



**SNAKE RIVER SOCKEYE SALMON
CAPTIVE BROODSTOCK PROGRAM
Springfield Hatchery Operation and Maintenance**

**Contract Completion Report
October 1, 2011—September 30, 2012**



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Contract Completion Report

October 2011 – September 2012 Report

By

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To

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EXECUTIVE SUMMARY

On November 20, 1991, the National Marine Fisheries Service listed Snake River sockeye salmon *Oncorhynchus nerka* as endangered under the Endangered Species Act of 1973. In 1991, the Idaho Department of Fish and Game, the Shoshone-Bannock Tribes, and the National Marine Fisheries Service initiated efforts to conserve and rebuild populations in Idaho.

Initial steps to recover sockeye salmon included the establishment of a captive broodstock program at the Idaho Department of Fish and Game Eagle Fish Hatchery. Sockeye salmon broodstock and culture responsibilities are currently shared with the National Oceanic and Atmospheric Administration at two locations adjacent to Puget Sound in Washington State, the Idaho Department of Fish and Game's Sawtooth Fish Hatchery, and Oregon Department of Fish and Wildlife's Oxbow Fish Hatchery. The Shoshone-Bannock Tribes are responsible for limnology work in the Sawtooth Basin and out-migration monitoring in Pettit and Alturas lakes.

In the 2008 FCRPS Biological Opinion (NOAA Fisheries 2008), NOAA Fisheries established a juvenile sockeye smolt production target of up to 1,000,000 smolts. It is anticipated that releasing up to 1,000,000 smolts should consistently return approximately 5,000 anadromous adults annually.

The Springfield Fish Hatchery addresses the next phase in the Snake River Sockeye Captive Broodstock program through construction and operation of a new sockeye smolt production facility and implementation of associated program tasks. The annual smolt production target for the new facility is up to 1,000,000 smolts at an average size of 10-20 fish per pound. To meet increased spawning and incubation activities associated with the required eyed egg supply to the Springfield Hatchery, the Eagle Fish Hatchery expansion project was completed in June 2008.

Funding for this Design-Build project is provided by Bonneville Power Administration, and is subject to the Northwest Power and Conservation Council Three-Step Review requirements for funding approval.

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INTRODUCTION

Numbers of Snake River sockeye salmon *Oncorhynchus nerka* (*O. nerka*) have declined dramatically in recent years. In Idaho, only the lakes of the upper Salmon River (Sawtooth Valley) remain as potential sources of production. Historically, five Sawtooth Valley lakes (Redfish, Alturas, Pettit, Stanley, and Yellowbelly) supported sockeye salmon (Bjornn et al. 1968; Chapman et al. 1990). At the time of listing, the only Sawtooth Valley lake receiving a remnant anadromous run was Redfish Lake.

On April 2, 1990, the National Oceanic and Atmospheric Administration Fisheries Service (NOAA – formerly National Marine Fisheries Service) received a petition from the Shoshone-Bannock Tribes (SBT) to list Snake River sockeye salmon as endangered under the United States Endangered Species Act (ESA) of 1973. On November 20, 1991, NOAA Fisheries declared Snake River sockeye salmon endangered.

In 1991, the SBT, along with the Idaho Department of Fish & Game (IDFG), initiated the Snake River Sockeye Salmon Sawtooth Valley Project (Sawtooth Valley Project) with funding from the Bonneville Power Administration (BPA). The goal of this program is to conserve genetic resources and to rebuild Snake River sockeye salmon populations in Idaho. Coordination of this effort is carried out under the guidance of the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC), a team of biologists representing the agencies involved in the recovery and management of Snake River sockeye salmon. National Oceanic and Atmospheric Administration Fisheries Service ESA Permit Nos. 1120, 1124, and 1481 authorize IDFG to conduct scientific research on listed Snake River sockeye salmon.

Initial steps to recover the species involved the establishment of captive broodstocks at the Eagle Fish Hatchery (Eagle FH) in Idaho and at NOAA Fisheries facilities in Washington State (for a review, see Flagg 1993; Johnson 1993; Flagg and McAuley 1994; Kline 1994; Johnson and Pravecek 1995; Kline and Younk 1995; Flagg et al. 1996; Johnson and Pravecek 1996; Kline and Lamansky 1997; Pravecek and Johnson 1997; Pravecek and Kline 1998; Kline and Heindel 1999; Hebdon et al. 2000; Flagg et al. 2001; Kline and Willard 2001; Frost et al. 2002; Hebdon et al. 2002; Hebdon et al. 2003; Kline et al. 2003a; Kline et al. 2003b; Willard et al. 2003a; Willard et al. 2003b; Baker et al. 2004; Baker et al. 2005; Willard et al. 2005; Baker et al. 2006; Plaster et al. 2006; Baker et al. 2007; Peterson et al. 2008; Baker and Green 2009a; Baker et al. 2009b; Peterson et al. 2010; Baker et al. 2011a; and Baker et al. 2011b).

In the 2008 Biological Opinion (NOAA Fisheries 2008), NOAA Fisheries established a hatchery smolt production target of up to 1,000,000 sockeye smolts. This level of hatchery production, combined with natural production, is expected to achieve the adult production criterion required for delisting this species. The interim delisting criteria is for a population of 2,000 adult sockeye, of which 1,000 must be produced in Redfish Lake, and 500 in each of two additional lakes.

PROGRAM GOALS

The biological goal of the program is to increase the number of adults spawning naturally in the system. The survival boost afforded by the Springfield Fish Hatchery (Springfield FH) is expected to produce returning adults additional to broodstock needs that can be used for this purpose. Over time, the objective is to have an average adult escapement of 2,000 fish over two

generations. To meet NOAA Fisheries' interim recovery criteria, 1,000 of these fish must be produced in Redfish Lake and 500 each produced in two additional lakes.

The conservation goal of the program is to utilize captive broodstock technology to conserve the population's unique genetics, ensuring the long-term persistence of a viable, healthy, and harvestable population of sockeye salmon in the Snake River. The program is designed to assist in the recovery of the Snake River Evolutionary Significant Unit (ESU) by protecting the remaining genetic resources of the species and by providing the juveniles and adults needed to restore natural production in Redfish Lake, Alturas Lake, and Pettit Lake. As natural production increases, the conservation program will be converted to an integrated conservation-type program following the April 2004 published recommendations of the Hatchery Scientific Review Group (HSRG). This program would serve as a safety net in case of future poor survival periods.

The program has a secondary goal of providing harvest opportunities to tribal and sport fishers in the Snake and Salmon rivers. This goal is not expected to be attained for at least another decade or more. Until this population is large and healthy enough to support even a minor level of direct harvest, the emphasis of the program will be on conservation.

PROJECT BACKGROUND

Juvenile sockeye salmon are reared to the smolt stage at IDFG's Sawtooth Fish Hatchery (Sawtooth FH), a Lower Snake River Compensation Plan facility, and at the Oregon Department of Fish and Wildlife's (ODFW's) Oxbow Fish Hatchery (Oxbow FH), a Mitchell Act facility. As both facilities are focused on higher priority mitigation mandates, limited rearing space is available for sockeye salmon smolt production.

Consistent with the Federal Columbia River Power System (FCRPS) Biological Opinion and the Idaho Fish Accord, a new Idaho sockeye salmon smolt production facility is needed. The facility would have the capacity to produce between 500,000 and 1,000,000 full-term smolts annually for release to locations in the Sawtooth Valley. Focusing on a smolt release strategy maximizes the potential to return anadromous adults.

The Idaho Department of Fish and Game anticipates that releasing up to 1,000,000 smolts could consistently return approximately 5,000 anadromous adults annually. Increased eggs for the expanded smolt program will be produced at IDFG's newly expanded Eagle FH broodstock station and from increased production from NOAA Fisheries facilities in Washington State.

Tasks and deliverables directly associated with Springfield FH construction are currently funded under BPA Contract 57306. Hatchery construction is scheduled for completion on or before December 31, 2013.

This contract (BPA Contract 54436) funded IDFG Hatchery Manager and Conservation Hatchery Supervisor time required for on the ground activities associated with planning and development and initial construction phases of the new Springfield FH, as well as maintenance of the existing facility during the time frame prior to onset of demolition activities.

The balance of this document will address IDFG personnel work associated with planning and design, construction activity oversight, program specific meetings, and facility maintenance. The subsequent discussion section of this document is limited to the contract period of October 1, 2011 through September 30, 2012.

Objectives and Tasks

Key IDFG personnel tasks associated with hatchery planning and development work during the time frame of this contract are as follows:

1. Provide assistance as required for successful completion of Northwest Power and Conservation Council (NPCC) Step 2 activities.
2. Work with design team and contractor to provide necessary information for Independent Science Review Panel (ISRP) and NPCC approval to move to Step 3.
3. Provide assistance as needed for successful completion of NPCC Step 3 activities.
 - a. Work with design team, contractor, and key IDFG Fisheries Bureau personnel to ascertain approval to proceed to construction.
4. Work with contractor and key IDFG personnel to obtain required state and local permits
5. Work with contractor to begin development of facility operations manual
6. Provide planning and design contract quarterly status reports in PISCES

Key IDFG personnel tasks associated with maintenance of existing facility during the time frame of this contract are as follows:

1. Maintain Springfield FH
 - a. Hatchery Manager will maintain and repair existing hatchery office building, residence, grounds, vehicle, and associated equipment during the pre-construction NPCC review period.

Key IDFG personnel tasks associated with construction oversight activities during the time frame of this contract are as follows:

1. Attend and participate in weekly teleconference construction meetings.
2. Attend and participate in monthly on-site construction meetings.
3. Communicate with contractor, download construction photos, and provide construction updates and photos to key IDFG personnel.
4. Continue work on Operation and Maintenance (O/M) Manual.
5. Provide construction quarterly status reports in PISCES.

DISCUSSION

Planning and Development

A planning and development team consisting of the Springfield Hatchery Manager, IDFG hatchery personnel, Fisheries Bureau personnel, and Engineering Bureau personnel participated in a total of thirteen conferences and three design review meetings during the contract period. The 30% and 60% Design Submittal Packages were completed on March 14, 2012, and April 6, 2012, respectively. Each design submittal package contained design drawings, technical specifications, and a Design Documentation Report (DDR). The DDR's featured a brief narrative detailing each hatchery component, copies of design submittal meeting minutes, teleconference meeting notes, and engineering calculations used in the preparation of the submittal.

Key changes in engineering and design aspects of the program were realized during the preliminary design stage of the project. The most significant change were a flow index adjustment requiring approximately 50% more flow to the rearing units, and the decision to build water supply infrastructure capable of delivering the full 50 cfs water right for the property. During the course of the design review work, significant cost savings (Value Engineering) were realized, and a separate document detailing these savings was submitted prior to the 95% Design Review checkpoint.

In order to expedite construction in a timely manner, IDFG chose to provide a combined NPCC Step 2 and Step 3 submittal. The submittal was completed and sent to the NPCC for review in April, 2012. This submittal contained all required NPCC Step 2/Step 3 materials as required by the NPCC 3-Step Review Process. The submittal included responses to ISRP comments received during the Preliminary Design phase, National Environmental Policy Act (NEPA) and permitting summaries, cost revisions from NPCC Step 1 planning in all program areas, detailed cost estimates for the hatchery, hatchery program updates, near final design details, revised Marking and Evaluation Plan, and summaries of preliminary design work including 60 percent design documentation report.

Idaho Department of Fish and Game formally presented the combined NPCC Step 2 and Step 3 submittal at the NPCC meeting in Missoula, Montana on June 14, 2012. The submittal was approved by the Council, and IDFG received a notice to proceed to construction on June 18, 2012. The NPCC Step 2/ Step 3 submittal may be found on the NPCC website.

The engineering and science team of McMillen, LLC and D.J. Warren & Associates (McMillen/Warren) completed the 95% Design Submittal on May 31, 2012. The IDFG internal design team met with McMillen/Warren to review the 95% package and receive a tentative construction schedule and activities breakout on June 25, 2012. This was the last planning and development meeting for the IDFG internal design team.

Rough drafts of O/M outlines were viewed by the IDFG design group after the 95% design meeting. Formal work on O/M draft was postponed until December, 2012. Work on the O/M manual shall continue to be a collaborative effort among the IDFG team, DJ Warren and Associates, and McMillen LLC. This document is a work in progress whose timeframe will extend well throughout the construction period. Completion of the first draft of the Springfield Hatchery Operation and Maintenance Manual is a deliverable under the current construction contract (BPA Contract 57306).

Environmental Compliance and Permitting

The Springfield Hatchery Manager and key IDFG personnel worked with BPA's Environmental Compliance Officer and subcontractor throughout the contract period to satisfy the NEPA and ESA requirements of the project. These legal mandates necessitate the preparation and approval of an Environmental Assessment (EA), and Biological Assessment (BA), respectively. Work included on-site reconnaissance level biological and wetland surveys, and team conference calls to coordinate deliverables and edit draft copies of document chapters.

New hatchery construction must be reviewed and approved by the Idaho Department of Environmental Quality (DEQ) as per Idaho Code Title 39-118. Proposed hatchery layout and function, fish production parameters, anticipated waste generation, and a formal Waste Management Plan are required for the submittal.

The Springfield Hatchery Manager worked with McMillen and IDFG Sterling Wildlife Management Area (WMA) personnel to draft the required Waste Management Plan draft for review by Idaho Department of Water Resources (IDWR). Employees from McMillen, LLC and IDFG met with IDWR personnel on-site August 30, 2012. Idaho Department of Water Resources received a site tour of both the Springfield FH and Sterling WMA site for proposed solids disposal. Suggested edits were incorporated into the draft. McMillen submitted the required paperwork complete with Waste Management Plan in October, 2012.

The National Historic Preservation Act required federal agencies to consider the effects of actions they fund or authorize on historic properties. The Springfield Hatchery Manager worked with BPA's subcontractor and Bingham County to provide historical context for the project. The State Historic Preservation Office and Historic Sites office (SHPO) concurred with BPA's finding of no historic significance, allowing the project to proceed.

Establishment of three on-site residences required approval of the Bingham County Planning and Zoning Board, followed by Bingham County Commission approval, for a short-plat three residence subdivision. The Springfield Hatchery Manager attended a public hearing before the Planning and Zoning Board, followed by two County Commission meetings with key McMillen personnel to ascertain approval to proceed. The plat was approved on August 29, 2012.

Facility Maintenance

The Springfield Hatchery Manager maintained the existing facility during the pre-construction timeframe. Routine maintenance included care of lawns, removal of noxious weeds, and care of existing residence, office, and shop. The Manager also maintained the hatchery vehicle as per suggested service intervals.

Construction

McMillen completed Issued for Construction Drawings on July 13, 2012. Subsequent review by project engineering/construction personnel resulted in an Issued for Construction Conformed Drawing Set in September, 2012. This was the final construction drawing set issued for the project.

Construction activity commenced formally with demolition of the existing facility in July, 2012. The Springfield Hatchery Manager collected photographs of demolition and construction activity throughout the project, and uploaded to the IDFG K-drive for storage. Quality Assurance (QA) inspections are conducted by an IDFG subcontractor daily during construction activity, with supporting narratives provided to IDFG Hatchery Manager and IDFG Engineering Bureau personnel.

Construction update meetings are held weekly via teleconference as well as monthly on-site throughout the construction period. Monthly on-site meetings are attended by key IDFG, BPA, and contractor and subcontractor personnel monthly. A total of nineteen construction meetings have been conducted throughout this contract period.

Requests for information (RFI's), design submittals containing details not covered in the construction drawing set, and QA inspections are provided to IDFG Fisheries Bureau personnel, the Springfield Hatchery manager, and Engineering Bureau personnel for review.

Construction progress is documented by the Springfield Hatchery Manager, and summarized and reported to the SBSTOC at their quarterly meetings. Construction photos are sent to IDFG headquarters throughout the contract period.

BUDGET SUMMARY

The final budget for contract 54436 under project 2007-402-00 totaled \$156,092. The contract began on October 1, 2011 with the original funding of \$122,689. The contract was amended March 9, 2012 to include funding four months of time for IDFG Conservation Hatchery Supervisor time as necessitated by the project, resulting in the final contract funding amount of \$156,092. The contract period ended September 30, 2012.

ACKNOWLEDGMENTS

I wish to thank the IDFG Planning and Design team for their input and hard work during the planning phase of this project, as well as subsequent help during the Operation and Maintenance manual work. Special thanks to IDFG's Jeff Heindel, Dan Baker, and Travis Brown for their support and guidance throughout the various all phases of this project. I thank the members of the SBSTOC for their involvement and input throughout the year.

I thank the IDFG Engineering Bureau (Mike Maffey and Jeanne McFall) for their site visits and consultation work throughout this project.

Jenna Peterson (BPA) served as Environmental Compliance lead and coordinated much of the NEPA related activities, and I thank her for her hard work on this project. Finally, BPA COTR's Jonathan McCloud, Greg Baesler and Jan Brady provided an invaluable level of service and support throughout this project, and I extend a sincere thank you for their support and guidance.

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