.

III. NOTICE OF INTENT (NOI) REQUIREMENTS

A. NOI Submittal

In accordance with EPA regulations at 40 CFR §122.28, dischargers seeking coverage under the General Permit must submit a written NOI to be covered by the GP. Except for

dischargers notified of authorization in accordance with §I.A.2 of the GP, a discharger who fails to submit an NOI in accordance with relevant provisions of the GP is not authorized to discharge under the GP.

The required contents of the NOI are specified in Appendix A of the GP. It requires submittal of information necessary for adequate permit administration, including the legal name and address of the owner or operator, the facility name and location, the type of facility or discharge, and the receiving water body. All NOIs must be signed in accordance with the certification requirements at 40 CFR §122.22.

B. Individual Permits

Owners or operators meeting the criteria for coverage by the General Permit may request to be excluded from coverage by applying to the Director of the Office of Water and Watersheds, EPA Region 10, for an individual permit. This request must be made by submitting an NPDES permit application, together with supporting documentation, at least 180 days prior to expiration of an individual permit or at least 180 days prior to the commencement of operation of a new source or new discharge.

Under the provisions of 40 CFR §122.28(b)(3)(i), EPA may require an owner or operator seeking authorization or authorized by the GP to apply for and obtain an individual permit in the following circumstances:

1. When the single discharge or the cumulative effect of multiple discharges is a significant contributor of pollution;
2. Whenever the discharger is not in compliance with the conditions of the GP;
3. Whenever a change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;
4. If a water quality management plan containing requirements applicable to such point source is approved; or
5. If circumstances have changed since the time of request to be covered, so that the discharger is no longer appropriately controlled under the GP, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary; or if the discharge is a significant contributor of pollutants, taking into account the location and size of the discharge and the quantity and nature of the pollutants.

IV. RECEIVING WATERS

Receiving waters for permittees under this GP are Waters of the United States located in Indian country and waters of the State of Washington (which are also Waters of the U.S.) where federal facilities discharge directly to state waters.

States, including eligible Indian Tribes, establish water quality standards for receiving waters within their jurisdictions. Water quality standards are composed of designated beneficial water uses to be achieved and protected, as well as water quality criteria necessary to protect designated uses. Under the provisions of 40 CFR §131.10, EPA requires states and eligible Indian Tribes to specify appropriate water uses to be achieved and protected. In designating uses of a water body and the appropriate criteria for those uses, states and eligible Indian Tribes must take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for attainment and maintenance of the water quality standards of downstream waters.

A. Tribal Water Quality Standards

A number of tribes within the State of Washington have developed water quality standards (beneficial uses and water quality criteria). EPA has approved water quality standards for the Chehalis, Kalispel, Lummi, Makah, Port Gamble S'Klallam, Puyallup, and Spokane Tribes. EPA has also promulgated standards for the Colville Tribe. These standards, applicable to waters within the respective reservations, describe several use classifications and the applicable water quality criteria. In addition, EPA has authorized the Swinomish Indians and the Tulalip Tribes to administer their own water quality standards program, though EPA has not yet approved water quality standards for these tribes. If any tribes have EPA-approved water quality standards that should be applied to facilities under this permit, EPA **invites them or other interested parties to identify the standards and facilities** during the tribal review and public comment periods.

B. Washington State Water Quality Standards

In developing the GP, EPA has also given consideration to water quality standards of the State of Washington, Chapter 173-201A of the Washington Administrative Code, because these standards are applicable to the receiving waters for most of the federal facilities or to waters downstream from many of the aquaculture facilities which will likely become authorized to discharge under the General Permit.

Washington State standards at Washington Administrative Code (WAC) 173-201A-200 (fresh water) and WAC 173-201A-210 (marine water) establish aquatic life, recreation, water supply, shellfish harvesting, and miscellaneous uses, and those at WAC 173-201A-600 (fresh water) and WAC 173-201A-610 (marine water) designate uses for specific waters in the State. All fresh waters without specific use designations are to be protected for the designated uses of:

- Salmon and trout spawning, rearing, and migration,
- Primary contact recreation,
- Domestic, industrial, and agricultural supply,
- Stock watering, wildlife habitat,
- Harvesting,
- Commerce and navigation,

- Boating, and
- Aesthetic values

The following types of fresh waters that don't have specific use designations are to be protected for the designated uses of salmon and trout spawning, core summer salmonid habitat, and migration, and extraordinary primary contact recreation:

- Surface waters within national parks, national forests, and/or wilderness areas,
- Lakes and feeder streams to lakes,
- Surface waters that are tributaries to waters designated salmon and trout spawning, core rearing, and migration, or extraordinary primary contact recreation, and
- All fresh surface waters that are tributaries to extraordinary quality marine waters.

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

Section 303(d) of the CWA 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.

EPA has approved the State's 2002/2004 303(d) list of impaired water bodies, which is available online at <http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html>. Certain receiving waters in the State that do not fully support beneficial uses have been scheduled for TMDL development. The extensive 303(d) list is not presented in this Fact Sheet; however, it must be consulted by applicants discharging to State waters because information about the status of the water quality in the receiving stream and any assigned WLAs must be included in the NOI.

EPA has not approved any 303(d) lists of impaired waters for any of the tribes in Washington.

The General Permit does not automatically apply to facilities that discharge to impaired water bodies; EPA will review these cases individually to determine whether they can be covered under this general permit or if an individual permit will be needed.

During the public comment period, EPA specifically **requests information about potentially covered facilities that discharge to impaired waters and/or that have WLAs.**

V. EFFLUENT LIMITATIONS

A. General Approach to Determining Effluent Limitations

Sections 101, 301, 304, 308, 401, 402, and 403 of the CWA provide the basis for effluent limitations and other conditions in the draft permit. EPA has evaluated possible discharges

from aquaculture 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 permit.

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 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. The derivation of technology based and water quality based effluent limits for the proposed permit is described in detail in Appendix B of this Fact Sheet.

B. Antidegradation Policy

To prevent degradation of water quality, under the authority of 40 CFR §131.12, EPA requires states and eligible Indian Tribes to adopt and implement antidegradation policy consistent with the guidelines below.

1. Washington State Policy

Washington State's antidegradation program establishes three formal tiers of protection:

- a. Tier I is used to ensure existing and designated uses are maintained and protected and applies to all waters and all sources of pollution. Tier I is focused on applying the water quality criteria assigned to each waterbody in the state.
- b. Tier II is used to ensure that waters of higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. All three of the following conditions must be met before an activity would be required to go through a Tier II analysis:
 - 1) it must be a new or expanded action,
 - 2) it must be an action that is regulated by Ecology, and
 - 3) the action must have the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.
- c. Tier III is used to prevent the degradation of waters formally listed as outstanding resource waters and applies to all sources of pollution. Tier III consists of two levels of protection.
 - 1) Tier III(A) prohibits any lowering of water quality to designated waters.
 - 2) Tier III(B) prohibits any lowering of water quality that would create a cumulative measurable level of degradation.

General permits would not typically be appropriate in any waters designated as Tier III. This permit will not apply to new or expanded discharges to Tier II waters.

Of the six federal facilities listed in Table A-1 of this fact sheet, two discharge to waters in Indian country, outside of the State's jurisdiction. The remaining four federal facilities discharge to waters of the State. These four facilities are continuing discharges, not new or expanded discharges, all of which are operating under previously issued NPDES permits from the 1970s. Because this permit will be applying limits for more pollutants and limits that are at least as restrictive or more restrictive for pollutants that were previously limited, it will be fostering the improvement, not degradation, of water quality in the receiving streams. These are not new or expanded discharges. Therefore, a Tier II analysis is not necessary. However, since this permit is not being issued under the State's jurisdiction and authority, EPA is not required to conduct this antidegradation analysis.

We have applied permit requirements to control discharge of pollutants to surface waters to a greater degree than has been applied up to this time. Therefore, we expect that water quality will be improved rather than degraded as a result of coverage under this permit.

2. Tribal Provisions

The proposed GP has also been written to be consistent with the antidegradation provisions in the following tribal water quality standards, as applicable: Confederated Tribes of the Chehalis Reservation Surface Water Quality Standards Section 8, Federal water quality standards for the Confederated Tribes of the Colville Reservation: 40 CFR §131.35 (e)(2), Water Quality Standards for Surface Waters of the Lummi Indian Reservation 17 LAR 07.070, Makah Tribe Water Quality Standards for Surface Waters Section 16, Water Quality Standards for Surface Waters of the Puyallup Tribe Section 8, and the Spokane Tribe of Indians Surface Water Quality Standards Section 4.

C. Evaluation of Technology-Based Limitations

Section 301(b) of the CWA requires industrial dischargers to meet technology-based effluent guidelines, established by EPA, which are enforceable through their 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). And in 1977, enactment of Section 301(b)(2)(E) of the CWA 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 EPA as a source whose construction commenced after publication of proposed effluent guidelines 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, EPA may establish technology-based effluent limitations on the basis of best professional judgment (BPJ), pursuant to

Section 402 of the CWA.

On August 23, 2004, 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 23, 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 23, 2004. The requirements of these guidelines and standards have been used in developing the technology based limitations of the General Permit, even though the guidelines themselves do not apply to facilities producing less than 100,000 pounds of cold-water species per year. Since the EGLs apply best management practices and certain reporting practices in lieu of numeric standards, EPA Region 10 has determined under the provisions of best professional judgment (BPJ) that their implementation for smaller facilities is not overly burdensome and provides an important level of protection for the receiving waters of the State and Indian country.

EPA has also considered the precedent set by the Upland Fin-fish Hatching and Rearing NPDES GP issued by the State of Washington's Department of Ecology (Ecology) in 2005 and Ecology's technology-based, minimum discharge standards for upland and marine finfish facilities at WAC 173-221A-100 and WAC 173-221A-110. EPA has also considered the precedent set by the Idaho Aquaculture GPs ## ID-G13-0000 and ID-G13-1000, issued by EPA Region 10 on October 25, 2007, and effective December 1, 2007. Limitations and other requirements of these guidelines, standards, regulations, and permits are described below.

1. **Effluent Limitations Guidelines** and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category. 40 CFR Part 451.

Although the NPDES permit program applies to all discharges from concentrated aquatic animal production facilities, as defined at 40 CFR §122.24, only those facilities that produce, hold, or contain 100,000 pounds or more of fish during any twelve month period are subject to the Effluent Limitations Guidelines (ELGs) for the Concentrated Aquatic Animal Production Point Source Category. 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 do not include any numerical limitations for specific pollutants.

- a. Under the ELGs at 40 CFR §451.3, all dischargers that produce above 100,000 pounds annually must report the following events to the permitting authority:

(1) The use of an investigational new animal drug (INAD) or any extra-label drug, which may lead to the discharge of the drug to Waters of the United States. 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.

(2) Failure of or damage to a containment system that results in unanticipated discharges of pollutants to waters of the U.S.

(3) Spills of drugs, pesticides, or feed that result in discharges to waters of the U.S.

b. Under the ELGs at 40 CFR §§451.3(d) and 451.11(a) through (e), dischargers utilizing flow-through and recirculating systems must develop and maintain a Best Management Practices (BMP) Plan, which addresses the following activities at the facility. These management practices represent the application of BPT, BAT, BCT, and NSPS for the industry.

(1) Solids control. The discharger must employ efficient feed management and feeding strategies; identify and implement procedures for routine cleaning of rearing units and off-line settling basins, and procedures to minimize any discharge of accumulated solids during the inventorying, grading, and harvesting of aquatic animals in the production system; and remove and dispose of aquatic animal mortalities on a regular basis.

(2) 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.

(3) Structural maintenance. The discharger must inspect, conduct regular maintenance of, and repair the production and wastewater treatment systems on a routine basis.

(4) Recordkeeping. The discharger must document feed amounts and numbers and weights of aquatic animals to calculate feed conversion ratios, and document the frequency of cleanings, inspections, maintenance, and repairs.

(5) Training. The discharger must train personnel in spill prevention and response and on the proper operation and cleaning of production and wastewater treatment systems.

In the process of developing effluent limitations guidelines, EPA identified an extensive list of pollutants of concern in discharges from the aquaculture industry, including several metals, nutrients, solids, BOD₅, bacteria, drugs, and residuals of federally registered pesticides. EPA did not include specific numerical limitations in the Effluent Limitations Guidelines for any pollutants on this list, believing that best management practices would provide acceptable control of these pollutants. EPA did conclude during the development of the Effluent Limitations Guidelines that control of suspended solids would also effectively control concentrations of other pollutants of concern, such as BOD₅, because other pollutants are either bound to the solids or are incorporated into them. And, although certain bacteria are found at high levels in effluents from settling basins, EPA concluded that disinfection is not economically achievable. EPA also allowed permitting authorities to apply technology-based limits for other pollutants and water quality based numeric effluent limits for pollutants considered in the ELG in order to comply with applicable water quality standards.

2. State of Washington, Wastewater Discharge Standards and Effluent Limitations for Upland Finfish Facilities, Washington Administrative Code (WAC) §173-221A-100

The State of Washington requires wastes to be provided with all known, available, and reasonable treatment (AKART) methods of treatment prior to their discharge or entry into waters of the State, regardless of the quality of water to which wastes are discharged or proposed for discharge, and regardless of the minimum water quality standards established for those waters. (Wash. Rev. Code § 90.52.040) To implement this requirement, the Washington Department of Ecology (Ecology) has established the following technology-based effluent limitations for the upland finfish industry (WAC 173-221A-100) and for marine finfish rearing facilities (WAC 173-221A-110).

a. Ecology requires permits for **upland finfish facilities** (defined as facilities not located within waters of the State, where finfish are hatched, fed, nurtured, held, maintained, or reared to reach the size of release or for market sale), which:

- (1) produce more than 20,000 pounds (net) per year, or
- (2) feed more than 5000 pounds of fish food during any calendar month, or
- (3) are designated as a significant contributor of pollution by Ecology in accordance with 40 CFR §122.24.

b. The limits in Tables 1 and 2 apply to upland finfish facilities under Ecology’s jurisdiction. Those in Table 1 apply to the total facility discharge from upland facilities except those addressed in Table 2, which covers separate discharges to surface water from off-line settling basins (OLSBs) and discharges from pond systems during harvest or fish release.

Table 1 Washington State Effluent Limitations for Discharges from Upland Facilities (Except Those Discharges with Limits in Table 2)		
Pollutant	Monthly Average	Instantaneous Maximum
Net Suspended Solids (mg/L)	5	15
Net Settleable Solids (ml/L)	0.1	-

Table 2 Washington State Effluent Limits for <u>Off-line Settling Basins</u> and for <u>Pond System Discharges</u> during <u>Harvest or Fish Release</u>		
Pollutant	Removal Efficiency¹	Instantaneous Maximum
Net Suspended Solids	85 %	100 mg/L
Net Settleable Solids	90 %	1.0 ml/L

¹ Applies only to off-line settling systems.

c. Ecology also requires the following general practices of all upland facilities.

(1) Sand, silt, mud, solids, sludges, filter backwash, debris, or other pollutants deposited or removed in the course of treatment must be disposed of in a manner to prevent such materials from entering waters of the State.

(2) The discharge of untreated cleaning waste to waters of the State is prohibited.

(3) The intentional discharge or sweeping of accumulated solids from raceways or ponds to waters of the State without treatment is prohibited.

(4) Practices, such as removing dam boards in raceways or ponds, that allow accumulated solids to discharge to waters of the State are prohibited.

(5) Disease control chemicals and drugs

(a) must be approved by the Food and Drug Administration and/or the EPA for hatchery use, and

(b) such materials must be used in conformance with label instructions unless they are used under the supervision of a veterinarian after advance approval of Ecology.

(6) Fish mortalities, kill spawning, processing wastes, and any leachate from these materials must be disposed of in a manner so as to prevent such materials from entering the waters of the State.

3. State of Washington, Department of Ecology, Upland Finfish Hatching and Rearing General NPDES Permit (2005)

Because the general permit issued by Washington Department of Ecology implements the technology-based requirements for the upland finfish industry, established at WAC 173-221A-100, it includes the same numeric limitations for suspended and settleable solids as the regulations. It also includes a limitation of 0.019 mg/L total residual chlorine in discharges of rearing vessel disinfection water and contains extensive reporting regarding

the use of disease control drugs and chemicals. It also requires update and submittal of a Pollution Prevention Plan and development and submittal of site-specific Facility Sampling Plans and Solid Waste Management Plans. In addition, the State's GP prohibits the discharge of Atlantic salmon into freshwater surface waters of the state without written permission from the Washington State Department of Fish and Wildlife. Although the State's permit requirements are applicable only to those facilities that meet minimum threshold requirements (20,000 pounds production; 5,000 pounds of feed during the calendar month of greatest feeding; or designated as a significant contributor of pollution by Ecology in accordance with 40 CFR §122.24), all upland facilities must still comply with Ecology regulations at WAC 173-221A-100.

In developing its General Permit, Ecology determined that limits for settleable and suspended solids would effectively control BOD₅ and nutrients in discharges from finfish facilities. The agency also prohibited the discharge of disease control chemicals and drugs in concentrations that exceeded federal or State water quality standards and found that BMPs to minimize concentrations of these chemicals in discharges would provide effective control.

4. EPA Region 10 General NPDES Permits for Aquaculture Facilities in Idaho

a. 2007 Permits

On October 25, 2007, EPA Region 10 issued three aquaculture general permits and one individual permit to cover all the aquaculture facilities in Idaho with annual production above 20,000 harvest weight pounds and with more than 5,000 pounds of feed used in the maximum month of feeding. The following are the most relevant provisions of those permits.

(1) The universe of aquaculture facilities was divided as follows:

- (a) Wasteload Allocation permit – covering about 92 facilities in seven watersheds which were given wasteload allocations to limit their discharges of pollutants to water quality limited streams.
- (b) Cold Water Permit – covering about 10 known facilities that raise cold-water species and discharge to receiving waters that meet water quality standards.
- (c) Fish Processor Permit – covering 4 facilities that are co-located with aquaculture facilities, all of which discharge in the Upper Snake Rock subbasin and were given WLAs for total suspended solids (TSS) and total phosphorus.
- (d) Epicenter Aquaculture – an individual permit for a facility that raises warm water species and discharges to a receiving water that meets water quality standards.

(2) About ¾ of the 105 facilities covered had limits for TSS and total phosphorus that were based on state-developed and EPA-approved wasteload allocations (WLAs); in a small number of cases, there were limits based on WLAs for nitrogen compounds, temperature, and settleable solids.

(3) For the rest of the facilities, technology-based limits were continued from the previous permit: TSS: 5 mg/L monthly average and 10 mg/L daily maximum and total phosphorus: 0.1 mg/L monthly average and 0.16 mg/L daily maximum. Additional TSS limits of 67 mg/L monthly average and 100 mg/L daily maximum and at least 90% removal efficiency were required for effluent from off-line settling basins that discharge directly to waters of the U.S..

(4) Effluent guidelines (best management practices) were applied to all regulated facilities, including those smaller than 100,000 pounds of production per year, to provide equity of requirements among facilities covered and because the best management practices (BMPs) were not deemed to be an excessive burden for smaller facilities; those practices associated with the control of solids were not applied because the numeric limits for TSS were deemed to be more stringent than the BMPs.

(5) Receiving water monitoring was required for most facilities.

(6) Copper and/or chlorine monitoring was required if these chemicals were being used.

(7) Required reporting of drug use was increased.

(8) Annual reports were required of all facilities.

D. Evaluation of Water Quality-Based Limitations

In addition to the technology-based limits discussed above, EPA evaluates the facility discharges to determine compliance with Section 301(b)(1)(C) of the CWA, which requires all NPDES permits to contain limits that will ensure compliance with State water quality standards, including the State's antidegradation policy. NPDES permits must also implement conditions imposed by the State to protect its water quality standards as part of its certification of NPDES permits under CWA §401.

Section 301(b)(1)(C) of the CWA 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 state water quality standard, including state narrative criteria for water quality. If such WQBELs are necessary, they must be stringent enough to ensure that water quality standards are met, and they must be consistent with any available waste load allocation. For pollutants with technology-based limits, 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)).

In a general permit that applies to numerous different facilities, some of which are not known at the time of permit development, it is not possible to evaluate whether an individual facility is discharging to a receiving water that is water quality-limited for a pollutant of concern from the hatchery.

Therefore, EPA is excluding those facilities from coverage that discharge to streams or water bodies that are on the State of Washington's or a tribe's listed of impaired waters (303(d) list) if the pollutant of concern in the water body is also a pollutant of concern in the discharge from the hatchery unless a limit is applied in the permit, which is protective of the WLA in the TMDL.

EPA is inviting interested parties to submit information on facilities that might be affected by such a restriction.

EPA is also inviting interested parties to suggest alternative approaches to permitting facilities discharging to water quality limited streams.

E. Proposed Effluent Limitations and Requirements

1. Scope. The proposed General Permit will cover all federal aquaculture facilities and aquaculture facilities located in Indian country which meet the size threshold listed below or are determined by EPA to be significant contributors of pollutants, including facilities that hold or rear fish, utilizing flow-through, pond, recirculating, or net-pen production facilities; and that discharge to fresh or marine waters within the boundaries of the State of Washington. The General Permit proposes effluent limitations, reporting requirements, and other permit conditions applicable to all covered discharges as well as specific limitations and requirements for the following categories of dischargers:

- a. Fish hatcheries that discharge at least 30 days per year and that hold at least 20,000 pounds of fish at their maximum in a year and feed at least 5,000 pounds of feed in the calendar month of maximum feeding. . Although this definition varies from the Washington State requirements at WAC 173-221A-100 that apply to upland finfish hatcheries, it conforms with the federal definition of *concentrated aquatic animal production (CAAP) facility* at 40 CFR §122, Appx. C and with the definition of *cold-water aquaculture facilities* in the EPA Region 10 general permits for aquaculture facilities in Idaho, although it has been modified to apply more specifically to conservation hatcheries that raise fish for release; and
- b. Facilities that are designated by EPA as significant contributors of pollution in accordance with 40 CFR §122.24.

The General Permit does not apply to discharges to *impaired waters*, designated as such pursuant to Section 303(d) of the CWA or to receiving waters that are one mile or less upstream from such an impaired water if the pollutants of concern in the effluent are also pollutants of concern in the receiving water. The only exceptions are for facilities with for whom specific effluent limits that are protective of a WLA are applied in this permit.

Many of the facilities covered under this permit are discharging to waters of the State of Washington or upstream of waters of the State. Therefore, in developing and applying limits and requirements for this permit, in general, EPA has looked to the Washington

State standards and requirements as one important basis. In many cases, the tribal standards are similar or identical to the Washington State standards.

Where Tribes or other persons are aware of other applicable standards, such as federally approved tribal standards that should take precedence for some of the covered facilities, **they are encouraged to submit that information**, including detailed information about the affected facilities, to EPA as soon as possible.

2. Required submittals. All permittees are required to submit an NOI to EPA and then to submit an Annual Production and Discharge Report—a brief report that describes the previous year's production, feed rates, use of aquaculture drugs and chemicals, and the facility's efforts to adhere to required operating practices. All permittees are required to report certain events to EPA before or when they happen, including the use of an Investigational New Animal Drug (INAD) or the extra-label use of an aquaculture drug, failures in containment systems that result in unanticipated releases of pollutants, and spills of drugs and pesticides that result in their release to receiving waters.

3. Upland Fish Hatcheries.

- a. The limits in Table 3 are proposed for the **final effluent** from fish hatcheries. Derivation of these limits is explained in Appendices B and C.

Table 3		
Effluent Limitations for Hatchery Discharges¹		
Pollutant	Average Monthly Limit	Instantaneous Maximum Limit
Net Total Suspended Solids²	5 mg/L	15 mg/L
Net Settleable Solids²	0.1 ml/L	---
Total residual chlorine³ – into fresh water	9.0 µg/L	18.0 µg/L
Total residual chlorine³ – into marine water	6.1 µg/L	12.3 µg/L

¹ excluding discharges from separate off-line settling basins (OLSBs) and from pond systems; see Table 4 for limits on those discharges.

² Net concentration = effluent concentration – influent concentration.

³ Chlorine limits only apply when chlorine is being used. Chlorine is not quantifiable at the levels of the limits using EPA approved test methods. The permittee will be in compliance with the effluent limits for chlorine provided the chlorine residual levels are at or below the compliance evaluation level of 0.1 mg/L.

b. Discharges to waters of the U.S. from **off-line settling basins (OLSBs) and rearing ponds and raceways during drawdowns**. The limits in Table 4 are proposed under BPJ and are consistent with those applied to other hatcheries in Washington State that are permitted by Ecology.

Table 4	
Effluent Limitations for Discharges from OLSBs and from Rearing Ponds and Raceways during Drawdowns	
Pollutant	Instantaneous Maximum Limit
TSS	100 mg/L
Settleable Solids	1.0 ml/L

c. **Ability to comply**

Some of the facilities proposed to be covered under this general permit have not previously been permitted. EPA does not have specific information on their ability to comply with the proposed limits.

EPA is inviting information about the ability of the facilities to comply with these limits. The information can include steps that would need to be taken to comply and the time it will take to complete such steps.

VI. MONITORING AND REPORTING REQUIREMENTS

In accordance with Section 308 of the CWA and EPA regulations at 40 CFR §122.44(i), monitoring requirements are included in an NPDES permit 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. All analyses required by the General Permit must be conducted in accordance with methods and procedures established at 40 CFR §136.

A. Monitoring Requirements

1. Periodic Effluent Monitoring

Routine effluent monitoring, as presented in Table 5, is required for all covered fish hatcheries. EPA has determined that the proposed monitoring frequencies and sample types for these facilities represent the minimum sampling frequency required to adequately characterize effluent and to adequately monitor facility performance. EPA has proposed lower monitoring frequencies for some pollutants for smaller facilities in recognition of the added cost of more frequent monitoring and of the expected smaller adverse environmental impacts of their discharges.

Hardness must be monitored only when copper sampling is required, since the standards for copper vary, depending on the hardness level.

Because of emerging information about effects of hydrogen peroxide discharges, we broadened the effluent monitoring to all disinfectants, so that we will have information for future analyses of water quality effects.

If off-line settling basin effluent (OLSB) combines with raceway flows, at least one quarter of the grab samples at the total facility discharge point that are included in a composite sample must be collected when the OLSB is discharging.

Notes continue on next page.

Table 5 Hatchery Effluent Monitoring Requirements		
Parameter	Sample Type	Frequency
Effluent Flow	approved method	monthly
Net TSS ⁴	composite ⁵	monthly ⁶
Net settleable solids	grab	Monthly ⁶
Total residual chlorine ⁷	grab	quarterly
Disinfectants (other than chlorine)	grab	quarterly
Copper (or other anti-fouling agents) when used ⁷	composite	quarterly
Hardness ⁸ (mg/L as CaCO ₃)	composite	quarterly

⁴ Net TSS determination will require influent analysis for TSS in addition to analysis of effluent. Influent samples shall be collected within 24 hours prior to collection of effluent samples; and net TSS shall be determined by subtracting the influent TSS concentration from the effluent TSS concentration.

⁵ Where there are multiple influent streams or effluent streams, grab samples must be taken from each one and composited with the other(s) in proportion to their relative flows; the effluent composite sample must consist of at least 6 grab samples collected throughout the working day, of which one must be during feeding and one during cleaning of the raceways or pond.

⁶ For facilities that hold between 100,000 and 500,000 pounds of fish at a maximum, this monitoring is only required once per calendar quarter, beginning in the first full calendar quarter after the permittee's coverage under the permit. For facilities that hold less than 100,000 pounds of fish at a maximum, this monitoring is only required twice per calendar year, once in January – June and once in July – December, beginning in the first full calendar half year after the permittee's coverage under the permit begins.

⁷ Chlorine and copper (or other anti-fouling or disinfecting agents) shall be monitored only when these chemicals are being used, and are potentially being discharged, giving consideration to retention times through the facility. Monitoring for chlorine and anti-fouling or disinfecting agents does not need to occur more frequently than the interval indicated by Table 5.

⁸ Hardness need only be monitored when copper monitoring is required.

2. Off-line Settling Basin (OLSB) Monitoring. Discharges to waters of the U.S. from OLSBs must also be monitored as required in Table 6; this monitoring is in addition to that required in Table 6, above. If the hatchery discharges to a receiving water that is water-quality-limited for ammonia, additional monitoring for ammonia, temperature and pH must be conducted on the OLSB discharge in order to gather data to assess reasonable potential to violate the standards.

Table 6				
Off-Line Settling Basin Monitoring Requirements				
Parameter	Units	Sample Type	Sample Frequency	Sample Location
Flow	gallons per day	flow meter, calibrated weir, or other approved method	Monthly	Effluent ⁹
Total Suspended Solids	mg/L	grab ¹⁰	Monthly ¹¹	Effluent ⁹
Settleable Solids	ml/l	grab	Monthly ¹¹	Effluent ⁹
Ammonia ¹²	mg/L	grab ¹⁰	quarterly	Effluent ⁹
Temperature ^{12,13}	° C.	meter	quarterly	Effluent ⁹
pH ^{12,13}	Standard Units	meter	quarterly	Effluent ⁹

⁹ Effluent samples must be collected from the effluent stream after the last unit prior to discharge into the receiving waters or to subsequent mixing with other water flows.

¹⁰ Facilities with multiple effluent discharge points and/or influent points must composite grab samples from all points proportionally to their respective flows. Only the composite sample must be analyzed.

¹¹ For facilities that hold between 100,000 and 500,000 pounds of fish at a maximum, this monitoring is only required once per calendar quarter, beginning in the first full calendar quarter after the permit's effective date. For facilities that hold less than 100,000 pounds of fish at a maximum, this monitoring is only required twice per calendar year, once in January – June and once in July – December, beginning in the first full calendar half year after the permit's effective date

¹² Ammonia, temperature, and pH monitoring are required only for those facilities with OLSBs discharging directly to waters of the U.S. that are water quality limited (listed on the state's 303(d) list) for ammonia or total nitrogen.

¹³ Temperature and pH readings must be taken concurrently with each grab sample for the composite ammonia sample and the results averaged and reported on the discharge monitoring report (DMR).

3. Monitoring during Rearing Pond and Raceway Drawdowns.

In order to gather data to evaluate compliance with effluent limitations specific to rearing pond and raceway drawdowns, the permittee must conduct the monitoring detailed in Table 7.

Table 7 Monitoring Requirements for Discharges from Rearing Pond and Raceway Drawdowns			
Parameter	Sample Point	Sampling Frequency	Type of Sample
Settleable Solids (mL/L)	effluent	1/drawdown	grab
TSS (mg/L)	effluent	1/drawdown	grab

4. Monitoring Discharges of Rearing Vessel Disinfection Water

Rearing vessel disinfection water that has been treated with chlorine or other disinfectants must be tested before it may be discharged to waters of the United States. In conjunction with the need to have more information about any disinfectants discharged, as discussed in §VI.A.1, above, we are proposing to require monitoring for whatever disinfectant is used.

Table 8 Monitoring Requirements for Discharges of Rearing Vessel Disinfection Water			
Parameter	Sample Point	Sampling Frequency	Type of Sample
Total residual chlorine or other disinfectant (mg/L)	effluent	1/discharge	Grab

5. Surface Water Monitoring

a. Ammonia Monitoring

EPA has included quarterly ammonia monitoring for all permittees that have off-line settling basins that discharge directly to surface waters; they must conduct surface water monitoring quarterly for ammonia, pH, and temperature immediately upstream, outside the influence of the discharge. This data is needed to assess the

reasonable potential of the discharge to cause or contribute to exceedances of the water quality standard in the next permit cycle.

b. Copper Monitoring

EPA has included a requirement for surface water monitoring for copper and hardness only in quarters in which copper compounds are applied; such monitoring should be roughly at the same time as the copper and hardness effluent monitoring. EPA will use this data in the next permit cycle to assess the reasonable potential of the discharge to cause or contribute to exceedances of the water quality standard.

6. Polychlorinated Biphenyls (PCBs) in Hatcheries

PCBs have been found in the last couple of years in several hatcheries, including Leavenworth National Fish Hatchery in Washington State. These cases have involved paint or caulk that contained PCBs, which were banned from production in the late 1970s. EPA Region 10 is concerned that PCBs may be an issue in other Washington facilities. Therefore, EPA has included a requirement that hatcheries include with their Notices of Intent information on painted and caulked surfaces that regularly contact process water.

7. Method Detection Limits.

All samples must be analyzed to achieve method detection limits (MDLs) that are equivalent to or less than those listed in Table 9. These are levels that EPA has determined are achievable using EPA methods. If the results reported by the permittee have consistently been well above the required MDLs, it may request less stringent MDLs.

Table 9 Method Detection Limits	
Parameter	Method Detection Limit (MDL)
Total Suspended Solids	2 mg/L
Nitrate	0.1 mg/L
Nitrite	0.01 mg/L
Total Kjeldahl Nitrogen	0.03 mg/L
Ammonia Nitrogen as N	0.01 mg/L
pH	0.1 S.U.
Temperature	0.1° C
Total Copper	0.02 µg/L
Hardness	10 µg/L

Table 9 Method Detection Limits	
Parameter	Method Detection Limit (MDL)
Total Suspended Solids	2 mg/L
Total Residual Chlorine	10 µg/L

VII. BEST MANAGEMENT PRACTICES

The Clean Water Act authorizes and EPA regulations at 40 CFR §122.44 (k) provide for requirements to implement best management practices (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.

The proposed General Permit requires all dischargers to adhere to specific operating limitations and best management practices and requires dischargers to develop and implement a BMP Plan within 90 days of becoming authorized to discharge under its terms. Dischargers must identify and assess potential impacts of pollutant discharges and identify specific management practices and operating procedures to prevent or minimize the generation and discharge of pollutants including the specific operating limitations and best management practices listed in the General Permit.

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

VIII. STANDARD PERMIT PROVISIONS

Sections VI, VII, and VIII of the draft permit 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. These sections will not be modified because of comments on this general permit, since the language is standard language based on the regulations.

- 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
- Removed Substances from 40 CFR §122.41(a)(1) and (o) and CWA §405(A)
- 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 Section 311 of the CWA
- State Laws from 40 CFR §122.1(f) and Section 510 of the CWA, and
- Reopening of the Permit from 40 CFR §§122.41(f) and 122.44(c).

IX. OTHER REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act at 16 U.S.C. §1536 requires 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, EPA has prepared a biological evaluation, which will be reviewed by the NOAA Fisheries and the U.S. Fish and Wildlife Service for consistency with those programs established for the conservation of endangered and threatened species. A summary of the effects determination on listed species is found in Table 10, below.

Table 10			
Summary of Effects on Threatened and Endangered Species			
Species	Effects Determinations		
	NE ¹⁴	NLAA ¹⁵	LAA ¹⁶
Fish			
Chinook Salmon			
Snake River Fall Run ESU		X	
Snake River Spring/Summer Run ESU		X	
Upper Columbia River Spring Run ESU		X	
Lower Columbia River ESU		X	
Puget Sound ESU		X	
Chum Salmon			
Lower Columbia River ESU		X	
Hood Canal Summer Run ESU		X	
Coho Salmon			
Lower Columbia River		X	
Sockeye Salmon			
Snake River ESU		X	
Lake Ozette ESU		X	
Steelhead			
Snake River ESU		X	
Upper Columbia River ESU		X	
Middle Columbia River ESU		X	
Lower Columbia River ESU		X	
Bull Trout			
Columbia River Basin DPS		X	
Coastal/Puget Sound DPS		X	
Birds			
Short-tailed Albatross		X	
Northern Spotted Owl		X	
Brown Pelican		X	
Western Snowy Plover		X	
Eskimo Curlew		X	
Marbled Murrelet		X	
Marine Mammals			
Steller Sea Lion		X	
Southern Sea Otter		X	
Southern Resident Killer Whale		X	
Humpback Whale		X	
Marine Reptiles			
Leatherback Sea Turtle	X		
Green Sea Turtle	X		

Table 10			
Summary of Effects Determinations			
Species	Effects Determinations		
	NE ¹⁴	NLAA ¹⁵	LAA ¹⁶
Terrestrial Mammals			
Grizzly Bear	X		
Woodland Caribou	X		
Columbian White-tailed Deer	X		
Canada Lynx	X		
Pygmy Rabbit	X		
Gray Wolf	X		
Invertebrates			
Oregon Silverspot Butterfly	X		

¹⁴ No effect

¹⁵ Not likely to adversely affect

¹⁶ Likely to adversely affect

B. Magnuson - Stevens Fishery Conservation and Management Act

The mandate of the Magnuson--Stevens Act at 16 U.S.C. §1855 (b) (2) requires EPA to consult with the NOAA Fisheries to insure that this NPDES permitting activity will not adversely affect essential fish habitat. To address the requirements of the Magnuson - Stevens Act, EPA has prepared a biological evaluation, which will be reviewed by the NOAA Fisheries for consistency with the objective of protection of essential fish habitat.

C. National Environmental Policy Act (NEPA)

At 42 U.S.C. § 4322, NEPA requires federal agencies to conduct environmental review of their actions (including permitting activity) that may significantly affect the quality of the human environment. EPA regulations which implement NEPA, at 40 CFR §122.29 (c), clarify this requirement as it pertains to NPDES permitting actions as requiring NEPA environmental review for the issuance of an NPDES permit for new sources only.

A new source is defined at 40 CFR §122.2 as any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

1. After promulgation of standards of performance under Section 306 of the CWA, which are applicable to such source, or
2. After proposal of standards of performance in accordance with Section 306 of the CWA, which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

Because such standards of performance pursuant to Section 306 of the CWA, applicable to discharges concentrated aquatic animal production facilities, were promulgated on August 23, 2004, more than 120 days after proposal (September 12, 2002), "new sources" are those sources whose construction began after September 22, 2004. NEPA environmental review is not required for the General Permit but may be required for such new sources before EPA issues authorization to discharge.

D. Presidential oversight of federal regulations

The Office of Management and Budget has exempted this action from the review requirements of Executive Order 12866 providing for presidential oversight of the regulatory process pursuant to Section 6 of that order.

E. Paperwork Reduction Act

EPA has reviewed the requirements imposed on regulated facilities in the permit under the Paperwork Reduction Act. The information collection requirements have been approved by the Office of Management and Budget (OMB) in submissions made for the NPDES permit program.

F. The Regulatory Flexibility Act

EPA has concluded that NPDES general permits are permits under the Administrative Procedure Act (APA), 5 U.S.C. § 551 *et seq.*, and thus not subject to APA rulemaking requirements or the Regulatory Flexibility Act.

G. State Certification

The CWA, at 33 U.S.C. §1341, requires certification from Washington Department of Ecology and appropriate tribal authorities that discharges authorized under the General Permit will comply with applicable provisions of the Act, including State and tribal water quality standards adopted pursuant to those applicable provisions. The General Permit cannot become effective until those entities have waived or granted certification; and therefore, EPA has requested that Ecology and appropriate tribal authorities review and certify the General Permit in accordance with procedures established at 40 CFR §§124.53, 124.54, and 123.55.

X. 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.

Average monthly limit means the maximum allowable average of “daily discharges” over a monitoring month, calculated as the sum of all “daily discharges” measured during a monitoring month divided by the number of “daily discharges” measured during that month. It may also be referred to as the "monthly average discharge"(40 CFR §122.2).

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 “waters of the United States”. 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 20° C. (BOD₅)

BPJ means best professional judgment.

BPT means best practicable control technology currently available

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

CAAP means concentrated aquatic animal production

CFR means the Code of Federal Regulations.

cfs means cubic feet per second.

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

Composite sample means a combination of at least 4 discrete sample aliquots, collected from the same location at intervals of at least 30 minutes between dawn and dusk, or four or more discrete samples taken over a 24-hour period. Facilities with multiple effluent discharge points and/or influent points must composite samples from all points proportionally to their respective flows.

Core rearing means a designated use of a water body where there is moderate to high density use by salmonid species, usually in the middle to upper reaches of a river system.

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

Daily discharge means the “discharge of a pollutant” measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limits expressed as mass "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day (40 CFR 122.2).

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 “waters of the United States” 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 waters of the United States 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).

Disinfectant means any chemical used to reduce pathogenic or objectionable organisms, including but not limited to algicides, fungicides, and pesticides.

Disinfection means any method of reducing the pathogenic or objectionable organisms by means of chemical application or other acceptable means.

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).

Ecology means the Washington State Department of Ecology.

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 Section 304(b) of CWA to adopt or revise “effluent limitations.” (40 CFR §122.2).

EPA means the United States Environmental Protection Agency.

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.

GP (general permit) means an NPDES permit issued under 40 CFR §122.28 authorizing a category of discharges under the CWA within a geographical area. (40 CFR §122.2)

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

Indian Country means “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)

Influent means the water entering a facility or part of a facility.

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 in a waste stream during the time period of interest.

Maximum daily limit (or discharge limitation) means the highest allowable “daily discharge” (40 CFR §122.2).

ml/L means milliliters per liter.

Monthly average means the average of “daily discharges” over a monitoring month, calculated as the sum of all “daily discharges” measured during a monitoring month divided by the number of “daily discharges” measured during that month (40 CFR §122.2).

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 sections 307, 402, 318, and 405 of CWA (40 CFR §122.2).

Net means the difference between effluent concentration and influent concentration (or loads).

NOAA means National Oceanic and Atmospheric Administration.

NOI (Notice of Intent) means a request, or application, to be authorized to discharge under a general NPDES permit.

Noncore rearing means a designated use of a water body used for migration and low to moderate density juvenile rearing of salmonid species, generally in the middle to lower reaches of a river system.

NSPS means New Source Performance Standards.

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.

OLSB (Off-line settling basin) means a constructed retention basin that receives wastewater from an aquaculture facility for the retention and treatment of wastewater through settling of solids and around which such wastewaters can be directed during periods of solids removal.

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 U.S.C. §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 Appx.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 ... 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 ... 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.

TSD means *Technical Support Document for water quality-based toxics control* (EPA 1991).

TSS means total suspended solids, of which the concentration in water is measured in mg/L.

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.

Upland hatchery ... a hatchery not located within the waters of the State (or, by extension, the U.S.) where fish are hatched, fed, nurtured, held, maintained, or reared to reach the size of release or for market sale. (WAC 173-221A-030)

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)).

U.S.C. means United States Code.

WAC means Washington Administrative 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.

WET (Whole effluent toxicity) means the aggregate toxic effect of an effluent measured directly by a toxicity test (40 CFR §122.2).

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.

Warm water species means fish that include, but are not limited to, the *Ameiuride*, *Centrarchidae* and *Cyprinidae* families of fish, e.g., respectively, catfish, sunfish and minnows.

Waters of the United States or waters of the U.S. 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).

XI. REFERENCES

Final Rule, Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category, 69 *Fed. Reg.* 51892 (August 23, 2004).

USEPA (1991). Technical Support Document for Water Quality-Based Toxics Control. Office of Water, Washington, D.C. EPA/505/2-90-001 (March 1991).

USEPA (1993). Guidance Manual for Developing Best Management Practices (BMP). Office of Water, Washington, D.C. EPA/833/B-93-004 (October 1993).

USEPA (1996). NPDES Permit Writers’ Manual. Office of Wastewater Management, Washington, D.C. EPA/833/B-96-003 (December 1996).

USEPA Region 10 (2007). Aquaculture Facilities in Idaho. NPDES Permit Nos. ID-G13-0000 and ID-G13-1000 and Fact Sheet.

Washington Dept.of Ecology (2002). Cypress Island, Inc. (Dana Passage – Hartstene Island), NPDES permit #WA0040401, March 20, 2002.

Washington. Dept. of Ecology (2006). Upland Hatchery General Permit. April 22, 2005.

Appendix A

Lists of Facilities

Table A-1: List of Aquaculture Facilities expected to be Covered under the GP

PREVIOUS PERMIT NO.	FACILITY NAME	AGENCY/TRIBE	RECEIVING WATER
	<i>Federal Hatcheries</i>		
WA0000205	Carson National Fish Hatchery	USFWS	Wind River
WA0000213	Little White Salmon National Fish Hatchery	USFWS	Little White Salmon River
WA0025674	Makah National Fish Hatchery	USFWS	Sooes River (Neah Bay) (<i>Makah jurisdiction</i>)
WA0001911	Quinalt National Fish Hatchery	USFWS	Cook Creek (<i>Quinalt Nation water</i>)
WA0000221	Spring Creek National Fish Hatchery	USFWS	Columbia River
WA0002593	Winthrop National Fish Hatchery	USFWS	Methow River
	<i>Tribal hatcheries</i>		
WA0026000	Bernie Kai Kai Gobin Salmon Hatchery	Tulalip	Tulalip Creek (Puget Sound)
	Chalaat Creek Hatchery	Hoh	Chalaat Creek (Hoh River)
	Chief Joseph Hatchery (proposed)	Colville	Columbia River
WA0025801	Clear Creek Hatchery	Nisqually	Clear Creek (Nisqually River)
	Clear Creek Pond	Suquamish	Puget Sound
WA0026328	Clearwater River Rearing Pond	Muckleshoot	Clearwater River
WA0025747	Colville Tribal Trout Hatchery	Colville	Columbia River
	Cowling Creek Hatchery	Suquamish	Cowling Creek
	Crisp Creek Hatchery	Muckleshoot	Crisp Creek (Green River)
	Enetai Hatchery	Skokomish	Enetai Creek (Hood Canal)
WA0045004	Ford Hatchery	WA Dept. of Game (on Spokane Reservation)	Chamokane Creek (Spokane River)
	Gorst Creek Rearing Ponds	Suquamish	Gorst Creek (Sinclair Inlet--Puget Sound)
	Grovers Creek Hatchery	Suquamish	Grovers Creek (Puget Sound)
	Harvey Creek Hatchery	Stillaguamish	Harvey Creek (Armstrong Creek, Stillaguamish River, Puget Sound)
WA0025771	Icy Waters Salmon Hatchery (private)	Chehalis	Chehalis River
	Kalama Creek Hatchery	Nisqually	Kalama Creek (Nisqually River)
	Keta Creek Hatchery	Muckleshoot	Crisp Creek (Green River)

Table A-1: List of Aquaculture Facilities expected to be Covered under the GP

PREVIOUS PERMIT NO.	FACILITY NAME	AGENCY/TRIBE	RECEIVING WATER
	Lonesome Creek Hatchery	Quileute	Lonesome Creek
WA 0025836	Lower Elwha Klallam Tribal Hatchery	Lower Elwha Klallam	Elwha River (Strait of Juan de Fuca)
WA0025933	Lummi Bay Hatchery	Lummi	Lummi Bay (Puget Sound) <i>marine</i>
WA0025526	Nisqually Indian Community Salmon Rearing Ponds	Nisqually	Kalama Creek (Nisqually River)
	North Fork Hatchery	Stillaguamish	Johnson Creek
	Salmon River Fish Culture Facility	Quinault	Salmon River (Queets River, Pacific Ocean)
WAU000280	Sandy Point Rearing Facility at Neptune Beach	Lummi	Puget Sound <i>marine</i>
WA0025208	Skookum Creek Hatchery	Lummi	South Fork Nooksack River
WA0025780	Spokane Tribal Hatchery	Spokane	Chamokane Creek (Spokane River)
	Umbrella Creek Hatchery	Makah	Umbrella Creek (Lake Ozette)
WA0025241	Upper & Lower Tulalip Creek Ponds	Tulalip	Tulalip Bay <i>marine</i>
	Upper Skagit Tribal Hatchery	Upper Skagit	Red Creek
	Webster Hatchery on Dogfish Creek	Suquamish	Dogfish Creek (Puget Sound)

Table A-2: List of Aquaculture Facilities not expected to be Covered under the GP

EPA has information that these facilities have less than 20,000 pounds production per year and/or use less than 5,000 pounds of feed in the maximum month of feeding.

PREVIOUS PERMIT NO.	FACILITY NAME	AGENCY/TRIBE	RECEIVING WATER
	<i>Federal Hatcheries</i>		
WA0000507	Abernathy Salmon Culture Station	USFWS	Abernathy Creek
WA0025534	Big White Salmon Rearing Ponds	USFWS	Big White Salmon River
WA0026131	Columbia River Research Lab	USGS	White Salmon River
WA0001881	Entiat National Fish Hatchery	USFWS	Entiat River
WA0025798	Fisheries Research Center, Seattle	USFWS	Lake Washington
	Manchester Research Station	NOAA	Clam Bay (Puget Sound)
WA0025879	Marrowstone Marine Field Station	USGS	Admiralty Inlet (Puget Sound) <i>marine</i>
WA0025097	Mulkilteo Research Station	NOAA/NMFS	Possession Sound (Puget Sound) <i>marine</i>
WA0001872	Quilcene National Fish Hatchery	USFWS	Big Quilcene River
WA0024899	Western Fisheries Research Center	USGS	Lake Washington
	<i>Tribal hatcheries</i>		
	Battle Creek Tribal Hatchery	Tulalip	Mission Creek
	Clarks Creek Hatchery	Puyallup	Clarks Creek/Puyallup River
	Cowskull Acclimation Pond	Puyallup	Puyallup River
	Cripple Creek Rearing Ponds	Puyallup	Cripple Creek
	Diru Creek Hatchery	Puyallup	Diru Creek/Puyallup River
WA0025828	Educket Creek Hatchery	Makah	Educket Creek
	Hoko Falls Hatchery	Makah	Hoko River (Strait of Juan de Fuca)
	Huckleberry Creek Acclimation Pond	Puyallup	Huckleberry Creek (White River, Puyallup River, Puget Sound)
	Little Boston Creek Hatchery	Port Gamble S'Klallam	Little Boston Creek (Port Gamble, Hood Canal)
	Mowich River Acclimation Facility	Puyallup	Mowich River/Puyallup River
	Rushing Water Acclimation Pond	Puyallup	Puyallup River (Puget Sound)

Appendix B — Basis for Effluent Limitations

A. Statutory and Regulatory Basis for Limits

Sections 101, 301(b), 304, 308, 401, 402, and 405 of the CWA provide the basis for effluent limitations and other conditions in the draft permit. 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, EPA first determines which technology-based limits must be incorporated into the permit. 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, 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

Section 301(b) of the CWA requires industrial dischargers to meet technology based effluent limitations established by 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). Section 301(b)(1)(A) of the CWA required industries to meet this level of control by July 1, 1977. Section 301(b)(3) of the CWA 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.

Section 301(b)(2) of the CWA requires that all permits contain effluent limitations which: (1) 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 EPA for specific industries. Where 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, 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. However, the ELGs allow a permit writer to apply numeric limits under several circumstances, including in general permits. To quote from the preamble of the final regulation [69 FR 51899 (August 23, 2004)]: “In fact, one of the bases for EPA’s decision not to establish uniform national TSS limits is the recognition that a number of states, particularly those with significant numbers of CAAP facilities, already have general permits with numeric limits tailored to the specific production systems, species raised, and

environmental conditions in the state and these permits seem to be working well to minimize discharges of suspended solids.” EPA has used BPJ to develop the technology-based effluent limitations in the draft General Permit.

As described in §D, below, technology-based limitations are proposed for suspended and settleable solids.

C. Water Quality-Based Evaluation

In addition to the technology-based limits discussed above, EPA evaluated the potential discharges to determine compliance with Section 301(b)(1)(C) of the CWA 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 water quality standard, including state 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, 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, EPA must consider applicable antidegradation policies, which must be consistent with the guidelines expressed at 40 CFR §131.12. The draft General Permit will not result in the relaxation of effluent limits and has been written to maintain or improve the quality of effluent discharged from authorized aquaculture facilities; and therefore, it will not result in degradation of water quality and is consistent with the guidelines expressed at 40 CFR §131.12.

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

1. Determine Appropriate Water Quality Criteria

Receiving waters on federal land in the State of Washington must meet water quality criteria established by the State of Washington in Chapter 173-201A of the Washington Administrative Code. If water quality criteria have been established by a Tribe and approved by EPA, receiving waters in Indian country must meet those applicable water quality criteria. For waters in Indian country, where water quality criteria have not been approved by EPA, the General Permit requires that receiving waters meet the quality criteria established by the State of Washington, as such criteria will, at a minimum, be protective of downstream uses in State waters in accordance with 40 CFR §131.10.

2. Develop Wasteload Allocations (WLAs)

A WLA may be developed to establish the allowable loading of each pollutant that may be discharged without causing or contributing to exceedances of water quality standards in receiving waters. WLAs can be established in three ways - mixing zone-based WLAs, TMDL-based WLAs, and end-of-pipe WLAs.

a. Mixing Zone-Based WLA

When the State or a tribe authorizes a mixing zone for a discharge, the WLA is calculated based on the available dilution at the edge of the mixing zone, background concentrations of pollutants, and the water quality criteria. Limitations of the General Permit do not allow for dilution and mixing zones, and therefore, mixing zone based WLAs are not appropriate.

b. TMDL-Based WLA

Where the receiving water quality does not meet applicable water quality standards, a WLA may be based on a total maximum daily load (TMDL) determination by the State or appropriate tribal authority. A TMDL is the determination of the maximum amount of a pollutant or pollutant property, from point, nonpoint, and background sources, including a margin of safety, that can be discharged to a receiving water without exceeding applicable water quality criteria. Section 303(d) of the CWA requires development of TMDLs for water bodies that will not meet water quality standards, after technology-based limitations are imposed, to ensure that these waters will come into compliance with water quality standards. Where discharges are to receiving waters listed as impaired, pursuant to CWA Section 303(d), such discharges must be authorized by NPDES permits. At this time, EPA is not aware of any WLAs assigned to facilities expected to be covered under this general permit; if such WLAs are brought to our attention during the public comment period or certification process, we may include them in the permit. Otherwise, facilities discharging to receiving waters with TMDLs for pollutants of concern from fish hatcheries will not be authorized to discharge under the General Permit.

3. Derive Water Quality Based Permit Limitations

After WLAs have been developed, EPA applies the statistical permit limit derivation approach described in Chapter 5 of the Technical Support Document (TSD) for Water Quality-Based Toxics Control, USEPA Office of Water (1991) (EPA/505/2-90-001) to establish maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs). This approach takes into account effluent variability, sampling frequency, water quality standards, and the difference in time frames between the monthly average and the daily maximum limits.

As described in §D, below, WQBELS for total residual chlorine are included in the proposed General Permit.

D. Proposed Effluent Limitations

This discussion includes description of the basis for each of the technology-based or water quality-based effluent limitations in the proposed permit.

1. Size Threshold for Permit Coverage

In 1983, EPA defined cold water concentrated aquatic animal production (CAAP) facilities subject to the NPDES permit program as facilities that produce 20,000 pounds per year or more or that feed 5,000 pounds per month or more during the calendar month of maximum feeding. [48 Fed. Reg. 14153 (April 1, 1983), as codified at 40 CFR §122.24]. The State of Washington requires coverage under its Upland Finfish Hatching and Rearing NPDES Waste Discharge Permit for Aquaculture facilities that produce more than 20,000 pounds per year or that feed more than 5,000 pounds of fish food in any one calendar month; in addition, the State's technology based effluent limitations at WAC §173-221A-100 and WAC §173-221A-110 are applicable to all aquaculture facilities, regardless of size.

For this general permit, EPA Region 10 proposes to require all the following dischargers to seek coverage under the General Permit: aquaculture facilities that hold at least 20,000 pounds of fish at their maximum in a year and that feed at least 5,000 pounds of food in the maximum calendar month of feeding in Indian country or from federal facilities. The General Permit requires adherence to a set of operating limitations and best management practices and imposes effluent limitations and monitoring requirements that are detailed below. All facilities will also be required to submit an Annual Production and Discharge Report, which will allow EPA Region 10 to track activities at these facilities.

In the final Effluent Limitations Guideline (ELG) for the Concentrated Aquatic Animal Production Point Source Category (40 CFR 451), EPA did not cover aquaculture facilities that produce below 100,000 pounds annually. However, under the provisions of 40 CFR §451.11, the permitting authority may modify the requirements listed in the ELG, based on best professional judgment (BPJ). In developing this general permit, EPA Region 10 is relying on its experience in administering the general permits for Aquaculture Facilities in Idaho as well as on the precedent set in the Upland Hatchery General Permit issued by the Washington Department of Ecology.

Because the experience of EPA Region 10 in Idaho has not shown a disproportionate or unreasonable burden of compliance for aquaculture facilities with annual production between 20,000 and 100,000 harvest weight pounds, EPA Region 10 proposes that the threshold for comprehensive limitations under this general permit be maximum weight of 20,000 pounds held in the facility or a feeding level of 5,000 pounds per month during the calendar month of maximum feeding. This coverage will be similar but not identical to the treatment of nearby aquaculture facilities regulated by the State of Washington.

2. Transport Water

Fish hatcheries commonly transport fish in 500--1000 gallon, truck-mounted tanks for release to the wild. Because these fish, in theory, can be caught and eaten immediately following their release, the transport water cannot contain aquaculture drugs and/or chemicals, for which FDA requires a withdrawal period prior to human consumption. Such tanks are typically equipped only to provide life support (oxygen) to the fish while they are in transit. The only chemical routinely added to the transport water is salt, at 0.8 percent, to provide an isotonic transport medium, which is comfortable for the fish. The General Permit does not address the discharge of transport water because it is a separate discharge at a remote location.

3. Total Suspended and Settleable Solids Limits

The final ELG for discharges from aquaculture facilities with greater than 100,000 pounds annual production were published in the Federal Register on August 23, 2004. They included no numeric effluent limitations for total suspended solids (TSS) and settleable solids. However, EPA Region 10 has used its best professional judgment (BPJ) in applying numeric limitations for TSS and settleable solids to upland hatcheries that are equivalent to the State of Washington's effluent limitations for all upland aquaculture facilities. These limitations are incorporated into state regulations at WAC §173-221A-100 and into the State's general NPDES permit for upland finfish hatching and rearing facilities. This will protect the receiving waters of the State and of the tribes, which, in most cases, eventually run into State waters. **If any person is aware of tribal standards that should be applied to any facility for these pollutants, EPA invites submission of that information during the comment periods.**

The proposed effluent limits for total suspended solids and settleable solids are net limits. WAC 173-221A-100(4)(a)(iv) states "Effluent limitations shall apply as net values provided the criteria contained in 40 CFR 122.45 (net gross allowance) are met." This permit requires that gross influent and effluent values be reported on the DMR form along with the calculated net values. EPA may require additional sampling to prove substantial similarity between influent and effluent solids, where it determines that they are necessary. In such cases, the permittee may continue to report net values until the comparability tests are completed.

The effluent limitations listed in Table B-1 apply to all discharges except those from separate off-line settling systems and those from pond systems, which are listed in Table B-2.

Table B-1 Hatchery Effluent Limitations		
Pollutant	Average Monthly Limit (AML)	Instantaneous Maximum Limit
Net ¹⁷ TSS	5 mg/L	15 mg/L
Net ¹⁴ Settleable Solids	0.1 ml/L	--

¹⁷ Net results are determined by subtracting influent concentrations from effluent concentrations.

Table B-2, below, lists the effluent limitations for TSS and settleable solids in discharges to waters of the U.S. from separate off-line settling systems and discharges from pond systems.

Table B-2 Effluent Limitations for Discharges from OLSBs and from Pond Systems	
Pollutant	Instantaneous Maximum Limit
TSS	100 mg/L
Settleable Solids	1.0 ml/L

4. Nutrients

In the ELG, EPA did not propose numeric limits for nutrients because, as it reasoned in the background information in its proposal (67 FR 57891 (Sept. 12, 2002)), control of TSS also effectively controls such nutrients because other pollutants are either bound to the solids or are incorporated into them [67 FR 57872]. Region 10 concurs with this reasoning for not including nutrient limitations unless the receiving water is water quality limited for nutrients and believes that implementation of best management practices to minimize the discharge of excess feed will serve to limit nutrient residuals in discharges. EPA Region 10 is not aware that any of the receiving waters of the facilities are water quality limited for nutrients, but **invites submission of that information of which others may be aware.**

The State of Washington has established water quality criteria for nutrients in lakes (water bodies with a mean detention time of greater than 15 days) at WAC §173-201A-230, and it has established water quality criteria for ammonia in all surface waters at WAC §173-201A-240. EPA Region 10 is not aware that any of the receiving waters of the facilities are water quality limited for ammonia, but **invites submission of that information of which others may be aware.**

5. Drugs, Disinfectants and Other Chemicals

There are no applicable technology based limitations or effluent guidelines in place for most drugs, disinfectants, and other chemicals used within the aquaculture industry. EPA Region 10 has also noted that State and tribal water quality criteria do not specifically limit residuals of these materials in discharges from aquaculture facilities, except copper, for which there are usually applicable water quality criteria. Copper in the form of copper sulfate or in chelated copper compounds is used in aquaculture facilities in some parts of the country for the control of bacteria and algae; however, information from the Northwest Indian Fisheries Commission staff indicates that it is not used often, if ever, in tribal hatcheries or federal hatcheries in western Washington. For other chemicals, state and tribal water quality criteria generally include narrative criteria, which prohibit levels of toxic substances in concentrations that impair beneficial uses of receiving waters.

1. Treatment in Effluent Guidelines Limitations (ELG) for the Confined Aquatic Animal Production (CAAP) Category

In the ELG for the CAAP industry at 40 CFR §451, EPA did not include limitations for drugs, disinfectants, and other chemicals, citing the relative absence of data on their use. The Effluent Limitations Guideline requires reporting on the use of drugs, disinfectants, and other chemicals in authorized discharges.

2. Treatment in EPA's Idaho Aquaculture Permits.

In writing the general permits for Aquaculture Facilities in Idaho, EPA Region 10 acknowledged that literature suggested some risks associated with the discharge of residual disease control drugs and other chemicals but concluded that such substances delivered to fish by ingestion do not pose a risk of harm or degradation to aquatic life or other beneficial uses. However, EPA concluded that such substances applied in solution for the immersive treatment of fish may present a risk of harm to aquatic life immediately downstream of a point of discharge. Because very little effluent data for these substances was available at that time, because analytical methods for their detection and measurement were very difficult, and because normal operating procedures provided maximum dilution of immersive treatments in facility discharges, EPA did not include specific effluent limitations for these substances in the general permits for Idaho aquaculture facilities. Like the ELG, the Idaho permits require reporting on the use of drugs, disinfectants, and other chemicals in authorized discharges.

3. Treatment in this General Permit

In this general permit, EPA Region 10 is not including WQBELs for drugs, disinfectants, and other chemicals that are potentially applied within the facilities with one exception. We are considering applying copper limits if there are facilities that discharge to receiving waters that are water quality limited for copper. At the time of this writing, we believe that none of the facilities we expect to be covered under this permit discharged to such waters. We also understand that copper is not used regularly, if at all, in tribal and federal hatcheries in Washington. See the following section and appendix C for a derivation of copper limits that might be applied a hatchery discharging to such a water quality limited stream is made known to EPA before the general permit is issued.

In most cases, EPA Region 10 believes that when these chemicals are used in compliance with Food and Drug Administration requirements and the best management practices required in this permit, they pose no reasonable potential to violate applicable water quality standards. The requirements for submittal of Notice of Intent, Annual Reports, which include reporting the use of drugs, disinfectants, and other chemicals, as well as reports of use of investigational new animal drugs and extra-label drug use, will enable EPA to reassess the potential for harm attributable to these materials in the future.

6. Copper

Copper, primarily in the forms of copper sulfate and chelated copper compounds, is used in fish hatcheries in some parts of the country to control algae and other vegetation that is susceptible to the toxic effects of copper uptake; and it is used to control the growth of external parasites and bacteria on fish. However, available information indicates that it is used rarely, if at all, in tribal and federal hatcheries in Washington.

a. Tribal Standards

The Colville Confederated Tribes do not have numeric water quality criteria for copper but have adopted narrative criteria for toxics - prohibiting concentrations of toxics greater 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. (40 CFR §131.35). The Chehalis, Lummi, Makah, Spokane, and Tulalip Tribes, which are the Washington tribes with EPA-approved water quality standards and Treatment as State that we believe have hatcheries that will be covered under this permit. All except the Lummi Nation, have numeric criteria at the same levels as the State for copper for protection of aquatic life (see Table B-4, below) in addition to a narrative criterion similar to the Colville Tribe's, mentioned above. The Lummi Nation has fresh water standards that are slightly different and are presented in Table B-3.

Table B-3 Lummi Nation Aquatic Life Criteria for Copper			
Freshwater Aquatic Life Criteria¹⁸		Marine Aquatic Life Criteria¹⁵	
Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)
$e^{(0.9422[\ln(\text{hardness})]-1.700)}$	$e^{(0.8545[\ln(\text{hardness})]-1.702)}$	5.8	3.7

¹⁸ Criteria are expressed as total recoverable metal.

b. State Copper Standard

The State of Washington also prohibits the introduction of toxic substances above natural background levels, which 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. The State has also adopted the following numeric water quality criteria for copper for the protection of aquatic life.

Table B-4 Washington & Most Tribes' Aquatic Life Criteria for Copper			
Freshwater Aquatic Life Criteria¹⁹		Marine Aquatic Life Criteria¹⁶	
Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)
$e^{(0.9422[\ln(\text{hardness})]-1.464)}$	$e^{(0.8545[\ln(\text{hardness})]-1.465)}$	5.8	3.7

¹⁹ Criteria are expressed as total recoverable metal.

c. Reasonable Potential Analysis

EPA's information indicates that copper is used rarely, if at all, in the tribal and federal hatcheries. Also, there is no information concerning the amount of copper in the discharges from these facilities. Therefore, EPA does not have sufficient information to assess reasonable potential to violate water quality standards. As a result, in most cases, we are requiring monitoring for total copper and hardness in the effluent and receiving stream when/if copper compounds are used and are proposing a BMP for limiting the use of copper. If we receive any new information on the levels

of copper in the effluents or their effects on the receiving waters, we will consider that when we evaluate the need for limits in the future.

d. Proposed potential limits for copper

If we receive information that facilities that use copper are discharging to streams that are water quality impaired for copper (listed on the State's 303(d) list in Category 5 or on a comparable tribal list), we are considering allowing such discharges only if the effluents meet the water quality standards at the end of pipe. Those potential limits are listed in Tables B-5 and B-6, below.

(1) Potential Fresh Water Copper Limits proposed for the Lummi Reservation

Table B-5		
Potential Lummi Copper Effluent Limitations in Fresh Water		
Receiving Water Hardness (mg/L CaCO₃)	MDEL (µg/L)	AMEL (µg/L)
20	3	2
30	4	2
40	6	3
50	7	4
75	11	5
100	14	7
150	20	10
200	27	13
250	33	16

(2) Potential Fresh Water Copper Limits proposed for State waters and for waters in Indian country other than those of the Lummi Nation

Table B-6 Potential Copper Effluent Limitations for Hatcheries Discharging to Fresh Water <u>Impaired for Copper</u> (except on the Lummi Reservation)		
Type of Receiving Water & Hardness Level	Maximum Daily Limit	Average Monthly Limit
0-20 mg/L as CaCO ₃	4 µg/L	2 µg/L
20.1-30 mg/L as CaCO ₃	6 µg/L	3 µg/L
30.1-40 mg/L as CaCO ₃	8 µg/L	4 µg/L
40.1-50 mg/L as CaCO ₃	9 µg/L	5 µg/L
50.1-75 mg/L as CaCO ₃	14 µg/L	7 µg/L
75.1-100 mg/L as CaCO ₃	18 µg/L	9 µg/L
100.1-150 mg/L as CaCO ₃	26 µg/L	13 µg/L
150.1-200 mg/L as CaCO ₃	34 µg/L	17 µg/L
200.1-250 mg/L as CaCO ₃	42 µg/L	21 µg/L

(3) Potential Copper Limits proposed for all Marine discharges

Table B-7 Potential Copper Effluent Limitations in Marine Water					
	LTA	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
Copper	1.86	3.11	1.55	5.8	2.9

7. Total residual chlorine

For disinfection and cleaning of equipment, chlorine may be used at concentrations above the water quality criteria that apply in waters of the State of Washington.

a. Chlorine Standards.

For the protection of aquatic life, the State of Washington, the Lummi Nation, the Makah Tribe, and Tulalip Tribes have established the water quality criteria in Table B-8, below, for total residual chlorine. The Chehalis and Spokane Tribes have adopted the fresh water criteria in the table. These are the tribes with approved water quality standards that EPA believes have aquaculture facilities discharging to their waters.

Table B-8 Chlorine Water Quality Criteria				
	Fresh Water		Marine Water	
	Acute	Chronic	Acute	Chronic
Total residual chlorine (µg/L)	19	11	13	7.5

b. Chlorine Limits

EPA Region 10 believes that there may be a reasonable potential for excursions above applicable numeric and narrative water quality for criteria for total residual chlorine in receiving waters. The General Permit applies the effluent limitations listed in Table B-9, below, for total residual chlorine. Appendix C of this Fact Sheet shows the derivation of the water quality based effluent limits for total residual chlorine that are presented below.

Table B-9 Total Residual Chlorine Effluent Limitations		
Type of Water	MDEL (µg/L)	AMEL (µg/L)
Fresh Water	18.0	9.0
Marine Water	12.3	6.1

8. pH

There are no applicable technology-based effluent guidelines for pH from discharges from aquaculture facilities; however the most stringent criteria for pH in fresh waters from applicable state or tribal standards is 6.5 - 8.5, with no variation attributable to discharges allowed greater than 0.2 pH units.

EPA has determined that receiving water pH will not be significantly impacted by discharges from fish hatcheries, and therefore, no discharge limitation for pH is being proposed by the General Permit.

Appendix C — Derivation of Total Residual Chlorine and Copper Limits

I. Method of Calculating Water Quality Based Effluent Limits

In developing water quality-based effluent limits (WQBELs), EPA Region 10 relies on methods from the Technical Support Document for Water Quality Based Toxics Control (TSD) [EPA/505/2-90-001] to determine specific limits. The TSD requires the following steps to determine specific limitations.

A. Deriving a Wasteload Allocation (WLA) from the applicable water quality criterion.

The WLA takes into account variability in effluent quality and is expressed as a single level of effluent water quality necessary to provide protection against acute or chronic adverse effects in the receiving water. When no credit for dilution is allowed, the WLA is set equal to the applicable water quality criterion. Such is the case in a general permit such as this one, where a limit is being developed that is applied to many dischargers in different locations that must be protective enough for all situations.

B. Calculating long-term average concentration needed to meet the water quality criteria

The wasteload allocation (WLA) is set equal to the aquatic life criterion. The long-term average discharge concentration (LTA) necessary to protect the WLA is determined by multiplying the WLA by a factor (less than 1) to account for effluent variability. The LTA is a target level for treatment performance which provides a measure of safety that the criterion, or WLA, will be exceeded only infrequently (1% or 5% of the time, depending on the level chosen).

WLA multipliers are determined based on a coefficient of variation (CV) and on a specified probability of occurrence. The CV is a measure of the relative variability of a set of data; and in this case, because there is no data, the CV was set equal to 0.6 (the default value recommended by the TSD). From Table 5-1 of the TSD, at the 99th percentile probability basis, the acute WLA multiplier is 0.321 and the chronic WLA multiplier is 0.527.

C. Using the most limiting (the lowest) LTA, WQBELs are calculated.

Average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs) are calculated by multiplying the most limiting LTA times a multiplier that accounts for averaging periods and maximum exceedance frequencies of the effluent limitations, and the effluent monitoring frequency. The CV was set equal to 0.6 (CV = 0.6) and, in the case of the AMEL, the sampling frequency was set equal to 4 (n = 4). Both of these values are those recommended as default values in the TSD for situations where facility

specific data is not available. Following EPA Region 10 permitting policy, a 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. Given these assumptions and using Table 5-2 of the TSD, the MDEL multiplier is determined to be 3.11, and the AMEL multiplier is 1.55.

II. Specific Calculations

A. Total Residual Chlorine

1. Deriving a Wasteload Allocation (WLA) from the applicable water quality criterion

The applicable water quality criteria for total residual chlorine in the waters of the State of Washington are established by the Washington Department of Ecology at WAC 173-201A-240 for the protection of aquatic life. As detailed above, the same criteria have been adopted by the Lummi, Makah, and Puyallup Tribes; and the Chehalis and Spokane tribes have adopted the fresh water standards. These criteria are presented in the following table:

Table C-1 Water Quality Criteria for Total Residual Chlorine for Protection of Aquatic Life					
Pollutant	Units	Fresh Water		Marine Water	
		Acute	Chronic	Acute	Chronic
Total residual chlorine	µg/L	19	11	13	7.5

2. Calculating long-term average concentration needed to meet the water quality criteria

Using factors set forth in § I.B, above, EPA determined the WLA multipliers and calculated the LTAs for total residual chlorine, which are summarized below.

Table C-2			
Total Residual Chlorine Long Term Averages (LTAs)			
	WLA(µg/L)	WLA Multiplier	LTA (µg/L)
Fresh Water -- Acute	19	0.321	6.10
Chronic	11	0.527	5.80
Marine Water --Acute	13	0.321	4.17
Chronic	7.5	0.527	3.95

3. Water Quality based Effluent Limitations are calculated.

Using the most limiting LTA (acute or chronic) from Table C-2, above, for each kind of receiving water, the limitations are calculated using multipliers discussed in §I.C, above.

Table C-3					
Total Residual Chlorine Effluent Limitations					
Type of Water	Long-Term Average	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
Fresh Water	5.80	3.11	1.55	18.0	9.0
Marine Water	3.95	3.11	1.55	12.3	6.1

B. Copper

1. Copper Limits for Discharge to Fresh Water

a. *Lummi Nation Limits*

(1) Deriving a Wasteload Allocation (WLA) from the applicable water quality criterion

The applicable water quality standards for the Lummi Nation are established in *Water Quality Standards for the Surface Waters of the Lummi Indian Reservation (Aug. 20, 2007)*. See Table C-4, below.

Table C-4 Lummi Nation Fresh Water Aquatic Life Criteria for Copper	
Acute (µg/L)	Chronic (µg/L)
$e^{(0.9422[\ln(\text{hardness})]-1.700)}$	$e^{(0.8545[\ln(\text{hardness})]-1.702)}$

(2) Calculating long-term average concentration needed to meet the water quality criteria

Using factors set forth in § I.B, above, EPA determined the WLA multipliers and calculated the LTAs for copper, which are summarized below.

Table C-5 Lummi Copper Long Term Averages (LTAs) (Fresh Water)						
Receiving Water Hardness (mg/L CaCO ₃)	WLA		WLA Multiplier		LTA (µg/L)	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
20	3.1	2.4	0.321	0.527	1.0	1.2
30	4.5	3.3	0.321	0.527	1.4	1.8
40	5.9	4.3	0.321	0.527	1.9	2.2
50	7.3	5.2	0.321	0.527	2.3	2.7
75	10.7	7.3	0.321	0.527	3.4	3.8
100	14.0	9.3	0.321	0.527	4.5	4.9
150	20.5	13.2	0.321	0.527	6.6	7.0
200	26.9	16.9	0.321	0.527	8.6	8.9
250	33.2	20.4	0.321	0.527	10.6	10.8

(3) Water Quality based Effluent Limitations are calculated.

Using the most limiting LTA (acute) from Table C-5, above, for each hardness level in the receiving water, the limitations are calculated using multipliers discussed in §I.C, above.

Table C-6					
Lummi Copper Effluent Limitations (Fresh Water)					
Receiving Water Hardness (mg/L CaCO₃)	Long Term Average	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
20	1.0	3.11	1.55	3	2
30	1.4	3.11	1.55	4	2
40	1.9	3.11	1.55	6	3
50	2.3	3.11	1.55	7	4
75	3.4	3.11	1.55	11	5
100	4.5	3.11	1.55	14	7
150	6.6	3.11	1.55	20	10
200	8.6	3.11	1.55	27	13
250	10.6	3.11	1.55	33	16

b. Fresh Water Copper Limits for Facilities discharging to waters of the State of Washington and of Washington tribes with approved water quality standards other than the Lummi Nation

(1) Deriving a Wasteload Allocation (WLA) from the applicable water quality criterion

The applicable water quality criteria for copper in the waters of the State of Washington are established by the Washington Department of Ecology at WAC 173-201A-240 for the protection of aquatic life. As detailed above, the same criteria have been adopted by the Makah Tribe; and the Chehalis and Spokane tribes have adopted the fresh water standards. EPA adopted the same criteria for the Colville Reservation. These criteria are presented in Table C-7, below.

Table C-7 Washington and Most Tribes' Fresh Water Aquatic Life Criteria for Copper	
Acute (µg/L)	Chronic (µg/L)
$e^{(0.9422[\ln(\text{hardness})]-1.464)}$	$e^{(0.8545[\ln(\text{hardness})]-1.465)}$

(2) Calculating long-term average concentration needed to meet the fresh water quality criteria

Using the factors set forth in § I.A, above, EPA determined the WLA multipliers and calculated the LTAs for copper, which are summarized below.

Table C-8 Washington and most Tribes' Copper Long Term Averages (LTAs) (Fresh Water)						
Receiving Water Hardness (mg/L CaCO ₃)	WLA		WLA Multiplier		LTA (µg/L)	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
20	3.9	3.0	0.321	0.527	1.25	1.58
30	5.7	4.2	0.321	0.527	1.83	2.23
40	7.5	5.4	0.321	0.527	2.40	2.85
50	9.2	6.5	0.321	0.527	2.96	3.45
75	13.5	9.2	0.321	0.527	4.34	4.87
100	17.7	11.8	0.321	0.527	5.69	6.23
150	26.0	16.7	0.321	0.527	8.34	8.81
200	34.1	21.4	0.321	0.527	10.93	11.27
250	42.0	25.9	0.321	0.527	13.49	13.63

(3) *Water Quality based Effluent Limitations are calculated.*

Using the most limiting LTA (acute) from Table C-8, above, for each hardness level in the receiving water, the limitations are calculated using multipliers discussed in §I.C, above.

Table C-9					
Washington and most Tribes' Copper Effluent Limitations (Fresh Water)					
Receiving Water Hardness (mg/L CaCO₃)	Long Term Average	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
20	1.25	3.11	1.55	4	2
30	1.83	3.11	1.55	6	3
40	2.40	3.11	1.55	8	4
50	2.96	3.11	1.55	9	5
75	4.34	3.11	1.55	14	7
100	5.69	3.11	1.55	18	9
150	8.34	3.11	1.55	26	13
200	10.93	3.11	1.55	34	17
250	13.49	3.11	1.55	42	21

2. Copper Limits for Discharge to Marine Waters for all Facilities

- a. *Deriving a Wasteload Allocation (WLA) from the applicable water quality criterion*

The following marine aquatic life criteria for copper are expressed as total recoverable copper.

Table C-10	
Marine Aquatic Life Criteria for Copper	
Acute (µg/L)	Chronic (µg/L)
5.8	3.7

b. *Calculating long-term average concentration needed to meet the marine water quality criteria*

Using the factors set forth in § I.A, above, EPA determined the WLA multipliers and calculated the LTAs for copper, which are summarized below.

Table C-11 Copper Long Term Averages (LTAs) (Marine Water)			
Criteria	Wasteload Allocation (µg/L)	Wasteload Allocation Multiplier	Long Term Average (µg/L)
Copper -- Acute	5.8	0.321	1.86
Chronic	3.7	0.527	1.95

c. *Water Quality based Effluent Limitations are calculated*

Using the most limiting LTA (acute) from Table C-11, above, the limitations are calculated using multipliers discussed in §I.C, above.

Table C-12 Copper Effluent Limitations in Marine Water					
	LTA	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
Copper	1.86	3.11	1.55	5.8	2.9