

# **Evaluation of Idaho Power Hatchery Mitigation Program (E.3.1-4)**

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## **I. Introduction**

For nearly 40 years, Idaho Power Company (IPC) has operated a fish hatchery program to mitigate for anadromous fish losses associated with constructing and operating the Hells Canyon Complex (HCC) of dams on the Snake River. The program was initiated when it became apparent that anadromous fish passage measures would not be successful. This report describes (1) key events leading to the development of the hatchery program, (2) the rationale used to develop the initial hatchery mitigation program, and (3) the changes associated with the 1980 Hells Canyon Settlement Agreement. The report further summarizes hatchery production, and assesses the success of the program relative to the Settlement Agreement. It evaluates compatibility of the current hatchery program with state fish management programs and the Endangered Species Act, and evaluates suitability of the IPC hatcheries for recovery or reintroduction efforts.

## **II. IPC Study Conclusions**

1. *“It is questionable whether anadromous fish could have sustained themselves in Snake River tributaries, even if passage at the HCC had been successful. Placing these fish in the hatchery environment has changed their genetic makeup to some degree. However, hatcheries have provided a stronghold for genetic information that otherwise may have been completely lost.” (Page 43, Paragraph 1)*

Response: The mainstem and tributary habitat for anadromous fish has been greatly reduced in quality and quantity since the first Europeans moved into the area. However, stating that it is questionable that anadromous fish would have survived even if passage was successful is speculation.

2. *“Placing these fish in the hatchery environment has changed their genetic makeup to some degree. However, hatcheries have provided a stronghold for genetic information that otherwise may have been completely lost.” (Page 43, Paragraph 2)*

Response: The BLM agrees that the genetic makeup of anadromous fish returning to the Snake River has been preserved by the hatcheries to some degree. However, the mixing of various strains of each anadromous species during the forty years of hatchery operations has likely changed the basic stocks. Some strains of fish are probably

completely lost while others are a mixture of Snake River and other stocks. This may have reduced the vigor and survival of these remaining stocks. Considering the fact that passage could not be provided, the hatcheries were the only remaining option to prevent complete extinction of Snake River stocks. Hatchery operations have been guided by the state and federal agencies for production more than for maintenance of genetic integrity.

3. *“Although initial efforts to rear fall chinook met with failure, this has been the exception rather than the rule. More often than not, the program has met its intended purpose of producing a specified number of smolts. More importantly, favorable adult escapements...[for spring/summer chinook salmon and summer steelhead]... have consistently allowed fish managers to offer sport and tribal fishing opportunities and to supplement other agency-sponsored enhancement programs.” (Page 43, Paragraph 2)*

Response: The failure of the fall chinook runs to be sustained by the hatcheries constitutes a major loss to the Snake River. Initial efforts to raise fall chinook at Oxbow hatchery ended in 1970 due to poor returns and facility problems. There are only three salmonid stocks affected by the HCC: 1) fall chinook, 2) spring/summer chinook, and 3) summer steelhead. The fact that the Applicant has not been able to obtain the needed eggs to carry on a fall chinook program is beyond its control. However, this may have saved the Applicant a considerable amount of mitigation funding during the last 40 years. It should be required that IPC annually provide compensation funding for raising one million fall chinook smolt as part of the next license. Any surplus funds in years when smolt target numbers are not met should be used to improve hatchery facilities and operations for other stocks of Snake River salmonids.

The Applicant and Idaho Fish and Game (IDFG) have worked together to provide an anadromous fishery. The record shows that many of the failures by the Applicant to meet smolt targets for the Snake River are the result of IDFG transferring eggs to support other programs. In general, it is safe to say that the four fish hatcheries have failed to meet their smolt production targets in one out of every three years on average. It appears that the Snake River Settlement Agreement allows IDFG to move Snake River stocks to other locations such as the Salmon River to meet Idaho objectives.

3. *“All the while, wild fish populations throughout the Snake and Salmon river basins have declined precipitously.”(Page 43, Paragraph 3) .... “Since listing several stocks of anadromous fish in the Pacific Northwest, the role of artificial propagation in fisheries management has come under intense scrutiny. Programs that were once perceived as beneficial to anadromous populations are now being linked with their demise.” (Page 43, Paragraphs 4)*

Response: The BLM agrees with this statement. Until ESA listing, the wild fish were being subjected to the same harvest rates as the hatchery fish. Although this has now been corrected, the relatively abundant hatchery runs created a situation that promoted the over-harvest of wild fish. The large number of hatchery strays are a major concern in maintaining wild stock genetic integrity.

4. *“...hatchery programs will probably continue to play important roles in fisheries management (IHOT 1995). Along with supporting species recovery, hatchery programs respond to the strong societal demand for harvestable numbers of salmon and steelhead, which natural production alone cannot meet.” (Page 43, Paragraph 4)*

Response: The BLM agrees with this conclusion. However, the BLM is primarily interested in the maintenance or restoration of wild fish runs that utilize habitat on National Resource Lands.

5. *“We believe that if artificial propagation is managed properly it can ultimately meet both species recovery and harvest augmentation needs. The success of hatchery supplementation for species recovery hinges on using locally adapted broodstocks and developing new rearing techniques that minimize domestic selection and promote natural survival-related behaviors. For traditional production programs to succeed, unlisted species must be kept as separate as possible from listed species. This separation minimizes deleterious effects from competition, predation, and pathogen transmission.” (Page 43, Paragraph 4)*

Response: The BLM agrees with this conclusion based on the current level of knowledge. The utilization of hatcheries has caused detrimental effects to wild populations in the past. New strategies are being developed but are as yet unproven. Until the new techniques are fully proven, the Applicant will need to institute a rigorous science-based monitoring program for its hatcheries as part of the new license.

6. *“IPC’s summer chinook and fall chinook program appear to have some application for stock recovery while the spring chinook and steelhead programs may exert greater influence as production facilities. The details of these two applications for artificial propagation are only beginning to be developed.” (Page 44, Paragraph 1)*

Response: Past hatchery practices that mixed stocks from various drainages resulted in the loss of genetic integrity of the spring chinook and steelhead bred in the Applicants’ hatcheries. The agencies that manage the hatchery program, implement ESA and control the fishery will all have to work together to decide how the Applicant will implement species-specific programs. The BLM is primarily concerned with the impact of hatcheries on recovering wild runs of anadromous fish to National Resource Lands. Any improvement through the hatchery program that will recover the wild stocks would be supported by the BLM.

7. *“Before enacting hatchery reforms, fisheries managers must develop specific goals and objectives for hatchery facilities. Once those overall goals and objectives are developed, operational changes can be implemented at the hatchery level to achieve those outcomes.” (Page44, Paragraph 2)*

Response: The BLM agrees with this statement. The reform of hatcheries is the responsibility of state and federal fisheries agencies. The Applicant cannot take steps to change their operations until a new plan is developed by these agencies.

### **III. Study Adequacy**

The hatchery study is adequate. It meets the seven objectives set out on page 2. The Snake River Settlement Agreement places much of the responsibility for planning and improving practices with NMFS, IDFG, WDF and ODFW. The study reflects the fact that the Applicant has been willing to change operations in response to the agencies and the Federal Power Commission orders.

### **IV. BLM Conclusions and Recommendations**

#### Conclusions

1. *The Evaluation of IPC Hatchery Mitigation Program Study* report is a thorough accounting of the program.
2. Past hatchery practices may have resulted in the loss of fishing opportunity on National Resource Lands.
3. Future hatchery operations may include conservation strategies to recover ESA listed Snake River stocks of summer chinook and fall chinook salmon.
4. Future hatchery operations will probably use spring chinook and steelhead for production purposes only, due to their loss of genetic integrity during the last 40 years of hatchery propagation.

#### Recommendations

1. The BLM should recommend that the Applicant make an annual allocation of funds toward fall chinook propagation regardless of egg availability. The funds would be to compensate for the loss of the species from the Snake River and could be used to improve hatchery operations.