Idaho Department of Fish and Game
Captive Rearing Initiative for
Salmon River Chinook Salmon

Finding of No Significant Impact

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DEPARTMENT OF ENERGY

Bonneville Power Administration

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***Summary*:** Bonneville Power Administration (BPA), Department of Energy (DOE), is proposing to fund the Idaho Department of Fish and Game (IDFG) Captive Rearing Initiative for Salmon River Chinook Salmon Program (IDFG Program). The IDFG Program is a small-scale research and production initiative designed to increase numbers of three weak but recoverable populations of spring/summer chinook salmon in the Salmon River drainage. This would increase numbers of spring/summer chinook salmon within the Snake River Spring/Summer Chinook Salmon Evolutionarily Significant Unit (ESU), and reduce population fragmentation within the ESU.

BPA has prepared an Environmental Assessment (EA) (DOE/EA-1301) evaluating the proposed IDFG Program. Based on the analysis in the EA, BPA has determined that the Proposed Action is not a major Federal action significantly affecting the quality of the human environment, as defined within the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required, and BPA is issuing this Finding of No Significant Impact (FONSI).

***Copies*:** For copies of this FONSI or the EA, please call BPA's toll-free document request line: 800-622-4520. Both these documents are also available at the BPA website: www.efw.bpa.gov.

***For Further Information, Contact*:** Nancy Weintraub, Bonneville Power Administration – KECN-4, PO Box 3621, Portland, Oregon, 97208-3621; phone number: 503-230-5373; fax 503-230-5699; e-mail: nhweintraub@bpa.gov.

***Public Availability*:** This FONSI will be distributed to all persons and agencies known to be interested in or affected by the Proposed Action or alternatives.

***Supplementary Information*:** BPA proposes to continue funding the IDFG Program.

This IDFG Program involves the following activities: (1) collecting eyed eggs from natural spring/summer chinook redds in the East Fork Salmon River, the West Fork Yankee Fork Salmon River, and the Lemhi River within the Salmon River drainage; (2) rearing the eyed eggs to smolt stage at the Eagle Fish Hatchery in Idaho and to the sexually mature adult stage at either the Eagle Fish

Hatchery (20 percent of the sample: freshwater rearing), or at the National Marine Fisheries Service (NMFS) Manchester Marine Experimental Station in Washington State (80 percent of the sample: saltwater rearing); and (3) releasing sexually mature adult fish back to their streams of origin to spawn with their natural cohort. The number of released adults would be indexed to the forecasted number of natural adults returning to respective release sites.

Under permit from NMFS, some IDFG Program broodstock may be held back and spawned in the hatchery. The number of broodstock held back and spawned in-hatchery depends on the adult returns forecasted for the particular year and target stream, and on the number of that particular sample available for outplanting. (If the forecast is for low returns to a particular stream, IDFG Program broodstock are held back to create a hatchery "safety net" broodstock.) Eyed eggs from in-hatchery spawning are outplanted in streamside and instream hatchboxes to IDFG Program-targeted drainages, where these fish complete their lifecycle.

In 1992, NMFS listed the Snake River Spring/Summer Chinook Salmon ESU as threatened under the definitions of the Endangered Species Act (ESA). Currently, the IDFG estimates that IDFG Program target populations have annual escapements of less than 20 fish. Populations in the IDFG Program target streams have produced fewer than 20 redds per stream since 1994, and are expected to produce similar or diminishing redd numbers for the next several years. IDFG first designated these populations as 'high priority' for intervention in 1995. This designation assumes that the populations are at risk for extirpation (local extinction) while still retaining native population characteristics. It also assumes that target streams have the carrying capacity to support recovered populations.

The IDFG Program aims to mitigate for the most immediate risk to the populations: low adult returns and declining production.

Two major alternatives are addressed in the EA (Chapter 2: Alternatives): The Salmon River Spring/Summer Chinook Salmon Captive Rearing Initiative (the Proposed Action), and the No Action Alternative. Additionally, two alternatives to elements of the Proposed Action are addressed: the Parr Collection Alternative and an alternative adult release site for Lemhi River adults. Virtually all tasks and impacts associated with the Proposed Action, the Parr Collection Alternative, are identical. Exceptions are noted below.

<u>IDFG Program (Proposed Action)</u>: BPA would fund:

1. Eyed-egg collection from IDFG Program target streams for use as IDFG Program broodstock (no more than 50 eyed eggs each per six redds each per stream);

2. broodstock hatching and rearing to adult stage in selected hatcheries; and

3. outplanting of sexually mature broodstock to streams of origin for spawning with their naturally reared cohort (numbers indexed to forecasted adult returns).

The IDFG Program may hatchery-spawn some broodstock. Progeny would then be outplanted to streamside and/or instream hatchboxes within their drainages of origin.

Parr Collection Alternative: Broodstock would be collected as parr (approximately 8 months of age) rather than as eyed eggs. Under permit from NMFS, a maximum of 200 parr—or no more than 25 percent of the targeted parr population—would be collected from each target stream. Rotary screw traps and beach seines would be used to collect parr. IDFG Program rearing (with the exception of incubation protocols) and outplanting activities would be the same for parr as for eyed eggs. Collecting parr for broodstock would have the same benefits as collecting eyed eggs: a net increase of adults on the spawning grounds. However, IDFG Program data from past parr collection (IDFG 1999, 2000) indicates that parr carry pathogens present in target streams into the hatchery (*Renibacterium salmoninarum, Myxobolus cerebralis,* and *Salmincola californiensis*). Disease control among IDFG Program parr has brought mixed results. Also, broodstock raised from parr present low size-to-age ratios relative to the natural population, which may affect spawning success. Overall, disease and size impacts to broodstock reared from parr seem to compromise IDFG Program effectiveness. While a reasonable alternative, Parr Collection is not preferred for these reasons.

Adult Release Site Alternative: Under this alternative, IDFG proposes to release Lemhi River adults within Big Springs Creek, rather than Bear Valley Creek. All other IDFG Program activities are the same. This alternative addresses water quantity issues within the Bear Valley Creek drainage. In the past, water withdrawals from Bear Valley Creek have de-watered parts of the stream. While those withdrawals have ceased, Big Springs Creek water quantity may prove more reliable across all water-year conditions. This is a reasonable alternative and, indeed, may be preferred.

No new hatchery facilities or modifications are required for the Proposed Action, the Parr Collection Alternative, or the adult release site alternative. Activities for the Proposed Action and alternatives would continue through the 2008 field season.

No Action Alternative: Under the No Action Alternative, BPA would not fund the IDFG Program. Target populations would be left to complete their lifecycles naturally. The diminishing number of redds and the small number of annually returning adults makes it probable that the populations would become extirpated

(locally extinct) in the short term. Present returns meet neither the Population Critical Threshold (the rate at which rare genetic components lost to escapement are replaced by new production) nor the Population Sustainable Threshold (the rate at which the numbers of fish lost to escapement are replaced by new production).

The loss of these populations would decrease overall numbers within the Snake River Spring/Summer Chinook Salmon ESU, increase population fragmentation, and perhaps reduce genetic fitness and variability within the ESU due to loss of unique genetic components.

The negative impact of the No Action Alternative is not acceptable. It is inconsistent with the ESA, as well as regional salmonid recovery policies. The Northwest Power Planning Council's (Council) Columbia Basin Fish and Wildlife Plan (Council 1980, amended 1985) calls for the conservation and restoration of regional wild salmonid stocks, and includes provisions for research into various elements of captive propagation. The Council's Artificial Production Review (Council 2000) also advocates hatchery supplementation as a means to achieve conservation, recovery, and restoration goals.

Chapter 4 of the EA describes in detail potential impacts from the Proposed Action, the Parr Collection Alternative, the adult release site alternative, and the No Action Alternative. These impacts are also summarized in Table 3 of the document.

The Mitigation Action Plan in Chapter 5 of the EA further describes how potential impacts would be monitored and/or mitigated.

BPA has determined that—based on the context and intensity of the impacts identified for the Proposed Action—the impacts are not significant, using the definition of the concept in Section 1508.27 of the Council on Environmental Quality Regulations for Implementing NEPA. This determination is based on the following discussion.

Context and Intensity of Impacts:

IDFG Program egg collection and adult release (including eyed-egg outplanting): Activities are small scale, and take place on private property (where permission has been secured) and United States Forest Service (USFS)-owned and managed lands (permitted under Special Use Permit USFS #2700-4). The intensity of impacts is significantly limited by the small scale of the activities and by the types of activities, both in terms of the physical requirements of collection and release, and in terms of impacts to the naturally rearing fish.

Ingress to and egress from sites would be by paved road and/or developed trails. No wetlands would be adversely affected by IDFG Program activities. Activities that would take place within floodplains include the foot or trail access mentioned above, and the placement of streamside incubators on the banks of the streams and enclosures and weirs. The streamside incubators would be installed only temporarily during the months of November through April, when flooding potential is minimal. The enclosures and weirs are also temporary, and would be placed in streams only during the fall spawning season. These activities would not adversely affect the floodplain nor would they be adversely affected by flooding.

The USFS manages affected sites for a "partial retention, variety class B" visual quality objective. Activities would not affect the visual context of the affected sites, except for the presence of streamside incubators during the November-April timeframe. These incubators, while not being in context with the natural setting, are small (refrigerator sized), and only one or two would be placed per stream; therefore, the intensity of the impact is minor. There would be no significant impacts to recreational use from the short-term, temporary activities and/or structures.

ESA-listed steelhead and bull trout exist within the context of release sites. Impacts to steelhead and bull trout from collection of eggs and erection of enclosures would be low intensity, short term, and temporary. Young-of-the-year bull trout and steelhead are present above and below IDFG Program work areas during activities. Migrating sub-yearling and/or yearling steelhead and bull trout may experience minor turbidity, leading to temporary confusion. Migrating pre-spawn bull trout may also encounter minor turbidity, leading to temporary confusion. Adult steelhead and/or bull trout may be caught in enclosures, but would be immediately passed upstream by IDFG Program personnel (enclosures checked daily).

The intensity of impacts to endangered spring/summer chinook salmon are insignificant, due to the small sample size, life stage at release, and indexing of releases to numbers of sea-run fish returning. With the exception of competing for mates, there would be no competition at the pre-spawning life stage. Genetic introgression and associated reduction of genetic variability and fitness are actually improved, due to the identical genomes of the IDFG Program fish and receiving population, and the high survival rates of captive-reared fish, which mitigates for the current low survival of non-IDFG Program fish.

Also due to the small sample size—as well as the underutilized carrying capacity of the streams, and sympatric habitat exploitation patterns of the varying species—the intensity of impacts to all listed species from juveniles hatched from outplanted eggs would be low.

Water quality is typically pristine at the higher elevation sites. Water quality at sites on the alluvial plain is lower, due to grazing impacts. Water quality impacts from egg-collection activities and erection of enclosures would be temporary and short term, primarily resulting from minor disturbance of sediment from sampling and from enclosure- and weir-erection activities. There would be no impacts to consumptive water use—the only diversion of water would be to streamside incubators, in which case water from streamside springs would be routed through pipes to the incubators, and then into the receiving streams within a few feet of the intake. The structures would not impede flow or direction of the stream flow.

Temporary placement of the streamside incubators could—in late winter and early spring—have slight, short-term impacts on early-emerging riparian vegetation. However, no more than two of these units would be in place per target stream. Thus, intensity of impact would be quite limited.

Due to the location, low intensity, and small scale of the activities, air quality, land-use patterns, local economies, and/or cultural and/or historic resources would not be significantly impacted.

IDFG Program incubation and rearing: All activities take place within the context of existing hatchery facilities. Individual facilities are designed to accommodate their mission (e.g., initial rearing at Eagle Fish Hatchery; saltwater rearing at NMFS Manchester Marine Experimental Station). There would be no construction/modification of existing hatchery physical plants. The small IDFG Program sample size would not significantly affect effluent loads.

There would be no significant disease impacts to hatchery-raised IDFG Program fish from other hatchery program fish, since the IDFG Program fish are isolated from them.

Impacts to genotypes or genomes of IDFG Program fish would not be intense, due to the short duration (less than a generation) of the hatchery cycle, and the high egg-to-adult survival rates. Also, the IDFG Program employs low rearing densities and other NATURES Concepts that should reduce domestication impacts.

Overall project: Implementation of the Proposed Action would not affect the health and safety of residents within project areas.

Given the context and low intensity of collection and release activities, no sensitive resources such as park lands, forest lands, prime farmlands, wild and scenic rivers, or ecologically critical areas would be significantly affected.

There is not a significant level of controversy surrounding the science associated with the Proposed Action. Supplementing ESA-listed salmonid stocks by means

of artificial rearing is an experimental approach that is endorsed in both the Council's Artificial Propagation Review (2000), and the NMFS Biological Opinion on Artificial Propagation (1999). NMFS, the United States Fish and Wildlife Service, and BPA are also working on finalizing a draft Federal Columbia River Power System Biological Opinion. The final Biological Opinion will address the supplementation issue as well, and will bring further clarity to the issue.

The Proposed Action would not establish a precedent for future actions with significant effects or represent a principle about a future consideration.

The Proposed Action is not connected (40 C.F.R. 1508.25 (a)(1)) to other actions with potentially significant impacts, nor is it related to other proposed actions with cumulatively significant impacts (40 C.F.R. 1508.25 (a)(2)).

The IDFG Program activities would not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural, or historical resources.

The Proposed Action would not violate Federal, State, or local law or requirements imposed for protection of the environment. All permits are in place.

Cumulative impacts: The IDFG Program has already accomplished one significant goal, which is to rear natural broodstock and release them to streams of origin, thus increasing spawning opportunities for target populations. The intensity of this beneficial impact is uncertain, pending more information on spawning success and adult returns. Thus far, IDFG Program data is inconclusive on the rate of spawning success of IDFG Program fish (or whether the presence of IDFG Program fish disrupts spawning among their naturally reared cohort). While IDFG Program data has identified some physiological and morphological anomalies from hatchery rearing, it does not indicate that effects of domesticated regimens on IDFG Program fish produce widespread physiological or morphological effects that would affect the long-term fitness of the population. In absolute numbers, the additional fish released to spawning areas—given high hatchery egg-to-adult survival—offset the numbers of collected eggs as a percentage of each total population. Although data is inconclusive, it indicates that the IDFG Program has the potential for beneficial impacts to population recovery.

***Determination*:** Based on the descriptions and analyses in the EA, as summarized here, BPA determines that the Proposed Action, the Idaho Department of Fish and Game Captive Rearing Initiative for Salmon River Chinook Salmon Program, is not a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA, 42 U.S.C. 4321 et seq. Therefore, an EIS will not be prepared, and BPA is issuing this FONSI.

Issued in Portland, Oregon, on October 12, 2000.

*/s/ Alexandra B. Smith*_____
Alexandra B. Smith
Vice President
Environment, Fish and Wildlife