

Record of Decision for the Icicle Creek Restoration Project

*USDI Fish and Wildlife Service
Leavenworth National Fish
Hatchery
Chelan County
Leavenworth, Washington*

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Fish and Wildlife Service – U.S.
Department of Interior*

*Cooperating Agency:
Forest Service – U.S. Department of
Agriculture*

Introduction

Summary

In this Record of Decision (ROD) I am selecting a course of action, which will move toward restoring the historic Icicle Creek Channel within the Leavenworth National Fish Hatchery grounds. The Decision will determine what structures in the historic channel will be removed, how fish passage through the hatchery grounds will be achieved and what riverine habitat will be provided. This ROD documents my rationale for the decision and defines how implementation of this decision will proceed. This decision is based on information and analysis in the Final Environmental Impact Statement for the Icicle Creek Restoration Project (FEIS) that describes the proposed action and alternatives to the proposed action to restore Icicle Creek within the Leavenworth National Fish Hatchery grounds in Leavenworth, Washington. Research literature, agency records and databases were searched, and other experts consulted, to provide the most up to date and complete analysis as possible. This FEIS has been available to me and to the public at least 30 days following the Notice of Availability published in the Federal Register on February 15, 2002. The FEIS was prepared by the U.S. Fish and Wildlife Service, in cooperation with the U.S. Forest Service. The Notice of Intent to prepare the EIS was published in the Federal Register on March 10, 1999. The FEIS is currently available for public review at the Leavenworth National Fish Hatchery, 12790 Fish Hatchery Road, Leavenworth, WA. 98826; at the Leavenworth District Ranger's Office, 600 Sherbourne, Leavenworth, WA. 98826; at the Okanogan and Wenatchee National Forests Headquarters, 215 Melody Lane, Wenatchee, WA. 98801-5933, at the Leavenworth Public Library,

700 Highway 2, Leavenworth, WA. 98826, and at the Wenatchee Public Library, 310 Douglas, Wenatchee, WA. 98801.

Background/Purpose and Need

When the USFWS, Leavenworth National Fish Hatchery (LNFH) was constructed in 1939-1941, a one-mile stretch of the creek channel was used for holding and spawning returning adult fish. A series of dams and weirs were installed in this channel to create ponds to hold adult salmonids prior to annual spawning. Hatchery operations were conducted principally within the creek. It was operationally critical to be able to control water flow in this channel. Therefore, a canal was built to carry high water flows around these structures. A headgate dam was constructed at the upstream end of the original channel (today's "historic channel") to control flows into it. Fish migration to areas above the LNFH was blocked by the series of dams and weirs in the historic channel and a spillway dam at the base of the canal.

It was thought that the natural energy expenditure in a free flowing stream prior to spawning might decrease mortality of adults and improve the viability of eggs and young (Brennan 1938). However, it did not improve production. This practice of holding and spawning adult fish in the historic channel (rather than in traditional holding ponds) was terminated in 1979 because of problems with water temperature regulation, disease and predators. However, the headgate is still operated today for flow control. A fish ladder and two holding ponds were constructed at the base of the canal spillway to collect the LNFH returning broodstock. These are still operating today. After 60 years of operating the headgate to limit flows in the historic channel, sediments have accumulated and have created large, delta-like deposits. The channel has evolved

from riverine to wetland habitat. Specifically, the channel has been reduced in dimensions and wetland vegetation has developed on encroaching sediment deposits. This portion of the creek no longer provides suitable fish habitat for all life stages of native fish.

Today, neither use of the former holding areas, nor blockage of upstream fish passage is required for operation of LNFH. However, the headgate at Structure 2 is currently used for flow control. Migration of endangered steelhead, endangered non-hatchery stock spring Chinook salmon, threatened bull trout and many other fish species is affected by stream blockage at the LNFH. Icicle Creek and its tributaries offer many miles of fish habitat, if it can be reached. In 1996 the USFWS identified and in 1998, several agencies, organizations and citizen's groups highlighted the need to provide fish passage through the LNFH and to provide riverine habitat within the historic channel.

The purpose of the Icicle Creek Restoration Project is as follows:

- Provide long-term, sustainable year-round passage to native fish through the LNFH, and
- Provide riverine habitat within the LNFH grounds.

The need of the restoration project is to protect and aid in the recovery of threatened and endangered fish species and the habitat they depend on as required by federal (Endangered Species Act 1973) and state (RCW 75.20.061 and 77.12.425 1963; Joint Natural Resources Cabinet 1999) laws. Fish passage, allowing access to habitat is a critical component in the recovery of salmonid populations.

The Decision

Based on the results of the Icicle Creek Restoration Project FEIS and associated appendices, I have decided to select Alternative 3, as modified below to provide direction for restoration of the historic channel of Icicle Creek.

Alternative 3 will be implemented with the following modifications:

- Natural flushing will be employed to remove accumulated sediment in the historic channel, rather than mechanical dredging. Natural flushing would be accomplished as described in Alternative 6, except up to a larger flow (2600 cfs) would be allowed through the historic channel over time.

- Remove diffusion dam, rack structure, abutments, flumes, and other concrete slabs or foundations from Structure #2. Only the headgate would remain.

- Demolition/Construction activities around the Structure #2 area would be restricted to between 6:00 AM and 6:00 PM.

I consider these modifications consistent with the purpose and need for action and within the scope of the alternatives and effects considered in the environmental analysis.

Alternative 3 – Modified, with the above changes, consists of the following (See FEIS pages 2-3 to 2-11, 2-15 to 2-17 and Appendix H-5 for a more complete description):

Summary of Alternative 3 - Modified

- Naturally flush accumulated sediment from the historic channel with flow of up to 2,600 cfs.

Structure No. 2 Area

- Construct a vertical slot fishway to provide fish passage at the headgate.

- Rehabilitate existing headgate mechanical and structural components.

- Bridge on top of the headgate would remain.

- Remove diffusion dam, rack structure, abutments, flumes, and other concrete slabs or foundations.

Structure No. 3 Area

- Remove diffusion dam, rack structure, abutments, flumes, and other concrete slabs or foundations.

Structure No. 4 Area

- Remove existing pedestrian bridge.

- Remove diffusion dam, rack structure, abutments, flumes, and other concrete slabs or foundations.

Structure No. 5 Area

- Modify so that it can be operated as a seasonal “hatchery fish” barrier, which would pass sediment and allow upstream and downstream passage of TES fish.

- Rehabilitate existing diffusion dam and vehicle bridge.

- Add sorting facilities and bypass channels to the existing fishways.

- Provide stream stabilization of the right bank above Structure No. 5.

- Provide streambank stabilization of the left bank of the historic channel downstream of Structure No. 5.

Canal and Spillway Area

- Canal and Spillway would be maintained.

- Modify the 1998 Stream Restoration Project on the left bank of Icicle Creek, below the spillway.

Holding Ponds

Any TES fish entering the holding ponds would be netted and placed in a truck and hauled upstream of LNFH.

Mitigations

- At the 1998 downstream restoration project, mitigation for increased flows will include installation of in-stream features, such as barbs, J-hook weirs, or vortex rock weirs, and stream bank re-vegetation (FEIS page 2-4).

- On the outside meander bend, right bank, between Structures #4 and #5, mitigation for increased flows will include in-stream structures—such as barbs, J-hook weirs, or vortex rock weirs, to reduce stream bank shear stress (FEIS page 2-4).

- Native seed from local sites and native plants from stream banks (which will be removed) will be used in re-vegetation associated with this project (FEIS page 2-4).

- To reduce the spread and incidence of noxious weed infestations on the hatchery grounds; heavy equipment will be kept out of weed-infested areas, heavy equipment will be cleaned before it enters the project area, any disturbed soil will be seeded with native grasses immediately following disturbance, fertilization and/or mulching will be used as appropriate, and shrubs and trees will be planted as appropriate (FEIS page 2-5).

- Native under-story and over-story species will be re-established to function as cover and forage (FEIS page 2-9), to mitigate for any disturbance of riparian or upland sites.

- To mitigate for the loss of historic structures, a strategy has been accepted by the consulting parties, and includes recording, interpreting, and managing the historic properties (FEIS page 2-5).

- Seasonal timing restrictions on operations will protect any known breeding or over-wintering bald eagle, harlequin duck, olive-sided flycatchers, Cascades frog, fringed myotis and Yuma myotis (FEIS pages 2-6 to 2-8).

■ Project operations will occur from July 31 of the first year into the winter or spring season. Any in-stream work will require drying up the historic channel until operations are complete. Structures will be removed by a large piece of equipment, such as an excavator, that would enter the dry channel, break up the concrete and steel structures, load them into dump trucks and remove the material. Operations around Structure #2 will only occur from 6:00 AM to 6:00 PM on weekday, non-federal holidays, in order to mitigate for the sights and sounds of operations from Sleeping Lady Conference Retreat. Dust abatement will be required to reduce any safety problems (FEIS page 2-10).

■ Many County, State and Federal permits will need to be acquired for in-stream operations, many will be applied for with a Joint Aquatic Resource Permit Application (FEIS page 2-10).

Monitoring and Enforcement

Monitoring of project implementation is meant to ensure mitigations are accomplished and are effective. A historic preservation specialist will be on-site to monitor all demolition or structure altering activities within the historic channel and enforce the Memorandum of Agreement with the State Historic Preservation Office. Weed spread and the success of re-vegetation will be monitored by LNFH personnel, who will also enforce the FEIS requirement for re-vegetation. Bald eagle roost sites will be monitored for three years for continued occupancy. Harlequin duck surveys will be monitored for continued occupancy for five years after project operations. Peregrine falcon eyries will be monitored for continued occupancy for two years following activities. Songbird, bat and amphibian surveys will be conducted for two years after structure removal. A wetland monitoring plan will measure and assess the following components:

hydrology, soils, flora, fauna, water quality, habitat structure and connectivity and buffers. Wetland habitat in the historic channel will be delineated within one year after operations, and every five years after that for fifteen years. The delineations will be compared to the baseline information to determine changes in the quantity and quality of wetland habitat. Mitigations for wetland losses will be enforced by LNFH personnel. Channel changes/stream-flows in the historic channel will be monitored as needed to ensure orderly natural flushing and protection of stream banks and downstream improvements. Upstream and downstream fish passage through the hatchery grounds will be monitored for effectiveness for passage as needed. National Marine Fishery Service and USFWS personnel will enforce passage requirements. Fish habitat will be monitored in Icicle Creek above and below the hatchery for effectiveness as needed. Spring Chinook salmon, steelhead and bull trout spawning will be monitored in Icicle Creek above and below the hatchery to determine what portions of the creek are being utilized (FEIS page 2-11).

Implementation

Alternative 3 – Modified will be implemented largely through service contracts. That is, specifications for removal/modification of the structures, re-vegetation and stream bank improvements will be developed and then put out for bid. USFWS personnel would enforce the specifications of these contracts. Drying up the canal, removal of any stranded fish, permit application, and monitoring will be accomplished by LNFH or U.S. Forest Service personnel. Historic site recording and monitoring will be accomplished by USFWS staff or under contract as needed. Many of the permits listed in the FEIS page 2-10 will be applied for with a Joint Aquatic Resource Permit Application (JARPA). The total cost of this project is estimated to be \$3,903,870 (FEIS Appendix M-3).

Implementation of the structure removal and modifications will be accomplished within one year. Mitigation activities especially for wetlands could take up to five years.

Rationale for the Decision

I selected Alternative 3 – Modified because I believe it best meets the purpose and need for action while providing a balanced response to the key issues identified:

Key Issue #1 – Hatchery Operations

Alternative 2 would emphasize putting more flow into the historic channel, thereby reducing the amount diverted into the canal, which would cause a possible decrease in fish production. It has been shown that production well recharge is dependent on water levels in the canal. Thus, there is the potential for a 28% reduction in ground water supplies during normal to low recharge conditions if the canal is dry. This reduction in ground water supplies could generate a reduction in fish production by 24% (FEIS pages 4-3 to 4-4). Concurrent with this decrease in production, native fish would be allowed to pass above the headgate and up to and beyond the Icicle Creek diversion intake. A limited increase in the number of and types of water-borne pathogens and parasites would occur, increasing risk to the hatchery fish (FEIS page 4-4). Groundwater can be used to decrease this risk, as it is generally pathogen-free water. This possible reduction in fish production capacity is the trade-off for restoring all flow to the historic channel. Alternatives 1, 3, 3-Modified, 5, 6, and 7 all keep the canal wet most of the year as is done currently. Therefore, groundwater supplies will maintain current well production and fish production will be maintained at current levels.

Key Issue #2 – Stream Dynamics

All alternatives that maintain and operate the headgate at Structure #2 (including Alternative 3 –

Modified) have the ability to control all but extreme amounts of Icicle River flow. Therefore, there is a low risk to localized flooding through flow levels that overtop the bank, channel migration or a cut-off of the meander loop between Structures #4 and #5. Alternative 3 – Modified will allow the most flow (2600 cfs) over time of all the alternatives that maintain a structure across the historic channel, while maintaining channel stability through stream bank protection mitigations. This flow level (though constrained by Structure #5) has the best ability to naturally scour the channel of accumulated sediments of all alternatives except Alternative 2, which would remove all structures. However, as flow modeling indicated, even under Alternative 2, removal of sediment through natural flushing is limited. Only, 26% of sediments will be removed under Alternative 3 – Modified. Alternative 3 with mechanical dredging is best able to restore the historic channel's shape and configuration. However, without the ability to direct all flows through the historic channel, an artificial equilibrium would be established within the channel, with higher stored sediment levels than a fully restored stream channel (FEIS page 4-10). In other words, after dredging, sediment would re-accumulate to some degree in the historic channel. Therefore, though providing a more completely restored channel in the short term, I believe that the expense of mechanical dredging is not justified in the long term. I believe Alternative 3 – Modified most efficiently restores the historic channel in the long term, while maintaining the structures (#2 and #5) necessary to prevent localized flooding, provide channel stability and maintain the tribal fishery.

Key Issue #3 – Tribal Fishery

The tribal fishery of interest is the hatchery spring Chinook salmon run in the pool at the base of the spillway. Structure #5 provides a blockage, so that fish remain in the pool longer or ascend the fish ladder into holding ponds. Currently the majority of the water is directed down the canal and over the spillway creating the pool characteristic that makes this spot a productive fishery in most years. All alternatives (including Alternative 3 – Modified) except Alternative 2 and Alternative 7 would maintain at least a seasonal fish barrier, important to maintaining the number of fish available to the fishery. In addition, in years when returning hatchery fish are surplus to the hatchery broodstock needs, excess fish that climb the ladder are made available to the tribes through the surplus fish distribution program. Without a barrier at Structure #5, many of these excess fish would not be captured and therefore not be available to the surplus distribution program (FEIS page 4-12). All alternatives (including Alternative 3 – Modified) except Alternative 2 are able to maintain the current flow conditions in the spring that create the holding water in the pool. They all maintain the headgate at Structure 2, which would be able to direct flow down the canal during the time of this fishery. Alternative 2 would eventually remove the headgate and all flow would be directed down the historic channel. This redirection of flow would lower the effectiveness of the current fishway entrance and change the characteristics of the water flow in the tribal fishery from a pool to a flow-through situation. I believe that the hatchery must maintain a seasonal blockage at Structure #5 and maintain current water flow down the canal during the hatchery spring chinook season to maintain the tribal fishery and surplus distribution program.

Key Issue #4 – Threatened and Endangered Fish Species/Other Fish

The two main areas of concern associated with this issue are: a) the provision for effective upstream and downstream fish passage through the hatchery grounds and b) the provision for fish habitat within the hatchery grounds.

a) Fish Passage

Alternative 2 provides safe and unimpeded passage by removing all of the structures, allowing for unrestricted passage through the historic channel. Alternatives 1 and 5 do not provide year round passage for all life stages of native fish, because they rely on the existing fishway for passage. This fishway was designed specifically for adult salmonids returning and does not accommodate all species or life stages (FEIS pages 4-16 and 4-20). Alternative 7 provides delayed passage during low water as it retains Structure #4. At low flows the structure would distribute flow over too wide an area. Water depth could be too low to allow fish passage over the structure's low sill (FEIS page 4-23). Similarly, Alternative #6 would retain Structures # 2, 3, 4 and 5. Though they would be routinely cleared of debris to keep water flow and fish from being blocked, retaining the structures may cause fish passage problems during low flows (FEIS page 4-22). Alternatives 3 and 3 – Modified would provide upstream and downstream fish passage. Fish passage would be artificially impeded at Structures #5 and 2 during spring collection season and passage devices would be used. Only at low flows during extreme low water years that are very rare, would these remaining structures cause water depth to be too low to allow fish to pass over the structure's low sills. The downstream entrance for the vertical slot fishway can be difficult for fish to locate. However, I believe that effective downstream passage would be provided year-round either through the headgate into the

historic channel or the canal by regulating the headgate opening. I believe that Alternative 3 – Modified, though not a perfect solution to fish passage, provides adequate fish passage, while maintaining the structures (#2 and #5) necessary for flood control, channel stability and maintenance of the tribal fishery.

b) Fish Habitat

Alternatives 1 and 5 would maintain current flow patterns, support continued sedimentation of the historic channel, impeding the development of additional spawning, pool and over-wintering habitat. Implementation of Alternative 2 would bring the channel substrate to a more natural situation of gravelly sand with scattered boulders. Recruitment of large, woody debris from upstream would be allowed with the removal of Structure #2. Alternative 2 would result in a channel with the greatest increase in the quantity and quality of fish habitat. Alternative 3 has the best ability of the alternatives that maintain Structures #2 and #5, to restore the historic channel, as it can mechanically dredge to the original channel dimensions. However, in the long term, due to a decreased flow regime and retention of two structures, re-accumulation of sediments is expected in the historic channel. I believe the expense of mechanical dredging is not justified in the long term. Alternative 3 – Modified allows more (2600 cfs over time) water flow down the historic channel to naturally flush than Alternative 6. It would provide a long-term, slight to moderate increase in fish habitat. I believe Alternative 3 – Modified most efficiently restores fish habitat in the historic channel, given the need to maintain Structures #2 and #5 for localized flood control, channel stability and maintenance of the tribal fishery.

Key Issue #5 – Water Quality/Sediment

Although Alternatives 2, 3, 6, and 7 release different amounts of sediment downstream, none would have an effect on sediment transport characteristics of Icicle Creek below the project site. Icicle Creek and the Wenatchee River both have sufficient stream power to move the expected sediment load. Any sediment flushed does not represent a chronic source. The analysis shows that in a worst-case scenario, suspended sediment as a result of flushing will increase by only 106 ppm, a level not likely to have a significant effect on fish populations (FEIS page 4-26). Alternative 3 – Modified, limits flow through the historic channel to 2600 cfs, and removes 26% of total accumulated sediment. I believe Alternative 3 – Modified restores fish habitat and fish passage while maintaining water quality and does not pose a risk of depositing a major amount of sediment into the Icicle or Wenatchee River channels.

Key Issue #6 – Historic Values

The concern with this issue is loss of historic properties that are on the National Register. Though the National Historic Preservation Act provides for mitigating an adverse effect (such as the loss of a historic property) any loss is considered a significant impact (FEIS page 4-28). Alternatives 1, 5 and 6 would maintain the historic structures in a condition considered "No Historic Properties Affected" outcome. However, these alternatives, by maintaining structures in the historic channel, do not provide effective fish passage. Alternative 7 highlights the rehabilitation of Structure #4 as the most complete ensemble of the Icicle Creek channel and conveys the clearest association with the 1939-1940 construction plans (FEIS page 4-29). However, this Alternative would impact the tribal fishery (by removing Structure #5), could cause fish passage problems during low flow, and limits the amount of water that could be directed into the historic

channel to 2229 cfs. Alternative 2 removes all historic structures. Alternative 3 – Modified, modifies yet maintains Structure # 5, and the headgate portion of Structure #2 and allows the most flow down the historic channel of any of the alternatives that maintain structures. The loss of historic properties under this alternative will be mitigated by recording and interpreting their values. I believe Alternative 3 – Modified best maintains the values of historic properties while providing meaningful fish passage and habitat.

Key Issue #7 – Wetlands

The wetlands created in the historic channel, though created by man, are recognized wetlands and are protected under the Clean Water Act of 1977. The federal government and the State of Washington have a goal of “no net loss” of wetlands. If wetland habitat in the historic channel will be reduced in structure or function, mitigation is required. Mitigation for this loss of wetland habitat involves enhancing, preserving or constructing new wetlands of similar function and area. Therefore, all alternatives would maintain wetland characteristics, though probably not provide the continuous, quality wetland habitat that currently exists. Alternatives 1 and 5 would maintain the current wetland habitat but do not provide sustainable year-round passage for all life-stages of native fish. Through unrestricted natural flushing or mechanical dredging, Alternatives 2 and 3 would remove virtually all the wetlands along the historic channel. Alternative 3 – Modified maintains a portion of the existing wetlands (three acres), while mitigating for the loss of six acres that will be lost from natural flushing. Alternatives that maintain a portion of the existing wetlands are more economical and have a better chance of providing effective mitigation. I believe Alternative 3 – Modified provides the best balance of providing fish habitat and fish passage, while maintaining a portion

of the existing wetlands and mitigating for the rest.

Summary

In summary, I have selected Alternative 3 – Modified because it best balances the need to provide fish passage and fish habitat in the historic channel while maintaining current hatchery operations; maintaining channel stability and reducing risk of localized flooding; maintaining the tribal fishery; while mitigating for the loss of historic properties and wetland habitat. The long-term ability of Alternative 3 (with mechanical dredging) to restore fish habitat would be compromised, as sediment would re-accumulate in the historic channel. Therefore, though providing a more completely restored channel in the short term, I believe that the expense and disturbance caused by mechanical dredging is not justified in the long term. Alternative 3 – Modified will allow natural flushing of the historic channel up to 2600 cfs, which will provide a slight to moderate increase in fish habitat and effective fish passage, while maintaining a portion of the existing wetlands. All practical means to avoid environmental harm have been adopted (See Mitigations above).

Public Involvement

Public involvement for the Icicle Creek Restoration EIS began in 1998 when members of the public and government agencies suggested removing all in-stream structures and accumulated sediment from the historic Icicle channel and abandoning the existing manmade canal. This approach was analyzed in the FEIS as the restoration strategy. A Notice of Intent to Complete an EIS was listed in the Federal Register in March 10, 1999. Public scoping began with mailing of information and public meetings to inform people of the analysis and inviting public comments. In March 1999 the first public meeting concentrated on identifying public issues relating to the restoration strategy and gathered information regarding alternatives to this strategy. In July 1999 a second public meeting was held to display the range of alternatives that were developed and solicit ideas for improvements to the alternatives. Continued efforts to involve the public through the analysis period included news releases, government to government meetings and consultation, presentations at local clubs, construction of a web site, development of a short video, and meetings with interested individuals and government agencies. All this involvement was instrumental in the identification and clarification of issues for this project.

In July 2001, the Notice of Availability for the DEIS was published in the Federal Register. There was a 45-day public comment period, which closed August 20, 2001. A public Open House was held in Leavenworth on August 8, 2001. DEIS materials were displayed and the entire Interdisciplinary Team

was available for individual informal discussion, a formal presentation and a Question and Answer session. During the comment period, 19 written responses were received. Comments came from various organizations, groups, public agencies, tribal governments and individuals. The comments geographically represented rural areas, small towns and large cities. There were a number of very personal, candid letters from residents of Chelan County and tribal members whose ancestral home includes the LNFH grounds. A detailed listing of the substantive comments received and the agency responses can be found on Appendix N of the FEIS.

The comments reflected a wide range of concerns; effectiveness of the LNFH fish ladder, clarification of effects analysis, effect on the juvenile coho acclimation and release program, need for fish-sorting at Structure #5, downstream sediment accumulation, effects on adjacent private property, need for wetland mitigation, groundwater modeling used, monitoring of noxious weeds, and effects on riparian habitats. Comments also indicated preference for a range of alternatives; from Alternative 2, to Alternative 5, to Alternative 3 and variations. There was quite a bit of concern expressed about mechanical dredging.

Alternative 3 – Modified is responsive to comments made by the public during the 45 day comment period after release of the DEIS. These responses are detailed in Appendix N. Some of the modifications that were made in response to public comment follow:

- Alternative 3 was modified to include natural flushing of sediments from the historic channel.

- Riparian habitat will be retained or improved within a minimum of 100 feet of the stream's normal high water.

- Limits on demolition/construction daily hours of operations in the Structure #2 area.

- The downstream diffusion dam, rack structure, abutments, flumes and other concrete slabs or foundation portions of Structure #2 will be demolished and removed from the site.

Alternatives Considered and Reasons They Were Not Selected

A total of 19 alternatives that appeared to meet the objectives for restoration of the historic channel were originally considered in the analysis for this project. Thirteen of these alternatives were eliminated from detailed study in the EIS because; they did not adequately meet the purpose and need, the issues addressed by these alternatives were better addressed by an alternative considered in detail, they were not operationally feasible, or they were beyond the scope of this project.

The FEIS analyzed six alternatives in detail, which are described below:

Alternative 1: No Action

Under Alternative 1, none of the existing structures in the historic channel would be removed. The channel would continue to be operated in its current manner with the headgate at Structure No. 2 being operated as a flow control structure which passes a minimal amount of flow through the historic channel. The canal, spillway, and LNFH fish ladder would continue to operate in their current capacities. Structure No. 5 would continue to be operated as a barrier to fish passage. Fish passage around the LNFH would rely on trucking threatened and endangered species captured in the LNFH fish ladder to release points upstream.

I did not select Alternative 1 mainly because it does not provide long-term, sustainable, or year-round

upstream and downstream fish passage for all life stages (FEIS page 4-16). It continues to rely on capturing threatened and endangered fish in the hatchery holding ponds and trucking them upstream above the structures in the historic channel. The existing fish ladder was designed to capture adult salmonids returning to LNFH. The ladder was not designed to meet USFWS and NMFS fish passage criteria, and does not accommodate all species and life stages year-round.

Alternative 2: Remove All Structures with Natural Flushing (Restoration Strategy)

This alternative was driven by the purpose and need of providing both fish passage and riverine habitat within the LNFH grounds. It would remove all LNFH structures in the historic channel and rely on natural flushing to remove stored sediment. This alternative would remove all structures from the historic channel in three phases over a ten to fifteen year period: Phase 1) Remove Structures No. 5, 4, 3 and most of 2. Maintain headgate for flow control and controlled sediment removal, Phase 2) Remove headgate, and Phase 3) Block the canal. With the eventual removal of all structures from the historic channel, this alternative would require the largest amount of demolition work. The headgate at Structure No. 2 would temporarily be maintained as a means of controlling flow into the historic channel during the restoration process. During this phase a vertical slot fishway would be constructed around Structure No. 2. Accumulated sediment would be naturally flushed from the channel through increasing the amount of flow entering into the channel. No mechanical means of dredging or clearing and grubbing would be used to artificially remove accumulated vegetation and sediment. Once the channel has been restored to its historic dimensions (approximately

10-15 years), the headgate would also be removed. The bypass canal would be abandoned with modifications to the upstream end that would direct flow back into the historic channel. A new bridge would be built across Icicle Creek at Structure No. 2 to provide vehicle access to private property.

Alternative 2 provides safe and unimpeded upstream and downstream fish passage for all life stages of threatened and endangered fish and other fish. It removes all structures over time, therefore providing natural stream passage. However, provision of this ideal fish passage is not without cost. Change in orientation of the creek's flow could reduce the effectiveness of the fish ladder by 50%, resulting in the need to implement manual broodstock collection during low return years. Loss of the canal for flood flows could cause the creek to overtop and flow over the meander bend, causing localized flooding. The stream channel would also be free to move laterally, a development that could affect the fish ladder operation, tribal fishing at the spillway pool, and valley residential development (FEIS page 4-9). Redirection of stream flows would alter the orientation and holding patterns of adult salmon in the area of the tribal fishery. It would change the characteristics of the water flow in the tribal fishery from a pool to a flow-through situation (FEIS page 4-12). Alternative 2 would remove all the historic structures, dramatically changing the use, function, design, setting and materials of the historic properties. It would remove virtually all the wetlands that currently exist. I decided not to select this alternative because of its potential effects on downstream values and its detrimental effect to the tribal fishery.

Alternative 5: Fish Ladder Bypassing the Spillway

This alternative recognizes concerns about the continued effectiveness of LNFH operations and the existing wetlands. It maintains current flow regimes, which are favorable to existing LNFH fish collection and holding facilities. Current flow regimes would also maintain the existing wetlands.

This alternative would provide fish passage through use of the existing adult return ladder and by building a new fishway bypassing the holding ponds to the canal. Alternative 5, like the no-action alternative, would leave all of the existing structures in the historic channel undisturbed. The reach would continue to be operated in its current manner with the headgate at Structure No. 2 maintained as a flow control structure. Structure No. 5 would continue to be operated as a barrier to fish passage. The canal, spillway, and LNFH fish ladder would be operated in such a manner as to allow for year round passage of fish past the spillway and through the canal. LNFH returning fish could be diverted into the adult holding pond while the remaining fish continue into a newly constructed fish bypass channel that would return them to the canal upstream of the spillway.

Alternative 5 provides fish passage through the existing fish ladder, to a new fishway that would bypass the existing holding ponds, to the canal. The fish ladder was designed for adult salmonids returning to LNFH. The ladder was not designed to meet USFWS and NMFS fish passage criteria and does not accommodate all species and life-stages year-round. In addition, the canal is not a suitable site for year-round fish release. The canal is typically dry during late summer to early fall and occasionally during the winter. The canal is a trapezoidal channel with no quality fish habitat, specifically pools or high-water refugia. Releasing fish into the canal during high flows would result in fish falling

below the spillway and potentially repeating the passage process (FEIS page 4-21). I did not select this alternative because it does not provide long term, sustainable, or year-round fish upstream and downstream fish passage for all life stages through the hatchery grounds.

Alternative 6: Modify Headgate and Structure No. 5 Only with Natural Flushing

The objective of this alternative is to provide fish passage through the historic channel at least cost. Alternative 6 would retain all structure locations and provide fish passage with the construction of a vertical slot fishway around the headgate at Structure No. 2. Structure No. 5 would be modified to operate as a seasonal “hatchery fish” barrier that allows upstream and downstream TES fish passage and allows sediment to pass. As a minimal cost alternative for fish passage and stream restoration in the historic channel, this alternative would not use any mechanical dredging. All sediment removal would be via natural flushing. Structure No. 3 and Structure No. 4 would remain unmodified and would be used for representative displays of the historic structures originally constructed at LNFH. The maximum amount of water passed through the channel would be controlled by the headgate. Both the bridge over the spillway and the bridge over Structure No. 2 would remain and no additional mitigation for reduced vehicle access would be required.

Although Structures No. 2, 3, 4, and 5 would be routinely cleared of debris to keep water flow and fish from being blocked, retaining the structures may cause fish passage problems during low flows. At low flows the remaining structures could distribute flow over too wide an area. Water depth could be too low to allow fish to pass over the structures low sill (FEIS page 4-22). Maintenance of the structures inhibits the amount of flow that

could be put down the channel to 2090 cfs, compared to 2600 cfs under Alternative 3. Less flushing of sediments would occur, consequently less fish habitat would be restored. I did not select Alternative 6 because Alternative 3 – Modified can provide more flow down the historic channel, resulting in more fish habitat restored. Alternative 3 – Modified also provides better fish passage by removing three of the five cross channel structures.

Alternative 7: Historical Preservation of Structure No. 4 with Natural Flushing and Mechanical Dredging

This alternative was driven by the concern of preserving the historic values of the original LNFH construction.

Structure No. 4 would be restored and maintained with the existing pedestrian bridge as a representative display of the historic structures originally constructed at LNFH. Structure No. 4 is the most complete ensemble of the Iceicle Creek channel historic structures and conveys the clearest association with the 1939-1940 construction plans. Other historic structures would be removed while utilizing both mechanical dredging and natural flushing to remove accumulated sediment. The headgate at Structure No. 2 would be reconditioned and continue to operate as a flow control structure. The remaining portions of Structure No. 2 and all of Structure No. 3 would be removed. The existing Structure No. 5 would be demolished and removed. Areas of heaviest sediment deposition would be mechanically dredged. Spoil from this operation would be stored on LNFH grounds in areas above the flood plain. The remaining accumulated sediment would be naturally flushed from the channel by gradually increasing the amount of flow passing through the headgate and into the channel. Access to private property would be provided

across the spillway and headgate bridges.

Alternative 7 would remove Structure #5, and not maintain a seasonal fish barrier at that location. This would affect both the productivity of the tribal fishery and reduce the number of fish able to be collected for the surplus fish distribution program. Alternative 7 also provides delayed fish passage during low water as it retains Structure #4. At low flows, the structure would distribute flow over too wide an area. Water depth could be too low to allow fish passage over the structure's low sill (FEIS page 4-23). I did not select Alternative 7 because of its effects on the tribal fishery and because of its passage restrictions during low water.

Findings Required By Other Laws, Regulations and Management Direction

The development of the Icicle Creek Restoration Project EIS and this decision are guided by, and authorized under, a series of laws regulations and management direction. The following provides these determinations for the various relevant plans and laws:

National Environmental Policy Act of 1969 (NEPA)

NEPA and its implementing regulations established the basis, process and content requirements for the preparation of detailed statements for proposed actions such as the Icicle Creek Restoration Project, which may significantly affect the quality of the human environment. The entire process of analysis and preparation of the EIS for the Icicle Creek Restoration Project followed the regulations and direction outlined in 40 CFR Parts 1500-1508. Therefore, I conclude that this decision complies with NEPA.

National Historic Preservation Act of 1966 (NHPA)

The National Historic Preservation Act of 1966 (as amended 2000)(36 CFR 800) requires federal agencies to take into account the effects of their undertakings on historic properties. The goal of the Act as defined in the implementing regulations, referred to as Section 106, "is to identify historic properties potentially affected by

the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties (36 CFR 800.1).

Appropriate mitigation measures would offset the loss of historic structures on a level commensurate with the effects. Mitigation will be stipulated in a Memorandum of Agreement (MOA) with the Washington State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation. The North Central Washington Museum is an interested party in this process and will be invited to participate in the MOA. The Service met with SHPO and the Museum to discuss Project effects on historic properties and to develop a strategy for mitigation. The SHPO has concurred with the assessment of project effects and agrees with the strategy, which includes recording, interpreting and managing the historic properties. For alternatives that require modifying existing structures, the design will be reviewed by SHPO to ensure the changes have the least impact to original materials and are in conformance with the Secretary of Interior's Standards for the Treatment of Historic Properties (FEIS page 2-5).

Protection of Tribal Treaty Rights and Trust Responsibility

The American Indian Religious Freedom Act (AIRFA) states it is the policy of the United States to protect American Indians' right to believe, express and exercise their traditional religions, including but not limited to "access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites". This act requires the government to evaluate its policies and procedures so as to avoid infringements on Indian religious freedom, and to make a good faith effort to consult

with Indian people about protecting Indian religious cultural rites and practices. Icicle Creek lies within the area ceded to the United States by a confederation of tribes considered as the Yakama Nation under the Treaty of June 9, 1855, 12 Stat. 951. As a signatory to the 1855 Treaty, the United States assumed a trust responsibility to preserve, protect and enhance treaty reserved resources and to consult with tribes when policies may effect those resources (Executive Order 13175 and Secretarial Order 3206). The Service has complied with these responsibilities through government-to-government consultation with those tribes who have rights and access to the LNFH spillway pool fishery. The Yakama Nation was invited to participate as part of the Interdisciplinary Team that prepared the Icicle Creek Restoration Project EIS. The Yakama Nation, the Colville Confederated Tribes, the Columbia River Inter-Tribal Fish Commission and the USDI Bureau of Indian Affairs were invited to public meetings beginning in March 1999 to discuss this project. The issue of effects on the tribal fishery was raised to the level of a "key issue".

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act (ESA) requires that federal agencies consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, as appropriate, to ensure that their actions do not jeopardize the continued existence of species listed as threatened or endangered under ESA, or destroy or adversely modify their critical habitat. As mentioned above in this ROD, a major part of the purpose and need for the Icicle Creek Restoration Project is to provide fish passage and habitat to threatened and endangered species. The effects of this project on these species and their habitat is fully described in a Biological Assessment

(BA) for fish and one for other wildlife species, which were submitted to the U. S. Fish and Wildlife Service and the National Marine Fisheries Service in December 2001. A description of these species, their habitats and the effects of all the alternatives are also presented in Section 4 of Chapters 3 and 4 in the FEIS.

The Fish BA concludes that all of the alternatives examined in detail in the FEIS, including the Preferred Alternative (Alternative 3 – Modified), result in a determination of “may affect, likely to adversely affect” on bull trout, steelhead, designated steelhead habitat, spring chinook (non-hatchery), and designated spring chinook (non-hatchery) habitat. The potential to affect these species would be constant (long term) for all alternatives that delay, handle or overcrowd fish in sorting or holding facilities. The only exception is Alternative 2, where the effects are short term, until the headgate is removed, after a 10-15 year period.

The Wildlife BA concludes that all of the alternatives examined in detail in the FEIS, result in a determination of “may affect, not likely to adversely affect” on bald eagle and northern spotted owl. For the gray wolf and the grizzly bear Alternatives 1 and 5 resulted in a determination of “no effect”, and Alternatives 2, 3, 6 and 7 resulted in a determination of “may affect, not likely to adversely affect”.

The National Marine Fisheries Service and the U.S. Fish and Wildlife Service will be notified of the final determination to proceed with this activity.

Clean Water Act

Icicle Creek is classified by the State as Class AA water. Protection of vegetation and re-vegetation of disturbed areas in riparian areas will help maintain stream shading and increase the sediment filtering function of these areas. Natural flushing of accumulated sediments

from the historic channel will be similar to many natural events that have put sediment into Icicle Creek. Both Icicle Creek and the Wenatchee River have sufficient stream power to move the expected sediment load through their systems.

Executive Order 11988 (Floodplains) and 11990 (Wetlands)

Executive Orders 11988 and 11990 direct federal agencies to avoid, to the extent possible, both short-term and long-term impacts associated with modification of floodplains and wetlands. Many alternatives, including the preferred alternative (Alternative 3 – Modified) would reduce the existing wetland habitat in the historic channel. The USFWS will implement the specifics of a Wetland Mitigation Plan with federal, state and county agencies. The steps to wetland protection and mitigation are: 1) avoidance, 2) minimization, 3) rectification, 4) reduction, and 5) compensation of impacts (FEIS page 2-3). Potential wetland areas in the Wenatchee River Basin suitable for enhancing, preserving, or creating have been identified (FEIS Appendix H-5). The U.S. Army Corps of Engineers and the Environmental Protection Agency will become involved in mitigation development through the 404 Clean Water Act permitting process.

Executive Order 12898 (Environmental Justice)

The potential for the Icicle Creek Restoration Project to disproportionately affect minority or low-income populations has been carefully considered in the FEIS page 4-49. Many Hispanics in the area hold lower paying jobs in the service and agricultural industries. Many American Indians have a rural life-style that is reliant on a clean and healthy environment. The LNFH offers sites that have a religious or spiritual meaning to certain tribes. The effects that any of the alternatives would have on American Indians are described in

detail in the FEIS. The Preferred Alternative (Alternative 3- Modified) will maintain the tribal fishery and will help ensure the continuation of the surplus fish distribution program. The effects of any of the alternatives on the Hispanic population are indirect and low-level. Additional employment would be created for action alternatives in the construction and operational phases.

Other Laws, Regulations, and Direction

Other relevant laws and regulations have been considered in the analysis and my decision, which are cited throughout the FEIS (see particularly FEIS page 2-10). Irreversible effects of Alternatives 2, 3, 3 – Modified, 6 and 7 concern the removal of historic structures. These structures are a non-renewable resource. However, a plan to mitigate for this loss is included as part of these alternatives. Irretrievable effects of Alternatives 2, 3, 3 – Modified, 6, and 7 concern the conversion of wetland to riverine habitat. These wetlands are a renewable resource and the mitigation plan which is a part of these alternatives replaces this lost wetland habitat. This Restoration Project does not conflict with plans and policies of other jurisdictions.

Environmentally Preferable Alternative

channel stability, maintains low risk level of localized flooding, and maintains three acres of wetlands and mitigates for six acres that will be lost. All historic structures except the headgate will be removed and their loss will be mitigated.

The Council on Environmental Quality regulations for implementing NEPA specifies the alternative or alternatives, which are considered to be environmentally preferable be identified in the decision document (40 CFR Part 1505.2(b)). The environmentally preferred alternative is not necessarily the alternative that will be implemented, but is ordinarily the alternative that causes the least damage to the biological, physical and cultural environment.

Based on the analysis in the FEIS, Alternative 1 would result in the smallest number of new effects directly induced by humans on the physical, biological and cultural environment. There would be no loss of wetland habitat or historic structures. Hatchery operations and the tribal fishery would be maintained at current levels. Stream channel stability would remain good, and there would be little risk of localized flooding. No sediment would be introduced into the Icicle Creek or Wenatchee River systems.

The reason I did not select Alternative 1 is that its maintenance approach would not provide long-term, sustainable, or year-round upstream and downstream passage for all life stages of native fish.

The selected alternative, on the other hand provides long-term, sustainable and year-round upstream and downstream fish passage for all life stages of native fish, and maintains hatchery production, maintains the tribal fishery, provides fair stream

Public Interest Determination

Based on the rationale and the full analysis provided in the FEIS and this ROD and the administrative record for the Icicle Creek Restoration Project, and in accordance with 36 CFR 254.3(b), it is my determination that the Icicle Creek Restoration Project serves the public interest. It removes deteriorating structures that are no longer used from Icicle Creek, and provides fish passage and habitat in the historic channel, while maintaining hatchery operations, the tribal fishery and stream channel stability.

Implementation

Implementation of this decision may occur no sooner than 30 days after the date the Notice of Availability of the Icicle Creek Restoration Project FEIS is published in the Federal Register.

Contact Person

For additional information concerning the specific activities authorized under this decision, contact Corky Broaddus, Public Information Specialist, Leavenworth National Fish Hatchery, 12790 Fish Hatchery Road, Leavenworth, WA. 98826, phone (509) 548-7641.



Anne Badgley
Regional Director
U.S. Fish and Wildlife Service

4/29/02
Date