

Little Goose Adult Ladder Improvements – P2: 456609

PROJECT INFORMATION

P2 Identifier	456609
Project Manager (PM)	Steve Juhnke (NWW, 509-730-0089)
Technical Lead (TL)	Marvin Shutters (NWW, 509-382-1453)
Biologist/Coordination	Karl Anderson (NWW, 509-527-7264)

This project was initiated in FY16 and was planned for closeout in FY21. The major upgrade included modifications to the adult ladder water supply intake that allows for drawing cooler water from lower in the forebay. However, after operating the new water supply intake for several seasons, biologists have noticed that a small number of adult fish get trapped in the cooling water intake, which is a large square “chimney” type structure attached to the upstream face of the dam in the forebay. Technical staff at the dam proposed a small sluice gate or trap door structure that could be opened from the deck of the dam; this would allow the trapped adults to safely egress back to the forebay.

The purpose of this project in FY21 was to develop a budget estimate for completing design and construction of the sluice gate. The installation of the gate is pending future FY funding, and would require divers and work within the annual fish ladder maintenance outage.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$39.8k	Closeout of FY20 Cooling System Alternate Power contract, cooling water improvements analysis, and develop budget estimate for Sluice Gate addition.
Future FY Capability	\$100k	Complete design and installation of Sluice Gate addition.

Lower Granite Adult Fish Ladder Turn Pool Gate Hoist – P2: 496158

PROJECT INFORMATION

P2 Identifier	496158
Project Manager (PM)	Ricardo Walker (NWW, 509-520-0941)
Technical Lead (TL)	Marvin Shutters (NWW, 509-382-1453)
Biologist/Coordination	Karl Anderson (NWW, 509-527-7264)

The purpose of this project is to perform structural/mechanical improvements and install a new electric hoist for the Lower Granite adult fish ladder turn pool gate. The fish ladder turn pool gate is a hinged gate and screen and is used to divert migrating ESA-listed adult salmonids that are travelling up the fish ladder into the adult trap. The adult trapping facility is used between March and December to route adult fish into a trap for sampling purposes. When the gate is in the closed trapping position, it diverts all adult salmonids into the trap and blocks fish from travelling either up or down the fish ladder. Adult fish travelling upstream respond to fish attraction water from the adult trap and travel through a PIT detector. They then travel through a trap gate that periodically cycles to direct 20% of the fish to the sampling area. Afterwards, fish are released back to the fish ladder on the opposite side of the turn pool gate. The other 80% of the fish are not sampled and likewise return to the fish ladder.

Unplanned maintenance occurs when the gate becomes bound and requires maintenance workers to clear the debris. To clear debris, the fish ladder needs to be drained and placed out of service. This has occurred twice in the past 6 years. Also, within that time, JFF personnel have discovered several deficiencies in the gate system that cause it to become jammed, which requires unplanned outages of the fish ladder. This has raised concerns of stranded ESA-listed species and violation of the Fish Passage Plan, as well as risk from a public perception and operational integrity perspective.

Improvements to the gate structure, mechanical components, and installation of an electric hoist would eliminate the need for unplanned maintenance and outages of the fish ladder. In FY20, Lower Granite project used routine O&M funding to perform a technical scoping effort and rough project cost estimate for solutions to the turn pool gate issues. Funding was allocated in FY21 to develop a refined budget estimate for final design, fabrication, and installation of the turn pool gate hoist and improvements. Future FY funding would allow for completion of design, fabrication and installation of the gate hoist and structural/mechanical improvements to the turn pool gate.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$26k	Develop conceptual design and budget estimate for new turn pool gate hoist final design and construction
Future FY Capability	\$250k	Complete design and installation of new turn pool gate hoist

Ice Harbor Turbine Biological Testing & Evaluation – P2: 334588

PROJECT INFORMATION

P2 Identifier	334588
Project Manager (PM)	Kevin Crum (NWW, 509-540-4578)
Technical Lead (TL)	Marvin Shutters (NWW, 509-382-1453)
Biologist/Coordination	Karl Anderson (NWW, 509-527-7264)

The purpose of this project is to evaluate the effectiveness of new “fish-friendly” turbines at Ice Harbor. USACE and Voith Hydro cooperatively developed new turbine runners for Ice Harbor Dam; a fixed-blade runner in Unit 2 and adjustable blade runner in Unit 3, designed using biological design criteria to improve fish passage. Physical turbine passage conditions are being assessed by PNNL using Sensor Fish; survival and injury to juvenile spring Chinook Salmon are being assessed by Normandeau with the HI-Z Tag recapture technique.

For Unit 2, biological testing was completed in 2019. Test results showed that direct 48 h survival was greater than 98% for the new turbine runner; a significant improvement over the original design. Injurious pressure changes below the turbine blades and potential for strike against the turbine blades or other components during passage were significantly reduced relative to the other existing units. Overall, preliminary results show Unit 2 fish passage conditions and survival have met or exceeded our design expectations.

Unit 3 installation will be completed in FY22, with biological testing and evaluation of the adjustable blade design to follow.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$139k	MIPR amendment and Contract modification due to COVID delays; approximately 12-month delay on Unit 3 installation (BPA Large Capital project)
FY22 Capability	\$75k	Perform biological testing on Unit 3 adjustable blade turbine

Lower Granite JFF Phase 1 Upgrade – P2: 372857

PROJECT INFORMATION

P2 Identifier	372857
Project Manager (PM)	Knud Martin (NWW, 509-527-7330)
Technical Lead (TL)	Chuck Weatherspoon (NWW, 509-843-2258)
Biologist/Coordination	Marvin Shuttters (NWW, 509-382-1453) Chris Peery (NWW, 509-527-7124)

The purpose of this project is to perform multiple upgrades for functionality, safety, access, and efficiency from the original JFF design. These upgrades were coordinated and prioritized within the region and itemized on the Phase 1c list. Major remaining upgrades for this project include installation of the Emergency Bypass Gate Hoist, demolition and removal of the collection channel prototype weir, safety and access improvements to stairways and maintenance platforms, and a number of other smaller upgrades to existing machinery, power supply, security, and electronic monitoring and control systems.

FY22 funding is for contract oversight of the Emergency Bypass Gate Hoist installation, labor and miscellaneous materials for collection channel prototype weir demolition, and labor for ongoing installation and completion of Phase 1c items.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$1.02M	Complete design and installation of stairway and access upgrades, start EDC/S&A for emergency bypass gate hoist installation, procure materials for the collection channel prototype weir demo, complete Phase 1c list items
FY22 Capability	\$210k	Complete emergency bypass gate hoist installation contract, complete fish ladder prototype weir demo, complete stairway and access upgrade work, complete remaining Phase 1c list items

**Lower Granite Juvenile Bypass System (JBS) PDS Maintenance Bench,
Access Ramp & Slope Stabilization – P2: 493013**

PROJECT INFORMATION

P2 Identifier	493013
Project Manager (PM)	Knud Martin (NWW, 509-527-7330)
Technical Lead (TL)	Chuck Weatherspoon (NWW, 509-843-2258)
Biologist/Coordination	Marvin Shuttters (NWW, 509-382-1453) Chris Peery (NWW, 509-527-7124)

This project is to construct an access ramp, maintenance bench, and install slope stabilization in order for Operations to routinely and safely access the bottom of the upper collection channel flume and drop structure. This project was originally part of the Phase 1c list for project 372857 but was separated and initiated as a new asset for scheduling of funding and accounting purposes. The access ramp and maintenance bench design and geotechnical explorations were performed by Shannon & Wilson Architect-Engineer Design-Build firm. Shotcrete stabilization will be performed by a separate Contractor.

FY22 funding is for a portion of the access ramp and maintenance bench construction contract award, contract oversight, and EDC/S&A of ongoing construction contract work. Substantial completion of this project will occur in FY22 and closeout activities will complete in FY23.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$825k	Award shotcrete stabilization contract, geotechnical explorations, amendment for Final Design of Access Ramp and Maintenance Bench.
FY22 Capability (PFY + FY22 Funds)	\$2.1M	Prepare solicitation and award Access Ramp and Maintenance Bench construction contract, contract oversight, shotcrete stabilization work, and initial contract closeout activities.

McNary Steelhead Overshoot Evaluation – P2: 479912

PROJECT INFORMATION

P2 Identifier	479912
Project Manager (PM)	Karen Zelch (NWW, 509-730-3039)
Technical Lead (TL)	Marvin Shutters (NWW, 509-382-1453)
Biologist/Coordination	Karl Anderson (NWW, 509-527-7264)

The purpose of this project is to conduct an evaluation of operational changes in spill to prevent upstream migration of adult steelhead native to the John Day River.

It is well established that a significant number of adult steelhead, native to the John Day River swim past their native stream and pass above McNary dam. Some may even continue to swim up the Columbia and Snake rivers passing even more dams. In the past, these fish were considered “strays”, lost to their native populations and perhaps even presenting a risk of introgression with other stocks. However, with the use of PIT tag technology and increased numbers of detectors in place we have found that many of these fish return to their native stream to spawn. Typically, around 50% of the PIT tagged John Day steelhead observed in the river during spawning season have passed above McNary Dam and then returned to their natal stream (Table 1). To return to the John Day River, overshoot steelhead must safely pass back over one or more dams.

A MIPR was obligated to Pacific Northwest National Laboratories (PNNL) in FY20 to conduct the evaluation. PNNL had already installed sensors and equipment at McNary for previous biological evaluations. Testing was completed in FY21, and PNNL is currently formalizing the evaluation results and report.

Funding for completion of the evaluation and for project closeout activities will be from previous fiscal year funds.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$58.6k	Project support for testing, in-house labor for review and coordination of evaluation.
FY22 Capability (PFY Funds)	\$26k	Closeout activities including as-builts, contract closeouts, and fiscal completion.

Lower Granite Spillway PIT Tag Detection Post Construction Evaluation – P2: 473224

PROJECT INFORMATION

P2 Identifier	473224
Project Manager (PM)	Karen Kelly (NWW, 509-301-8035)
Technical Lead (TL)	Marvin Shutters (NWW, 509-382-1453)
Biologist/Coordination	Karl Anderson (NWW, 509-527-7264)

The purpose of this project is to conduct fish passage testing and evaluation of the new Lower Granite Spillway PIT Tag Detection system. Construction of the new Spillway PIT Tag Detection system was completed in FY21.

A MIPR is scheduled for obligation to NOAA in September of FY21 to conduct the evaluation. Testing and completion of the evaluation is scheduled for the FY22 spill season, from March-June.

Funding for completion of the evaluation and for project closeout activities will be from previous fiscal year funds.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$225k	Obligate MIPR to NOAA for post construction evaluation
FY22 Capability (PFY Funds)	\$25k	Project support for testing, in-house labor for review and coordination of evaluation. Project closeout activities.

McNary Avian Predation Measures – P2: 464428

PROJECT INFORMATION

P2 Identifier	464428
Project Manager (PM)	Karen Kelly (NWW, 509-301-8035)
Technical Lead (TL)	Chris Peery (NWW, 509-527-7124)
Biologist/Coordination	Chris Peery (NWW, 509-527-7124)

The purpose of this project is to replace the avian deterrent system for the JFF outfall pipe discharge at McNary. The original system has not functioned as desired since installation in 2012 and was partially destroyed by high flow events. This project included conceptual design and cost estimate for a limited avian wire array to compliment hazing activities.

Due to the high cost of avian wires and/or replacing the water cannon system, and due to the likelihood of future damage due to high flow events, the scope of this project was revised to install and evaluate more recent technologies such as laser and acoustical deterrents. Portable-style deterrents were installed in FY21 with the intent to evaluate effectiveness and make the installation permanent in FY22.

Funding for evaluation, completion of the installation, and project closeout activities will be from previous fiscal year funds.

SCHEDULE & COST

YEAR	COST	MAJOR ACTIVITIES
FY21 Est. Actual Obligation	\$39k	Purchase laser and acoustical deterrents, temporarily install, and evaluate effectiveness of deterrents.
FY22 Capability (PFY Funds)	\$25k	Install deterrents permanently and project closeout activities.