WASHINGTON TROUT

Denise Mills, Section Manager
Water Quality Program
Washington Department of Ecology, Central Region
15 W. Yakima Ave, Suite 200
Yakima, WA 98902

November 29, 2006

RE: Section 401 Water Quality Certification Application for Leavenworth National Fish Hatchery / NPDES Permit No. WA 000190-2

Dear Ms Mills:

Washington Trout offers the following comments on the subject application. We have reviewed the expired permit, the permit application, the subject permit (i.e., the latest draft), the June 2006 draft permit and corresponding fact sheet, along with various documents obtained from the US Fish and Wildlife Service (USFWS) through a Freedom of Information Act request. We have also examined documents from the administrative record from a lawsuit we filed against the USFWS for violating the Endangered Species Act (ESA) while operating the Leavenworth National Fish Hatchery (LNFH) (*Washington Trout* v *Norton* et al., E.D. Wash. No. CV-05-181-LRS) (another lawsuit filed in 2005 against the USFWS, *Washington Trout* v. *Leavenworth National Fish Hatchery*, et al., E.D. Wash. No. CV-05-203-LRS alleged violations of the Clean Water Act (CWA) and was settled August 8, 2006). In addition, we have also reviewed various reports produced by the Washington Department of Ecology (Ecology) and others on the water quality and biological health of Icicle Creek, the waterbody most directly affected by the LNFH's activities.

I. Authority For Ecology's Action

Section 401(a) of the Clean Water Act (CWA) requires that applicants for a federal license or permit receive a "certification" from the applicable state that their activities will meet that state's water quality requirements if a discharge into navigable waters will occur. Section 401(d) of the CWA allows the state to use effluent limitations and other measures, including water quality standards. Equally important, Section 401(d) outlines that the applicant's *activities* comply with the state's requirements, and that the state's certification process is not limited to a review of the *discharge*.

P.O. Box 402 • Duvall WA 98019 • 425-788-1167 • Fax 425-788-9634
wildfish@washingtontrout.org • www.washingtontrout.org

Ecology routinely conducts Section 401 certification for hydroelectric projects licensed by the Federal Energy Regulatory Commission (FERC) and for CWA Section 404 permits for the discharge of fill or dredged material issued by the US Army Corps of Engineers (COE), and has published guidance on these processes. There is no Ecology guidance of which we are aware for the Section 401 certification process for EPA-issued NPDES permits. Regardless, Ecology has a responsibility to employ the entire suite of applicable water quality requirements when evaluating the LNFH. As Ecology's November 9, 2006, letter inviting public comment on the Section 401 certification states, "the decision will be made based on the ability of the proposal to comply with the provisions of Washington's Water Pollution Control Act (RCW 90.48) and the Washington State Water Quality Standards (Chapter 173-201A WAC)." And by "proposal" we take that to include all of the aspects of the LNFH, including, but not limited to, the discharge of wastewater and hatchery return water, diversion of water by a dam in order to meet operational needs, blockage of fish passage by dams, and diversion of surface water in order to allow for ground water recharge.

Issues surrounding Section 401 and its applicability have been litigated. In one Washington case, Ecology required a minimum instream flow in order to protect the aquatic life uses of the Dosewallips River from the proposed Elkhorn hydroelectric project. Water quality standards would not have been met otherwise because the use would not have been protected. Upholding a Washington Supreme Court decision, the US Supreme Court ruled in *PUD No. 1 of Jefferson County* v. *Washington DOE* (511 U.S. 700, 1994) that "activities" not simply "discharges" must be considered when assessing compliance with water quality standards. The ruling also said that Washington's antidegradation policy protected "uses," not just water quality criteria, and both uses and criteria must be protected in order for an activity to comply with water quality standards. Ecology was correct in placing conditions that did not necessarily have a basis on numeric water quality criteria.

The Washington Supreme Court's decision in the Elkhorn case (*Washington DOE* v. *PUD No. 1 of Jefferson County*, 849 P.2d 646 (1993) specifically outlines Ecology's obligations in a Section 401 certification process:

> In short, section 401 requires states to certify compliance with state water quality standards. Washington's standards prohibit the degradation of the state's waters, and prohibit the degradation of fish habitat and spawning in the Dosewallips in particular. Therefore, section 401 required Ecology to certify that the Elkhorn project would not degrade fish habitat and spawning in the Dosewallips. Given that Ecology's fisheries biologists determined that the instream flows urged by Tacoma risked such degradation, Ecology therefore could not issue the 401 certificate without imposing more protective instream flow conditions. Absent such a condition, Ecology could not assure compliance with state water quality standards.

In a more recent case, *S. D. Warren Co.* v. *Maine Board of Environmental Protection*, 547 U.S. ___ 2006 (No. 04-1527), the US Supreme Court ruled that the operation of an existing hydroelectric dam was sufficient to trigger Section 401. In an *amicus curiae* brief filed by the state of Washington and thirty-two other states (along with the Commonwealth of Puerto Rico, the Pennsylvania Department of Environmental

Protection, and the International Association of Fish and Wildlife Agencies) Washington (and the other signatories) made it clear to the Court why Section 401 is important:

> Without state oversight under Section 401, the operation of hydroelectric dams would degrade significantly the chemical, biological, and physical integrity of affected waters. For example, water released from hydroelectric dam impoundments often has reduced levels of dissolved oxygen, which can cause fish to suffocate. Such water also may be significantly warmer or colder than natural conditions, and cold-water fish such as salmon and trout cannot long survive in warm waters. A dam may permanently impede the travel of salmon, trout, and other species of fish that regularly move between inland waters and the ocean, leaving large stretches of river devoid of such fish. Hydroelectric facilities that "fill and spill" in order to optimize the generation of power during periods of peak demand cause the surface level of waters to fluctuate, which can erode exposed banks, and drain or flood adjacent wetlands. The mechanical grind of hydroelectric turbines often kills large numbers of fish that pass downstream. Sediment with contaminants can build up behind dams, harming bottom-dwelling organisms and causing the accumulation of contaminants in higher-level aquatic species that feed upon them.

These effects are not limited to "hydroelectric" dams, and Icicle Creek suffers many of the above-listed effects due to operations of the LNFH. Some beneficial uses are not being protected, and some specific water quality criteria are not being met.

The issuance of the NPDES permit triggers Section 401, and the subject permit submitted by EPA is insufficient to ensure that the LNFH's activities will meet water quality standards. It is clear that Ecology must consider *all* of the LNFH's activities, not simply the discharge of wastewater, and condition the Section 401 certification accordingly.

II. Icicle Creek

A. Regulatory Status

1. Beneficial Uses And Applicable Numeric Criteria

Icicle Creek is the receiving water for the discharges from the LNFH, and the waterbody most affected by hatchery operations. At the intake structure and outfall locations, Icicle Creek is classified as "Class A" in Washington's water quality standards (Chapter 172-201A WAC). According to Chapter 172-201A-030(2)(b) WAC, the "characteristic uses" for Class A waters include, but are not limited to:

> water supply (domestic, industrial, agricultural).
> stock watering.
> fish and shellfish:
> salmonid migration, rearing, spawning, and harvesting.
> other fish migration, rearing, spawning, and harvesting.
> clam, oyster, and mussel rearing, spawning, and harvesting.
> crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing, spawning, and harvesting.
> wildlife habitat.

recreation (primary contact recreation, sport fishing, boating, and aesthetic enjoyment).
commerce and navigation.

Numeric water quality criteria for various parameters have been assigned to Class A waters. The Class A temperature criterion is

> Temperature shall not exceed 18.0 ^{o}C (freshwater) or 16.0 ^{o}C (marine water) due to human activities. When natural conditions exceed 18.0 ^{o}C (freshwater) and 16.0^{o}C (marine water), no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3 ^{o}C.

While Washington made extensive revisions to its standards in 2003, including some numeric criteria, and the "class-based" system has been replaced by a "use-based" system, not all of the changes have been approved by EPA, and are not yet effective. Still other changes have been proposed by Ecology. For example, Ecology is proposing that the reach of Icicle Creek adjacent to the LNFH and its intake be protected for "core summer habitat" with a temperature criterion (7-day average of the daily maximum temperatures) of 16^{o}C. The lowest 1-day minimum dissolved oxygen content for core summer habitat waters is 9.5 mg/L. This permit may need to be modified, revised or reissued as the various changes to the water quality standards are approved by EPA.

2. Antidegradation

Regardless of the specific numeric water quality criteria that are in place in the standards and the corresponding effluent limitations, any NPDES permit that is issued must conform to the antidegradation policy included in Washington's water quality standards. Chapter 173-201A-070(1) states

> Existing beneficial uses shall be maintained and protected and no further degradation which would interfere with or become injurious to existing beneficial uses shall be allowed.

Therefore, each of the existing "characteristic uses" of Class A waters as well as any applicable water quality criteria must be protected by this permit.

3. Section 303(d) Status

In the vicinity of the LNFH, Icicle Creek is included as a "Category 5" water (a polluted water that requires a TMDL (Total Maximum Daily Load determination) on Washington's 2004 Clean Water Act Section 303(d) for temperature, pH, and dissolved oxygen. A TMDL has not yet been prepared to address these parameters, but Ecology has prepared a pre-TMDL study (WDOE 2006). Icicle Creek below the LNFH is listed as a "Category 4C" (a water body impaired by a "non-pollutant") for insufficient instream flow.

4. Operation Of Dams

A provision added to Washington's standards in 2003 is WAC 173-201A-510(5), pertaining to the operation of dams, and is currently in effect as it did not need to be approved by EPA (February 10, 2005 letter from Paula VanHaagen, EPA, to Melissa Gildersleeve, Ecology). EPA noted that this provision could be used by Washington in Section 401 certifications. Because subsection (a) states that all dams in Washington must comply with water quality standards, we believe that the three dams operated by the LNFH fall under this provision. In addition, subsection (b) states:

> For dams that cause or contribute to a violation of the water quality standards, the dam owner must develop a water quality attainment plan that provides a detailed strategy for achieving compliance.

Washington Trout believes that the dams operated by the LNFH do "cause or contribute to" violations of water quality standards (see sections **III.A.3** and **IV.B**, below) and that the LNFH should develop a plan outlining the details on how they will achieve compliance with the standards. Ecology would be well within its rights to deny this application for Section 401 certification because no water quality attainment plan was submitted with this Section 401 application.

5. Other Actions

The USFWS completed an Environmental Impact Statement (EIS) on the Icicle Creek Restoration Project in January 2002 (USFWS 2002). The first phase of the restoration project, consisting of removal of Structures 3 and 4, was completed by the USFWS along with the Icicle Creek Watershed Council in 2003. In 2005, the USFWS applied for Clean Water Act Section 404 permits from the US Army Corps of Engineers to begin "Phase II" of the restoration project and also for rebuilding their water intake system (COE permit application numbers 200500028 and 200401488, respectively) but later withdrew the applications after the public comment period closed.

6. Endangered Species Act Status

While a number of species listed as threatened or endangered under the Endangered Species Act are present in the vicinity, three salmonid species in particular are affected by operations at the LNFH. Upper Columbia River (UCR) spring Chinook salmon (*Oncorhynchus tshawytscha*) is listed as endangered, while UCR steelhead (*O. mykiss*) are listed as threatened. Both species are under the jurisdiction of the National Oceanic and Atmospheric Administration—National Marine Fisheries Service (NOAA Fisheries). Bull trout (*Salvelinus confluentus*) are listed as threatened and are the responsibility of the USFWS. Icicle Creek and its tributaries were listed as critical habitat for UCR steelhead effective January 2, 2006 (70 FR 52630, September 2, 2005).

The presence of listed species in the vicinity coupled with actions of the LNFH (e.g., operations, the Icicle Creek Restoration Project) has led to ESA Section 7 consultations between the USFWS and NOAA Fisheries, as well as intra-USFWS consultations. In 2003, NOAA-Fisheries determined that the LNFH's operations were not likely to "jeopardize" either the UCR spring Chinook, or the UCR steelhead (NOAA

2003). In 2006, the USFWS determined that the LNFH's operations were not going to cause jeopardy to bull trout and stated that "the Service's jeopardy analysis for the proposed Project is done at the scale of the Columbia River DPS" ["distinct population segment," a population that is reproductively isolated from others] (USFWS 2006a). All of the ESA Section 7 consultations, however, allowed "incidental take" of listed salmonids.

While the adequacy of the biological assessments and biological opinions produced through those consultations is not at issue here, and while they contain some valuable information on biological conditions of listed species and on the effects of the LNFH's operations, the conclusions are of limited utility in this determination because NOAA-Fisheries and the USFWS conduct their jeopardy analyses over large watersheds.

In the context of the upper Columbia River populations of spring Chinook and steelhead, and the entire Columbia River population of bull trout, the loss of some individuals or some reproductive impairment may not be serious. Ecology, however, must protect existing beneficial uses on a waterbody-by-waterbody basis. Ecology cannot use either the Columbia River or the upper Columbia River as the scale for its analyses, but instead must consider the effects on the existing uses of Icicle Creek (with some consideration given to attainment of water quality standards of downstream waterbodies).

Ecology apparently does not have guidance or implementation procedures for Tier I antidegradation, but EPA has outlined in their "Water Quality Standards Handbook (USEPA 1994) what protection of existing uses means:

> Full protection of the existing use requires protection of the entire water body with a few limited exceptions such as certain physical modifications that may so alter a water body that species composition cannot be maintained [such as permits to fill wetlands under CWA Section 404] and mixing zones [associated with wastewater discharges permitted under CWA Section 402]… If a planned activity will foreseeably lower water quality to the extent that it no longer is sufficient to protect and maintain the existing uses in that water body… the planned activity must be avoided or adequate mitigation or preventative measures must be taken to ensure that the existing uses and the water quality to protect them will be maintained.

In the same document, EPA offered the following regarding the protection of existing aquatic life uses:

> Non-aberrational resident species must be protected, even if not prevalent in number or importance. Water quality should be such that it results in no mortality and no significant growth or reproductive impairment of resident species. Any lowering of water quality below this full level of protection is not allowed.

When protecting existing uses, Ecology must take a different point of view than either NOAA-Fisheries or the USFWS takes when conducting ESA Section 7 consultations. In consultations, the Federal agencies can allow a great number of listed salmonids to be "taken," provided that "jeopardy" does not occur to the populations of the upper

Columbia River (or in the case of bull trout, the entire Columbia River watershed). But the amount of "take" allowed may be great enough to depress populations in a waterbody such that the existing aquatic life uses are partially or completely eliminated. Ecology cannot allow that to occur, and therefore cannot equate the "no jeopardy" conclusions of NOAA-Fisheries and the USFWS with protection of existing uses.

B. Biological Information

It is not Washington Trout's intention here to definitively document all the existing uses that may be present in Icicle Creek. It is the responsibility of the applicant (USFWS) or the permitting agency (EPA) to provide Ecology with sufficient information to properly evaluate the application. Nonetheless, we have evaluated some historical documents and conducted some biological evaluations ourselves and present that information here. For the purposes of evaluating the biology of Icicle Creek in light of the LNFH's activities, the stream can be divided into a number of distinct reaches:

RM 0.0 to 2.8:	Downstream of Dam 5
RM 2.8 to 3.8:	"Historic Channel;" between Dams 5 and 2
RM 3.8 to 4.5:	Between Dam 2 and the LNFH intake/intake dam
RM 4.5 to 5.7:	Between the LNFH intake dam and Icicle-Peshastin Irrigation District dam
RM 5.7 to source:	Upper Icicle Creek

It should be noted that there is a fish passage impediment ("boulder field") at RM 5.6, between the LNFH intake dam and the Icicle-Peshastin Irrigation District intake and dam. It is not known if this boulder field is completely natural or has been augmented by road-building activities, but regardless, it is not a complete barrier to fish passage (USFWS 2004a).

General information on the fish species present in Icicle Creek can be found in the "Hatchery and Genetic Management Plan" submitted by the USFWS to NOAA Fisheries (USFWS 2002a):

Salmonid Species	Scientific Name	Non-salmonid Species	Scientific Name
Spring Chinook salmon	*Oncorhynchus tshawytscha*	Longnose dace	*Rhinichthys cataractae*
Summer Chinook salmon	*O. tshawytscha*	Mottled sculpin	*Cottus bairdi*
Sockeye salmon	*O. nerka*	Largescale sucker	*Catostomus macrocheilus*
Coho salmon	*O. kisutch*	Bridgelip sucker	*C. columbianus*
Summer steelhead	*O. mykiss*	Pacific lamprey	*Entosphenus tridentatus*
Westslope cutthroat trout	*O. clarki lewisi*	Northern pikeminnow	*Ptychocheilus oregonensis*
Redband trout	*O. mykiss gairdneri*		
Bull trout	*Salvelinus confluentus*		
Brook trout	*S. fontinalis*		
Mountain whitefish	*Prosopium*		

	williamsoni		

Washington Trout staff snorkeled Icicle Creek in 2006 in order to determine fish presence. A summary table is presented below, and detailed information on fish presence in various reaches of Icicle Creek is attached in Appendix A. A variety of salmonid species were observed this year, as well as some non-salmonid species.

Results of four Washington Trout snorkel surveys, Icicle Creek, June-October 2006

Salmonid species	**Life Stage**
Chinook	YOY, 1+, Residualized (8-12"), Adult (>22")
Coho	YOY,1+ , Adult
Sockeye	Juvenile, Adult
Rainbow Steelhead	YOY (<3"), Juvenile (3-12"), Adult (>12")
Cutthroat (WS)	YOY (<3"), Juvenile (3-12"), Adult (>12")
Bull trout	YOY (<3"), Juvenile (3-12"), Adult (>12")
Whitefish	Juvenile, Adult
Brook trout	YOY (<3"), Juvenile (3-12"), Adult (>12")
Non-salmonid species	**Life Stage**
Dace	Juvenile, Adult
Pike minnow	Juvenile, Adult
Sucker	Juvenile, Adult
Sculpin	Juvenile, Adult

(note: "YOY" means young-of-the-year, and "WS" means Westslope)

The presence of newly-emerged and small salmonids indicates that certain reaches of Icicle Creek, including the historical channel, are spawning and rearing habitat for these fish. Presence of the adults of certain species indicates that the historical channel and the reach between dam 2 and the intake dam are migration corridors. These reaches are directly affected by the LNFH's activities.

Other information confirming fish presence in the historic channel of Icicle Creek is contained in a USFWS report on a 2005 snorkel survey (memo from David Morgan, USFWS; attached as Appendix B). Other USFWS documents report the presence of migratory bull trout use above the LNFH (email from Judy Delavergne, USFWS; attached as Appendix C).

These fish species, salmonids and non-salmonids alike, require instream flows of minimum quality and quantity. They also require free passage at most times of year in order to meet their life history requirements. They are "existing uses" that merit protection in this action.

We are not presenting any information on existing uses downstream of the LNFH, but Ecology must consider these uses as well when evaluating this application. The fact that lower Icicle Creek is in need of a TMDL indicates serious water quality problems.

III. The LNFH

A. Facility Background

The previous permit of the LNFH was issued in 1974 and expired in 1979. The USFWS applied to EPA on November 8, 2005 for an NPDES permit for the LNFH. The application identifies the LNFH as a "concentrated aquatic animal production facility" with 88 raceways and 135 nursery tanks. The LNFH rears 90,300 pounds of spring Chinook salmon annually (with a maximum of 101,968 pounds) and acclimates an additional 46,700 pounds of coho salmon in March and April. The maximum amount of fish food used is 21,700 pounds in August.

1. Water Withdrawals.

The water source is Icicle Creek and seven wells. The LNFH's intake on Icicle Creek is permitted to withdraw up to 54 cubic feet per second (cfs), which includes the LNFH's water right of 42 cfs and the Cascade Orchard Irrigation Company's water right of 12 cfs (USFWS 2005a). The LNFH also has a water right of 16,000 acre-feet (af) from Snow and Nada Lakes (USFWS 2005a). That water is routed into Snow Creek and Icicle Creek and withdrawn at the surface water intake (the confluence of Snow Creek and Icicle Creek is upstream of the LNFH intake). Water rights from the seven wells total 14.928 cfs (USFWS 2005a). Water rights of the LNFH are summarized in the following table (taken from USFWS 2005a):

Water Source	Priority Date	Diversion Rate
Icicle Creek	3/26/1942	42 cfs (18,851 gpm)
Snow and Nada Lakes	3/26/1942	16,000 acre-ft.
Well	8/1/1939	1.560 cfs (700 gpm)
Well	6/1/1940	2.005 cfs (900 gpm)
Well	10/16/1957	2.674 cfs (1200 gpm)
Four Wells	10/20/1980	8.689 cfs (3900 gpm)

The LNFH intake is at river mile (RM) 4.5 (USFWS 2006b). There are water withdrawals upstream of the LNFH intake, and during low flow periods in summer, Icicle Creek may have very little flow downstream of the LNFH intake (Montgomery Water Group 2004).

While the withdrawal of surface water is the primary way in which the LNFH's water need affects surface water quality standards, the LNFH also manipulates flows in Icicle Creek to facilitate ground water withdrawals (see **3. Operation of the LNFH Dams**, below).

2. Discharges

The LNFH discharges essentially all of the water that it withdraws. According to the fact sheet, water flows through the 88 raceways and is discharged into Icicle Creek via outfall 001, at an average volume of 26 million gallons per day (MGD) or 40.3 cfs. Two adult holding ponds are used to direct fish to Icicle Creek in April of each year, and this outfall (004) has an average flow rate of 5.04 MGD (7.8 cfs) for the two weeks of operation. When outfall 004 is flowing, the discharge of outfall 001 is reduced by a corresponding amount. These outfalls are approximately at RM 2.8, about 1.7 miles downstream of the intake.

Another outfall, 003, operated intermittently as a return route for Icicle Creek fish that enter the intake (the intake is not screened to exclude fish at Icicle Creek, but is farther "downstream" in the supply system). This outfall flowed at an average rate of 0.144 MGD (0.22 cfs), but is not listed in the draft permit at issue, presumably because the LNFH no longer plans on using this fish return path.

Water used to clean the hatchery raceways is routed to the LNFH's pollution abatement pond. The treatment afforded is detention (solids are given time to settle). Discharge from the pond averages 0.288 MGD (0.45 cfs) with a maximum discharge of 8.6 MGD (13.3 cfs). The difference between the average and the maximum discharges implies that the abatement pond discharges infrequently to Icicle Creek. No information on the frequency of discharge (presumably connected to raceway cleaning) is given in the application, the fact sheet, or the permit. An EPA "Water Compliance Inspection Report" dated August 19, 1998 (USEPA 1998) indicates that an inspection occurred on August 11, 1998. The "Summary of Findings/Comments" states

> Facility vacuums & brushes raceways 1-2X /week. Incubators & raceway effluent sent to pollution abatement pond for separation (settling) of solids before entering Icicle Creek… Pollution abatement pond cleaned every two years.

From this information, it appears that the pond flows for a few hours on days when raceways are cleaned, which is once or twice a week. No information is given in the application, the fact sheet, or the draft permit on frequency of cleaning the pollution abatement pond of accumulated solids.

3. Operation Of The LNFH Dams

The LNFH operates a dam and water intake structure at RM 4.5, and two other dams on Icicle Creek, "Dam 5", nearer the hatchery facility at approximately RM 2.8 and "Dam 2" (or "Headgate") at RM 3.8.

The intake dam is operated to ensure that enough flow enters the LNFH water intake structure. USFWS (2004) recently described the dam as follows:

> Primary to the system is the original low rubble masonry diversion dam with concrete spillway crest across Icicle Creek. Comprised of a concrete base with flash boards on top, the dam raises water elevations several feet allowing a portion of the flow to be diverted through a grizzly rack (bars spaced at about 6 inches) and into a concrete water conveyance channel. In the late 1980's, the diversion dam was rehabilitated and a fishway constructed at the entrance to the conveyance channel. Because of high bed and suspended sediment loads present in the creek during portions of the year, the pool and weir design of the fishway proved to be unsuccessful for passing fish. Currently, the fishway has been abandoned as a means of passing fish around the dam.

LNFH recently replaced boards in the fishway to enhance fish passage opportunities, although this is considered only a short-term arrangement. While at certain flows some fish are able to pass the dam without using the fishway, the placing of flashboards can inhibit fish passage. Fish passage is a problem at this dam.

Dams 2 and 5 are operated in concert. Dam 5 is operated to deliberately block fish passage at various times of year, while Dam 2 is operated in order to divert water into the LNFH "canal" for a number of reasons, including 1) preventing flooding (overtopping) of Dam 5 when it is blocking fish passage, 2) diverting water into the canal to provide an attraction flow to the LNFH fish ladder, and 3) diverting water into the canal in order to recharge the LNFH's shallow wells.

The operation of these dams is spelled out in a USFWS memorandum "Operational Plan for Leavenworth National Fish Hatchery's Structures 2 and 5" (USFWS 2004b, attached as Appendix C) and some modifications have been made through at least one ESA Section 7 consultation (USFWS 2006a). We have summarized the operation in the chart below (the parenthetical "July 7" denotes a modification outlined in an ESA Section 7 intra-USFWS consultation completed this year (USFWS 2006a)).

Time of year	**Dam 2**	**Dam 5**
Mid-December to mid-March	Dependent on stage at Dam 5, normally open	Open unless instream work is required
Mid-March to early May	Controlled to allow Dam 5 functions, **fish passage impediment.**	Screens and boards in place for coho rearing, **fish passage impediment.**
Early May to late August (July 7)	Controlled to allow Dam 5 functions, **fish passage impediment**	Racks in place to prevent upstream migration of hatchery spring Chinook, and most other larger fish, **fish passage impediment.**
(July 7) late August to mid-September	Dependent on stage at Dam 5, normally open	Open unless instream work is required
Mid-September to mid-December	Controlled to allow Dam 5 function, **fish passage impediment.**	Traps, racks and boards in place to collect adult coho, **fish passage impediment.**

While the USFWS (2004b) operational memo does not spell out under what conditions flow may be diverted into the canal in order to recharge the LNFH's shallow wells, some information can be found in the EIS for the Icicle Creek Restoration Project (USFWS 2002a). Ecology needs to investigate the legality of diverting surface water in order to fulfill a ground water right.

It should also be noted that reducing flows in the historical channel degrades habitat and adversely affects aquatic life. For instance, in mid-May fish may be trapped in the historical channel and spawn there, only to have that reach dewatered or adversely affected by high temperatures due to the LNFH's activities.

IV. LNFH Impacts On Water Quality

Operation of the LNFH is dependent on two main activities: withdrawal of water (from Icicle Creek and wells), and discharge of that water from the various outfalls. The permit only covers the latter activity.

A. The Subject Permit

1. The Phosphorus Limit Will Not Result In Attainment Of Standards

In the fact sheet, EPA cited a number of conclusions of the Washington Department of Ecology's TMDL study (WDOE 2006) that conclude that the violations of the pH criterion in lower Icicle Creek are due to excess periphyton growth (fact sheet, pp 9-11). EPA failed to include WDOE's salient conclusion that "to attain water quality standards in lower Icicle Creek the [LNFH] main outfall would have to reduce its inorganic-P concentration to less than 5.0 μg/L" (<0.005 mg/L) (WDOE 2006). EPA's apparent justification is based on the fact that no wasteload allocations were determined in the WDOE study, that final load allocations and wasteload allocations will be developed in an "approved TMDL" and that "the recommendations for pollutant loading that were included in the state's technical report are anticipated to change as a result of [the TMDL] process" (fact sheet, p. 11).

EPA went on to propose what it calls "water quality-based limitations for total phosphorus" that are set at 0.010 mg/L, which is over twice the concentration cited by WDOE (2006) (fact sheet, pp. 14-17). EPA failed to show how these "water quality-based" limitations were derived. EPA stated that the limits are based on "best available information," but cite no documents except the WDOE technical report (WDOE 2006).

WDOE (2006) sampled the LNFH's discharge on eight dates in 2002-2003, and the phosphorus concentrations ranged 0.0065-0.024 mg/L, with an average concentration of 0.015 mg/L. The WDOE (2006) study expressed a need to reduce phosphorus concentrations by 55%, and also indicated that the LNFH was responsible for 86.3% of the total phosphorus load to lower Icicle Creek. It is hard to imagine, however, how Icicle Creek will attain standards if the LNFH is only required to reduce its load by 33% (0.015 mg/L to 0.010 mg/L). Even if all other loads were reduced to zero (an impossibility), and the LNFH complied with the effluent limitations in EPA's draft permit, Icicle Creek would still have an excess of phosphorus.

One measure that EPA directs the USFWS to evaluate is "increasing Icicle Creek stream flow during the period from July 1 to September 30 by diverting more water from Snow Lake." Both Snow Lake and Snow Creek are "waters of the state" and are protected in their own right, and are not simply a water source and a conveyance channel to be used exclusively for the LNFH's benefit. Any evaluation should include a study on the effects of water withdrawal on Snow Lake and the addition of water to Snow Creek. We also question the public policy of directing a discharger to dilute their effluent rather than increase treatment.

EPA also states that "reducing water diverted for irrigation from Icicle Creek above the Hatchery" may improve water quality. We believe that action should focus on what the LNFH can do, rather than speculate on what others may be able to do to ameliorate the problems caused by the LNFH. The LNFH can and should evaluate other reasonable measures. For example, one obvious solution is for the LNFH to evaluate raising fewer fish because the phosphorus in the discharge is a direct result of the LNFH's fish rearing activities. If accompanied by withdrawing less water from Icicle Creek, raising fewer fish would afford temperature benefits to Icicle Creek.

Ecology should strongly evaluate whether the effluent limitation for phosphorus needs to be for the entire growing season, conservatively March through October (this is appropriate for a stream that requires a TMDL), rather than be limited to the July 1 to September 30 time period. The effluent limitation should also be expressed in terms of loading (unit mass/day) rather than in terms of concentration (unit mass/unit water) as required by 40 CFR 122.45(f). Ecology also needs to examine the effluent limitation for phosphorus in light of the effluent limitations for total suspended solids and settleable solids, as considerable phosphorus can be associated with the solids.

2. The Permit Does Not Address PCBs And Other Fish Feed Contaminants

Similar to temperature, EPA believes that there is no reasonable potential for the LNFH to discharge PCBs (polychlorinated biphenyls) or other organic pollutants. The fact sheet stated that USFWS study (USFWS 2005b) found no "statistical difference between PCB concentrations in stream sediment upstream and downstream of the Hatchery discharge" (fact sheet, p.11). Washington Trout commented to the USFWS on their 2005 study (Washington Trout 2006), and we stated that the USFWS's use of inferential statistics in this study was not appropriate due to a lack of independence of the samples. We were also concerned about the lack of organic material in all of the instream samples, which would bias the samples towards lower concentrations. Washington Trout believed that the USFWS study did not adequately represent worst-case conditions and is of limited utility. We recommended that USFWS cooperate with the Washington Department of Ecology in the TMDL study for PCBs and DDT and consider placing Semipermeable Membrane Devices (SPMDs) into various locations.

More significantly, the USFWS study clearly shows PCB concentrations in the sediments of the LNFH pollution abatement pond an order of magnitude higher than either upstream or downstream samples. Those samples were also above the appropriate benchmark that the USFWS chose to use to evaluate PCB concentrations in sediments. No information is given in the application, the fact sheet, or the permit on frequency of cleaning the pollution abatement pond of accumulated solids. When we discussed the PCB report with USFWS staff on April 25, 2006, we learned that the pollution abatement pond was last cleaned in 1998. This is in contrast to the EPA "Water Compliance Inspection Report" cited above (USEPA 1998) which stated that the pollution abatement pond was "cleaned every two years."

USFWS (2005b) and EPA in their fact sheet apparently agree that the source of PCBs at the LNFH is fish food. EPA does not propose any effluent limitations, however,

apparently relying on the fact that the LNFH is planning to clean "sediments from the pollution abatement pond" and "properly dispose of removed solids."

We are troubled that this permit contains no directives regarding the pollution abatement pond. In 1998, EPA believed that the pond was cleaned every two years. After it was cleaned in 1998, however, it was apparently ignored. We fear that even if the pollution abatement pond is cleaned this year, the LNFH has no incentive to maintain this pollution abatement system.

3. Other Issues Regarding The Subject Permit

Ecology needs to consider the fish disease control chemicals more closely than did EPA. Rather than simply record their use, Ecology should require that the amounts along with estimated discharge concentrations be reported.

Temperature should be monitored on a continuous basis rather than through "grab" samples. All outfalls should be monitored, as well as instream locations in order to better determine how the LNFH affects instream temperatures.

B. Operation Of LNFH Dams

The operation of the LNFH intake, as well as the operation of Dams 2 and 5 adversely affect Icicle Creek: 1) fish passage is routinely blocked by the LNFH, impairing the "salmonid migration" and "other fish migration" characteristic uses protected in Class A waters; 2) diversion of water into the intake structure dewaters Icicle Creek exacerbating violations of the temperature criterion; 3) operation of the headgate (Dam 2) causes Icicle Creek water to be diverted into a canal adjacent to the hatchery, causing further violations of the temperature criterion in Icicle Creek adjacent to the hatchery grounds (the "historical" channel); and 4) the intake dam's fish ladder is not used to pass fish, but instead to flush accumulated sediment from the water intake area. These four points are discussed below.

1. Fish Migration, A "Characteristic Use," Is Not Protected

While fish passage has been hindered to some degree or another ever since the LNFH was constructed over 65 years ago, the LNFH continues to operate Dams 2 and 5 to suit its operational needs without consideration of the characteristic uses of Icicle Creek. The "salmonid migration" use and the "other fish migration" use have been particularly affected.

In 2000, the LNFH, with the cooperation of the Yakama Nation, commenced the Coho salmon reintroduction project that resulted in a sharp increase of the number of months fish passage is completely blocked or severely inhibited (NOAA 2003; USFWS 2004b). According to USFWS (2004b), from mid-March to early May fish passage will be "limited" at both Dams 2 and 5, and from mid-September to December, "the adjustments at Structure 5 [that is, Dam 5] will block up and downstream fish passage." Before the Coho introduction project, fish passage would have been possible in this five month period. This nearly five-month reduction of fish migration opportunities must be considered in light of the typical blockage the stream experiences in early May to late

August (or July 7) to facilitate collection of returning spring Chinook adults. With the addition of the Coho project, fish migration is now hindered or stopped most of the year.

The five-month period of fish passage must be considered an "existing use" protected by Washington's antidegradation policy (WAC 173-201A-070(1)), because the Coho introduction project commenced after November 28, 1975 (the date used by EPA for the establishment of existing uses (40 CFR 131.3). Washington's antidegradation policy prohibits the elimination of existing uses (WAC 173-201A-070(1)).

We realize that the LNFH may have production numbers outlined in *US* v. *Oregon* or other court cases, as well as Tribal treaty responsibilities to uphold. None of those, however, can authorize the LNFH to violate the Clean Water Act by eliminating fish migration opportunities.

One possible operating scenario for the LNFH to evaluate in order to protect the fish migration characteristic uses of Icicle Creek is to apply limitations to the duration of trapping returning adult fish (e.g., remove boards and stop logs) on an hourly, daily, or weekly basis. Incidentally, this is also an "all agency" term and condition applicable to the LNFH in NOAA's Biological Opinion on LNFH operations (NOAA 2003). As USFWS (2004b) outlines, however, the USFWS does not operate Dams 2 and 5 on anything less than a seasonal basis. This violation of the Biological Opinion is the subject of legal action between Washington Trout and the USFWS. The fact that this issue is in litigation, however, does not relieve Ecology to appropriately condition the NPDES permit.

2. Diversion Of Water Contributes To High Temperatures

In the fact sheet, EPA cited a USFWS study of temperature in Icicle Creek that evaluated the "effects of [LNFH] operations on Icicle Creek water temperatures" (USFWS 2006b). EPA used this report as evidence that "the water temperature of Icicle Creek downstream of the Hatchery discharge is cooler during the critical period than that upstream of inflow from Snow Creek" and therefore there is "no reasonable potential" for the *discharge* to violate the water quality criterion, and no need for temperature limits. The NPDES permit does not assess all of the impacts that the LNFH's water withdrawal has on Icicle Creek temperatures, even though EPA recognizes that "almost all of the water in Icicle Creek above the Hatchery is diverted into the Hatchery during the critical warm summer months" (fact sheet, p. 11).

The USFWS (2006b) report states that "in August and September the stream temperature downstream of the intake was more than double the increase upstream of the intake despite the slightly shorter distance" (0.7 miles downstream vs. 0.9 miles upstream). The relevant measured temperature changes were as follows:

Month	Upstream Change (^{o}C) (RM 5.4 to 4.5)	Downstream Change (^{o}C) (RM 4.5 to 3.8)
August	+0.8	+2.3
September	+0.6	+1.9

These increases contribute to the temperature criterion violations that the same study identified and the difference is attributable to the LNFH's withdrawal. Icicle Creek was in violation of the criterion above Snow Creek, and the water diverted by the USFWS actually cooled the stream. The withdrawal of water from Icicle Creek results in sharp increases in temperature. Factoring in the upstream change, it appears that the LNFH withdrawal causes Icicle Creek temperatures to increase an additional 1.3 ^{o}C to 1.5 ^{o}C in only 0.7 miles. As the USFWS report (2006b) summarizes, the rate of warming per mile "for August and September was an average of +0.7 ^{o}C upstream of the diversion and an average of +2.1 ^{o}C downstream of the diversion." EPA's permit does not consider the fact that the LNFH withdrawal causes temperature increases in Icicle Creek between the intake and Dam 2 (RM 4.5 to RM 3.8) that are much greater than the 0.3^{o}C increase allowed by the criterion.

Ecology must direct USFWS to evaluate alternatives to its current withdrawal location and take temperature effects on Icicle Creek into account. USFWS has been evaluating alternatives, but did not consider violations of the temperature criterion in its evaluation (USFWS 2005a). The Clean Water Act Section 404 permit application filed last year by the USFWS (COE reference number 200401488) envisioned reconstructing the intake at its current location. If that were to occur and if the USFWS would operate the diversion as it has, Icicle Creek would suffer for decades from unreasonably high temperatures, as the USFWS alternatives analysis (USFWS 2005a) specifies a fifty-year life for any intake system.

3. Operation Of Dams 2 and 5 Causes Violations Of Temperature Criteria

The operational plan of Dams 2 and 5 that results in diminished fish migration (USFWS 2004b) also exacerbates violations of temperature criteria in the "historical" channel of Icicle Creek. The restricted flows to Icicle Creek also decrease available fish habitat, and prevent the natural flushing of sediments.

Temperature effects are the most obvious. As described above, Icicle Creek is temperature stressed due to the LNFH's withdrawal at RM 4.5. Icicle Creek's flow is further diminished by the operation of Dam 2 (RM 3.8), which causes flow to be split between the LNFH's "canal" and Icicle Creek. The USFWS restricts flows in Icicle Creek as described above.

The USFWS temperature study (USFWS 2006) indicates further temperature increases in the ~1.0 mile channel of Icicle Creek between Dam 2 and the confluence with the LNFH canal. By that point (RM 2.8), Icicle Creek is well above the 18.0^{o}C Class A maximum temperature, and is approaching or surpassing lethal temperatures for salmonids (23^{o}C, as identified by WDOE (2005)).

The high temperatures and restrictions on fish passage pose a particularly threatening situation for salmonids. In early May, fish passage is relatively easy, but after that, Dams 2 and 5 are operated for spring Chinook broodstock collection (USFWS 2004b). Fish already upstream of Dam 5 are prevented from passing Dam 2 and are effectively trapped. Initial conditions may be suitable for them to spawn in this area, but

then fish and redds alike are subject to lethal or near lethal temperatures as flows drop and most of Icicle Creek is first diverted into the LNFH intake then into the LNFH canal.

Ecology needs to take into account the adverse effects caused by the LNFH operations on Icicle Creek temperature, not just the discharges' effects. It is irrelevant that without the LNFH's diversion of water from Snow Lake, Icicle Creek might essentially be dewatered due to other water withdrawals. If the LNFH did not exist, Snow Lake water would still be available, and there is no reason to believe that the appropriate agencies (e.g., NOAA and the US Forest Service) might not work out an agreement to divert Snow Lake water in order to augment Icicle Creek's flows, if that could be done without compromising other values or violating other laws.

4. The Intake Dam's Fish Ladder Is Used To Illegally Flush Sediment

The USFWS (2005a) study of water intake alternatives has this to say regarding the fish ladder at the intake dam:

> In the late 1980's, the dam was rehabilitated and a fishway constructed at the entrance to the intake channel. Because of the high bed load and suspended sediment loads present in the creek during portions of the year, the pool and weir design of the fishway proved to be unsuccessful. Currently the fishway has been abandoned as a means of passing fish around the dam. All stoplogs have been removed from the chute and *it has been operated periodically as a sluiceway to flush accumulated sediment away from in front of the intake channel's entrance* (emphasis added).

We are aware of no permit for this activity, and this draft permit does not address this issue. This is yet another example of the LNFH's operations adversely affecting water quality. Ecology should direct the LNFH to cease using the fishway to illegally discharge sediment to Icicle Creek.

V. Conditions Needed In the Section 401Certification

Although compliance with water quality standards requires protecting uses as well as numeric water quality criteria, EPA has only considered the effects of the LNFH's discharges on numeric water quality criteria. EPA has not considered how the LNFH violates water quality standards through its operations. Therefore, Ecology must assess all of the possible ways that the LNFH can affect water quality and accordingly condition this certification. That would include all the issues surrounding the direct discharges and the issues regarding the operation of the three dams.

The issues surrounding the LNFH's discharge and operations are complex, so much so that we will not try to condense our above comments and present a short list of recommended conditions. This application is akin to a FERC license and deserves thorough consideration and perhaps face-to-face discussions with all interested parties.

We recommend that the Section 401 certification application be denied. Ecology should provide the LNFH with guidance on how to prepare an application for Section 401

certification that includes all of its activities. Ecology is within its rights to deny this application, given that neither the LNFH nor EPA gave indications how it will comply with water quality standards when operating its dams. If Ecology does issue a Section 401 certification, we hope that, at a minimum, the issues we raised here are included.

Thank you for the opportunity to comment. Please contact Mark Hersh, at 425-788-1167 if you have any questions.

Very Truly Yours,

Kurt Beardslee, Executive Director
Washington Trout

Attachments

References

Montgomery Water Group. 2004. Icicle Creek target flow report for Leavenworth National Fish Hatchery. Prepared for Jacobs Civil, Inc. Kirkland, WA. 19 pp.

NOAA. 2003. Biological opinion and Magnuson-Stevens essential fish habitat consultation, Number 1999/01883. Issued October 2, 2003.

USEPA. 1994. Water quality standards handbook. Second edition. EPA 823-B-94-005a. Office of Water. Washington, DC. 202 pp.

USEPA. 1998. August 11, 1998 water compliance inspection report for NPDES number WA0001902, US Fish and Wildlife Service, Leavenworth, WA. Signed Dennis Lazzar, Inspector, August 19, 1998. 1 p.

USFWS. 1985. Advance project planning for pollution abatement facilities. Prepared by Sverdrup & Parcel and Associates. Portland, OR. 22 pp. + appendices.

USFWS. 2002a. Final environmental impact statement, Icicle Creek restoration project., Leavenworth National Fish Hatchery, Portland, OR.

USFWS. 2002b. Hatchery and genetic management plan for LNFH. Submitted to NOAA Fisheries.

USFWS. 2004a. Biological assessment for water intake rehabilitation project. Prepared by Mid-Columbia Fisheries Resource Office, Leavenworth, WA.

USFWS. 2004b. Operational Plan for Leavenworth National Fish Hatchery's Structures 2 and 5. Internal memo of Leavenworth National Fish Hatchery Complex. Leavenworth, WA. October 8, 2004. 8 pp.

USFWS. 2005a. Icicle Creek fish passage restoration and intake alternatives study at the Leavenworth National Fish Hatchery. Final report. Prepared by Sverdrup Civil, Bellevue, WA. 166 pp.

USFWS. 2005b. Leavenworth National Fish Hatchery PCB and pesticide investigation. Prepared by Upper Columbia Fish and Wildlife Office, Spokane, WA. November 22, 2005. 26 pages + appendices.

USFWS. 2006a. Biological opinion for the Leavenworth National Fish Hatchery operation and maintenance. Prepared by Central Washington Fish and Wildlife Office, Wenatchee, WA. August 31, 2006. 86 pp.

USFWS. 2006b. Progress report, Icicle Creek Water Temperatures: July 16, 2005 – November 9, 2005. Prepared by Barbara Kelly Ringel, Mid-Columbia River Fishery Resource Office, U.S. Fish and Wildlife Service, Leavenworth, WA. Final June 14, 2006. 21 pp.

WDOE. 2005. Wenatchee River temperature total maximum daily load study. Publication No. 05-03-011. Environmental Assessment Program, Olympia, WA. 108 pp.

WDOE 2006. Wenatchee River basin dissolved oxygen, pH, and phosphorus total maximum daily load study. Publication No. 06-03-018. Environmental Assessment Program, Olympia, WA. 135 pp.

Washington Trout. 2006. Letter to Susan B. Martin, USFWS, from Kurt Beardslee, Washington Trout, with attached "Comments of Washington Trout on 'Leavenworth National Fish Hatchery PCB and Pesticide Investigation, November 22, 2005.'" Duvall, WA. 7 pp.