Forward to the December 2015 EPA Biological Evaluation for the Washington Hatchery NPDES General Permit Endangered Species Act Section 7 Consultation with the USFWS and NOAA Fisheries

Including Relevant Information for NPDES Permitting of the U.S. Fish and Wildlife Service, Leavenworth National Fish Hatchery

October 18, 2016

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1. Introduction

The United States Environmental Protection Agency (EPA), Region 10, is re-proposing to issue a National Pollutant Discharge Elimination System (NPDES) Permit to the United States Fish and Wildlife Service (USFWS) Leavenworth National Fish Hatchery (LNFH). The NPDES Permit authorize and place conditions on the discharge from the LNFH to Icicle Creek, a surface water of the United States, pursuant to provisions of the Clean Water Act (CWA), part of the United States Code (U.S.C.) at 33 U.S.C. § 1251 *et seq.*, when issued as a Final Permit.

The most recent NPDES Permit developed for the LNFH was issued on August 31, 1974 and expired on August 31, 1979. The EPA received an application for reissuance of the Permit on November 12, 1980, after the expiration date; however, the USFWS has continued to discharge wastewater from the Hatchery under the terms and conditions of the expired Permit.

The EPA has proposed a draft NPDES Permit for the LNFH twice before now; in 2006 and in 2010. Updates to LNFH operations in the last few years prompted the EPA to re-propose this draft Permit for a third time.

On December 23, 2015, the EPA sent a Biological Evaluation (BE) of the NPDES permitted discharges authorized under the EPA's Federal Aquaculture Facilities and Aquaculture Facilities Located in Indian Country Within the Boundaries of Washington State (Washington Hatchery General Permit) to the USFWS, requesting informal Section 7 consultation under the Endangered Species Act (ESA), as well as requesting concurrence with EPA's determination that the issuance of the EPA Washington Hatchery General Permit was **not likely to adversely affect** the listed species identified in the BE. The ESA, at 16 U.S.C. § 1536, requires federal agencies to consult with the USFWS and the National Oceanic and Atmospheric Administration - Fisheries Service (NOAA Fisheries) if their actions could beneficially or adversely affect any threatened or endangered species, or their critical habitat.

On June 2, 2016, the USFWS sent the EPA a concurrence with the EPA's determination that the issuance of the Washington Hatchery General Permit may affect, but was not likely to adversely affect, bull trout *(Salvelinus confluentus)* or bull trout critical habitat. NOAA Fisheries verbally concurred, and the EPA referenced that concurrence in the Federal Register announcement of the final Washington Hatchery General Permit. The Federal Register Notice on the issuance of the Washington Hatchery GP can be downloaded at https://www.federalregister.gov/documents/2016/06/21/2016-14671/reissuance-of-npdes-general-permit-for-discharges-from-federal-aquaculture-facilities-and The EPA is awaiting written concurrence on the effects determinations in the December 2015 BE from NOAA at this time.

The BE can be downloaded from the EPA website at https://www3.epa.gov/region10/pdf/permits/npdes/wa/WA_Hatchery_GP_WAG130000_BE.pdf

In this current action for the Leavenworth National Fish Hatchery, the action agency is the EPA, and the federal action is the proposed issuance of a NPDES Permit to the USFWS, LNFH, for CWA authorization to discharge wastewater from the facility into Icicle Creek. This ESA consultation is meant to ensure that the NPDES permitting of the LNFH will not jeopardize the continued existence of any endangered or threatened species, any species proposed to be listed as endangered or threatened, nor result in the destruction or adverse modification of critical habitat for such species. This *Forward to the December 2015 BE for the EPA Washington Hatchery General Permit* is to provide the additional facility-specific information relevant to this current action, as well as explain why the existing Washington Hatchery BE species effects determinations, on which the USFWS and NOAA-Fisheries have previously concurred, also applies to the NPDES Permitting of the LNFH. Because the EPA analyzed common hatchery industry chemicals for impacts to listed species statewide, the LNFH does not use any additional chemicals outside of those analyzed in the BE, and the BE analyzed the practices of many other similar USFWS hatcheries in Washington State, the EPA is re-submitting this same BE in order to engage the Services in ESA consultation on the Draft LNFH NPDES Permit.

In addition, as demonstrated in this document, the Draft Permit for the LNFH is even more stringent than the EPA Washington Hatchery General Permit; as the facility is required to meet the applicable state-promulgated and EPA-approved water quality standards (WQS) for stream temperatures that support supplement spawning and incubation protection for salmonids, as well as meet the wasteload allocation (WLA) for total phosphorus that was assigned to the Hatchery in Ecology's Wenatchee River Total Maximum Daily Load (TMDL) for Dissolved Oxygen and pH, and the state's DO criteria. Therefore, applying the risk assessments and determinations from the EPA Washington Hatchery General Permit BE and an even more stringent Draft Permit to the ESA consultation for the LNFH, the EPA has determined that this permitting action **is not likely to adversely affect listed species in the action area.**

2. The Action: Issue NPDES Permit No. WA0001902 to the USFWS, Leavenworth National Fish Hatchery

The EPA re-proposes to issue a Permit to the LNFH that will establish limitations and conditions on the discharge of pollutants in the effluent (wastewater) to Icicle Creek, upstream of the confluence with the Wenatchee River, which is a surface water of the U.S. Surface waters include lakes, rivers, ponds, streams, inland waters, marine waters, and all other surface waters and water courses; however, for the purposes of the NPDES Permit, surface waters do not include hatchery ponds, raceways, pollution abatement ponds, settling basins, or wetlands constructed solely for wastewater treatment.

In the U.S. Code of Federal Regulations (CFR) at 40 CFR 122.24, and in Appendix C of 40 CFR 122, the EPA has defined a hatchery, fish farm, or other facility as a concentrated aquatic animal production (CAAP) facility if it contains, grows, or holds more than 20,000 pounds of aquatic animals in ponds, raceways, or similar structures. CAAP facilities are also defined as discharging at least 30 days out of the year, and feeding more than 5000 pounds of fish feed in the maximum month of feeding. At the LNFH, more than 20,000 pounds of aquatic animals are produced and released each year, and the range of food pounds fed during the maximum month of feeding was determined to be between 9643 in 2015 and 13,528 pounds in 2011. Therefore, the LNFH is clearly a CAAP facility for which an NPDES Permit is necessary to authorize discharges of wastewater to surface waters of the US under the CWA.

Although the EPA has delegated the authority to administer the NPDES Program to the State of Washington Department of Ecology (Ecology), the EPA retains the authority to administer the NPDES Program for federal facilities within the State of Washington, including the LNFH.

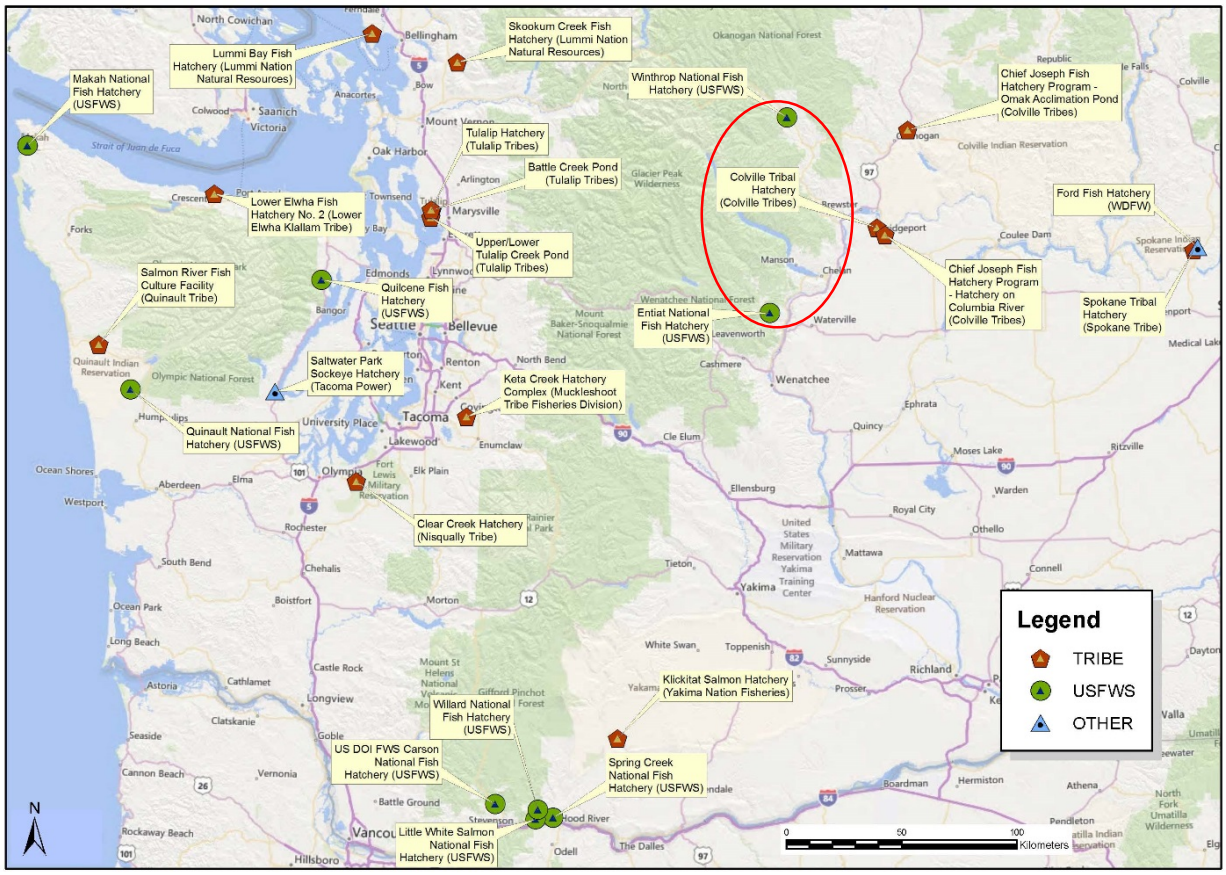
2.1 Facility Information

The Leavenworth National Fish Hatchery (LNFH) is part of a complex of three (3) national fish hatcheries called the Leavenworth National Fish Hatchery Complex. The other two (2) hatcheries that comprise the Hatchery Complex are the Entiat National Fish Hatchery and the Winthrop National Fish Hatchery. https://www.fws.gov/leavenworthfisheriescomplex/index.cfm

The Entiat National Fish Hatchery and the Winthrop National Fish Hatchery are currently authorized to discharge under the EPA's NPDES General Permit (Permit Number WAG130000) for Federal Aquaculture Facilities and Aquaculture Facilities Located in Indian Country within the Boundaries of the State of Washington (EPA Washington Hatchery GP).

The figure below is a map of the tribal and federal hatchery facilities covered under the EPA Washington Hatchery General Permit, including the Winthrop and Entiat National Fish Hatcheries. .The Leavenworth National Fish Hatchery is located to the west of the red circle on the map, just outside the City of Leavenworth, and is not covered under the General Permit. The LNFH is subject to more stringent temperature, total phosphorus, and dissolved oxygen requirements, outside the scope of the EPA General Permit, in order to meet state water quality criteria applicable to Icicle Creek. Therefore, the LNFH must have an individual facility NPDES Permit.

Figure 1. Map of facilities covered under the EPA Washington Hatchery General Permit, including the USFWS Entiat and Winthrop National Fish Hatcheries



The hatcheries that comprise the Leavenworth National Fish Hatchery Complex were constructed by the Bureau of Reclamation (BOR) as fish mitigation facilities for the Grand Coulee Dam, Columbia Basin Project, and authorized by the Grand Coulee Fish Maintenance Project on April 3, 1937. The LNFH was re-authorized by the Mitchell Act (52 Stat. 345) on May 11, 1938. Although re-authorized by the Mitchell Act, funding was provided through a transfer of funds from the BOR to the USFWS until 1945, when the USFWS assumed full responsibility for funding, operations, and maintenance of these facilities. The BOR reassumed funding responsibility for the LNFH on October 1, 1993; however, the USFWS continues to manage, operate, and maintain the LNFH. In addition to the initial authorizations mentioned above, the LNFH operations are authorized, sanctioned, and influenced by the following treaties, judicial decisions, and legislation:

- Treaty with the Walla Walla, Cayuse, Umatilla Tribes, 06/09/1855
- Treaty with the Yakama, 06/09/1855
- Treaty with the Nez Perce, 06/25/1855

- Treaty with the Tribes of Middle Oregon, 06/25/1855
- Executive Order (Treaty with Bands of Colville), 04/08/1872
- *Sohappy v. Smith*, 302 F. Supp. 899 (D. Or. 1969)
- *United States v. Oregon*, Civ. No. 68-513-KI (D. Or.)
- Endangered Species Act of 1973, 87 Stat. 884, 12/28/1973
- Salmon and Steelhead Conservation and Enhancement Act, 94 Stat. 3299, 12/22/1980
- Pacific Salmon Treaty Act of 1985 (U.S./Canada Pacific Salmon Treaty), Public Law 99-5, 16 U.S.C. 3631, 3/15/1985
- *United States v. Confederated Tribes of the Colville Indian Reservation*, Civ. No. 3:68-cv-00513-KI (D. Or., August 13, 2008), aff'd 606 F. 3d 698 (9th Cir. 2010)(No. 08-35961, D.C. No.) May 27, 2010 (reaffirmation of the Wenatchi's Icicle Creek fishing rights)

2.2 Species Raised

Construction of the LNFH occurred from 1938-1940. Spring Chinook salmon (SCS) and steelhead trout were identified as the primary mitigation species. The initial operating plan called for adult SCS and summer steelhead trout to be trapped at Rock Island Dam and hauled to the LNFH for holding and spawning. From the early 1940's, fish reared and released from the LNFH included rainbow trout, steelhead trout, and Sockeye, Coho, and Chinook salmon. Since 1974, the SCS has been the priority species and the success of the program has allowed a sport and tribal fishery in most years. The SCS reared at, and released from, the LNFH head to the Pacific Ocean.

The migration corridor for LNFH-produced smolts and returning adult fish includes approximately 498 river miles, including seven (7) Columbia River Dams, and the Pacific Ocean, in order to return to the Hatchery to spawn. Enough adults return annually to meet the production targets, and the hatchery has not imported eggs or fry for release into Icicle Creek for more than 20 years.

The LNFH currently targets a release of 1.2 million SCS smolts into Icicle Creek at approximately river mile (rm) 2.7 during mid-April. Production goals at the LNFH are set by the Columbia River Fish Management Plan under *U.S. v. Oregon.* Initially, this plan set a production goal of 2.2 million SCS smolts annually, but this was renegotiated in 1991 to 1.625 million (for release years 1993-2008), and to 1.2 million starting in release year 2009, to be reassessed in 2018. This reduction to 1.2 million SCS smolts was part of the 2008-2017 Management Agreement to improve fish health and water quality in Icicle Creek.

In addition to the SCS released each spring by the USFWS, the Yakama Nation runs Coho Salmon Reintroduction Project, funded by the Bonneville Power Administration (BPA) and managed by the Yakama Nation at the LNFH. The project encompasses both adult Coho spawning between mid-September and mid-November and juvenile Coho rearing between February and April each year. Approximately 450,000-550,000 juvenile Coho salmon (around 27,000 pounds) are released from the LNFH each April; however,

the salmon enter the Yakama Nation project at around 20,000 – 22,000 pounds and the tribal project adds 5000 - 6000 pounds to finish off juvenile growth before release. The adult Coho spawning project catches fish from downstream of the LNFH after spawning and they are fed in the Adult Holding Ponds at the Hatchery. Around 800 -1000 adults are brought in each year, and spawning at the Hatchery occurs between mid-October and mid-November. The Coho eggs are shipped offsite in January and February to be raised at other federal and state hatcheries.

2.3 Water Sources

The water supply for the LNFH is obtained from three (3) sources: (1) Icicle Creek water, (2) water from Upper and Lower Snow and Nada Lakes, and (3) seven groundwater wells.

The LNFH shares a point of diversion in Icicle Creek at rm 4.5 with the Cascade Orchard Irrigation Company (COIC). The LNFH maintains and operates the creek water delivery structure as part of a 1939 contract between the U.S. and the COIC.

The water delivery system for the facility includes the intake structure on Icicle Creek, which diverts surface water to a concrete water conveyance channel over a coarse rack, to a small building which includes a fine rack, an overflow spill section, and a sediment sluicing section. The coarse and fine racks serve to limit the size of objects that enter the LNFH pipeline. A 31-inch in diameter (buried) pipeline transports this water approximately 5200 ft to the Hatchery sand-settling basin.

From the sand-settling basin, water is transported to an outside and an inside screen chamber used to filter fish and debris from the Hatchery's water supply. Both screen chambers meet NOAA Fisheries 2011 criteria for fish screening. Screened Icicle Creek water exiting the two (2) chambers is used in the Hatchery rearing units. Then it is either discharged from one of the outfalls or is re-used within the Hatchery before entering the discharge system.

Prior to the construction of the Hatchery, it was recognized that the stream flow and ambient water temperatures in Icicle Creek might, at times, be insufficient to meet fish production demands. A supplementary water supply project for water from Snow and Nada Lakes, located approximately seven (7) miles upstream of the Hatchery and one (1) mile above it in elevation, was developed. The Hatchery holds a water right for 16,000 acre-feet per year. Water drains from Snow Lake to Nada Lake and into Snow Creek, a tributary of Icicle Creek that enters at rm 5.7, about one (1) mile above the LNFH surface water intake system on the creek. There is a control valve on the Snow Lake to help manage the flow. The LNFH supplements with lake water between late July and early October. This helps with raising the SCS in cooler temperature water, and benefits Icicle Creek by increasing flow levels and reducing ambient water temperatures when stream flow is withdrawn upstream for irrigation. In a typical year, around 7,000 acre feet is released from the lakes to the Hatchery, with an estimated 60% probability that inflows to upper Snow Lake will meet or exceed the volume released.

Groundwater provides the third major component of the LNFH water delivery system. The Hatchery operates seven (7) wells that help to produce the temperature and quality of water needed to sustain its fish production program. Wells 1-4 and Well 7 draw water from a shallow aquifer. Well 5 pumps water from a deep aquifer and Well 6 has the capacity to pump from both aquifers. Water pumped from wells 4-6 passes through an aeration chamber before entering the Hatchery's pipeline water delivery system. Water pumped from Wells 1-3 and 7 enters a series of aeration screens prior to entering the Hatchery's pipeline system at the inside screen chamber. The groundwater is used to supplement the Icicle Creek surface water entering the Hatchery, and to reduce temperatures as necessary to meet fish production targets.

Hatchery production is sustained year-round by the combination of surface water, groundwater, and water re-use (circulating water through the raceways more than once).

2.4 Facility Operations and Associated Discharges

The USFWS owns and operates the LNFH, located three (3) miles south of the City of Leavenworth, Washington. The LNFH is located near the mouth of Icicle Creek (where Icicle Creek joins the Wenatchee River).

2.4.1 Raceway and Adult Pond Discharges (Outfall 001)

During normal operations, the majority of Icicle Creek flow and groundwater used for hatchery operations is discharged to Icicle Creek near the base of the adult return ladder at Outfall 001, except during rearing unit cleaning and maintenance activities. The discharge enters Icicle Creek at rm 2.8.

The raceway and adult pond wastewater discharge contains some organic solid waste that consists of fish food and fecal material. The quantity of this solid waste in the discharge depends on the volume of fish food being used, the pounds of fish being reared at the time, pond design, cleaning techniques, and the amount of waste that settles out of the effluent prior to discharge. The fish are hand-fed at LNFH using broadcast feeding techniques.

As of the most recent NPDES Permit Application submitted to the EPA on October 28, 2011, with supplemental information provided on April 20, 2012, the fish rearing and holding units currently in operation at the LNFH include:

- Two (2) - 15 feet x 150 feet (ft) concrete bottom adult holding raceways
- 45 - 8 ft x 80 ft concrete bottom raceways
- 14 – 10 ft x 100 ft concrete bottom covered raceways
- 122 fiberglass tanks
- 16 of 40 small Foster- Lucas rearing units
- Two (2) of 22 large Foster -Lucas rearing units

The EPA analyzed effluent flow data provided by the USFWS Water Resources Office in Portland, Oregon; received by the EPA on May 26, 2016. Effluent flow

measurements were recorded by the USFWS at Outfall 001 between October 1, 2010 and June 30, 2015, in 15-minute increments. There were over 160,000 entries of continuously monitored flow data on Outfall 001, recorded in gallons per minute (gpm) by the data logger. Similar to the USGS system of providing the quality of the data point, the USFWS provided qualifiers such as "Good", "Poor", "Unknown", "Missing", and "Erroneous" on the flow data measurements.

Effluent flow at Outfall 001, according to estimates in the 2011 NPDES Permit Application, is 32.8 MGD in the maximum month of flow. However, the EPA determined that the 95th percentile of the best quality (i.e. "Good") data points taken on flow measurement was the most representative statistical flow to use in calculations deriving the proposed mass loading effluent limits, where necessary and appropriate for Outfall 001, in the Draft Permit. The flow used in calculations for Outfall 001 is 25 MGD.

Table 1. Summary Statistics on Flow Measurements Taken at Outfall 001 from 2010-2015

Statistic	gpm	cfs	mgd
Average	17780	39	21
Minimum	5868	0.0	8.3
Maximum	22781	51	27
Count	1374	1411	1352
Std Dev	1895.8	7.6	2.2
CV	0.1	0.2	0.1
95th Percentile	**20636**	**46**	**25**
5th Percentile	14382	30	18

2.4.2 Offline Settling Basin Discharges (Outfall 002)

During cleaning and maintenance, all water is routed through the two offline settling basins (OLSBs – or pollution abatement ponds) and discharged to Icicle Creek via Outfall 002 at rm 2.7. The second OLSB was installed in 2011.
The purpose of the OLSBs is to allow solid waste to settle out of the wastewater effluent stream prior to discharge into Icicle Creek. The OLSB wastewater contains re-suspended organic solids when the bottom of the basins are cleaned (sweeping/vacuuming solids and using a bottom drain system). As noted above, solids are typically uneaten fish food, fecal material and other debris from the influent water that settles out. Most of the time, water is held in the OLSBs and it evaporates. However, wastewater effluent is also discharged from the OLSBs at Outfall 002. The flow at Outfall 002, according to estimates in the 2011 Permit Application, is 8.64 MGD in the maximum month of flow.

However, the USFWS measured flow at Outfall 002 between July 21, 2010 and June 30, 2015 in 15-minute increments. There were over 138,000 entries of flow data on Outfall 002, recorded in cfs by the data logger. The EPA used the 95th percentile of the continuous flow monitoring dataset collected at Outfall 002 between 2010-2015 in calculating proposed mass loading limits, where necessary and appropriate. The flow used in calculations for Outfall 002 is 4.6 MGD, lower than previously estimated in the Permit Application.

Table 2. Summary Statistics on Flow Measurements Taken at Outfall 002 from 2010-2015

Statistics	cfs	mgd
Average	2.5	1.6
Minimum	0.0	0.0
Maximum	12	8.0
Count	1441	1441
Std Dev	2.3	1.5
CV	0.9	0.9
95th Percentile	**7.1**	**4.6**
5th Percentile	0.3	0.2

2.4.3 Overflow Canal from the Screen Chambers (Outfall 003)

Currently, Outfall 003 at rm 3.8 is not used as a discharge point by the Hatchery. In the past, Outfall 003 was operated intermittently as a fish return bypass for the water delivery system, meaning that fish in Icicle Creek screened from entering the LNFH water supply pipeline were held and returned to Icicle Creek through Outfall 003. The most recent LNFH NPDES Permit Application information from 2012 states that there is no flow through Outfall 003; however, the LNFH requested NPDES authorization for this outfall for potential future use. The maximum monthly flow rate of this outfall when it was in use was estimated by USFWS to be similar to the flow estimated for Outfall 004, at 5.7 MGD. No fish food or cleaning wastes are added to this return bypass water.

2.4.4 Top of Fish Ladder (Outfall 004)

In the past, Outfall 004 was used for one (1) to two (2) weeks each year in late April to release the Hatchery pre-smolts into Icicle Creek at rm 2.8, approximately. Currently, the pre-smolts are pumped from rearing units through an above ground pipeline into Icicle Creek at rm 2.75 (Outfall 005).

The most recent NPDES Permit Application from the LNFH requested NPDES authorization for discharge at Outfall 004 for potential emergency releases and/or future use. The maximum month of discharge flow estimated in the NPDES Permit Application for Outfall 004 is 5.7 MGD. When in use, Outfall 004 would discharge water and fish from the holding ponds adjacent to Outfall 001. At that time, the discharge amount from Outfall 001 would be reduced by the amount of effluent released at Outfall 004.

2.4.5 Pumped/Piped Fish Release (Outfall 005)

Outfall 005 is currently used for one (1) to two (2) weeks each year in late April in order to release the Hatchery pre-smolts from the rearing units through an above ground pipe into Icicle Creek at rm 2.75. When in operation, the discharge from Outfall 001 is reduced by the amount released at Outfall 005. The maximum month flow rate from Outfall 005 was estimated in the Permit Application to be 72,000 gallons per day (gpd), when in use.

2.4.6 Pumped Discharge to the Hatchery Channel (Outfall 006)

Outfall 006 is located at rm 3.3, in the Hatchery Channel section (rm 2.8 to rm 3.8) of Icicle Creek, upstream of Outfall 001. The EPA was notified about Outfall 006 with the supplemental application information in 2012. This Outfall is used when necessary to keep flow in the Hatchery Channel and recharge the LNFH groundwater wells. When in operation, the discharge from Outfall 001 is reduced by the amount of effluent released at Outfall 006. The flow rate from Outfall 006 is estimated to be around 25 MGD, similar to the flow at Outfall 001.

2.5 Receiving Water

The LNFH discharges (or may discharge in the future) hatchery effluent from Outfalls 001, 002, 003, 004, 005, and 006 to Icicle Creek at rm 2.8. Icicle Creek is a tributary to the Wenatchee River at rm 48.

2.6 Washington State Water Quality Standards

Overview

Section 301(b)(1)(C) of the CWA requires the development of effluent limitations in NPDES Permits that are determined to be necessary in order to meet state and tribal WQS for surface waters that are promulgated into state law and approved by the EPA. Federal regulations found at 40 CFR 122.4(d) require that the effluent limitations and other conditions included in NPDES Permits ensure compliance with the WQS of the receiving water, and waters downstream of the receiving water. A state or tribe's WQS for surface water are composed of designated use classifications, numeric and/or narrative water quality criteria set at levels to protect those designated uses and an antidegradation policy with implementation procedures, in order to protect the water quality into the future [40 CFR 131.10, 131.11, and 131.12].

The use classification system designates the beneficial uses of each water body over which the state or tribe has jurisdiction. Uses can be designated for drinking water supply, contact recreation, and aquatic life protection, among others. Narrative provisions are developed and numeric water quality criteria are derived by the state or tribe to ensure that the beneficial uses of each water body are attained and maintained. The antidegradation policy represents a three-tiered approach to protecting and maintaining current water quality and uses into the future.

Designated Uses

The Washington State WQS establish designated uses that apply to the LNFH discharges in Chapter 173-201A-600 of the Washington Administrative Code (WAC), Table 602, Use Designations for Fresh Waters by Water Resource Inventory Area (WRIA), WRIA 45 - Wenatchee [Water Quality Standards for Surface Waters of the State of Washington]. The designated uses for the relevant segment of Icicle Creek, "from the mouth to the National Forest Boundary", include the Aquatic Life Use of Core Summer Salmonid Habitat, Primary Contact Recreation, Domestic Water, Industrial Water, Agricultural Water, Stock Water, Wildlife Habitat, Harvesting, Commerce/Navigation, Boating, and Aesthetics.

The aquatic life designated use is defined on page 9 of the WAC at 173-201A-200: "Core summer salmonid habitat key identifying characteristics include salmonid spawning or emergence, or adult holding between June 15 – September 15; use as summer rearing habitat by one or more salmonids; or foraging by adult and subadult native char. Other common characteristic aquatic life uses for waters in this category include spawning outside of the summer season, rearing, and migration by salmonids."

Surface Water Quality Criteria

The receiving water quality criteria established in state law to protect these designated uses of Icicle Creek are contained in WAC 173-201A-200, 240, 250; EPA's Toxics Rule, 40 CFR Part 131 (57 FR 60848 December 22, 1992); EPA Quality Criteria for Water 1986 (the Gold Book) as amended; and/or other criteria published by EPA. This is also in accordance with WAC 173-201A-240-5 which specifies that "Concentrations of toxic, and other substances with toxic propensities not listed in subsection (3) of this section shall be determined in consideration of USEPA Quality Criteria for Water, 1986, and as revised, and other relevant information as appropriate. Human-health based water quality criteria used by the state are contained in 40 CFR 131.36 (known as the National Toxics Rule)."

The Washington State water quality criteria for the protection of aquatic life, primary contact recreation, and human health uses of the segment of Icicle Creek receiving the discharges from the LNFH include:

WAC 173-201A-200 Freshwater Designated Uses and Criteria

1. Aquatic life uses …

(b) General Criteria that apply to all aquatic life fresh water uses are described in WAC 173-201A-260 (2) (a) and (b), and are for:

(i) Toxic, radioactive, and deleterious materials; and

(ii) Aesthetic values.

(c) Temperature. The applicable temperature criteria to protect core summer salmonid habitat in the relevant segment of Icicle Creek include:

(i) The 7-day average of the daily maximum temperature (7-DADM) is **16º C** from July 15 – August 15 **[for one (1) month** out of the year].

(ii) Supplemental Spawning and Incubation Protection for Salmonid Species (Ecology Publication Number 06-10-038, Revised January 2011) includes geographic information system (GIS) maps of each WRIA in Washington State identifying waterbodies, or portions thereof, which require special protection for spawning and incubation. The map for WRIA 45 – Wenatchee sets a 7-DADM of **13 °C** for the relevant segment of Icicle Creek, applicable from August 15 to July 15 at the initiation of spawning for salmon and at fry emergence for salmon and trout **[for 11 months** out of the year]. The maps provided by Ecology describe where and when additional temperature criteria are required to ensure the protection for the incubation of salmon, trout, and char. This information should be used in conjunction with other aquatic life use information provided in the surface WQS.

(iii) Temperatures are not to exceed the criteria at a probability frequency of more than once every ten (10) years on average.

(d) Dissolved oxygen (DO). To protect core summer salmonid habitat, **the 1-day minimum dissolved oxygen criterion is 9.5 mg/L.** Concentrations of DO are not to fall below the criterion at a probability frequency of more than once every ten (10) years on average.

(e) Turbidity. To protect core summer salmonid habitat, the **maximum turbidity shall not exceed 5 nephelometric turbidity units (NTUs) over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background turbidity is more the 50 NTU.**

(f) Total Dissolved Gas (TDG). TDG is measured in percent saturation. The maximum TDG criterion for core summer salmonid habitat is that **TDG shall not exceed 110 percent of saturation at any point of sample collection.**

(g) pH. Measurement of pH is expressed as the negative logarithm of the hydrogen ion concentration in standard units (s.u.). To protect core summer salmonid habitat, pH shall be within the **range of 6.5 to 8.5 s.u.** with a human-caused variation within the above range of less than 0.2 units.

2. Recreational uses.

(a) General Criteria that apply to all aquatic life fresh water uses are described in WAC 173-201A-260 (2) (a) and (b), and are for:

(i) Toxic, radioactive, and deleterious materials; and

(ii) Aesthetic values.

3. Toxic substances.

Total residual chlorine. To protect aquatic life, total residual chlorine must not exceed **19 µg/L as a 1-hour average concentration** not to be exceeded more than once every three (3) years on the average, nor **11 µg/L as a 4-day average concentration** not to be exceeded more than once every three (3) years on the average.

Ammonia. To protect aquatic life, total ammonia concentrations allowable for surface waters where salmonids are present are based on an equation incorporating the temperature and pH of the surface water and expressed as mg/L.

Polychlorinated Biphenyls (PCBs). To protect aquatic life, PCB concentrations in surface water **must not exceed 2.0 µg/L as an acute criterion over a 24-hour average, nor 0.014 µg/L as a chronic criterion over a 24-hour average**.

Drugs, Disinfectants and Other Chemicals. Washington State has not promulgated numeric water quality criteria for the residuals of drugs for animal health, disinfectants and other chemicals, except chlorine, which is discussed above. However, the state does have narrative criteria for toxics and aesthetics which apply to all existing and designated uses for fresh water, as mentioned above:

(1) Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health.

(2) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste.

Antidegradation
The antidegradation policy of a state's WQS represents a three-tiered approach to protecting and maintaining current water quality and uses into the future [40 CFR 131.12].

Tier I of antidegradation protection applies to all water bodies under the CWA and ensures that existing in-stream water uses and the water quality necessary to protect those uses will be maintained and protected. Tier II protection applies to any water bodies considered to be high quality waters (where the water quality exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water) and provides that water quality will be maintained and protected unless allowing for lower water quality is deemed by the state as necessary to accommodate important economic or social development in the area. In allowing any lowering of water quality, the state must ensure adequate water quality to fully protect existing uses, as well as designated uses. Tier III protection applies to water bodies that have been designated by the state as outstanding national resource waters and provides that water quality is to be maintained and protected.

2.7 Effluent Limitations

Prohibited Discharges

The Permittee must not discharge to waters of the United States (U.S.):

1) Atlantic salmon (*Salmo salar*);

2) Solids, including sludge and grit that accumulate in raceways or ponds, in off-line or full-flow settling basins, or in other components of the production facility in excess of the applicable limits in the Permit;

3) Hazardous substances, unless authorized by this Permit;

4) Untreated cleaning wastewater (*e.g.*, obtained from a vacuum or standpipe bottom drain system or rearing/holding unit disinfection);

5) Visible foam or floating, suspended or submerged matter, including fish mortalities, kill spawning, processing wastes, and leachate from these materials, in amounts causing or contributing to a nuisance or objectionable condition in the receiving water or that may impair designated uses in the receiving water;

6) Disease control chemicals and drugs except those approved by the Food and Drug Administration (FDA) and/or the EPA for hatchery use, or those reported to the EPA in accordance with Section IV of this Permit (Aquaculture Specific Reporting Requirements);

7) Toxic substances, including drugs, pesticides, or other chemicals, in toxic amounts that may cause or contribute to an impairment of designated uses or violation of State of Washington water quality standards; or,

8) Any discharges that include copper or copper compounds.

9) Any oxygen-demanding materials in concentrations that would result in an anaerobic water condition.

Prohibited Practices

The Permittee is prohibited from engaging in any of the following practices or otherwise facilitating any of the prohibited discharges described above:

1) Practices that allow accumulated solids in excess of the limits to be discharged to waters of the U.S. from the permitted facility (*e.g.*, the removal of dam boards in raceways or ponds, the cleaning of settling basins, etc.);

2) Sweeping, raking, or otherwise intentionally discharging accumulated solids from raceways, ponds, or settling basins to waters of the U.S.; and/or,

3) Rearing fish within an off-line or in-line settling basin or quiescent zone.

Wastewater Discharge Limitations

1. The Permittee must comply with the effluent limitations, and influent and effluent monitoring requirements, included in the tables below at all times; unless otherwise indicated, regardless of the frequency of monitoring or reporting required by other provisions of the Permit.

Table 3. Effluent Limitations, including Influent and Effluent Monitoring Requirements, on Discharges from the Rearing Ponds/Raceways Other than Times of Drawdown for Fish Release

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency	Sample Type
Narrative Criteria		See Part I.D.4 of this Permit				Where Effluent Meets Receiving Water	1/week	Visual Observation

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency	Sample Type
Flow	gpd	Report	--	Report	--	Influent and Effluent[1]	Continuous	Meter[2]
Net Settable Solids (SS)	ml/L	0.1[3]	--	--	--	Influent and Effluent[4]	1/week	Grab[5]
Net Total Suspended Solids (TSS)	mg/L	5.0[6]	--	--	15.0[5]	Influent[7] and Effluent	1/week	Grab[4] and composite[8]
	kg/day	474	--	866[9]	--			Calculation[10]
Interim Temperature Limit [Year-round]	°C	17°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures[11]				Influent and Effluent	Continuous	Meter

[1] Influent is the Hatchery or Rearing Facility influent; Effluent is the Hatchery effluent prior to mixing with the receiving water (Icicle Creek) or any other flow.
[2] Appropriate flow measurement devices and methods consistent with accepted aquaculture practice must be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows.
[3] The monthly average concentration limit for SS is a net limit; influent concentration may be subtracted from the gross measurement when determining compliance. Gross influent and effluent values must be reported on the discharge monitoring report (DMR) form along with calculated net values.
[4] For reporting net values, the Permittee must take both influent and effluent samples on the same day and report results of analysis of each sample on the DMR form. The collection of this measurement for solids analysis is optional if the Permittee chooses to represent the influent measurement as zero concentration. The EPA may require further characterization of the influent and effluent solids to demonstrate comparability.
[5] Effluent sample must be taken during rearing pond or raceway cleaning. If the frequency of rearing pond or raceway cleaning is less than the sampling frequency, the sample may be collected immediately following fish feeding.
[6] The monthly average and the instantaneous maximum concentration limits for TSS are net limits; influent concentration may be subtracted from the gross measurement when determining compliance. Gross influent and effluent values must be reported on the DMR form along with calculated net values.
[7] For reporting net values, the Permittee must take both influent and effluent samples on the same day and report results of analysis of each sample on the DMR form. The collection of this measurement for solids analysis is optional if the Permittee chooses to represent the influent measurement as zero concentration. The EPA may require further characterization of the influent and effluent solids to demonstrate comparability.
[8] The composite sample must be a combination of at least six (6) representative grab samples collected throughout the day. At least one sample must be collected while the fish are being fed and at least one sample must be collected during rearing pond or raceway cleaning. Equal volumes of 6 or more grab samples must be combined to constitute the total composite sample to be analyzed by a certified laboratory.
[9] The daily maximum mass loading TSS limit is a gross limit; influent concentration may not be subtracted from the measured result.
[10] Loading (in kg/day) is calculated by multiplying the concentration (in mg/L) by the corresponding flow (in mgd) and a conversion factor of 3.79. For more information on calculating, averaging, and reporting loads and concentrations see the NPDES Self-Monitoring System User Guide (EPA 833-B-85-100, March 1985).
[11] The 7-Day Average of the Daily Maximum temperatures (7DADM) is the average of seven consecutive measurements of daily maximum temperatures. The 7DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three (3) days prior and the 3 days after that date. On the DMR, the Permittee must report the monthly instantaneous maximum temperature, the maximum daily average, and the 7DADM for the highest 7 consecutive days that month. See Part II.A of this Permit.

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency	Sample Type
Final Temperature Limit [August 15 – July 15, inclusive]	°C	13°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures				Influent and Effluent	Continuous	Meter
Final Temperature Limit [July 16 – August 14]	°C	16°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures				Influent and Effluent	Continuous	Meter
Total Phosphorus Interim Limits [March 1 – May 31 and July 1-October 31]	µg/L	15[12]	--	17[12]	--	Effluent	1/week during periods when limits apply	Composite[8]
	kg/day	1.4[12]	--	1.6[12]	--			Calculation
Total Phosphorus Final Limit [March 1 – May 31 and July 1-October 31]	µg/L	--	--	--	--	Effluent	1/week during periods when limits apply	Composite[8]
	kg/day	--	--	0.52[13]--	--			Calculation
Total Residual Chlorine (including when Chloramine-T is used)[14]	µg/L	Report	--	Report	--	Effluent	1/day when in use	Grab
	lbs/day	Report	--	Report	--			Calculation[10]
Dissolved Oxygen (DO)	mg/L	Report	--	--	Report **Instantaneous Minimum**	Effluent	1/day	Grab
pH	stand. units (s.u.)	Not less than 6.5 or more than 8.5 at all times				Effluent	3/week	Grab
Total Ammonia as N	mg/L	Report	--	Report	--	Effluent	1/month	Grab

[12] The interim total phosphorus limits apply during the critical periods of March 1 – May 31 and July1 –October 31 until the facility is able to comply with the final limit, but no later than the final compliance date of [insert final compliance date]. The mass limits are total limits that apply to the combined discharge of Outfall 001 and any other Outfalls in use, other than Outfall 002.

[13] The final limit for total phosphorus applies to the total combined hatchery discharge from the raceways, adult ponds, and pollution abatement ponds during the critical periods of March 1 – May 31 and July 1-October 31; as soon as the facility is able to comply with the final limit, but not later than the final compliance date of [insert final compliance date here].

[14] Chlorine monitoring is not required if chlorine is allowed to dry completely when/where used.

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency	Sample Type
Turbidity	NTU	Report	--	Report	--	Effluent	During Cleaning Events throughout the Year	Grab

2. The Permittee must comply with the effluent limitations and Influent and Effluent Monitoring Requirements included in the table below, **during times of Drawdown for Fish Release:**

Table 4. Effluent Limitations, including Influent and Effluent Monitoring for Adults Ponds and Raceways during Drawdown for Fish Release

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency[15]	Sample Type[16]
Narrative		See Part I.D.4 of this Permit				Where Effluent Meets Receiving Water	1/week	Visual Observation
Flow	gpd	Report	--	Report	--	Effluent[17]	Continuous	Meter[18]
Settable Solids (SS)	ml/L	--	--	--	1.0[19]	Effluent	1/drawdown	Grab
Total Suspended Solids (TSS)	mg/L	--	--	--	100[20]	Effluent	1/drawdown	Grab
	kg/day	--	--	--	9475[21]			Calculation[22]
Interim Temperature Limit [Year-round]	°C	17°C as the 7-Day average of the Daily Maximum (7DADM) Recorded Temperatures[23]				Influent and Effluent	Continuous	Meter

[15] Samples of the discharge during drawdown of raceways or rearing ponds for fish release samples must be collected during the last quarter of the volume of the rearing pond or raceway drawdown for release event.
[16] If multiple raceways or rearing ponds are being drawn down for fish release at the same time, grab samples from individual discharges may be combined into a flow-proportional composite sample for analysis.
[17] Effluent is the Hatchery effluent prior to mixing with the receiving water (Icicle Creek) or any other flow.
[18] Appropriate flow measurement devices and methods consistent with accepted aquaculture practice must be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows.
[19] The Instantaneous Maximum SS concentration limit is a **gross limit**; influent concentration may not be subtracted from the measured result.
[20] The Instantaneous Maximum TSS concentration limit is a **gross limit.**
[21] The Instantaneous Maximum mass TSS loading limit is a **gross limit**.
[22] Loading (in kg/day) is calculated by multiplying the concentration (in mg/L) by the corresponding flow (in mgd) and a conversion factor of 3.79. For more information on calculating, averaging, and reporting loads and concentrations see the NPDES Self-Monitoring System User Guide (EPA 833-B-85-100, March 1985).

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency[15]	Sample Type[16]
Final Temperature Limit [August 15 – July 15, inclusive]	°C	13°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures[23]				Influent and Effluent	Continuous	Meter
Final Temperature Limit [July 16 – August 14]	°C	16°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures[23]				Influent and Effluent	Continuous	Meter
Total Phosphorus Interim Limits [March 1 – May 31 and July 1-October 31]	µg/L	15[24]	--	17[24]	--	Effluent	1/week during drawdown; during period when limits apply	Composite[25]
	kg/day	1.4[24]	--	1.6[24]	--			
Total Phosphorus Final Limit [March 1 – May 31 and July 1-October 31]	µg/L	--	--	--	--	Effluent	1/week drawdown; during period when limit applies	Composite
	kg/day	--	--	0.52[26]	--			

[23] The 7-Day Average of the Daily Maximum temperatures (7DADM) is the average of seven consecutive measurements of daily maximum temperatures. The 7DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three (3) days prior and the 3 days after that date. On the DMR, the Permittee must report the monthly instantaneous maximum temperature, the maximum daily average, and the 7DADM for the highest 7 consecutive days that month. See Part II.A.

[24] The interim total phosphorus limits apply during the critical periods of March 1 – May 31 and July1 –October 31 until the facility is able to comply with the final limit, but no later than the final compliance date of [insert final compliance date]. The mass limits are total limits that apply to the combined discharge of Outfall 001 and any other Outfalls in use, other than Outfall 002.

[25] The composite sample must be a combination of at least six (6) representative grab samples collected throughout the day. At least one sample must be collected while the fish are being fed and at least one sample must be collected during rearing pond or raceway cleaning. Equal volumes of 6 or more grab samples must be combined to constitute the total composite sample to be analyzed by a certified laboratory.

[26] The final limit for total phosphorus applies to the total combined hatchery discharge from the raceways, adult ponds, and pollution abatement ponds during the critical periods of March 1 – May 31 and July 1-October 31; as soon as the facility is able to comply with the final limit, but not later than the final compliance date of [insert final compliance date here].

3. The Permittee must comply with the effluent limitations and Influent and Effluent Monitoring Requirements included in the table below, when discharging **from the Offline Settling Basins/Pollution Abatement Ponds (Outfall 002):**

Table 5. Effluent Limitations, including Influent and Effluent Monitoring for Outfall 002

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency[27]	Sample Type[28]
Narrative		See Part I.D.4 of this Permit				Where Effluent Meets Receiving Water	1/week	Visual Observation
Flow	gpd	Report	--	Report	--	Effluent[29]	Continuous[30]	Meter[31]
Settable Solids (SS)	ml/L	--	--	--	0.2[32]	Effluent	1/week	Grab
Net Total Suspended Solids (TSS)	mg/L	--	--	--	15	Influent[33] and Effluent	1/week	Grab
	kg/day	--	--	--	262-			Calculation[34]
Interim Temperature Limit [Year-round]	°C	17°C as the 7-Day average of the Daily Maximum (7DADM) Recorded Temperatures[35]				Influent and Effluent	Hourly	Meter

[27] Pollution abatement ponds discharges must be monitored for all parameters 12 months out of the year if there is a discharge, except for total phosphorus, regardless of pounds of fish present; total phosphorus must be monitored in the months specified.
[28] Pollution abatement ponds effluent samples must be collected during the last quarter of the volume of a rearing pond or raceway cleaning event.
[29] "Effluent" in Table 3 means pollution abatement ponds effluent sample taken prior to mixing with any other hatchery or rearing flows or receiving waters.
[30] If the pollution abatement ponds discharge less frequently than the required sampling frequency, the testing frequency must be the pollution abatement ponds discharge frequency. Testing of the pollution abatement ponds discharge is unnecessary **if the ponds do not discharge during the reporting period.** "No Discharge" must be noted for Outfall 002 on the DMR form when that is the case.
[31] Appropriate flow measurement devices and methods consistent with accepted aquaculture practice must be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows.
[32] The Instantaneous Maximum SS concentration limit is a **gross limit**; influent concentration may not be subtracted from the measured result.
[33] "Influent" in Table 3 means pollution abatement pond influent. The collection of this measurement for TSS analysis is optional if the Permittee chooses to represent the influent measurement as zero concentration. Influent and effluent solids must be characteristically similar to use net calculations.
[34] Loading (in kg/day) is calculated by multiplying the concentration (in mg/L) by the corresponding flow (in mgd) and a conversion factor of 3.79. For more information on calculating, averaging, and reporting loads and concentrations see the NPDES Self-Monitoring System User Guide (EPA 833-B-85-100, March 1985).

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency[27]	Sample Type[28]
Final Temperature Limit [August 15 – July 15, inclusive]	°C	13°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures[35]				Influent and Effluent	Hourly	Meter
Final Temperature Limit [July 16 – August 14]	°C	16°C as the 7-Day Average of the Daily Maximum (7DADM) Recorded Temperatures[35]				Influent and Effluent	Hourly	Meter
Total Phosphorus Interim Limits [March 1 – May 31 and July 1-October 31]	µg/L	97[36]	--	108[36]	--	Effluent	1/week during periods when limits apply	Grab
	kg/day	1.7[36]	--	1.9[36]	--			Calculation[32]
Total Phosphorus Final Limit [March 1 – May 31 and July 1-October 31]	kg/day	--	--	0.52[37]	--	Effluent	1/week during periods when limits apply	Grab
Total Residual Chlorine[38]	µg/L	Report	--	Report	--	Effluent	1/day when in use	Grab
	lbs/day	Report	--	Report	--			Calculation[32]
Total Ammonia as N	mg/L	Report	--	Report	--	Effluent	1/month	Grab
DO	mg/L	9.5 or above at all times. Report instantaneous minimum and average monthly values.				Effluent	1/day	Grab

[35] The 7-Day Average of the Daily Maximum temperatures (7DADM) is the average of seven consecutive measurements of daily maximum temperatures. The 7DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three (3) days prior and the 3 days after that date. On the DMR, the Permittee must report the monthly instantaneous maximum temperature, the maximum daily average, and the 7DADM for the highest 7 consecutive days that month. See II.A.

[36] The interim total phosphorus limits apply during the critical periods of March 1 – May 31 and July1 –October 31 until the facility is able to comply with the final limit, but no later than the final compliance date of [insert final compliance date].

[37] The final limit for total phosphorus applies to the total combined hatchery discharge from the raceways, adult ponds, and pollution abatement ponds during the critical periods of March 1 – May 31 and July 1-October 31; as soon as the facility is able to comply with the final limit, but not later than the final compliance date of [insert final compliance date here].

[38] Chlorine monitoring is not required if chlorine is allowed to dry completely when/where used.

Parameter	Units	Effluent Limitations				Monitoring Requirements		
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum	Sample Location	Sample Frequency[27]	Sample Type[28]
pH[39]	s.u.	Report	--	Report	--	Effluent	1/month	Grab
Turbidity	NTU	Report	--	Report	--	Effluent	During Cleaning Events throughout the Year	Grab

4. Narrative limitations that apply at each Outfall:

   a) Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health.

   b) Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste.

   c) The Permittee must conduct a weekly visual inspection of the effluent at the location where the effluent enters the surface water to confirm that the effluent meets the narrative criterion for aesthetic values above. A written log of the weekly inspection which includes the date, time, observer, and observation must be retained and made available to the EPA or Ecology upon request.

2.8 Monitoring Requirements

Influent and Effluent Monitoring

1. Effluent samples taken in compliance with the monitoring and testing requirements established in the Permit, under Tables 1 and 2, must be collected from the effluent stream prior to discharge into the receiving water. Table 3 specifies where to take effluent samples from the pollution abatement ponds.

2. Influent samples, under the requirements of Tables 1 and 2, must be taken at the point where the water enters the facility. Table 3 specifies where to take influent samples for the pollution abatement ponds.

[39] pH monitoring sample must be taken at the same time as the grab sample for ammonia monitoring – the samples must be analyzed separately.

3. Temperature Monitoring: Continuous temperature monitoring must begin immediately upon the effective date of this Permit. The Permittee must monitor the temperature of the effluent from Outfalls 001 (and any other Outfalls in use that pull from Outfall 001) and 002, as well as the temperature of Icicle Creek at the intake, continuously, for the duration of this Permit term. Upstream and effluent temperature monitoring must occur simultaneously in recorded one (1) hour increments.

   Temperature data must be recorded using a micro-recording device known as a thermistor. The data that must be collected and reported on the Discharge Monitoring Report (DMR) includes:

   a) The Monthly Instantaneous Maximum Temperature;

   b) The Maximum Daily Average Temperature; and,

   c) The Highest Seven (7) Day Average of the Daily Instantaneous Maximum. The 7-Day Average of the Daily Maximum temperatures (7DADM) is the average of seven consecutive measurements of daily maximum temperatures. The 7DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three (3) days prior and the 3 days after that date.

4. The Permittee must use the device manufacturer's software to generate (export) an Excel Spreadsheet, text, or electronic ASCII file once a month, that must be submitted to the EPA with the DMR. The spreadsheet attachment to the DMR must include daily minimum temperature, daily maximum temperature, and the running 7DADM for each day of the month. The placement logs should include the following information for both thermistor deployment and retrieval:

   a) Date;

   b) Time;

   c) Device Manufacturer Identification;

   d) Location;

   e) Depth;

   f) Whether air or water temperature was measured; and,

   g) Any other details that may explain any data anomalies

5. Dissolved Oxygen (DO) Monitoring: DO monitoring must begin upon the effective date of the Permit. The Permittee must monitor the DO concentrations in the effluent from Outfalls 001 (and any other Outfalls in use that pull from Outfall 001) and 002. Effluent DO monitoring must occur once a day using a grab sample type.

   The data that must be collected and reported on the DMR includes:

   a) The average monthly DO concentration value; and,

   b) The instantaneous minimum DO concentration value for the month.

6. Minimum Levels (MLs) and Method Detection Limits (MDLs)

   a) For all effluent monitoring, the Permittee must use sufficiently sensitive analytical methods which meet the following:

      (i) Parameters with an effluent limit. The method must achieve a minimum level (ML) less than the effluent limitation unless otherwise specified in Tables 1 -3, above.

      (ii) Parameters that do not have effluent limitations.

         (a) The Permittee must use a method that detects and quantifies the level of the pollutant; or,

         (b) The Permittee must use a method that can achieve a maximum ML less than or equal to those specified in Appendix A of the Permit.

         (c) For parameters that do not have an effluent limit, the Permittee may request different MLs from the EPA Region 10 NPDES Permits Unit Manager. The request must be in writing and must be approved by the EPA before any alternative ML will be allowed for use in compliance with the Permit.

Surface Water Monitoring

1. The Permittee must conduct surface water monitoring. Surface water monitoring must start immediately after the effective date of the Permit and continue for the life of the Permit. The program must meet the following requirements:

2. Monitoring stations must be established in Icicle Creek at the following locations:

a) Above the influence of the facility's discharge; and,

b) Below the facility's discharge, at a point where the effluent and Icicle Creek are completely mixed.

3. The Permittee must seek approval of the surface water monitoring stations from the Washington Department of Ecology.

4. A failure to obtain Ecology approval of surface water monitoring stations does not relieve the Permittee of the surface water monitoring requirements of this Permit.

5. To the extent practicable, surface water sample collection must occur on the same day as effluent sample collection.

6. The flow rate of Icicle Creek must be measured as near as practicable to the time that other required surface waters parameters are sampled.

7. Samples must be analyzed for the parameters listed in the table below

8. For all surface water monitoring, the Permittee must use sufficiently sensitive analytical methods which meet the following:

   a) The method must detect and quantify the level of the pollutant, or,

   b) The Permittee must use a method that can achieve MLs less than or equal to those specified in Appendix A. The Permittee may request different MLs from the EPA Region 10 NPDES Permits Unit Manager. The request must be in writing and must be approved by the EPA before any alternative ML will be allowed for use in compliance with this Permit.

Table 6. Surface Water Monitoring Requirements

Parameter	Units of Measurement	Frequency	Location	Type of Sample
Temperature	ºC	Continuous	Upstream[1] and downstream[2]	Recorded
		Quarterly[3]	Upstream of Outfall 002	Grab[4]
Total Phosphorus	µg/L	Weekly	Upstream and downstream[2]	Grab
pH	s.u.	Quarterly[3]	Upstream of Outfall 002	Grab[4]
Ammonia Nitrogen as N	mg/L	Quarterly[3]	Upstream of Outfall 002	Grab[4]

Turbidity	NTU	During cleaning event[5]	At the outfall and upstream of the outfall	Turbidity meter[6]
DO	mg/L	Once daily during discharge; in conjunction with effluent sampling	Downstream of Outfall 002	Grab

Notes:
1 At a location on the creek upstream, above the intake for the Hatchery.
2 At a location on the creek downstream, where the Hatchery effluent can be reasonably believed to have achieved complete mixing with the receiving water.
3 Quarterly monitoring must begin in the first full calendar quarter of Permit coverage, and quarterly samples for these parameters should be taken on the creek, above Outfall 002.
4 Quarterly surface water samples for temperature, pH, and ammonia must be collected concurrently with the required effluent sampling of the discharge from Outfall 002 for these parameters.
5 Cleaning events include those of the sand settling basin, the conveyance channel, behind the fish screens, and the pollution abatement ponds.
6 Turbidity analysis must be performed with a calibrated turbidity meter, either on-site or at an accredited lab; results must be recorded in a site log book in Nephelometric Turbidity Units (NTUs) and submitted to the EPA with the Surface Water Monitoring Results Annual Report.

9. Quality assurance/quality control (QA/QC) plans for all the monitoring must be documented in the Quality Assurance Plan (QAP) required under Part III.A of this Permit.

2.9 Quality Assurance and Best Management Practices (BMP) Plan

Quality Assurance Plan (QAP)

The Permittee must develop a Quality Assurance Plan (QAP) for all monitoring required by this Permit. Within 90 days of the effective date of this Permit, the Permittee must submit written notice to EPA and Ecology that the QAP has been developed and implemented. (See Appendix B). Any existing QAPs may be modified for compliance with this section of the Permit.

1. The QAP must be designed to assist in planning for the collection and analysis of effluent and receiving water samples in support of the Permit and in explaining data anomalies when they occur.

2. Throughout all sample collection and analysis activities, the Permittee must use the EPA-approved QA/QC and chain-of-custody procedures described in the *EPA Requirements for Quality Assurance Project Plans* (EPA/QA/R-5)[40] and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5)[41]. The QAP must be prepared in the format that is specified in these documents.

[40] https://www.epa.gov/sites/production/files/2015-07/documents/r5-final.pdf
[41] https://www.epa.gov/sites/production/files/2015-06/documents/g5-final.pdf

3. At a minimum, the QAP must include the following:

   (a) Details on the number of samples, type of sample containers, preservation of samples, holding times, analytical methods, analytical detection and quantitation limits for each target compound, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements.

   (b) Map(s) indicating the location of each sampling point.

   (c) Qualification and training of personnel.

   (d) Name(s), address(es) and telephone number(s) of the laboratories used by or proposed to be used by the permittee.

4. The Permittee must amend the QAP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAP.

5. Copies of the QAP must be kept on site and made available to EPA and the Washington Department of Ecology upon request.

Best Management Practices Plan

Purpose

Through implementation of the best management practices (BMP) plan, the Permittee must prevent or minimize the generation and discharge of wastes and pollutants from the facility to waters of the U.S. to meet water quality standards and permit requirements; the Permittee must also ensure that disposal or land application of wastes is carried out in such a way as to minimize negative environmental impact and to comply with Washington State solid waste disposal regulations.

Development and Implementation Deadline

The Permittee must develop and implement a BMP Plan that meets the specific requirements listed in Part III.B.5 of the Permit. An existing BMP Plan may be modified for use under this section. The Permittee must implement the provisions of the BMP Plan as conditions of this Permit within 90 days of the effective date of the Permit.

Required Submittal

The Permittee must certify that a BMP Plan has been developed and is being implemented. The certification must be submitted to EPA and must include the

information specified in Appendix B within 90 days after the effective date of the Permit.

Annual Review

a) The Permittee must review the BMP Plan annually.

b) A certified statement that the annual review has been completed and that the BMP Plan fulfills the requirements set forth in this Permit must be submitted to EPA in the Annual Report of Operations, due by January 20 each year. See Appendix E of the Permit.

Requirements of the BMP Plan

The BMP Plan must include, at a minimum, the following BMPs. Where a particular practice below is infeasible, the Permittee will substitute another practice to achieve the same end.

a) Materials Storage

(i) Ensure the proper storage of feed, drugs, and other chemicals in order to prevent spills that discharge to waters of the U.S.

(ii) Implement procedures for properly containing, cleaning, and disposing of any spilled materials.

b) Structural Maintenance

(i) Routinely inspect rearing and holding units and waste collection and containment systems to identify and promptly repair damage.

(ii) Regularly conduct maintenance of rearing and holding units and waste collection and containment systems to ensure their proper function.

c) Record keeping

(i) Document feed amounts and numbers and weights of aquatic animals to calculate feed conversion ratios.

(ii) Document the frequency of cleanings, inspections, maintenance, and repairs.

(iii) Maintain records of all medicinal and therapeutic chemical usage for each treatment at the facility. Include the information required in the Chemical Log Sheet in Appendix D and in the Annual Report in Appendix E.

(iv) Maintain a copy of the label (with treatment application requirements) and the Material Safety Data Sheet (MSDS) in the facility's records for each drug or chemical used at the facility.

(v) Maintain records by chemical, and by outfall, of the approach/analyses used to determine the elapsed time from chlorine (and/or Chloramine-T) application to its maximum effluent concentration, giving consideration to retention times within the facility, in order to show how the maximum concentrations of chlorine and/or Chloramine-T were derived (see Monitoring Requirements).

(vi) Keep the records necessary to provide the water-borne treatment/calculations information required in the Annual Report (see Appendix E).

d) Training Requirements

(i) Train all relevant personnel in spill prevention and how to respond in the event of a spill to ensure proper clean-up and disposal of spilled materials.

(ii) Train personnel on proper structural inspection and maintenance of rearing and holding units and waste collection and containment systems.

e) Operational Requirements

(i) Raceways and ponds must be cleaned at such a frequency and in such a manner that minimizes accumulated solids discharged to waters of the U.S., including within one (1) week prior to drawdown for fish release, where practical.

(ii) Since the Permittee obtains some of its water from groundwater and then discharges to surface water, it must, to the greatest extent feasible, conduct phased reductions in the amount of water discharged prior to a complete shutdown.

(iii) Fish feeding must be conducted in such a manner as to minimize the discharge of unconsumed food.

(iv) Fish grading, harvesting, and other activities within ponds or raceways must be conducted in such a way as to minimize the discharge of accumulated solids and blood wastes.

(v) Animal mortalities must be removed and disposed of on a regular basis to the greatest extent feasible.

(vi) Water used in the rearing and holding units or hauling trucks that is disinfected with chlorine or other chemicals must be treated before it is discharged to waters of the U.S.

(vii) Treatment equipment used to control the discharge of floating, suspended or submerged matter must be cleaned and maintained at a frequency sufficient to minimize overflow or bypass of the treatment unit by floating, suspended, or submerged matter; turbulent flow must be minimized to avoid entrainment of solids.

(viii) Procedures must be implemented to prevent fish from entering quiescent zones, full-flow and off-line settling basins. Fish that have entered quiescent zones or basins must be removed as soon as practicable.

(ix) Procedures must be implemented to minimize the release of diseased fish from the facility.

(x) All drugs and pesticides must be used in accordance with applicable label directions (FIFRA or FDA), except under the following conditions, both of which must be reported to EPA in accordance below:

(a) Participation in Investigational New Animal Drug (INAD) studies, using established protocols; or,

(b) Extralabel drug use, as prescribed by a veterinarian.

(xi) Procedures must be identified and implemented to collect, store, and dispose of solid wastes, such as biological wastes in such a manner as to prevent its or its leachate's entry into waters of the U.S. or state ground water. Such wastes include all processing solid wastes from aquaculture operations, including:

(a) Sands, silts, and other debris collected from facility source waters;

(b) Accumulated settled solids in rearing ponds and settling ponds;

(c) Any fish mortalities under normal hatchery operation;

(d) Fish mortalities due to a fish kill involving more than five percent of the fish in any raceway or pond, or due to kill spawning operations;

(e) Blood from kill spawning or harvesting operations; and,

(f) Floating debris removed from ponds and raceways.

(xii) Procedures must be implemented to prevent or respond to spills and unplanned discharges of oil and hazardous substances. These procedures must address the following:

(a) A description of the reporting system which will be used to alert responsible facility management and appropriate legal authorities.

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

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

(xiii) Procedures must be implemented to identify and prevent existing and potential sources of stormwater pollution.

(xiv) The facility must dispose of excess/unused disinfectants in a way that does not allow them to enter waters of the U.S.

(xv) The facility must implement procedures to eliminate the release of polychlorinated biphenyls (PCBs) from any known sources in the facility, including paint, caulk, or feed. If removing paint or caulk applied prior to 1980, refer to the EPA guidance at http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/caulk/guide/guide-sect4a.htm Any future application of paint or caulk must be below the allowable Toxics Substances Control Act (TSCA) level of 50 ppm. The facility must implement purchasing procedures that give preference for fish food that contains the lowest amount of PCBs that is economically and practically feasible.

f) Documentation: The Permittee must maintain a copy of the BMP Plan at the facility and make it available to EPA or an authorized representative upon request.

g) BMP Plan Modification: The Permittee must amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to surface waters. With any change in operator, the BMP Plan must be reviewed and modified, if necessary. The new operator must submit a certification in accordance with Part VII.E of the Permit.

2.10 Supplemental Application Information and Annual Reports

The EPA has required supplemental application information, consistent with the EPA's Washington Hatchery General Permit, and required Annual Reporting. Significant information regarding the use of disease treatment chemicals and water-borne treatments is required to be submitted to the EPA. This additional information will be available for future ESA Section 7 consultations on the NPDES permitting of the LNFH. See Appendices E and F of the Draft Permit.

2.11 Scope of the Action and Interrelated/Interdependent Effects

This action is limited to the NPDES Permitting of the LNFH, under EPA's CWA Section 402 authorities. Under this NPDES Permit, the EPA has authority to regulate wastewater discharges; but no jurisdiction over issues related to in-stream flow, fish passage, or water withdrawal.

The federal action under ESA consultation is the issuance of this NPDES Permit to the LNFH, not all activities at the Hatchery. The effects evaluated are limited to the scope of the federal NPDES permitting action. No interrelated or interdependent activities are anticipated as a result of the proposed action.

3. The Action Area: Icicle Creek, Wenatchee River Watershed

The BE for the EPA Washington Hatchery General Permit covered the entire State of Washington as the action area for ESA consultation, and assumed during the effects analysis that all listed species were present everywhere within the state. The LNFH is located within Washington State; so it is also considered by the EPA to be included within the action area of the BE. In addition, for purposes of this subsequent federal action and ESA consultation, the EPA focused specifically on the area of the Wenatchee River Watershed downstream of the LNFH. The EPA applied the Washington Hatchery General Permit BE risk evaluations and effects determinations, as the same chemicals of concern were evaluated and assessed for any potential impacts to listed or endangered species residing in the section of Icicle Creek receiving the LNFH discharge, and downstream to the confluence with the Wenatchee River.

4. Threatened and Endangered Species and Effects Determinations

USFWS

For the purposes of this ESA consultation, the EPA reviewed the lists of threatened and endangered species in Chelan County, Washington, accessed from the US Fish and Wildlife Service website at https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=53007 on September 9, 2016 and from NOAA Fisheries website on September 14,
2016. http://www.westcoast.fisheries.noaa.gov/publications/gis_maps/maps/salmon_steelhead/critical_habitat/wcr_salmonid_ch_esa_july2016.pdf Lists from both Agencies are included below.

On pages 21-22 of the BE, EPA listed the species and critical habitats that were part of the risk evaluations performed in order to arrive at the EPA determination for ESA consultation on the Washington Hatchery General Permit. The **list was generated based on the assumed statewide presence of threatened and endangered species, and that certain species were determined by agreement between the EPA, USFWS, and NOAA Fisheries to <u>not be evaluated</u> for risks based on the NPDES permitting of hatcheries in Washington State**. See the BE for more information. The EPA believes that this action, focusing on the ESA listed species in Chelan County, Washington, can rely on the determinations made in the EPA Washington Hatchery BE, because the EPA evaluated hatchery risks to species statewide that also are ESA listed species in the area of interest for this action.

The table below comes from the USFWS website. There are a number of listed species in the table that were **NOT part of the ESA consultation on the Washington Hatchery BE, and therefore the EPA submits that they do not need to be part of the ESA consultation on the Leavenworth National Fish Hatchery Draft NPDES Permit**, as they were already determined to be outside the scope of the federal action and the action area, which at that time was statewide.

Table 7. List of USFWS Threatened, Endangered, and Candidate species in Chelan County, Washington

Group	Common Name	Scientific Name	Population	Status
Amphibians	Oregon spotted frog	Rana pretiosa		Threatened
Birds	Yellow-billed Cuckoo	Coccyzus americanus	Western U.S. DPS	Threatened
Birds	Northern spotted owl	Strix occidentalis caurina	Entire	Threatened
Birds	Marbled murrelet	Brachyramphus marmoratus	U.S.A. (CA, OR, WA)	Threatened
Conifers and Cycads	Whitebark pine	Pinus albicaulis		Candidate
Fishes	Bull Trout	Salvelinus confluentus	U.S.A., conterminous, lower 48 states	Threatened
Fishes	Dolly Varden	Salvelinus malma		Proposed Similarity of Appearance (Threatened)
Flowering Plants	Showy stickseed	Hackelia venusta		Endangered
Flowering Plants	Wenatchee Mountains checkermallow	Sidalcea oregana var. calva	Local Endemic	Endangered
Flowering Plants	Ute ladies'-tresses	Spiranthes diluvialis		Threatened
Mammals	Grizzly bear	Ursus arctos horribilis	U.S.A., conterminous (lower 48) States, except where listed as an experimental population	Threatened
Mammals	Grizzly bear	Ursus arctos horribilis	North Cascades Ecosystem Recovery Zone Population	Under Review
Mammals	Gray wolf	Canis lupus	U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.	Endangered
Mammals	Canada Lynx	Lynx canadensis	Contiguous U.S. DPS	Threatened
Mammals	North American wolverine	Gulo gulo luscus		Proposed Threatened
Mammals	Washington ground squirrel	Urocitellus washingtoni		Candidate

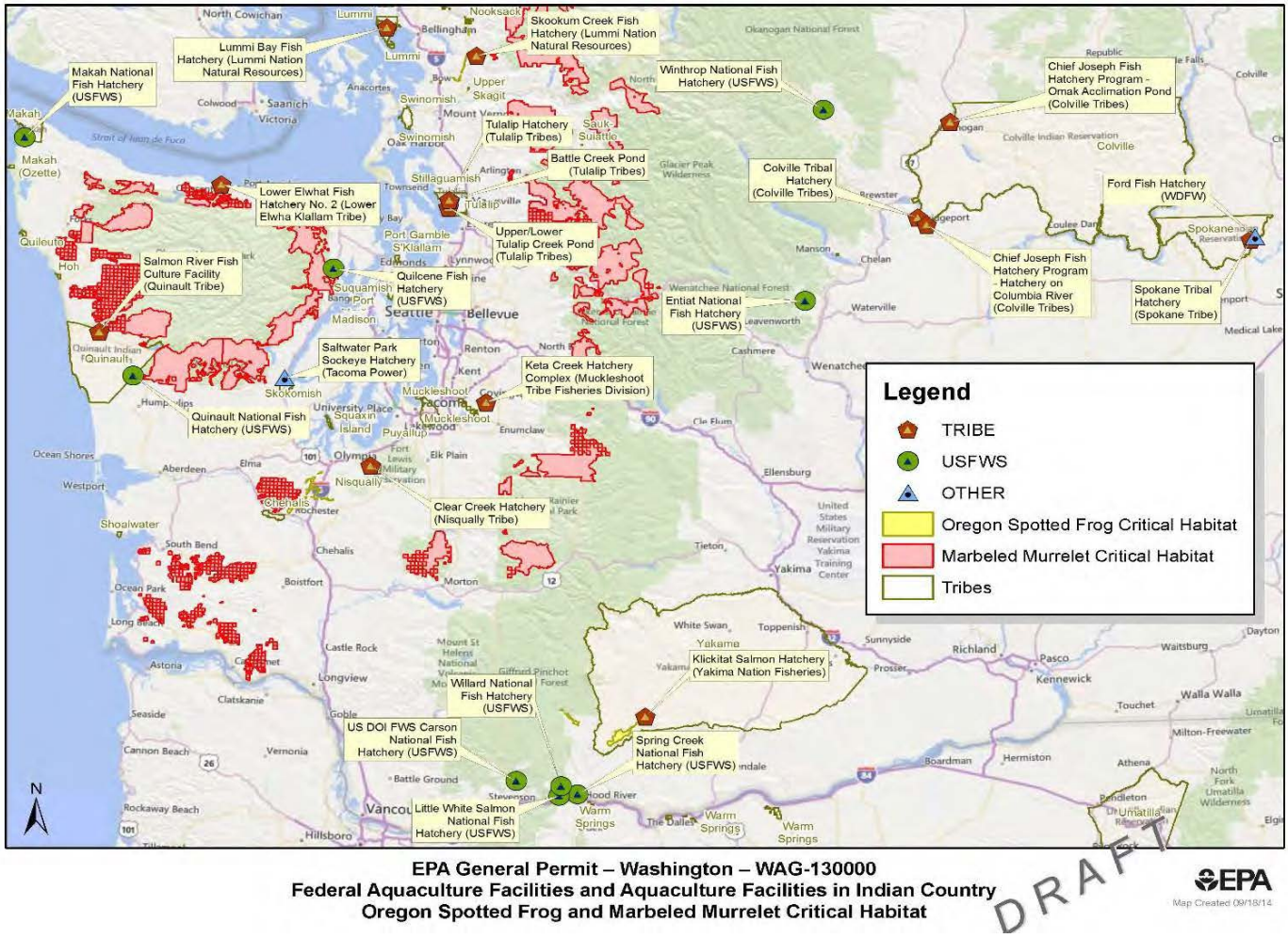
On this USFWS list, the ESA species discussed **in the EPA's Washington Hatchery General Permit BE** are:

- Bull Trout *(Salvelinus confluentus)*
- Oregon Spotted Frog *(Rana pretiosa)*
- Marbled Murrelet *(Brachyramphus marmoratus)*

The EPA Washington Hatchery General Permit BE describes these species on pages 26-27, 33, and 34. On page 35 of the BE, the EPA includes a GIS map of the spatial extent of the Oregon Spotted Frog and Marbled Murrelet habitat within Washington State, and the map is included again below. This map shows that no habitat for the Oregon Spotted Frog exists in the vicinity of the Leavenworth National Fish Hatchery; **therefore, consistent with the BE, the EPA has determined that the Oregon Spotted Frog will not be exposed to any chemicals or LNFH facility operations, and the Draft Permit will have no effects on the frog.**

In addition, no habitat for the Marbled Murrelet exists in the vicinity of the Leavenworth National Fish Hatchery. Page 37 of the BE states, "Because of the external toxic mode of action of the chemicals evaluated in the BE, and because of their short persistence in the environment, dietary ingestion and food web transfer of these chemicals is unlikely…It is also very unlikely that the operation or maintenance [of fish hatcheries] required by this Permit could disturb the habitat of nesting birds (e.g. noise from settling pond dredging)." **Thus, consistent with the BE, the EPA has determined that Marbled Murrelets will not be exposed to the effects of any chemicals or LNFH facility operations, and that the Draft Permit will have no effects on the bird.**

Figure 2. USFWS Listed Oregon Spotted Frog and Marbled Murrelet Critical Habitat in Washington State



On page 43 of the BE, the final list of chemicals used at hatcheries in Washington for which the EPA believes there is the potential to be released to surface waters where Bull Trout, the remaining listed species in Chelan County that was evaluated for risks and for which EPA made an effects determination in the Washington Hatchery General Permit BE, are present:

- Chloramine-T
- Chlorine
- Formalin
- Hydrogen Peroxide
- Potassium permanganate
- Povidone-iodine
- Sodium chloride

Of these seven (7) chemicals, all but sodium chloride (NaCl or common table salt) were evaluated for effects in the EPA Washington Hatchery General Permit BE. Per agreement between EPA and the Services during the preparation of the Washington Hatcheries General Permit BE, sodium chloride received only a limited effects evaluation. This was because its use concentration at hatcheries is within 2 – 3x of its naturally occurring concentration in many freshwaters, its use volumes are quite small compared to the total volume of water discharged by hatcheries, and because of the three hatcheries in Washington that currently report using sodium chloride, two of the three discharge into estuarine systems.

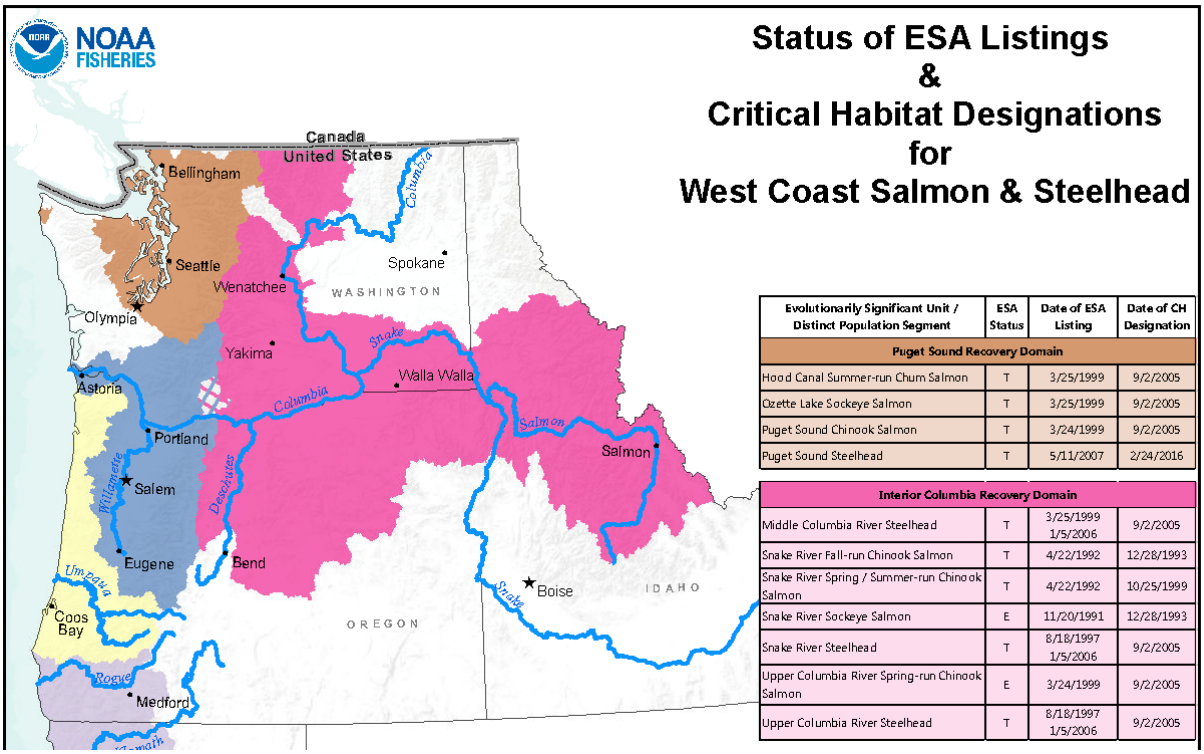
The Ecological Risk Assessment Methodology, and individual chemical risk assessment analyses are discussed in the BE on pages 38-175. The toxicity levels supported by the literature, and the estimated environmental concentrations based on all the data available to the EPA, resulted in modeled concentration values that were well below the chronic no observed effects concentrations (NOECs) for these chemicals.

On page 176 of the BE, the EPA made the determination that the NPDES permitting of hatcheries in the State of Washington may affect, but is not likely to adversely affect Bull Trout. The USFWS concurred with the EPA's effects determination on June 2, 2016. The EPA is now also making the subsequent determination that the NPDES permitting of the Leavenworth National Fish Hatchery, a federal hatchery in the State of Washington **that uses similar chemicals and runs similar operations to those evaluated in EPA's December 2015 Washington Hatchery General Permit BE, also may affect, but is not likely to adversely affect Bull Trout.**

NOAA Fisheries

Below is reproduction of the NOAA Fisheries GIS Map of the Status of ESA Listings and Critical Habitat Designations for West Coast Salmon and Steelhead:

Figure 3. NOAA Fisheries Threatened and Endangered Species Listing for the Interior Columbia Recovery Domain



Evolutionarily Significant Unit / Distinct Population Segment	ESA Status	Date of ESA Listing	Date of CH Designation
Puget Sound Recovery Domain			
Hood Canal Summer-run Chum Salmon	T	3/25/1999	9/2/2005
Ozette Lake Sockeye Salmon	T	3/25/1999	9/2/2005
Puget Sound Chinook Salmon	T	3/24/1999	9/2/2005
Puget Sound Steelhead	T	5/11/2007	2/24/2016
Interior Columbia Recovery Domain			
Middle Columbia River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Snake River Fall-run Chinook Salmon	T	4/22/1992	12/28/1993
Snake River Spring / Summer-run Chinook Salmon	T	4/22/1992	10/25/1999
Snake River Sockeye Salmon	E	11/20/1991	12/28/1993
Snake River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Upper Columbia River Spring-run Chinook Salmon	E	3/24/1999	9/2/2005
Upper Columbia River Steelhead	T	8/18/1997 1/5/2006	9/2/2005

- Middle Columbia River Steelhead
- Snake River Fall-run Chinook Salmon
- Snake River Spring/Summer-run Chinook Salmon
- Snake River Sockeye Salmon
- Snake River Steelhead
- Upper Columbia River Spring-Run Chinook Salmon
- Upper Columbia River Steelhead

The species descriptions for Chinook, Steelhead, and Sockeye Salmon are found in the BE on pages 22-28. A discussion of the threatened and endangered species in Washington exposed to Hatchery discharges is found on pages 44-46 of the BE. Bull trout and the salmonid species were considered fully aquatic species, and EPA searched for available toxicity data on the pollutants of concern in the EPA's online ECOTOX database. http://www.epa.gov/ecotox The integration and evaluation of information on Hatchery chemicals used in Washington is discussed on pages 46-68 of the BE. The BE

assumed that all of these ESA listed species were present statewide, so the EPA has concluded that the BE analysis clearly includes the species present in the LNFH action area, and the effects determinations made in the BE also apply to this federal NPDES Permitting action for the LNFH.

Chlorine
A detailed discussion on the evaluation of chlorine can be found on pages 69-89 of the BE. The conclusion of the BE for threatened and endangered species where chlorine risks could be quantified are as follows (and found on pages 89-90 of the BE).

Chinook salmon – not likely to adversely affect
Steelhead – not likely to adversely affect
Sockeye salmon – not likely to adversely affect

Chloramine-T
A detailed discussion on the evaluation of Chloramine-T can be found on pages 91-105 of the BE. The EPA concluded that the use of Chloramine-T at therapeutic concentrations and treatment durations is **not likely to adversely affect listed salmonids**. That conclusion is elaborated upon on page 106 of the BE.

Formalin
A detailed discussion on the evaluation of formalin can be found on pages 107-131 of the BE. Formalin concentration dosages are discussed on pages 107-109. The standard dosage recommended in the INAD Protocol #9013 to prevent or control fungus on fish and eggs is 15-2000 µl/L (1 µL/L = 1 ppm on a volume : volume basis) in a static bath or flow-through treatment. Formalin is administered at concentrations ranging from 170 - 250 µl/L to fish, and up to 2000 µl/L to eggs. On page 132, the EPA determined that, based on all the chronic no-effect concentrations (NOECs) for six (6) threatened and endangered salmonid species being higher than the estimated environmental concentrations of formalin/formaldehyde released from Hatcheries, formalin is **not likely to adversely affect listed salmonids.**

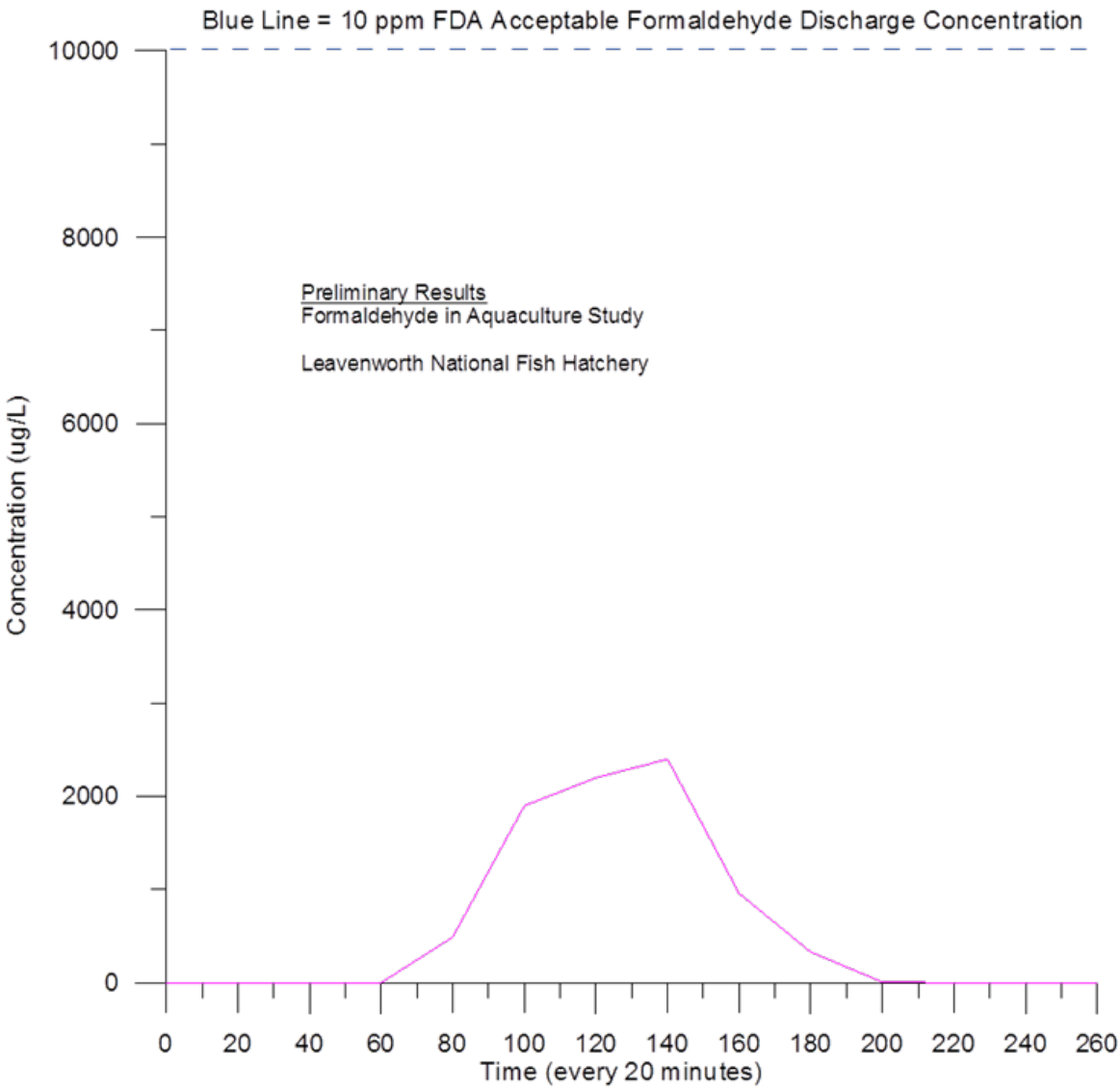
In addition, the EPA and Washington Department of Ecology have joined together to conduct a field study of the concentrations of formalin/formaldehyde in aquaculture discharges. Samples were collected from federal, tribal and state hatchery operations across Washington State and Idaho. The EPA is partnering with the USFWS, tribes, and concentrations in water for three (3) formalin scenarios: egg stacks/hatch houses, juveniles, and returning adults. Samples were taken at the Leavenworth National Fish Hatchery in August 2016, and concentrations were found to be much lower than the 10 ppm FDA acceptable formaldehyde discharge concentration (See Figure 4 below).The chain of custody forms used during the sampling event show that water samples were collected at the Leavenworth National Fish Hatchery on August 17, 2016, between 08:05 am and 1:45 pm. The facility was treating two ponds holding adult Spring Chinook Salmon with Western Chemical Parasite-S Formalin; targeting a treatment concentration of 200 ppm using a flow through (drip) treatment system; when the sampling event took place.

The figure below shows the location of the formalin sampling – receiving water samples were taken upstream and downstream of the hatchery outfall, and effluent samples were taken at the main outfall for the LNFH – Outfall 001.

Figure 4. Map of the LNFH Formalin Sampling Locations

The figure below shows the results from the laboratory analysis of the effluent samples collected. 10 ppm is the U.S. Food and Drug Administration's (FDA) Acceptable Formaldehyde Discharge Concentration, and the concentrations of formalin in the LNFH discharge were much lower. The study, having gathered empirical data in addition to the analysis done during the EPA's development of the Washington Hatchery General Permit BE, confirms the EPA determination that issuing a Permit to the LNFH is **not likely to adversely affect** listed salmonids due to formalin.

Figure 5. Results from the Lab Analysis of Formalin in LNFH Effluent



Hydrogen Peroxide
A detailed discussion on the evaluation of hydrogen peroxide can be found on pages 133-143 of the BE. On pages 143-144, the EPA determined that, based on all chronic NOECs for six (6) threatened and endangered salmonid species being substantially higher than the estimated environmental concentrations of hydrogen peroxide released from Hatcheries, that hydrogen peroxide is **not likely to adversely affect listed salmonids**.

Potassium Permanganate
A detailed discussion on the evaluation of potassium permanganate can be found on pages 145-159 of the BE. On pages 159-160, the EPA determined, based on all chronic NOECs for six (6) threatened and endangered salmonid species being substantially higher than the estimated environmental concentrations of potassium permanganate released from Hatcheries, that potassium permanganate is **not likely to adversely affect listed salmonids. Furthermore, the Leavenworth National Fish Hatchery does not use potassium permanganate at the facility**.

Povidone-Iodine
A detailed discussion on the evaluation of povidone-iodine can be found on pages 161-174 of the BE. On pages 174-175, the EPA determined that, based on all chronic NOECs for six (6) threatened and endangered salmonid species being substantially higher than the estimated environmental concentrations of povidone-iodine released from Hatcheries, povidone-iodine is **not likely to adversely affect listed salmonids**. The EPA also determined that, based on all chronic NOECs for listed salmonids being substantially higher than the estimated environmental concentrations of elemental iodine released from Hatcheries, that elemental iodine is **not likely to adversely affect listed salmonids**.

The overarching conclusion/effects determinations from this Washington Hatchery General Permit BE can be found on page 176 of the BE**: The EPA issuance of a NPDES Permit to aquaculture facilities in Washington State, authorizing discharge of wastewater under the Clean Water Act, may affect, but is not likely to adversely affect:**

Bull Trout
Chinook Salmon
Chum Salmon
Coho Salmon
Sockeye Salmon, and
Steelhead

The Bibliography for the BE is found on pages 177-188. The Essential Fish Habitat (EFH) evaluation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), was discussed on pages 189-190 of the BE. The EPA determined that the surface water criteria promulgated by Washington State and/or approved by EPA, as well as the effluent limitations and other Permit conditions imposed upon the Leavenworth National

Fish Hatchery as proposed in the Draft NPDES Permit, provide necessary restrictions sufficient to prevent harm to life stages of threatened and endangered species in the Action Area. Using all the information presented in the BE, the EPA has determined that the issuance of a Permit to the Leavenworth National Fish Hatchery **is not likely to adversely affect EFH in the vicinity of the discharge.** The LNFH will be required to adhere to the permit limits, monitoring requirements, and best management practices included in the Permit. The EPA concludes that the proposed action **is not likely to adversely affect EFH.**

The Appendices to the BE have been transmitted electronically to the USFWS and NOAA Fisheries, along with the BE itself, this Forward to the BE document, and the Draft LNFH Permit and fact sheet.

APPENDIX A: June 2016 USFWS Letter of Concurrence on the EPA Effects Determinations Outlined in the Washington Hatchery General Permit Biological Evaluation

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

JUN - 2 2016

In Reply Refer To:
01EWFW00-2016-I-0850

Michael J. Lidgard
Manager, NPDES Permits Unit
Region 10
U.S. Environmental Protection Agency
1200 Sixth Ave., Suite 900
Seattle, Washington 98101-3140

Dear Mr. Lidgard:

Subject: NPDES Permit (WAG 130000) for Federal Aquaculture Facilities and Aquaculture facilities Located in Indian Country within the Boundaries of the State of Washington

This letter is in response to your December 21, 2015 request for our concurrence that reissuance of a National Pollution Discharge Elimination (NPDES) Permit "may affect, but is not likely to adversely affect" the bull trout (*Salvelinus confluentus*) and bull trout critical habitat. We received your letter, Biological Evaluation, and additional materials providing information in support of these determinations on December 22, 2015.

The U. S. Environmental Protection Agency (EPA) proposes to reissue a general wastewater discharge permit for discharges from 25 federal aquaculture facilities and aquaculture facilities located in Indian Country in Washington State. The EPA evaluated effects of the following 7 chemicals commonly used at hatchery facilities, though not all chemicals are used at all hatcheries: chloramine-T, chlorine, formalin, hydrogen peroxide, potassium permanganate, povidone-iodine, and sodium chloride. Potentially harmful degradation byproducts of these chemicals were also evaluated. The EPA believes that these 7 chemicals have the potential to be released to receiving waters where bull trout may be present. In addition, the EPA considered 17 other chemicals that may be used at hatcheries, and determined that these either: 1) are not released into surface waters; 2) are used so infrequently, used in such low volumes, and/or have such low toxicity that their discharge into surface waters is either not measureable or is inconsequential; or, 3) are completely non-toxic (Shephard et al. 2015, pp. 40-43). These chemicals were not considered further in the Biological Evaluation.

The EPA has determined that the action will have "no effect" on the following species: short-tailed albatross (*Phoebastria albatrus*), western snowy plover (*Charadrius nivosus nivosus*), Oregon spotted frog (*Rana pretiosa*), and marbled murrelet (*Brachyramphus marmoratus*). The determination of "no effect" to listed resources or critical habitat rests with the action agency. The U.S. Fish and Wildlife Service (Service) has no regulatory or statutory authority for concurring with a "no effect" determination, and no consultation with the Service is required. We recommend that the EPA document their analysis on effects to these species and maintain that documentation as part of the project file. This informal consultation has been conducted in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(ESA).

We believe that sufficient information has been provided to determine the effects of the proposed action and to conclude whether it would adversely affect federally listed species and/or designated critical habitat. Our concurrence is based on information provided by the action agency, best available science, and complete and successful implementation of agreed-upon conservation measures. The duration of this consultation is equivalent to the duration of the EPA permit, which is 5 years from when EPA issues the permit. Consultation on these actions must be reinitiated when EPA proposes to reissue the permit.

Effects to Bull Trout

Hatchery operations require the use and discharge of surface and well water into streams adjacent to the operating facilities. Hatchery water discharge may affect several water-quality parameters in the aquatic system. Waste products include uneaten food, fish waste products (i.e., fecal matter, mucus excretions, proteins, soluble metabolites such as ammonia), chemotherapeutic agents (e.g., formalin), cleaning agents (e.g., chlorine), drugs and antibiotics, nutrients (e.g., various forms of nitrogen and phosphorus), parasitic microorganisms, and algae. Some of these waste products are in the form of suspended solids and settleable solids, while others are dissolved in the water. Maintenance activities, such as vacuuming and removal of accumulated sediment on the bottoms of hatchery ponds and raceways, may temporarily elevate the concentration of some contaminants in the hatchery water system.

Under the previous permit, the hatchery facilities were required to limit release of suspended solids and settleable solids into surface waters. Required monitoring indicates that these measures are effective at substantially minimizing the release of uneaten food, fecal matter, and associated nutrients. The proposed permit contains the same limits and monitoring requirements. For these reasons, we do not expect suspended solids or settleable solids to measurably degrade or diminish habitat functions for bull trout prey resources or water quality.

For chemicals used at the hatcheries, there are limited data and substantial uncertainties associated with evaluating toxicity to listed aquatic species, including bull trout. These are discussed in several recent consultations completed by the Service concerning proposed water quality criteria in Oregon (USFWS 2012, p. 117 and Appendix 1, pp. 7-26) and Idaho (USFWS 2015, pp. 124-128, 136-138). In summary, there are no direct toxicity tests available specifically for bull trout, surrogates may not provide accurate indicators of toxicity to bull trout, there is a wide array of potentially relevant "endpoints" (or biological responses), and the exposure

scenarios evaluated may not provide accurate representations of actual exposures, among other issues. Our approach was to consider multiple lines of evidence and use best professional judgment in evaluating potential effects to bull trout.

The possibility that bull trout will be exposed to concentrations of hatchery chemicals high enough to result in measurable effects depends in part on chemical use patterns and expected bull trout presence. Most chemicals used at hatcheries are used infrequently and/or intermittently, such that these chemicals are absent from the effluent at most times. In addition, patterns in bull trout distribution and abundance vary spatially and temporally across Washington and the areas affected by the hatchery discharges. These were considered in our assessment of potential effects to bull trout.

Of the 7 chemicals evaluated by the EPA, povidone-iodine is the only one that is not used in water that flows through the hatchery (process water). Instead, povidone-iodine is commonly used to treat eggs after fertilization and, less commonly, to disinfect small equipment such as nets and boots. Egg treatment is infrequent (relatively few days per year) and uses small quantities of povidone-iodine. For gear treatment, containers of povidone-iodine solution are occasionally made available in certain areas of the hatchery and used as needed. This solution degrades over time as it sits out and gets used. For both types of uses, spent solution is most often disposed of on land. Any povidone-iodine solution that enters surface waters is expected to have very low concentrations of potentially harmful chemicals (e.g., elemental iodine), and to become rapidly diluted near the point of discharge. For these reasons, effects to bull trout from exposure to povidone-iodine are expected to be insignificant.

Sodium chloride is used at three hatcheries. It is used to calm fish and reduce stress during handling or transport, and/or to treat external parasites. This latter purpose mimics a natural behavior of salmonids, whereby fish move between waters of differing salinities to rid themselves of external parasites. Hatchery use concentrations of sodium chloride are 2 to 3 times above naturally-occurring concentrations in freshwaters, and volumes used are quite small compared to the total volume of water discharged by hatcheries. For these reasons, effects to bull trout associated with exposure to sodium chloride are expected to be insignificant.

For the remaining 5 chemicals, the EPA used the chronic no effect concentration (chronic NOEC) derived from surrogate species (usually species in the family Salmonidae) to assess effects of exposure to bull trout. The NOEC is defined as the highest concentration of a material in a standard laboratory toxicity test that has no statistically significant effect on the test organisms as compared with a control group. The EPA used standard procedures for estimating NOECs from other empirical data (such as acute LC50s, defined as the concentration necessary to kill 50 percent of exposed organisms). However, these procedures may not yield accurate NOEC estimates (USFWS 2012, Appendix 1, pp. 8-13). In addition, the EPA used their Interspecies Correlation Estimation (ICE) model to calculate NOECs for bull trout from surrogate species. The ICE model results must be interpreted with caution, however, as it may produce inaccurate results (USFWS 2012, Appendix 1, pp. 13-20; USFWS 2015, pp. 124-126). For example, in a limited analysis, USFWS (2015, pp. 124-126) found that the ICE model underestimated effects concentrations of toxic metals to two listed species, including bull trout, in 50 percent of trials (n = 6). In one trial, the ICE model underestimated the effect

concentration by a factor of 2.5. Therefore, for the purposes of this consultation, we considered estimated NOECs generally, and ICE-based NOECs specifically, as general rather than absolute indicators of chemical toxicity to bull trout, and considered these in combination with other factors to evaluate risk to bull trout.

The concentrations of chemicals in hatchery effluent depends on usage concentration, type of treatment (e.g., flow-through, static bath), and degradation and dilution prior to discharge. There are limited or no empirical data for concentrations of most chemicals in the effluent for most of the hatcheries included in this consultation. Therefore, we used data from other hatcheries to calculate estimates for the hatcheries included in this consultation. Calculation procedures and assumptions were intended to produce conservatively-high estimates of effluent chemical concentrations. For example, chemical degradation prior to discharge and dilution in effluent holding ponds were not factored into the estimates. Pulses of elevated chemical concentrations are likely to result from typical hatchery use patterns (e.g., when a treated raceway is flushed, or during a flow-through treatment), so we considered both short-duration (acute, on the order of hours) and chronic (on the order of days) exposure scenarios. We compared estimated end-of-pipe concentrations with chronic and acute ICE-based NOECs for bull trout.

With only one exception (acute exposure to chloramine-T), estimated end-of-pipe concentrations were less than the estimated NOECs. This suggests that estimated effluent chemical concentrations are at or near levels that would not be expected to injure bull trout. Actual discharge concentrations are likely lower when factoring in chemical degradation and holding pond dilution prior to discharge. Additional dilution will occur at and near the point of discharge as the effluent mixes with the receiving waterbody. Receiving waterbodies where bull trout could be directly exposed to hatchery effluent are large and/or have relatively high flow rates, including seasonal low flow periods, which would rapidly dilute hatchery chemicals very near the point of discharge. These factors are expected to offset the potential for and magnitude of inaccuracies in the toxicological estimation and assessment procedures described above. That is, even though the ICE-based NOEC for bull trout may be an imperfect measure of potential risk of injury to bull trout, the fact that actual exposure concentrations are likely to be well below the estimated NOECs suggests a very low risk of injury.

Additional factors that minimize risk to bull trout include the following:

- Most of the chemicals are used at 4 facilities or less. Only formalin (25 facilities) is widely used.
- Hatchery chemicals are not in continuous use. Rather they are used intermittently and sporadically, and thus are infrequently present in the effluent.
- All hatchery chemicals, except chloramine-T, degrade to harmless byproducts in the environment and do not bioaccumulate. A degradation byproduct of chloramine-T, p-TSA, persists in the environment but is not known to bioaccumulate. For these reasons, the presence of hatchery chemicals and their degradation byproducts in receiving waterbodies and their potential to move through the food web is limited.

- There are no other known discharges of these chemicals in the vicinity of the facilities considered in these consultations. Therefore, the discharges are not expected to contribute to existing chemical loads in the receiving waterbodies.
- Most facilities (18) included in this consultation are in areas where bull trout are not expected to occur or are in areas where there are few bull trout:
    - Three facilities (Quilcene National Fish Hatchery [NFH], Saltwater Park Sockeye Hatchery, and the Makah NFH) are in areas where bull trout are not known to currently occupy, and where effluent discharges cannot reach waters currently occupied by bull trout.
    - Five facilities (Carson NFH, Chief Joseph Fish Hatchery Program – Omak, Ford State Fish Hatchery, Spokane Tribal Hatchery, and Willard NFH) are in areas where bull trout are not known to currently be, but the receiving waterbody drains into waters that may contain bull trout. These facilities are more than 3.5 miles upstream from where the receiving waterbody drains into a large river (i.e., Spokane or Columbia Rivers). Based on known distribution, abundance, and movement patterns of bull trout that use the Spokane and Columbia Rivers, bull trout presence in these areas is expected to be very infrequent and in low abundance.
    - Four facilities (Chief Joseph Fish Hatchery Program - Hatchery on Columbia River, Colville Tribal Hatchery, Little White Salmon NFH, Spring Creek NFH) are on the mainstem Columbia River. Based on known distribution, abundance, and movement patterns of bull trout populations that use these general areas of the Columbia River, bull trout presence in the vicinity of effluent discharge is expected to be infrequent and in low abundance.
    - Four facilities (Battle Creek Pond, Lummi Bay Fish Hatchery, Tulalip Hatchery, and the Upper and Lower Tulalip Creek Ponds) discharge directly or indirectly into the nearshore areas of Puget Sound. Surveys and anecdotal accounts (e.g., incidental catch during hatchery broodstock collection) indicate that bull trout do not frequent the water bodies where these facilities are located and/or areas near the discharge. Bull trout presence in these general areas and in the immediate vicinity of the discharges is likely very infrequent and in low abundance.
    - The Keta Creek Hatchery Complex and Clear Creek Hatchery are in located in watersheds that may be used occasionally by migratory anadromous bull trout originating from other watersheds for foraging (Green River, Nisqually River). There are no spawning populations of bull trout in the Green or Nisqually Rivers. One of the facilities (Keta Creek Hatchery Complex) discharges to a small stream not known to be used by bull trout. Bull trout presence in the areas affected by hatchery chemical discharges from these two facilities would be also be very infrequent and in low abundance.

We could not rule out the possibility that concentrations of chloramine-T in effluent discharges could occasionally be high enough to cause injury to bull trout via acute exposures. However, chloramine-T is used intermittently and sporadically, and thus is infrequently present in the

effluent. In addition, chlormine-T is used at only 4 facilities (Ford State Fish Hatchery, Spokane Tribal Hatchery, Colville Tribal Hatchery, and the Keta Creek Hatchery Complex), all of which are in areas where bull trout are not expected to occur or where bull trout presence is very infrequent and in low abundance (see above). For 3 of these facilities (Ford State Fish Hatchery, Spokane Tribal Hatchery, Keta Creek Hatchery Complex), chloramine-T will be diluted and will degrade in receiving water bodies not known to have bull trout prior to draining into larger rivers that may occasionally contain small numbers of bull trout (Spokane and Green Rivers). One facility (Colville Tribal Hatchery) discharges directly into the Columbia River. Flow in all of these large rivers is relatively high, including seasonal low flow periods. Therefore, chloramine-T concentrations will become rapidly diluted near the point of discharge. For these reasons, it is extremely unlikely that bull trout would be exposed to concentrations of chloramine-T for durations or at concentrations that would elicit a measureable effect to their physiology or behavior.

Bull trout are opportunistic predators that feed on the eggs and juveniles of anadromous salmon and resident fish. They likely locate profitable feeding areas using chemical cues left in the water by their prey. Effluent from the hatchery likely contains relatively high concentrations of these cues, and could serve as a feeding attractant to bull trout, which is rewarded during the time when smolts are released, but may not be rewarded at other times. This "attractive nuisance" effect may keep bull trout from feeding as efficiently as they might if they were responding to feeding cues from natural food resources. However, because there is no foraging benefit associated with the point of discharge of effluents at hatcheries, we anticipate that bull trout will not linger at outfalls for very long and would seek more rewarding foraging options elsewhere. Bull trout are regularly documented below other hatchery facilities, especially during the time of year when juvenile fish are released from the hatcheries. However, beyond these anecdotal observations, there are no data or evaluations documenting the scope and magnitude of these effects, or the extent to which this phenomenon may be detrimental to bull trout. In addition there are only a small number of release events per year, greatly limiting the potential for the attraction to cause detrimental effects. These behavioral responses and the effects of exposure are not well studied, but appear to be minor.

For the reasons described above, we do not expect bull trout to be exposed to potentially harmful elements of hatchery effluent for durations or at concentrations that could result in injury or a significant impairment of their normal behavior. Therefore, we conclude that effects to bull trout growth, reproduction, and survival from discharge of hatchery effluent are insignificant.

Effects to Bull Trout Critical Habitat

The final revised rule designating bull trout critical habitat (75 FR 63898 [October 18, 2010]) identifies nine Primary Constituent Elements (PCEs) (75 FR 63931-2) essential for the conservation of the species. The 2010 designation of critical habitat for bull trout uses the term PCE. The new critical habitat regulations (81 FR 7214) replace this term with physical or biological features. This shift in terminology does not change the approach used in conducting our analysis, whether the original designation identified primary constituent elements, physical or biological features, or essential features. In this letter, the term PCE is synonymous with

physical or biological features or essential features of critical habitat. The proposed action may affect the PCEs listed below; however, effects to these PCEs are not expected to be measurable and are therefore considered insignificant or discountable:

PCE 2: Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.

As described above, discharge of solids and chemicals from hatchery facilities will be intermittent and at very low levels. Effects to water quality associated with effluent discharges will be limited to small, localized areas in the immediate vicinity of outfall pipes. These effects will not pose barriers to migration or preclude the function of this PCE. Therefore, effects to this PCE associated with impacts to water quality are considered insignificant.

PCE3: An abundant food base including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

Invertebrates and fish in the immediate vicinity of discharge pipes may be affected by hatchery effluent. However, these areas are small and localized, and will not affect the overall abundance of forage available to bull trout. Therefore, effects to this PCE are considered insignificant.

PCE 8: Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

For the reasons described in the Effects to Bull Trout section, the proposed action will have an insignificant effect on the PCE.

Conclusion

This concludes consultation pursuant to the regulations implementing the Endangered Species Act (50 CFR 402.13). Our review and concurrence with your effect determination is based on the implementation of the project as described. It is the responsibility of the federal action agency to ensure that projects that they authorize or carry out are in compliance with the regulatory permit and/or the Endangered Species Act, respectively. If a permittee or the federal action agency deviates from the measures outlined in a permit or project description, the federal action agency has the obligation to reinitiate consultation and comply with section 7(d).

This project should be re-analyzed and re-initiation may be necessary if 1) new information reveals effects of the action that may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation, 2) if the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this consultation, and/or 3) a new species is listed or critical habitat is designated that may be affected by this project.

This letter and its enclosures constitute a complete response by the U.S. Fish and Wildlife Service to your request for informal consultation. A complete record of this consultation is on file at the Washington Fish and Wildlife Office, in Lacey, Washington. If you have any questions about this letter or our joint responsibilities under the Endangered Species Act, please contact Mark Celedonia at (360) 534-9327 or Martha Jensen at (360) 753-9000, of this office.

Sincerely,

Martha L. Jensen

for Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

cc:
USEPA, Seattle, WA (C. Gockel)

Literature Cited

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