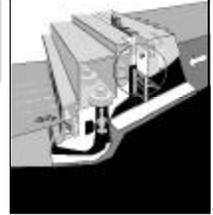




The Lower Snake River Juvenile Salmon
Migration Feasibility Report/
Environmental Impact Statement



Major System Improvements Engineering

Information on
major system
improvements
engineering

The U.S. Army Corps of Engineers (Corps) continues to study ways to improve juvenile salmon passage through the hydropower system on the Snake River. As part of this effort the Corps released the Draft Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement (FR/EIS) in December 1999. These information sheets discuss specific topics covered in the FR/EIS. The entire FR/EIS can be found on line at <http://www.nww.usace.army.mil>. For more information contact Dave Dankel, Walla Walla District Corps, at (509) 527-7288, dave.a.dankel@nww01.usace.army.mil.

The FR/EIS compares the effectiveness of four courses of action: maintaining the existing system with planned improvements, maximizing the transport of juvenile salmon, making major system improvements to fish bypass facilities, and breaching the dams. This Information Sheet provides a summary of possible major system improvements to the lower Snake River hydropower system as a way to improve juvenile fish passage.

Introduction

The term "major system improvements" refers to the use of new technologies such as surface collectors and fish guidance devices called behavioral guidance structures (BGS) designed to provide a way to guide and collect juvenile fish swimming near the surface. The fish may then be guided over the spillway or sent to the juvenile fish facilities for transportation by truck or barge downstream of Bonneville Dam.

Proposed Improvements

The Major System Improvements Alternative maximizes transport of juveniles. It differs from the Maximum Transport Alternative in that it incorporates a full-length surface bypass collector at Lower Granite Dam, which is the first dam juvenile fish encounter, thus the logical point to collect the fish. This new collection technology, in combination with existing bypass screens, would increase collection capability at Lower Granite Dam to 90 percent or higher and minimize the number of dams, bypass systems, and reservoirs that juvenile fish encounter. This bypass collector would span the powerhouse and work in conjunction with the existing extended submerged bar screens to divert fish from the turbines. At Lower Monumental and Ice Harbor, the existing submerged traveling screens would be replaced with bar screens to improve the collection or bypass of juvenile fish that originate from tributaries below Little Goose Dam.

The vast majority of downstream migrating fish stay near the surface. If effective, surface collection is preferred over the current method of collection because the fish would not experience high levels of stress swimming to great depths prior to being collected. Prototype testing of surface collectors and BGS is currently underway.



US Army Corps
of Engineers®
Walla Walla District

All of the major system improvement options for guiding and collecting fish would be used along with existing fish handling facilities. In addition, there would be miscellaneous improvements made to the existing fish handling facilities and spillways to reduce damage to migrating fish. The Major System Improvements Alternative evolves to incorporate the best available science.

Technical Appendix E—Major System Improvements describes in detail the engineering requirements and costs for performing major system improvements and a complete description of the existing systems.

Summary

The summary table below shows costs for implementing major system improvements. The table also includes implementation duration and the approximate percentage of fish surviving from just upstream of Lower Granite dam to just downstream of Bonneville Dam. **The information contained in the table is preliminary and subject to change.**

PRELIMINARY SUMMARY TABLE

Major System Improvements: Cost, Implementation Schedule and Fish Survival Through the System

Strategy Description	New Construction Costs (\$Million)	Construction Implementation Schedule Duration (Years)	AFEP Annual costs for 27 years (\$Million) ^{1/}	Routine Operation & Maintenance (\$Million)	Major Rehabilitation of Turbines (\$Million) ^{2/}	Annual Costs for Flow Augmentation (\$Million)	Juvenile Fish Survival Through the System ^{3/}
Transport – Low Cost Option	\$162.5	7	\$5.7	\$31.3	\$193.6	\$2.30	95%

^{1/} The Anadromous Fish Evaluation Program (AFEP) involves biological evaluations of anadromous (migrating) fish and evaluations of proposed dam modifications to predict resulting impacts to fish. This program would continue into the future.

^{2/} It is assumed the turbine rehabilitation would be implemented over 41 years.

^{3/} Based upon a system survival model developed by the Corps using the most recent data from the National Marine Fisheries Service.

Summary of Some of the Effects of Alternative 3 – Major System Improvements

Action

- No reservoir drawdowns
- Installation of surface collectors and other structural changes to maximize both transport programs for juvenile fish
- Optimized voluntary spill

Effects

- Slight reduction in extinction risks for listed stocks (CRI)
- Continued hydropower generation
- Continued navigational activity
- Continued irrigation and water supply
- No major change in economic conditions

