

**ANNUAL REPORT
FY 10**

**FISH HEALTH SERVICES
AND
TECHNICAL COORDINATION
FOR
FWS LSRCP HATCHERY PROGRAMS**

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INTRODUCTION

The following is an annual report for all the activities scheduled for completion under each goal of the Idaho FHC Fish Health Program during Fiscal Year 2010. Specific objectives and tasks completed are listed and discussed below.

OBJECTIVES AND TASKS

GOAL 1 Provide fish health services for the SCS program at Dworshak NFH to help ensure that its mitigation goal for the Lower Snake River Compensation Plan program is met.

Approach: The mitigation goal for the Dworshak NFH spring Chinook salmon program is to return 9,135 adults above Lower Granite dam. A thorough evaluation of the success of this program requires careful documentation of the events and circumstances that occur throughout the fish's entire life history; including any and all aspects of fish health and its affect on the life history of spring Chinook salmon at Dworshak NFH. This life history is about five years from the time of egg fertilization and incubation to the time the last adults return from the ocean. At the end of the life cycle, a complete report and evaluation is written for that brood year. Because of the configuration of the federal fiscal year and the resultant lag time, data compilation and summary is being done on seven brood years simultaneously. Each year, a new brood year is started and one brood year life cycle is completed with the adult return that year. The objectives below are designed to provide the data and information necessary for completing these brood year evaluation reports.

Objective 1.1 Disease sampling at spawning of Dworshak NFH spring Chinook salmon adults that returned to the project area above Lower Granite Dam in 2010.

Approach: Specific samples were collected from adult salmon at spawning.

- Task 1.1.1 All female SCS adults (~500) were injected with erythromycin at 20mg/kg of body weight under veterinary prescription beginning 21 days prior to spawning and continuing as adults returned until spawning started.
- Task 1.1.2 Kidney samples were collected for Bacterial Kidney Disease (*Renibacterium salmoninarum*) testing by Enzyme-linked Immunosorbent Assay (ELISA) from each female spawned.
- Task 1.1.3 ELISA assays were performed for quantitative BKD results of each female adult to provide recommendations for culling/segregation of eggs to Dworshak NFH production staff. For FY 2010, four females had values over the AOP recommended ELISA OD cut off level of 0.250 and were recommended to be culled.
- Task 1.14 Kidney and spleen samples (60) were collected throughout spawning for bacteriology testing:
 - A. *Yersinia Ruckeri*: All were found negative for this pathogen.
 - B. *Aeromonas salmonicida*: All were found negative for this pathogen.
- Task 1.15 Kidney and spleen samples (60) and ovarian fluid (150) samples were

collected throughout the spawning season for virology testing:

A. Infectious Hematopoietic Necrosis Virus: 6.7% positive in spleens sampled and 1.3% positive in ovarian fluid tested.

B. Infectious Pancreatic Necrosis Virus: not detected

C. Viral hemorrhagic Septicemia Virus: not detected

- Task 1.16 Cranial tissue (60) was collected throughout spawning for *Myxobolus cerebralis* testing by pepsin/trypsin assay. All tested were negative for this parasite.
- Task 1.17 Intestinal scrapings (30) were collected throughout spawning for *Ceratomyxa shasta* detection. These adults were found positive for this parasite.
- Task 1.18 In FY 2010, there were sufficient numbers of ripe females to meet production goals. No females were injected with the GNRHa hormone.
- Task 1.19 The IFHC served as INAD monitor for Dworshak NFH SCS program as necessary in FY 2010.
- Task 1.20 For FY 2010, no drugs or chemicals were administered under INAD to the SCS adults.
- Task 1.21 All SCS adults were treated with formalin bath for fungus during holding at Dworshak NFH every other day under veterinary prescription.

Objective 1.2 Disease sampling and monitoring of SCS juveniles and smolts at Dworshak NFH

Approach: Specific samples were collected from juvenile salmon during rearing.

- Task 1.21 Disease diagnostic work was performed as needed.
- Task 1.22 Kidney samples (10 each month) were collected on a monthly basis for 6 months prior to release for ELISA/BKD monitoring. By the ELISA analysis, BKD was not detected in all monitoring samples.
- Task 1.23 Tissue samples (60) were collected prior to release to assess smolt readiness and disease status. Assays included virology, bacteriology, parasitology, hematocrits, and visual notations of smolt stage. By the ELISA analysis, BKD was not detected in any prerelease samples except for 2 samples at low levels. No viruses or other bacteria were detected.
- Task 1.24 Summary reports were provided as requested for FY 2010 and to IFRO for Brood year reports.

Objective 1.3 Participate in the preparation of spring Chinook salmon brood year reports for Dworshak NFH.

Approach: Brood Year Reports were recommended in the Region One, U.S. Fish and Wildlife Service, Fisheries Vision Action Plan and are intended to provide a broad overview of stock performance and is a compilation of data from various other reports. Data on adults that are spawned to create the brood year, egg production, nursery rearing, juvenile rearing, smolt releases, fish health, smolt emigration, adult contribution to fisheries, and adult returns to the hatchery are summarized. Evaluation projects and other research studies involving the pertinent

brood years are only briefly described in these reports. Because brood year reports are a relatively new activity, there is a large backlog of reports that need to be completed. Emphasis for this activity will be for the brood years most recently completed with backlog reports being completed as time permits.

- Task 1.3.1 All fish health related information was compiled for BYs of spring Chinook salmon as requested and submitted to Idaho FRO for compilation into complete Brood Year Reports.

GOAL 2 Disease sampling and monitoring of STT juveniles and smolts at Hagerman NFH to provide assistance in meeting its summer steelhead smolt production goal for the Lower Snake River Compensation Plan program.

Approach: The mitigation goal for Hagerman NFH in the LSRCP program is to return 13,600 adult summer steelhead above Lower Granite Dam. The program at Hagerman NFH is unique in that it is a cooperative effort between the U.S. Fish and Wildlife Service (Service) and the Idaho Department of Fish and Game (State). The State is responsible for selecting the stocks to be used in the program, for brood stock collection and spawning, and delivering the fertilized eggs to Hagerman NFH. Hagerman NFH is responsible for incubation, hatching, rearing, and transportation of summer steelhead smolts to locations in the upper Salmon River selected by the State.

Objective 2.1 Monitor summer steelhead rearing activities at Hagerman NFH.

Approach: The production goal established for Hagerman NFH is about 1.3 million smolts. In cooperation with hatchery and FRO personnel, steelhead culture at Hagerman NFH will be monitored to identify factors that may be affecting fish quality and survival. Production space and water use is limited. Reaching established mitigation goals for adult steelhead by increasing production much beyond present levels is not a viable strategy. Therefore, it is imperative that every opportunity is taken to improve fish quality and survival.

- Task 2.11 Disease diagnostic work was performed as needed. In FY 2010 there were 20 diagnostic and 13 monitoring cases conducted with results including steatitis, *Aeromonas salmonicida*, *Aeromonas hydrophila*, *columnaris*, cold water disease and *Nucleospora salmonis*.
- Task 2.12 Tissue samples were collected prior to release (60 from each stock, East Fork and Sawtooth) to assess smolt readiness and disease status. Assays included virology, bacteriology, parasitology, and visual notations of smolt stage. By the ELISA analysis, BKD was not detected in any prerelease samples except for 4 samples at low levels. No viruses were detected in prerelease samples. *Aeromonas salmonicida* and *Aeromonas hydrophila* were both detected in the East Fork stock.
- Task 2.13 Monthly visits for monitoring/diagnostic work were performed, except when no fish were on station.
- Task 2.14 Summary reports were provided as requested for FY 2010 and to IFRO for

Brood year reports.

GOAL 3 **Participate in the development of recommendations for Dworshak and Hagerman NFHs that will produce sufficient smolts to meet each hatchery's LSRCP mitigation goals.**

Approach: In the light of completed brood year evaluation reports and other information, constraints or problems in the production programs at Dworshak and Hagerman NFHs may be identified which are preventing the hatcheries from successfully meeting their respective mitigation goals. The objectives under Goal 3 are designed to generate the information necessary to develop recommendations for changes in the production programs that will overcome any problems or constraints that are identified. Specific projects will be designed and conducted to examine alternatives to existing hatchery practices. Recommendations for improving hatchery production will be based on the results of these projects.

Objective 3.1 Participate as a member of the Dworshak and Hagerman Hatchery Evaluation Teams.

Approach: In order to increase the effectiveness and efficiency of the LSRCP Hatchery Evaluation Programs at the Dworshak and Hagerman NFHs, Hatchery Evaluation Teams (HETs) were formed for both facilities. The Teams are represented by personnel from the Idaho FRO, the respective hatchery production staffs, and the Dworshak FHC. Although formation of HETs at federal hatcheries in Region 1 is primarily a Service program, the IDFG is an equal participant on the Hagerman HET because of their role in that program. The Teams are involved with most aspects of evaluations. Activities concentrate on problem identification, development of projects to examine alternative production strategies, development of recommendations for improving hatchery production, and facilitation of information transfer.

Task 3.1.1 All HET meetings were attended by IFHC personnel during FY10.

Task 3.1.2 Assistance was given in development of study plans for specific evaluation projects as requested and as problems were identified such as gas bubble disease.

GOAL 4 **Facilitate inter- and intra-agency coordination and cooperation with FWS LSRCP hatchery production and evaluation programs in Idaho.**

Approach: IDFG and the NPT have management authority for fishery resources in Idaho. Therefore, coordination of FWS hatchery operations with the IDFG and the NPT is an operational necessity. In addition, various other agencies, such as the National Marine Fisheries Service, the Fish Passage Center, and the University of Idaho routinely conduct research projects and other studies involving the LSRCP programs at Dworshak and Hagerman NFHs. Close involvement by the Idaho FRO is necessary with all research and evaluation projects at these facilities to insure smooth and efficient production and evaluation of the programs. Most of this activity will be handled through the HETs.

Objective 4.2 Coordinate LSRCP activities between the Idaho FHC and the LSRCP

Coordinator's Office.

- Task 4.2.1 Upon request, the LSRCP Coordinator's Office was provided with technical assistance in reviewing and/or writing project proposals, progress reports, completion reports, position papers, or other pertinent materials.
- Task 4.2.2 LSRCP coordination meetings, project reviews, and other meetings were attended as required.
- Task 4.2.3 Assistance was provided on an as requested basis regarding LSRCP federal programs to the Coordinators Office and Fish and Wildlife Service, Regional Office on the Columbia River Fishery Management Plan and fish harvest negotiations.

Objective 4.3 Develop a Statement of Work for FY11.

Approach: A yearly statement of work was developed to clearly outline the objectives and tasks for the upcoming fiscal year.

- Task 4.4.1 The Statement of Work for FY11 was written with modifications and adjustments that reflected any anticipated changes in the FHC Fish Health Program for FY11.
- Task 4.4.2 The LSRCP office was provided with out-year budgets, work plans, and project proposals as requested.

Objective 4.5 Participate in meeting HRT recommendations for Hagerman NFH.

Approach: The USFWS initiated a series of hatchery reviews to assure that its hatchery programs in the Northwest are part of a scientifically-sound and integrated strategy, consistent with State, Tribal and other Federal strategies, for conserving wild stocks and managing fisheries in watersheds within the Region. The Hatchery Review Team (HRT) developed a list of recommendations specific to the Hagerman NFH.

- Task 4.5.1 Input was submitted from the IFHC as requested. In addition, the IFHC submitted a FONs project for HRT recommended research studies regarding the pathogen *Nucleospora salmonaris* which was funded in FY 2010.

