Corps and Reclamation
2012 IPR Supplemental Information

- FCRPS Cultural Resources
- CORPS Fish and Wildlife O&M
- Reclamation Leavenworth Hatchery Facilities
- CORPS Columbia River Fish Mitigation (CRFM)
FCRPS Cultural Resources and Fish and Wildlife O&M

- Program drivers for mitigation responsibilities associated with Section 106 Compliance and the Biological Opinions, as well as addressing aging infrastructure (both NREX and Capital).

- Risks:
  - Aquatic Nuisance Species (zebra and quagga mussels). Funding for prevention or maintenance is not included in these budgets.
  - Aging infrastructure
FCRPS Cultural Resource Program

Program purpose:

- Federal Agencies are required to address impacts to cultural resources that result from operation and maintenance of FCRPS hydroelectric projects:
  - This is required by the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

- Agencies committed to address compliance with cultural resource laws in the System Operations Review Records of Decision and Programmatic Agreements.

- Cultural resource compliance is accomplished through cooperative working groups composed of regional Tribes, State Historic Preservation Officers, and other affected land managing agencies.
Current Funding Levels and Accomplishments:

- **FY1997 – FY 2011 Annual Funding:**
  - $4.5 million Annually System-wide

- **Program Accomplishments at the 14 Hydroelectric Projects**
  FY 1997 – FY 2011:
  
  - **Acreage Surveyed**
    - Total area surveyed: 115,162 acres
    - 36,000 acres in 1996
    - 79,162 acres surveyed between 1997 and 2011

- **Cultural Resource Sites Identified** - 3,700 sites total:
  - 2,223 sites in 1996
  - 1,477 identified between 1997 and 2011
Current Funding Levels and Accomplishments (continued):

- Traditional Cultural Properties Studies Completed - 83 studies total:
  - 3 studies in 1996
  - 80 studies between 1997 and 2010

- Mitigation Projects Completed - 72 mitigation projects total:
  - 5 sites stabilized in 1996
  - During 2012, site stabilization and erosion control projects are on-going at several Projects throughout the system.
  - Numerous public education efforts such as public presentations, DVDs, and information brochures developed.
Key Factors Supporting the Need for Proposed Funding Levels:

- No Inflation increase from 1997 - 2011

- Changes in Program Scope:
  - 1997 funding plan underestimated level of effort required for TCP work, monitoring, and support services (GIS, NEPA, Engineering Design, etc.)
  - Allow for large-scale mitigation/treatment projects while still accomplishing eligibility determinations and other activities

- Increased Program Staffing Needs:
  - Agencies require full-time FCRPS Program and support staff to improve Program execution

- Some Reclamation costs previously in other O&M categories moved to Cultural Resources Budget
### Cultural Resources Program
**FY 2014-FY 2015 Funding Proposal**

<table>
<thead>
<tr>
<th></th>
<th>FY 2014</th>
<th>FY 2015</th>
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<td>$8,048,775</td>
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Memaloose Island Stabilization

Overview of Memaloose Island

Recent treatment project
45FE1 Stabilization Project

Rock storage on the opposite side of the Columbia River

Installation of Reno mats using barge and track hoe
Hidden Beach Stabilization Project

Before (current conditions)

After (artist’s rendition – not yet started)
Joint Funded Operations and Maintenance Budget
for the Fish and Wildlife Program

Portland, Seattle and Walla Walla Districts

Tim Dykstra
Environmental Stewardship Program Manager
US Army Corps of Engineers
Northwestern Division
Funding for Fish and Wildlife related O&M tasks in areas affected by the operation of Corps hydropower producing dams:

- Willamette & Rogue Basins (9)
- Lower Columbia River (4)
- Snake River Basin (5)
- Upper Columbia Basin (3)
Funding For Corps Program

- Appropriated Budget from Congress (approximately 40%):
  - Environmental Stewardship
  - Budgeted 2 Years Out
  - Sometimes differences in the President’s Budget and actual Appropriations
  - Uncertainty in funding levels from year to year

- Direct Funded BPA Program (approximately 60%):
  - Matched on a project-by project basis
  - Have a 5 year plan
Corps F&W Expense Budget (% based on 2011 expenditures)

- **Anadromous Fish (87%)**: 
  - operation/maintenance of fish passage facilities at dams, mitigation hatcheries, smolt transportation, multi-year fish passage research outlined by BiOps, program management.
  - spare parts for fish passage facilities, painting fish barges, coordinating and conducting fish operations, and conducting irregular fish passage or disease research, project management.

- **Wildlife and Resident Fish (10%)**: 
  - baseline wildlife management, habitat mitigation, mitigation hatchery maintenance, and invasive species coordination, project management.

- **Water Quality (3%)**: 
  - Total Dissolved Gas and Temperature monitoring/modeling, and TMDL coordination, project management.
The need for O&M funding in the Corps F&W Program continues to grow for two primary reasons:

1) Aging of old infrastructure

2) Construction of new infrastructure
Hatchery Water Pumps
Bonneville B2 Surface Bypass
(Corner Collector Outfall)
Lower Monumental Removable Spillway Weir

RSW – spill bay 8

RSW – Dimensions

RSW – Operating

RSW – during fabrication
### Distribution of F&W Budget by Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rate Period FY8-9</th>
<th>Rate Period FY10</th>
<th>Rate Period FY11</th>
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<td>Transportation</td>
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<tr>
<td>Wildlife and Resident Fish</td>
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<td>Water Quality</td>
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# CORPS F&W EXPENSE BUDGET

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<th>Actual Expense</th>
<th>CAP*</th>
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<td>2009</td>
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<td>2010</td>
<td>$36,515,000</td>
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<td>$40,843,000</td>
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<td>$43,702,000</td>
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<td>2014</td>
<td>$45,013,000</td>
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<tr>
<td>2015</td>
<td>$46,364,000</td>
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*Includes 3% escalation factor
Big Issues on the Horizon

- More Fish and Wildlife Program requirements are putting a direct strain on the budget:
  - Willamette BiOp
  - FCRPS BiOp
  - Clean Water Act Requirements
  - Hatchery Management Requirements
  - Invasive Species
  - Nationwide appropriated funds

- More ES requirements at non-hydro projects are putting an indirect strain on the budget:
  - More requirements at non-hydro projects reduce the available appropriated funds at a faster rate
    - Mill Creek
    - Howard Hanson
### Corps Hatchery Budget Projection

*(rough estimate of total $)*

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<th>FY12</th>
<th>FY13</th>
<th>FY13</th>
<th>FY14</th>
<th>FY14</th>
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<td>645</td>
<td>3208</td>
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<td></td>
<td>Detroit/Big Cliff</td>
<td>Marion Forks/Minto</td>
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<td>1661</td>
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*July 17, 2012*

*2012 Integrated Program Review*
Operations, Maintenance, and Replacement Budget
Leavenworth Fisheries Complex
Leavenworth Fisheries Complex

- Reclamation has a continuing responsibility to mitigate, to acceptable levels of abundance, the salmon resources adversely impacted by the construction and operation of Grand Coulee Dam (1991 IG audit).

- The Leavenworth Fisheries Complex (LFC) was authorized by the Grand Coulee Fish Maintenance Project on April 3, 1937, and reauthorized by the Mitchell Act (52 Stat. 345) May 11, 1938.

- Construction of the Leavenworth, Entiat, and Winthrop National Fish Hatcheries occurred from 1938-1940.

- The Complex is composed of the three fish hatcheries and the Mid-Columbia Fisheries Resource Office (MCFRO).
Leavenworth Fisheries Complex

- In 1949, responsibility for operations and maintenance was transferred to the U.S. Fish and Wild Service (FWS).

- FWS is funded through a reimbursable agreement with Reclamation to operate the facilities to mitigate for depleted Pacific salmon stocks.

- About 92% of the operations, maintenance, and replacement expenses are repaid to the government by power users.

- The budget covers operations of the three hatcheries as well as a portion of the MCFRO and the Olympia Fish Health Center (OFHC). The MCFRO provides monitoring and evaluation of hatchery stocks, marking programs, and permitting compliance for all LFC programs and activities. The OFHC provides fish diagnostic services in support of healthy salmon stocks.
Current complex hatchery operations are authorized by the following treaties, judicial decisions, and legislation:

- Treaty with the Yakama Nation, June 9, 1855.
- Treaty with the Walla Walla, Cayuse, Umatilla Tribes, June 9, 1855.
- Treaty with the Nez Perce and Tribes of Middle Oregon, June 25, 1855.
- Treaty with the Bands of Colvilles, April 8, 1872.
Leavenworth Fisheries Complex

- LFC fish production programs support mitigation efforts in the Columbia River Basin. Production goals are set in the Columbia River Fisheries Management Plan under the U.S. v. Oregon decision of 1969.

- The Leavenworth National Fish Hatchery (NFH) currently rears 1.2 million spring Chinook salmon smolts annually and provides a tribal and sport fishery on Icicle Creek.

- The Entiat NFH rears 400,000 summer Chinook salmon smolts annually for release into the Entiat River.

- The Winthrop NFH rears 600,000 spring Chinook salmon and 100,000 summer steelhead for release into the Methow River.
Leavenworth Fisheries Complex

- LFC hatcheries were reviewed by the FWS’s Hatchery Review Team (HRT) and the Hatchery Science Review Group (HSRG).

- FWS’s personnel are working through the implementation of the recommendations from the HRT and HSRG as well as incorporating new actions from the following:
  - Federal Columbia River Power System (FCRPS) BiOp—RPA No. 39
  - FCRPS Columbia River Accords
  - U.S. v. Oregon Fish Management Plan

- All recommendations and actions are expected to contribute to more sustainable fishery programs that reduce risks to listed species and increase recovery efforts in the Columbia Basin.
Leavenworth Program Levels

Millions

![Bar Chart]

- Approp Funding
- Direct Funding

FY 11 | FY 12 | FY 13 | FY 14 | FY 15 | FY 16 | FY 17
Fiscal Year 2011 – 2017 Program Drivers

- **Regulatory Compliance:**
  - New requirements to comply with terms and conditions of consultations and permits

- **Aging Infrastructure:**
  - Original construction in 1939.
  - Significant rehabilitation/modernization of hatcheries required.

- **Appropriations:**
  - Flat and/or declining budgets.
Leavenworth Fisheries Complex

- O&M Budget Allocation:
  
  - Facilities Operations for Leavenworth, Entiat, and Winthrop Hatcheries: ~ 58%
  
  - MCFRO Support: ~ 23%
    - Monitoring and evaluation program, tagging, marking programs, permit compliance, Biological Assessments, Hatchery and Genetic Management Plans, ESA compliance, supplies, and materials.

  - Olympia Fish Health Center Support: ~ 7%
    - Diagnostic fish health services at Leavenworth, Entiat, and Winthrop NFH’s monthly fish health inspection throughout the entire rearing cycle of the salmon (egg to adult), diagnostic work, supplies, and materials.

  - Facilities Maintenance: ~ 12%
Leavenworth Fisheries Complex

- Summary - Leavenworth Fisheries Complex ongoing and growing needs:
  - Significant rehabilitation/modernization of hatcheries required
  - BiOps new requirements
  - Clean Water Act requirements
  - Hatchery Management recommendations
  - HSRG recommendations
Columbia River Fish Mitigation Project (CRFM)

2012 Integrated Program Review (IPR)
Columbia River Fish Mitigation Project

- **Purpose:** Mitigate impacts of the dams to anadromous fish passage in the Columbia, Lower Snake and Willamette Rivers to meet Biological Opinion (BiOp) requirements:
  - CRFM (Col/Lower Snake River) initiated in 1991
  - Willamette River Basin efforts initiated in 2008
  - Implement fish passage improvements on both systems that were not part of the original dam construction for juvenile and adult fish passage.

- **Authority:** Original Congressional Acts for project construction and operation

- **Funding source:** Congressional appropriations. BPA repays U.S. Treasury for “power share” of costs.

- **Transfers to “Plant-in-Service”:**
  - Costs transferred when new facility goes into operation or study completed
Columbia River Fish Mitigation Project

- **Costs and schedule**
  
  - Estimated project cost last reported to Congress: $2.1 B (FCRPS $1.8 B, Willamette $300 M)
  
  - Funds expended through 2011: $1.5 B
  
  - A revised estimate of the balance to complete is currently being formulated to accompany the FY2014 Budget Submission. The estimate addresses:
    
    - The 2010 FCRPS Supplemental Biological Opinion (BiOp) which included additional measures necessary to avoid a Jeopardy determination.
    
    - Significant progress made towards achieving Federal Columbia River Power System (FCRPS) BiOp performance objectives over the previous 4 years.
    
    - Additional clarity on Willamette River BiOp (Willamette BiOp) Reasonable and Prudent Alternatives (RPAs) following development of a Configuration and Operations plan.
    
    - Further development of a 10-year plan for addressing pacific lamprey passage at mainstem projects.
  
  - Current estimated completion: 2023 (Coincides with completion of the FCRPS BiOp and the Willamette River Basin BiOp)
Columbia River Fish Mitigation Project

- Primary focus: Facility configuration and operations at the dams that improve fish survival:
  - Evaluate project and system fish passage & survival
  - Identify/develop/construct passage improvements (juvenile and adults)
  - Seek cost effective alternatives, configurations, and operations
  - Implement Biological Opinions and Fish Accord agreements
  - Regional coordination
    - Biological/technical review & input
    - Establish priorities
      - Critical issues/uncertainties for research
      - Biological outputs for alternative actions
      - Costs

- Goals: Implement improvements at the projects to increase fish survival while allowing the continued benefits of the multi-purpose projects (hydropower, navigation, recreation, flood damage reduction).
  - Improve and address impacts to fish survival that were not considered when the dams were originally built.
  - Achieve BiOp juvenile survival performance requirements to achieve recovery of endangered species and stability of hydropower system (96% spring, 93% summer)
# Columbia River Fish Mitigation Project

<table>
<thead>
<tr>
<th>Year</th>
<th>Appropriations:</th>
<th>Transfers to Plant-in-Service (power share):</th>
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(Dollars are in millions)

* Includes ARRA Funds
## Columbia River Fish Mitigation Project

Estimated annual transfers to Plant-in Service 2012-2016 (Power share)
(Dollars are in millions)

<table>
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<th>FY 2013</th>
<th>FY 2014</th>
<th>FY 2015</th>
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<td>$94</td>
<td>$145</td>
<td>$99</td>
<td>$49</td>
<td>$47</td>
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Columbia River Fish Mitigation Project

- Major Remaining Activities:

  - Bonneville Dam:
    - Complete 2nd PH Bypass improvements
    - Complete BIOP performance testing
    - Complete lamprey passage improvements

  - The Dalles Dam:
    - Evaluate and modify, as warranted, adult ladder(s) for reliability and passage efficiency
    - Design and construct adult PIT monitoring system
    - Complete BIOP performance testing

  - John Day Dam:
    - Complete north adult ladder improvements for salmonids and lamprey
    - Complete actions for spillway weir permanence
    - Complete BIOP performance testing

  - McNary Dam:
Major Remaining Activities (Cont):

- Ice Harbor:
  - Initiate BiOp performance testing
  - Biological input to design and post-installation evaluation of new turbine runners

- Lower Monumental:
  - Complete construction of the juvenile bypass facility outfall relocation
  - Complete BIOP performance testing

- Little Goose:
  - Complete actions for spillway weir permanence
  - Complete BIOP performance testing

- Lower Granite Dam:
  - Complete design and initiate construction of juvenile bypass facility upgrades
  - Initiate BiOp performance testing
  - Install prototype spillway PIT monitoring system

- System Actions:
  - Lamprey passage research and passage improvements at various dams
  - Estuary and inland avian predator management actions
  - Estuary post-passage and transport survival studies
  - Estuary habitat monitoring
  - Adult and kelt passage evaluations
  - Design and construct spillway weir boat barriers at various projects
Columbia River Fish Mitigation Project

JUVENILE PERFORMANCE STANDARD SUMMARY
Yearling Chinook Dam Passage Survival
Empirical Estimates Derived Under Court-Ordered Spill Operations

Project


July 17, 2012
Columbia River Fish Mitigation Project

Future – Way Forward:

- FCRPS BiOp:
  - Complete passage improvements to meet the BiOp juvenile survival performance targets (93% spring and 96% summer). Complete juvenile performance standard evaluations for all Columbia and Lower Snake River projects.

- Willamette BiOp:
  - Complete adult collection facility improvements. Complete basin-wide evaluation and implement additional actions (juvenile passage and temperature control) that are likely to provide significant biological benefit and improvements to survival within the basin.
Integrated Program Review

Financial Disclosure

This information has been made publicly available by BPA on July 16, 2012 and contains information not reported in agency financial statements.