

Pacific Salmon Commission, Northern Fund Indian River Intake Mechanical Cleaning System: SSSC – SJ Hatchery Final Report

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Project Summary

This project completes the original screened intake project begun in the spring of 2013. That project, funded by the Pacific Salmon Commission Northern Fund enabled the water intake for the SJ Hatchery to be completely screened. The original project proposed a rotating, self-cleaning intake screen; however after additional engineering review and design work, a more passive screening system located in an existing structure just downstream of the actual in-river diversion was chosen as the best design alternative. However, the final cost for the fully completed intake design exceeded the original grant award from 2012 so some elements of the structure were not purchased or installed with that grant (automatic mechanical cleaning system and 3rd intake screen).

This proposal purchased and installed the third Hendrix screen, the mechanized brushes to clean the screens of debris automatically, and the third porosity-plate assembly to allow the intake screen velocities to be tuned appropriately. This fully completed intake project at Sitka Sound Science Center (SSSC) will increase coho egg to smolt survivability which will benefit stakeholders of the Pacific Salmon Treaty. The project is a low-technology solution for drastically improving a critical water system for the Sitka Sound Science Center Sheldon Jackson Hatchery.

The current project was designed by professional engineers and fish passage experts from HDR, Inc. The project was implemented by local contractors who did the work on the original improvements last year and by SSSC staff. The project greatly improves freshwater reliability to the hatchery and thus helps ensure survival of fry, improve imprinting of smolt, and provide adequate water to attract and support returning adult salmon to the facility. These capabilities will support further partnerships with Northern Southeast Regional Aquaculture Association, NOAA, University of Alaska, and Alaska Department of Fish and Game and benefit resources of importance to the Northern Fund.

Indian River Intake Design

- During the winter months of 2011-2012 SSSC staff had observed exceptionally high flood flows in Indian River and determined the location and type of self-cleaning screen originally proposed would not survive such flood events. Staff determined that further design help was needed to insure a successful project that met our needs and provided the desired longevity.
- May 2012, HDR Alaska Inc. was contracted to review and redesign the original intake screen proposal put forward in October 2011 when that design was deemed inappropriate by SSSC staff and visiting HDR Alaska consulting engineers.
- A site visit report was completed and provided to SSSC July 30, 2012 by HDR Alaska Inc.
- The 30% design and cost estimate was completed and forwarded to SSSC - **August 31, 2012.**

- Initial design cost estimate for a passive screening system to accommodate 30 cfs was **\$158,000**. This estimate exceeded the original grant award and the design was scaled back. A revised project recommendation for 2 screens and one blank and no cleaning system was accepted in **November 2012**.
- Project permitting was completed in mid-**September 2012** when confirmations of no new permits are required for this work by either the Army Corps of Engineers or the Alaska Dept. of Fish & Game.
- No additional permitting was required for the installation of the mechanical screen cleaning system except for the installation of electric service to the site.

Project implementation

- Project procurements for the additional Hendrix screen and fabrication of the screen cleaning system began in March 2014.
- All project materials were finally delivered to Sitka Alaska by October 2014 and implementation occurred during **November and December 2014**.
- A delay occurred in acquiring the final control system components for the screen cleaning system until February 2015 and was finally installed in mid-March 2015.

Monitoring and Evaluation

Monitoring and evaluation of this intake improvement project will be simple and straight forward. The intake will be checked daily by SSSC personnel for proper operation. A daily log of operation and condition will be kept. For 2014, the SJ Hatchery did not have a single water service interruption including a couple of near 50-yr flood events. The system is working! Photo and video documentation of the screens in action during flood flow and regular flow events will be kept to demonstrate project operation and effectiveness or need for modification.

Budget Narrative

This project was very straight forward. It included purchasing a third Hendrix screen, fabrication of the screen cleaning system which did involve some additional engineering support to get the shop drawings completed, installation of the screen and cleaner, and fabrication and installation of electric power and controls. A complete budget summary is appended to the end of this document.

Labor Costs – Contractors & consultants

Total expected costs for labor and professional services exceeded the budgeted amount primarily because many materials and equipment costs were covered within the contractor payments. Professional services included, HDR Inc., for shop drawing confirmation, Keystone Associates for project installation, Eaglewolf Electric for electrical installation and controls. Costs exceeded original budget by \$11,116.

Site/Project Costs

All funds for site/project costs were captured by the two contractors working on the project, Keystone Associates, and Eaglewolf Electric during project installation. It was originally thought that SSSC staff might be more involved directly with the installation and thus materials and equipment rental were budgeted.

Overhead and Indirect Costs

No variance from proposed budget. All of these costs were borne by SSSC.

Capital Costs and Assets

Capital costs for the project came in slightly less than budgeted. Some of these various costs were included in the contractor's costs of installation.

Total Project Expense

The Pacific Salmon Commission Northern Fund grant for this project was \$99,000. PSC funds expended on the project at completion totaled **\$99,000**. Following is a project budget summary in the form of the original budget submission, a detailed SSSC project fund accounting detail and lastly a pictorial documentation of the project is appended. With this final report, we are requesting release of the final 10% (\$9,900) of the grant funds available.

Budget Summary

(PSC + in-kind +
cash)

	All Costs	PSC Grant	Actual Spent	Difference
Total Labor Costs	34,610	27,500	38,616	(11,116)
Total Site / Project Costs	5,200	5,200	-	5,200
Total Training Costs	-	-	-	-
Total Overhead Costs	20,050	-	-	-
Total Capital Costs	66,300	66,300	60,384	5,916
Project Total	126,160	99,000	99,000	-

