Yakima River Basin Integrated Water Resource Management Plan Status Update

Science Management Conference
Ellensburg, WA
June 14, 2017

Presented by:
Wendy Christensen, Reclamation

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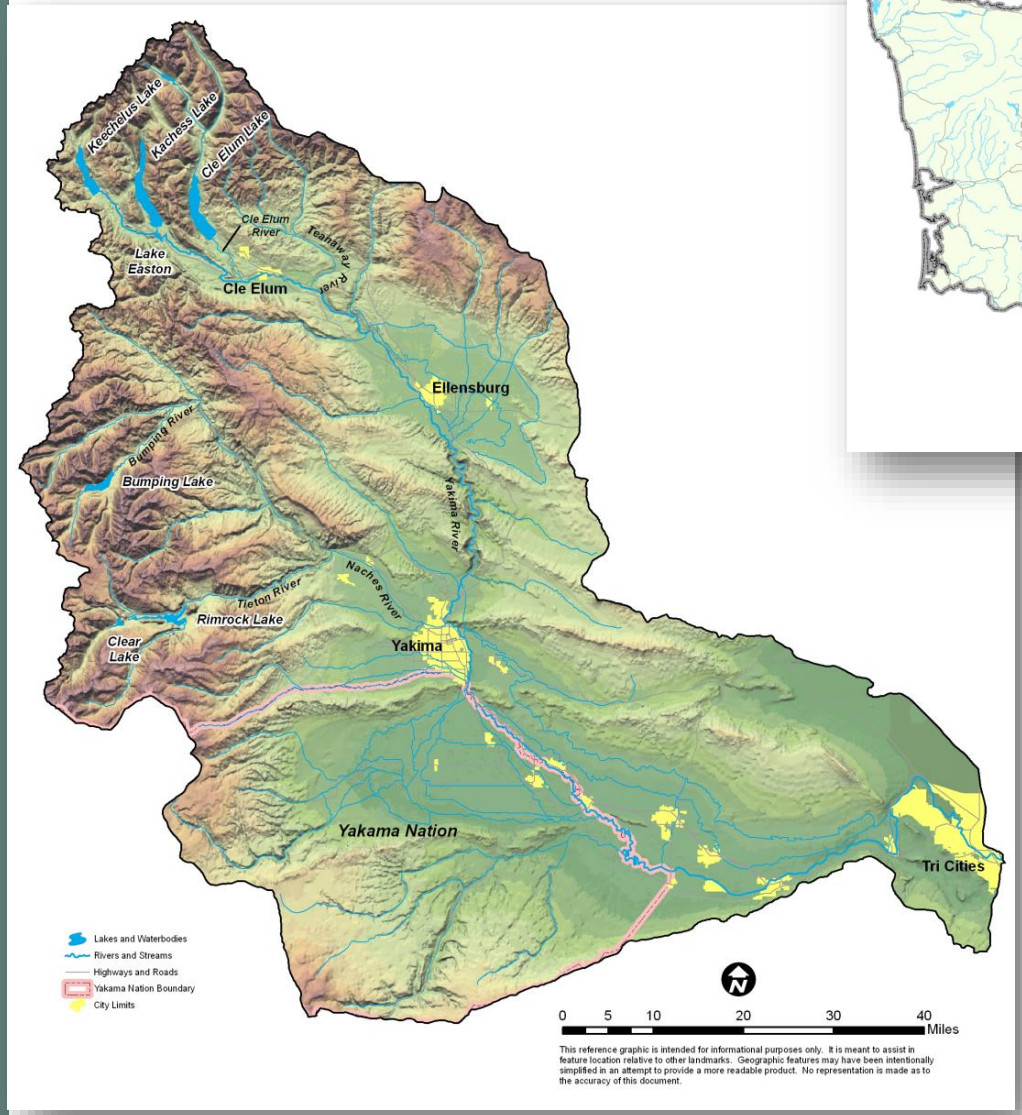
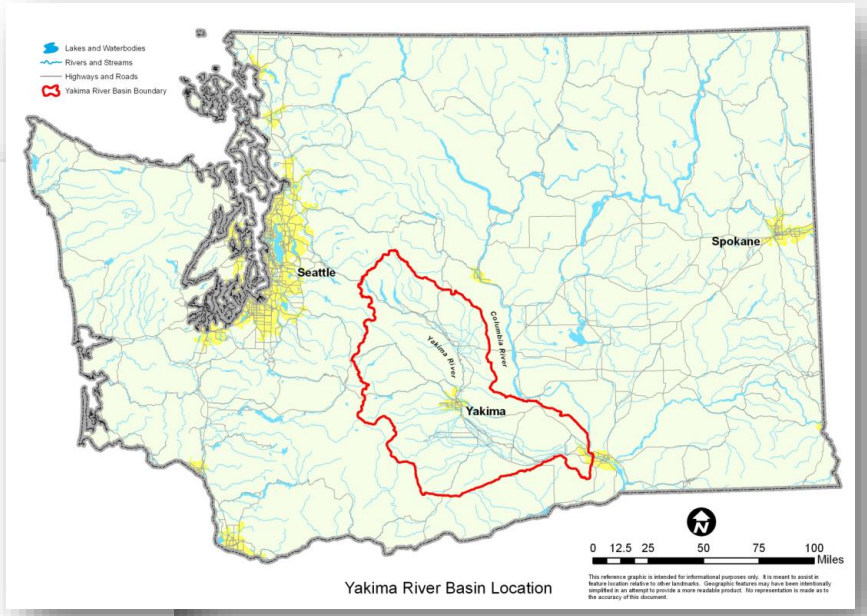
Yakima River Basin Overview





Yakima River Basin Location

- 6,155 sq. miles w/464,000 irrigated acres
- 5 reservoirs w/ 1M AF capacity, irrigation deliveries 2.3M AF
- Droughts in 1992-1994, 2001, 2005, and 2015
- Reduced Fisheries
- $4 Billion agriculture economy

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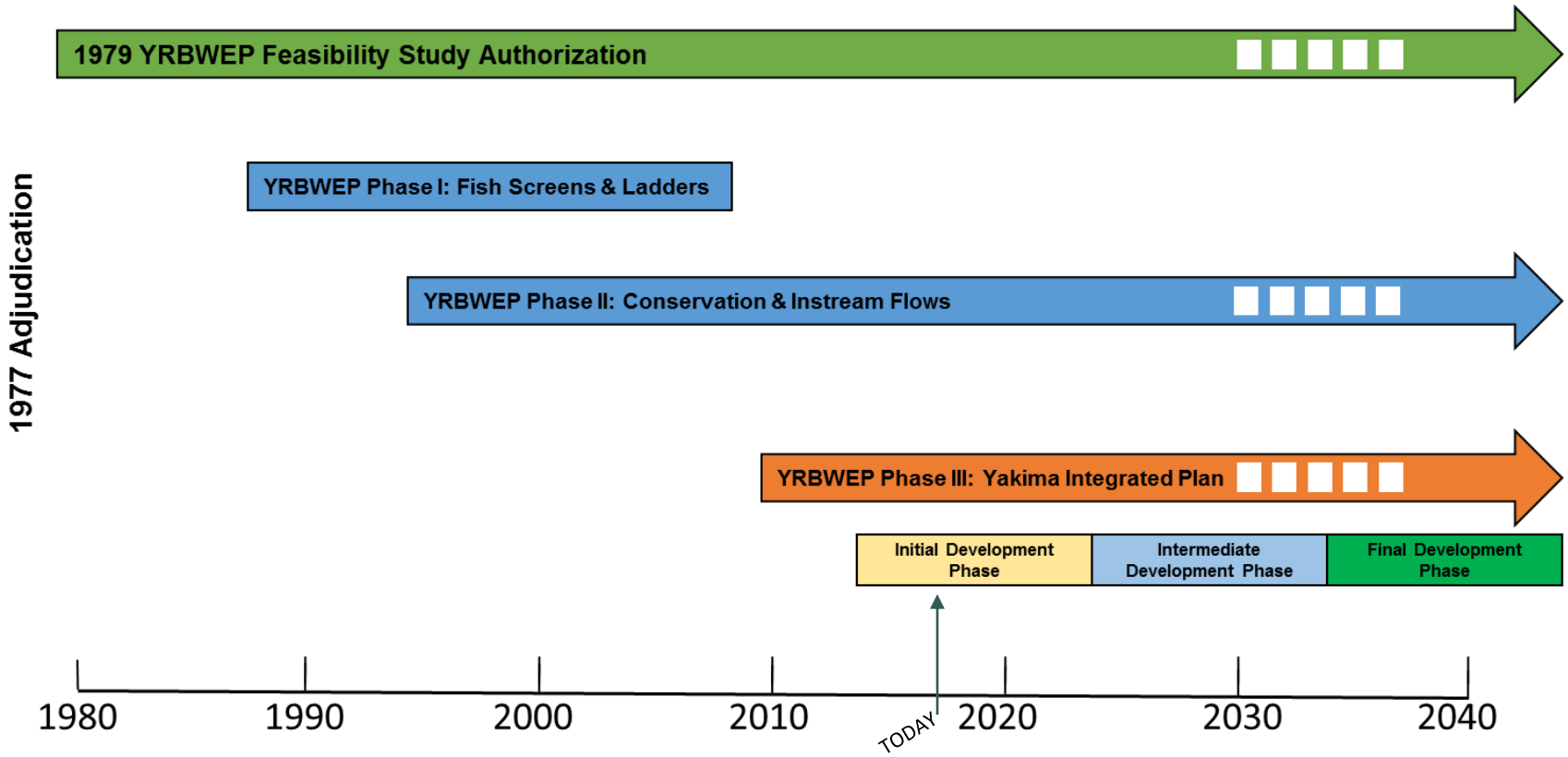
Yakima River Basin Water Enhancement Project Timeline



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Yakima Integrated Plan Goals

- **Provide opportunities for ecological restoration and enhancement, including fish passage**
- **Improve water supply during drought years (70% proratable supply)**
- **Provide for efficient and adaptable water supply management**
- **Contribute to sustainable economy and environment**

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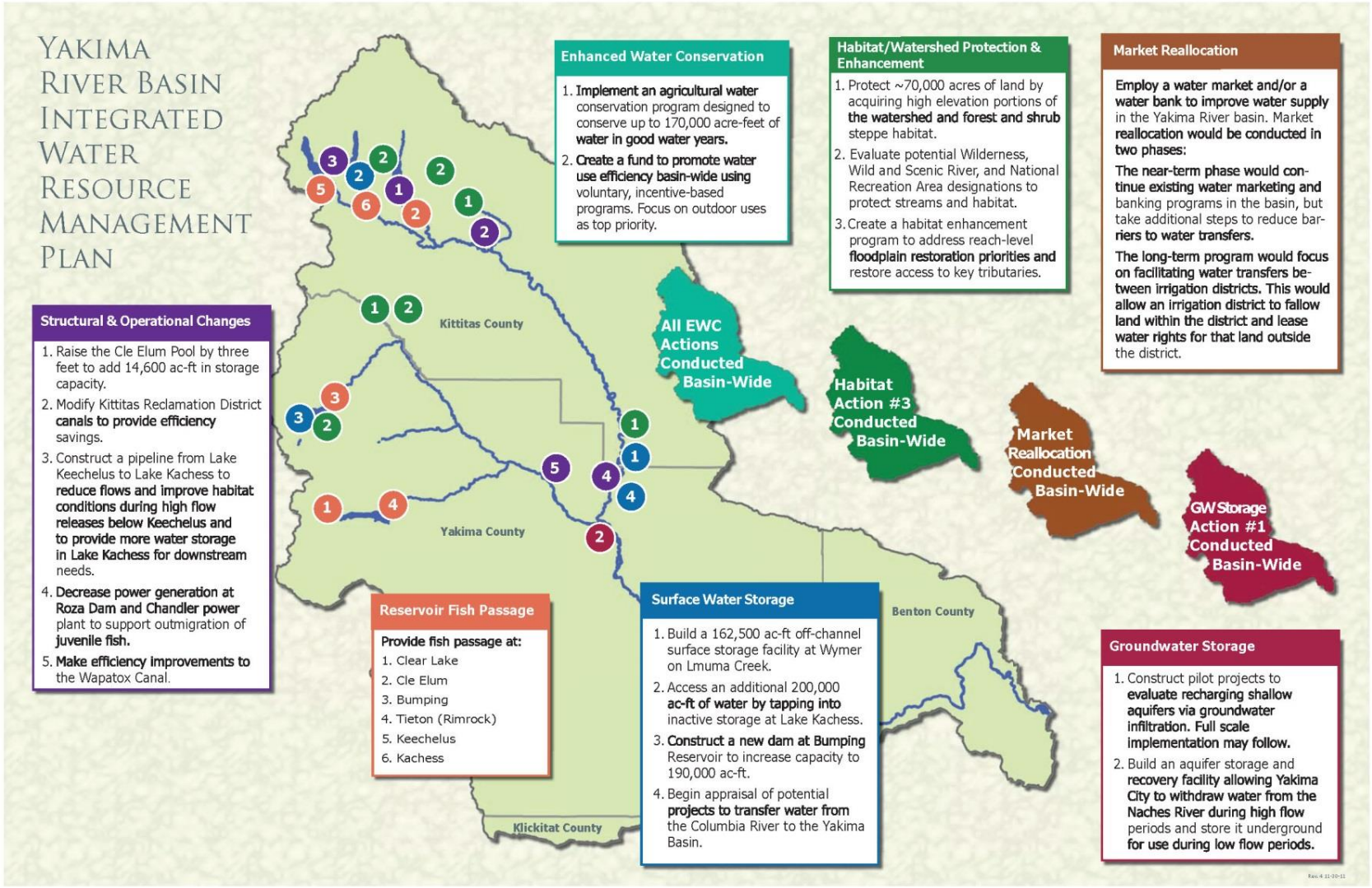
Yakima Integrated Plan Overview



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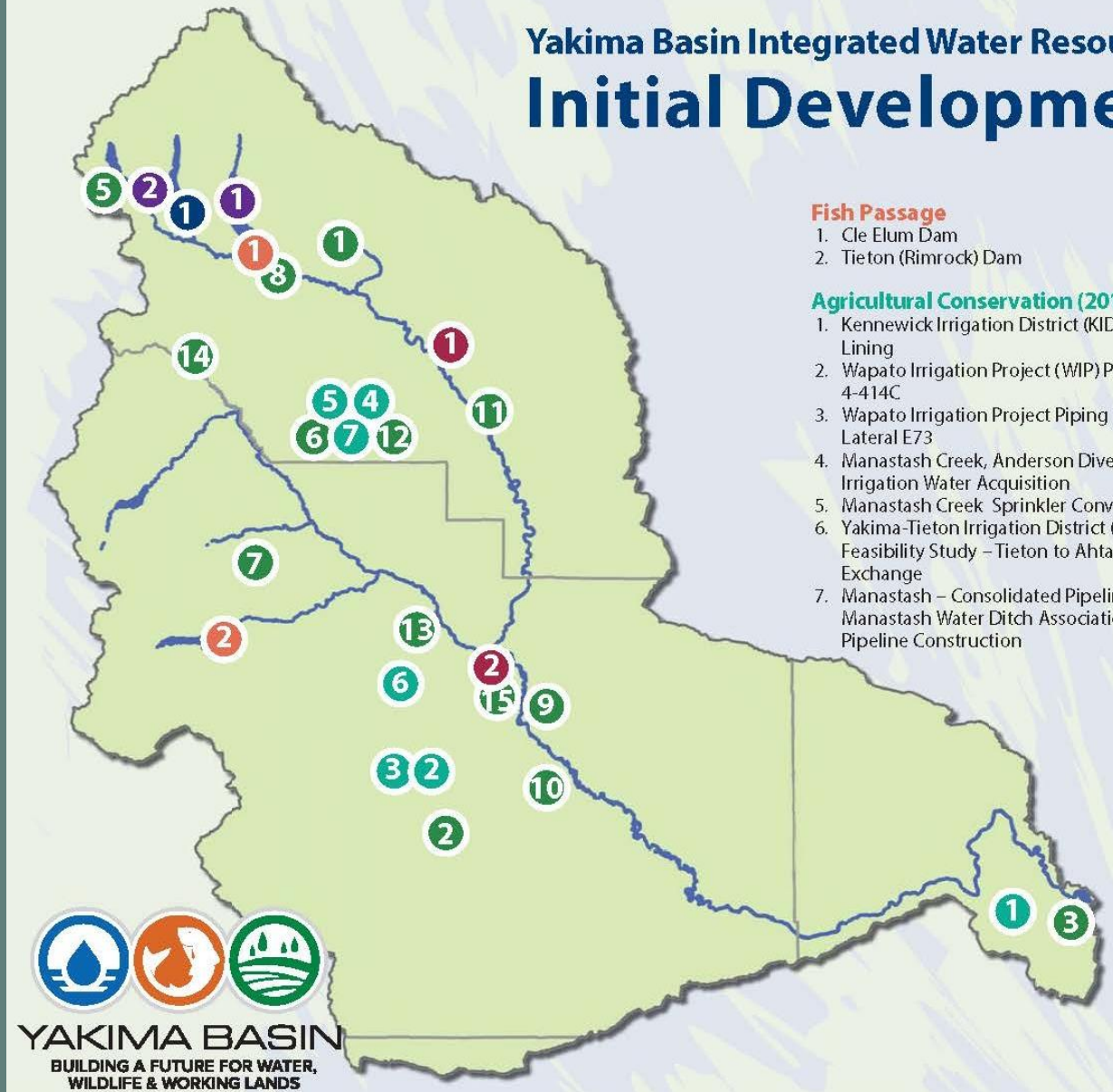
Yakima Basin Integrated Water Resources Management Plan

Initial Development Projects



Fish Passage
1. Cle Elum Dam
2. Tieton (Rimrock) Dam

Agricultural Conservation (2013-2015)
1. Kennewick Irrigation District (KID) Division IV Lining
2. Wapato Irrigation Project (WIP) Piping Lateral 4-414C
3. Wapato Irrigation Project Piping Satus East Lateral E73
4. Manastash Creek, Anderson Diversion Irrigation Water Acquisition
5. Manastash Creek Sprinkler Conversions
6. Yakima-Tieton Irrigation District (YTID) Feasibility Study – Tieton to Ahtanum Exchange
7. Manastash – Consolidated Pipeline & Manastash Water Ditch Association (MWDA) Pipeline Construction

Structural and Operational Changes
1. Cle Elum Pool Raise
2. Keechelus to Kachess Conveyance

Surface Water Storage
1. Kachess Drought Relief Pumping Plant

Water Bank/Exchange Programs
Basin Wide

Groundwater Storage
1. Upper Kittitas Aquifer Storage and Recovery
2. Yakima City Aquifer Storage and Recovery

Habitat Enhancement (2013-2015)
1. Teanaway Acquisition
2. Toppenish Fan
3. Bateman Island Causeway Modification Conceptual Design
4. Bull Trout Habitat Improvements
5. Gold Creek Habitat Assessment and Conceptual Design
6. Reed Diversion design Barrier Removal
7. Little Rattlesnake Road Decommissioning
8. Cle Elum River Side Channel Restoration Project, Phase 2
9. Gap-to-Gap Property Acquisitions
10. Upper Wapato Riparian Restoration
11. Ellensburg Water Company / Coleman Creek Restoration
12. Reed Diversion Barrier Removal
13. Trout Meadows Acquisition / Enhancement
14. Manastash/ Little Naches Land Acquisition
15. Gap-to-Gap Outfall Relocation

YAKIMA BASIN
BUILDING A FUTURE FOR WATER, WILDLIFE & WORKING LANDS

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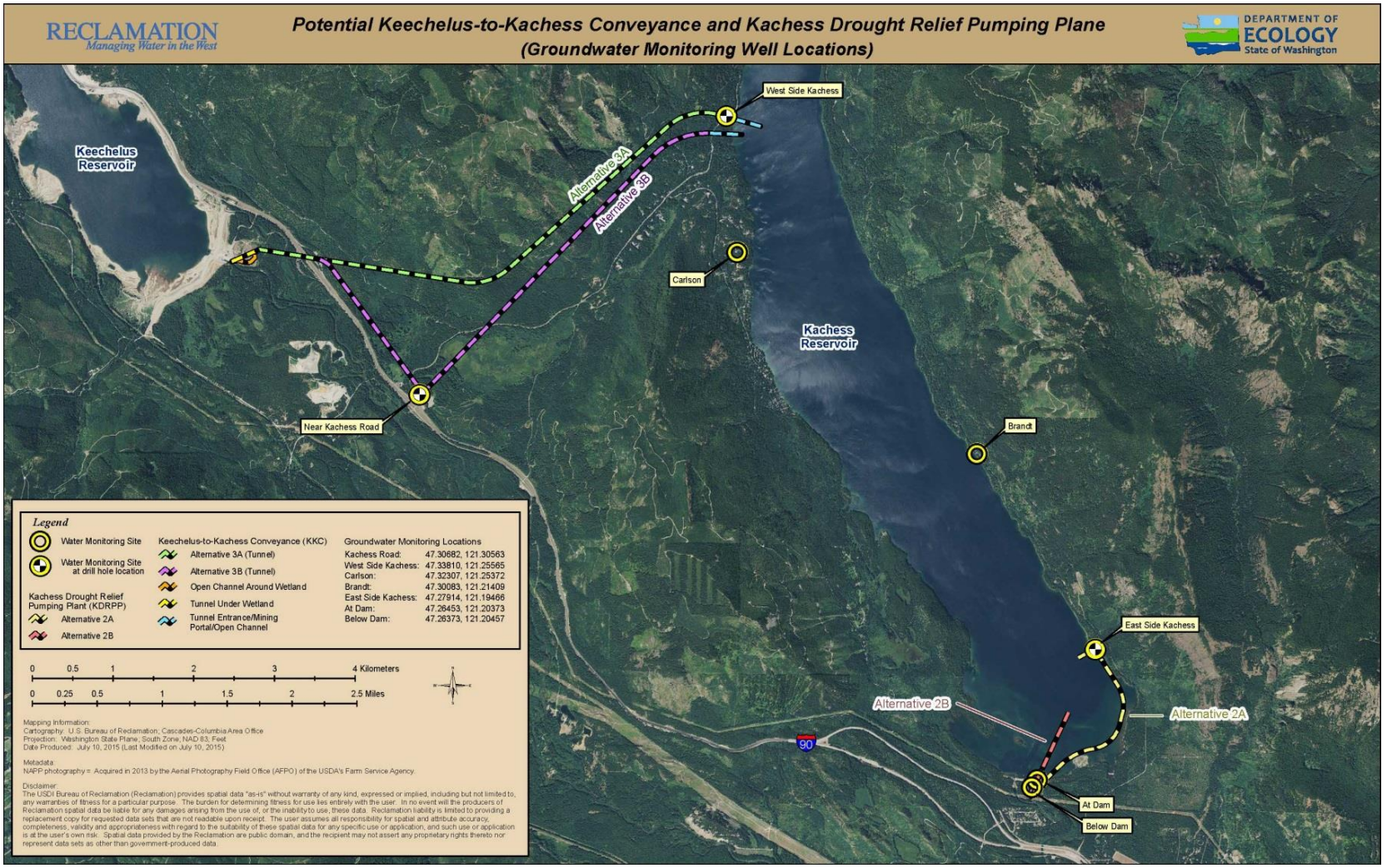
Kachess Drought Relief Pumping Plant & Keechelus-to-Kachess Conveyance Location



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Milestones

Kachess Drought Relief Pumping Plant and Keechelus Reservoir-to-Kachess Reservoir Conveyance Projects

NEPA-SEPA Process

THE OFFICE OF COLUMBIA RIVER
Water for Families, Farms, and Fish

RECLAMATION
Managing Water in the West

Time not to scale

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Kachess Drought Relief Pumping Plant

Oct 2015 Aerial Kachess Reservoir

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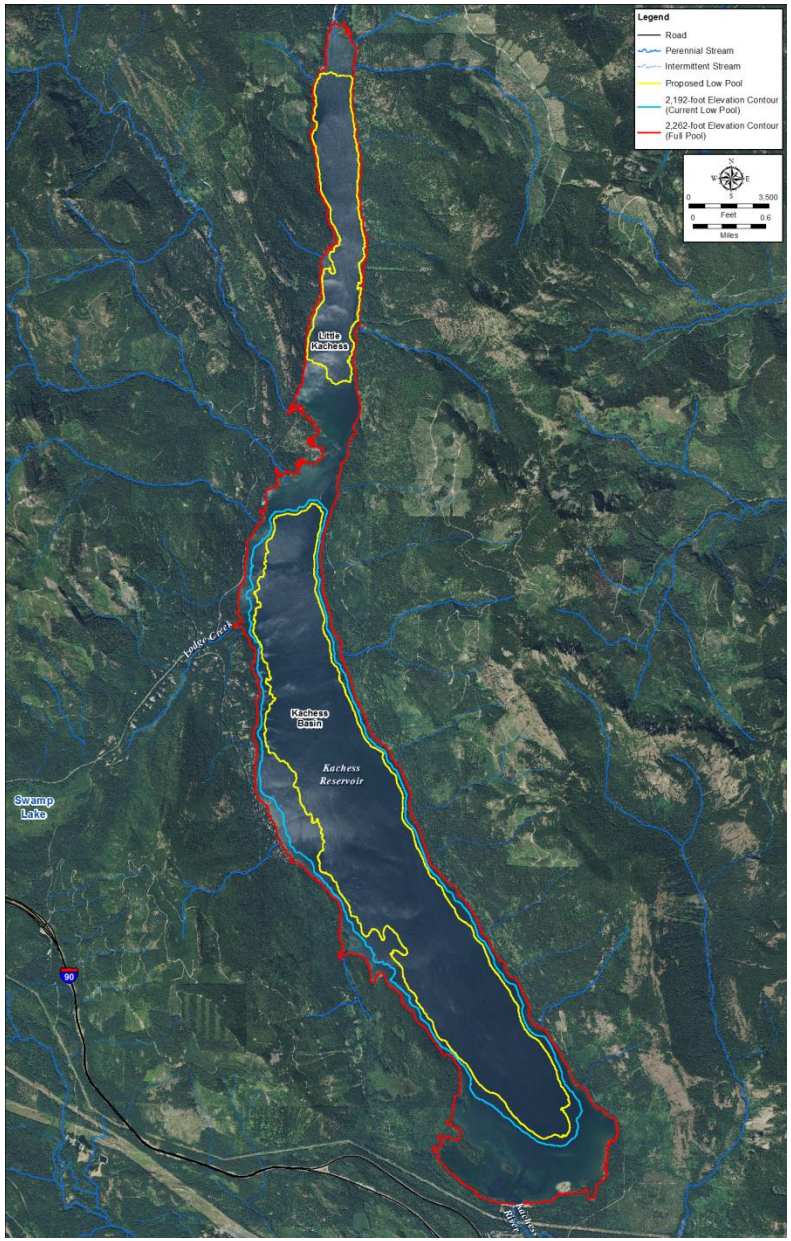
Kachess Drought Relief Pumping Plant



- **Provides up to 200K acre-ft of water in <70% proration years**
- **Up to 14% less surface area than existing minimum pool**

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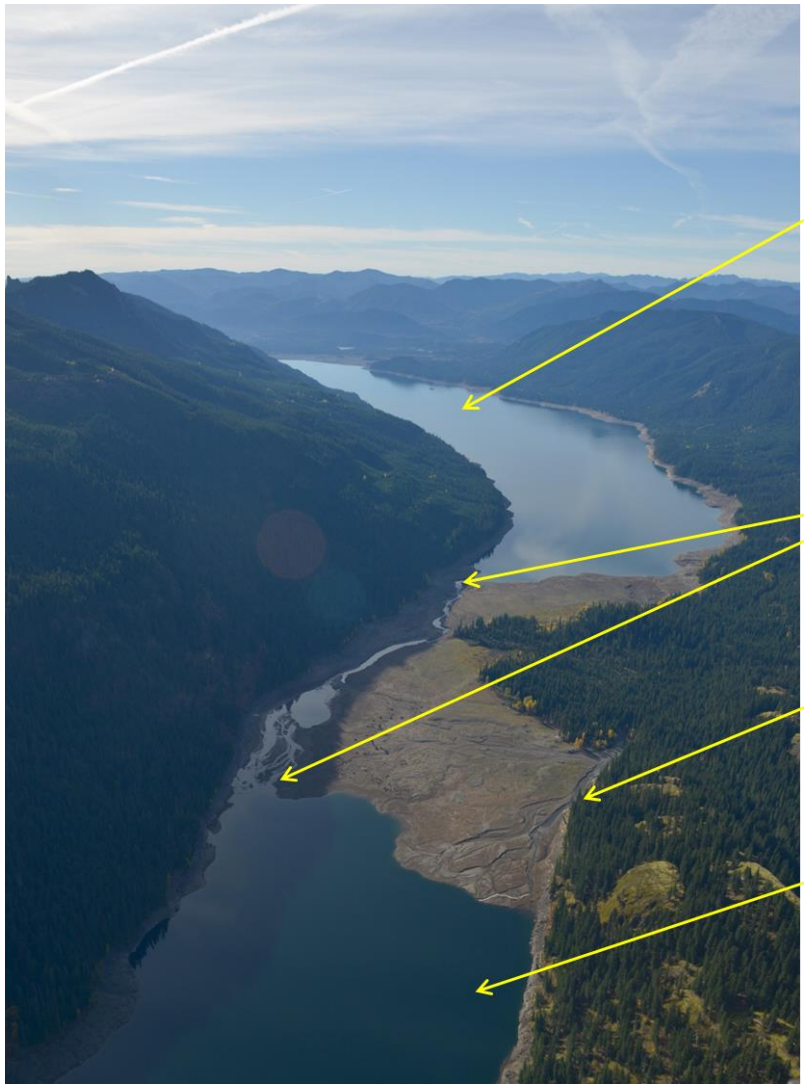
Kachess Reservoir Bull Trout Passage



Reference: Kachess Reservoir Bull Trout Passage Appraisal Report 2016

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Yakima Integrated Plan – A Balanced Approach

Kachess Drought Relief Pumping Plant (KDRPP)

Bull Trout Enhancement Plan (BTE)

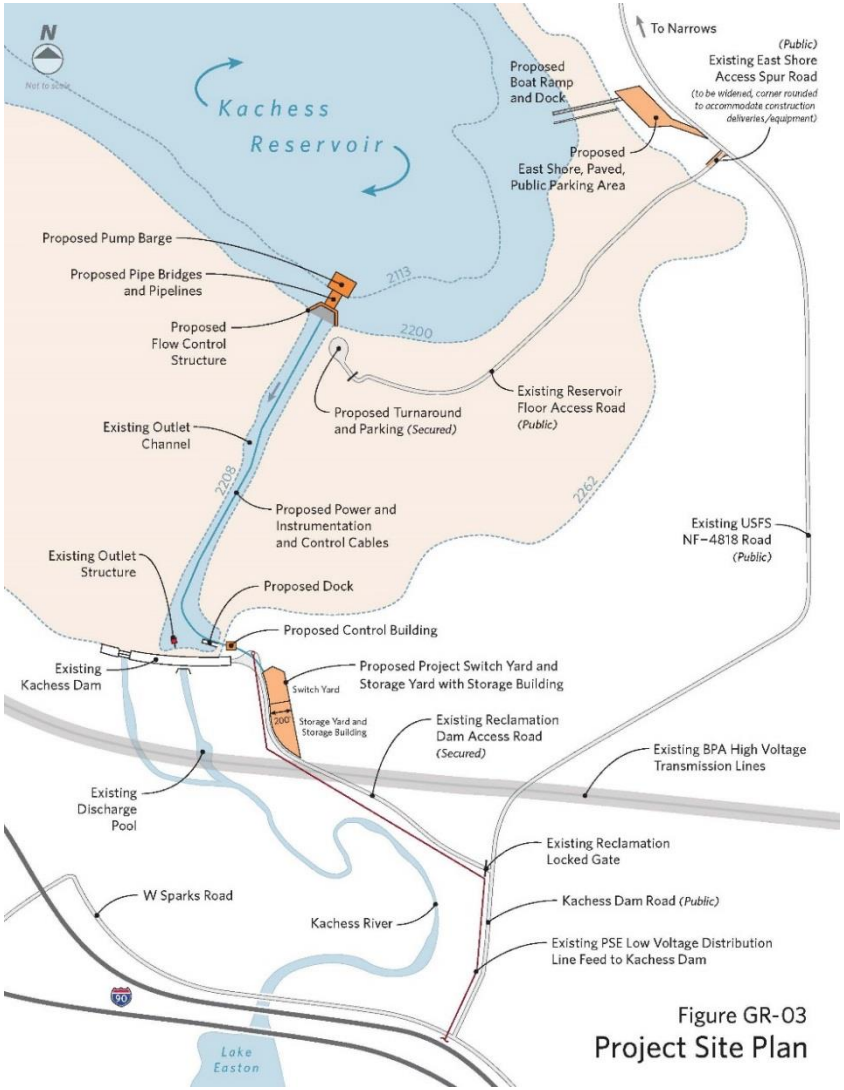
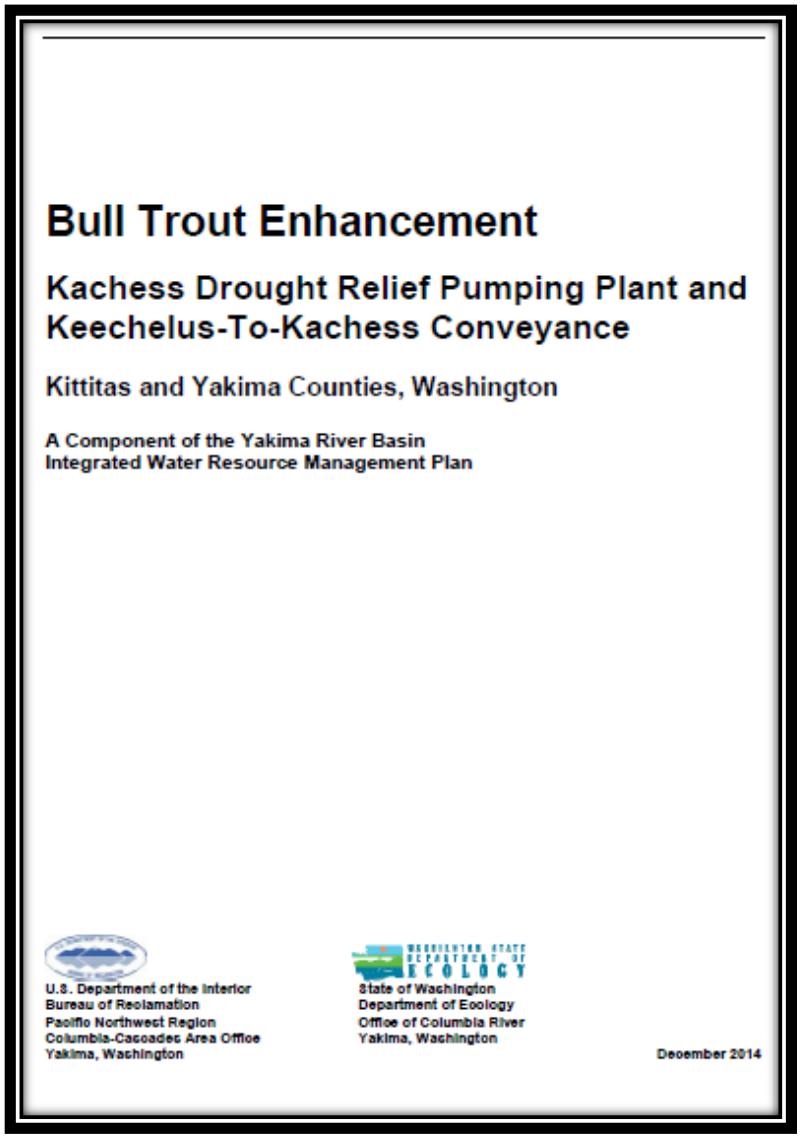


Figure GR-03
Project Site Plan



Bull Trout Enhancement

Kachess Drought Relief Pumping Plant and Keechelus-To-Kachess Conveyance

Kittitas and Yakima Counties, Washington

A Component of the Yakima River Basin Integrated Water Resource Management Plan

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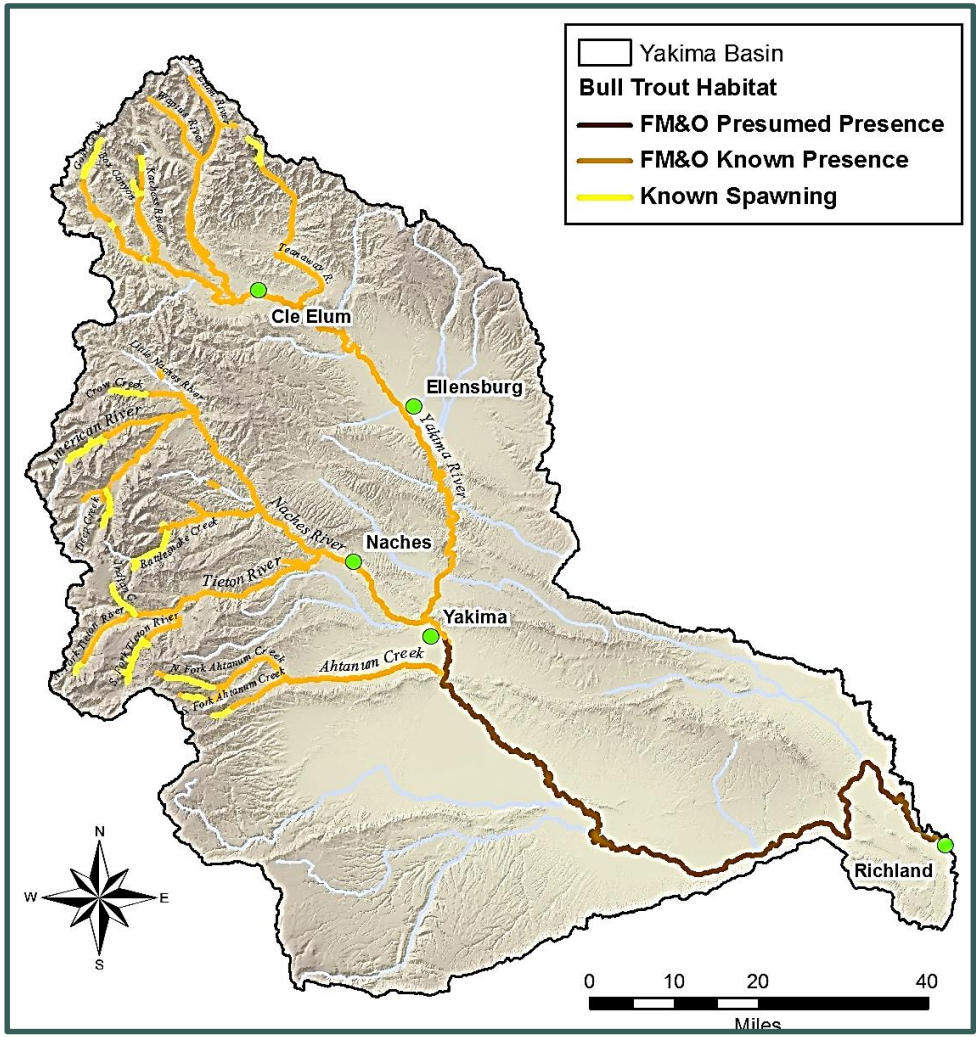
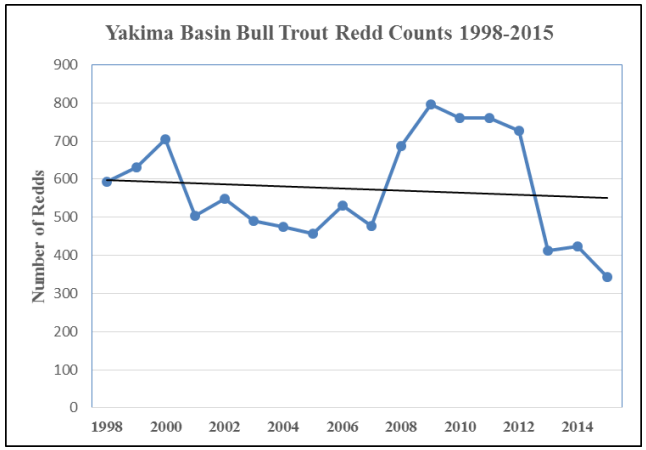
Bureau of Reclamation
Pacific Northwest Region
Columbia-Cascades Area Office
Yakima, Washington

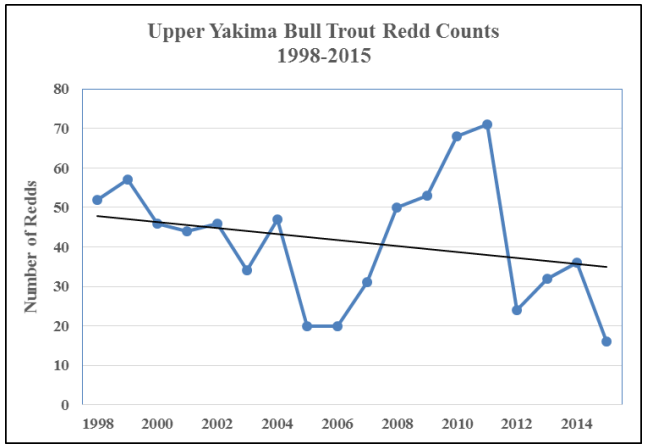
State of Washington
Department of Ecology
Office of Columbia River
Yakima, Washington

December 2014

Yakima Basin Bull Trout Population







ESA Listed as Threatened 1998

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Bull Trout MOU

- Purpose to coordinate parties to support, develop, and implement BT enhancement actions

- Goal - self-sustainable, healthy, harvestable populations

- The MOU was signed in October 2015
  - Yakama Nation,
  - Bureau of Reclamation,
  - Washington State Department of Ecology,
  - Washington State Department of Fish and Wildlife,
  - U.S. Fish and Wildlife Service,
  - U.S. Forest Service

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Bull Trout Enhancement Plan (BTE)

Table 6. Summary of Estimated Project Costs for Phase 1 of the BTE

Project	Assessment and Design Costs	Construction and Implementation	Total
Gold Creek Passage & Habitat Improvements*			
• Gold Creek Instream Actions	$250,000	$3,000,000	3,250,000
• Gold Creek Pond Actions	$300,000	TBD	$300,000
• Drain Decommissioning	N/A	$50,000	$50,000
• Helis Pond Actions	$50,000	$100,000	$150,000
Gold Creek USFS Bridge Replacement	N/A	$5,600,000	$5,600,000
Cold Creek Passage Improvement*	$250,000	$1,600,000	$1,850,000
Bull Trout Task Force	N/A	$66,000	$66,000
Box Canyon Reservoir/Tributary Passage	$200,000	$600,000	$800,000
Kachess River Passage & Habitat Assessment and Design*	$300,000	TBD	$300,000
Box Canyon Passage Assessment and Design	$200,000	TBD	$200,000
FS Projects Kachess Watershed Health	N/A	TBD	TBD
South Fork Tieton River Passage Assessment & Design*	$550,000	TBD	$550,000
North Fork Tieton River Passage Assessment & Design*	600,000	TBD	600,000
Bull Trout Population Enhancement Evaluation*	$500,000	TBD	$500,000
Improve Productivity and Food Resources (nutrient enhancement)*	$200,000	$500,000	$700,000

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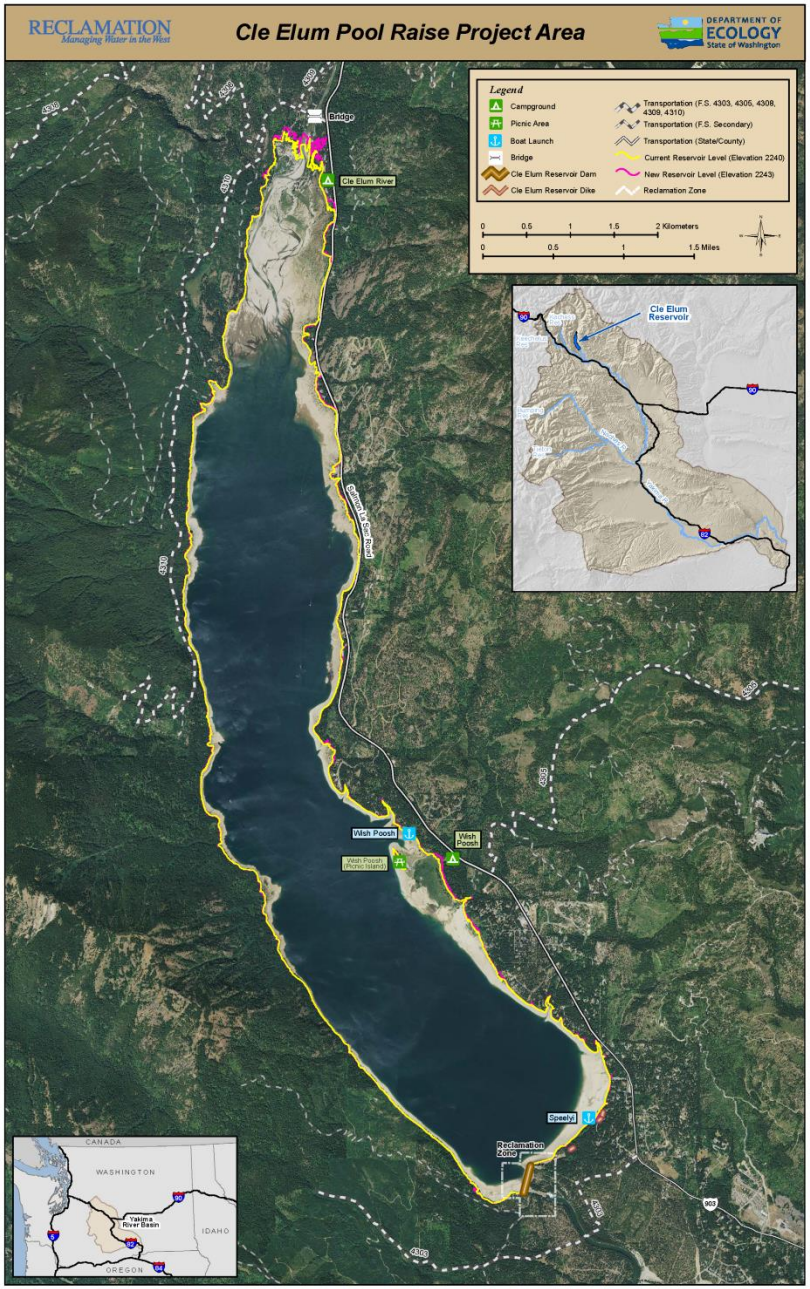

Cle Elum Pool Raise

14,600 acre-feet managed for instream flows

- **Modify radial gates**
- **Shoreline protection**
- **Land acquisition**

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Cle Elum Pool Raise

- **Final EIS; Record of Decision signed June 2015**
- **Radial Gate Modification**
  - Awarded contract in September 2015
  - Construction completed April 2017
- **Shoreline Protection**
  - Dikes raised and update completed September 2016
  - Preparing bid packages
  - Continued coordination with USFS and landowners
  - Award contract 2017 for USFS facilities

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Cle Elum Pool Raise Construction

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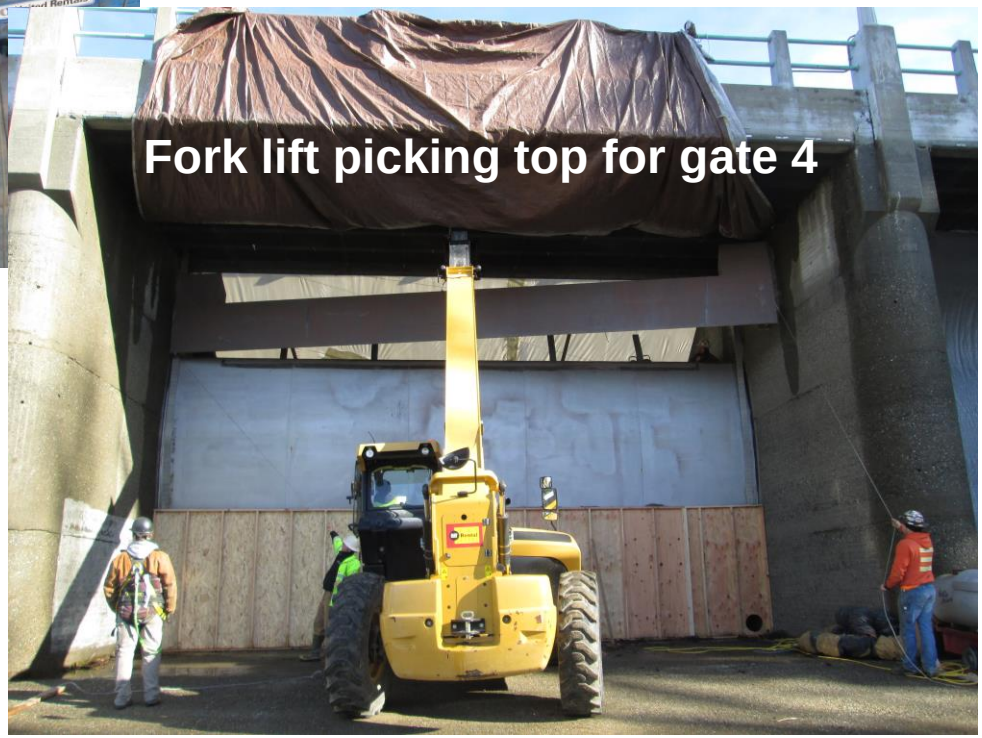
Cle Elum Dam Pool Raise Construction

Modification of Radial Gates – under construction



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Cle Elum Dam Pool Raise Construction

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Cle Elum Dam Pool Raise Construction

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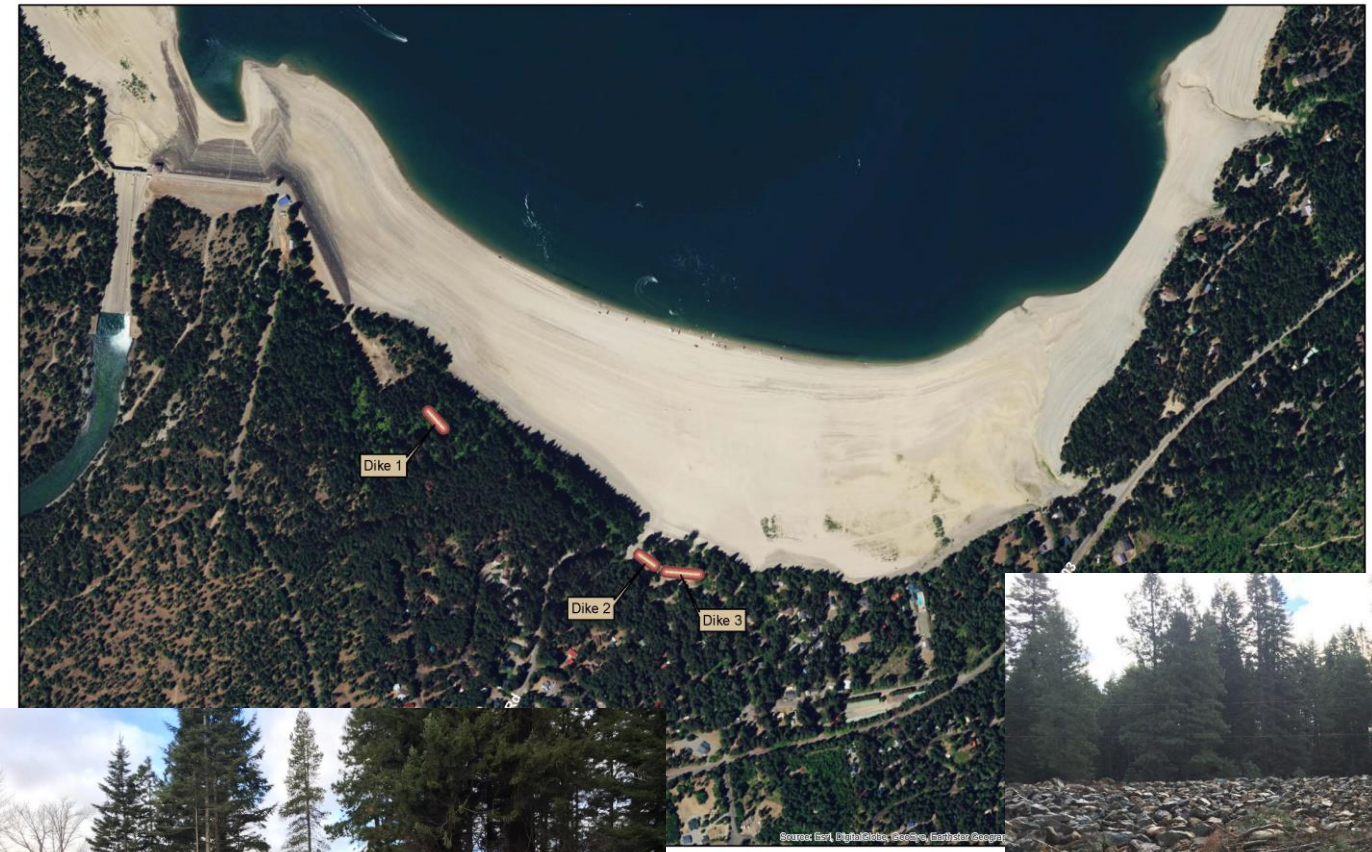
Cle Elum Pool Raise - Dikes



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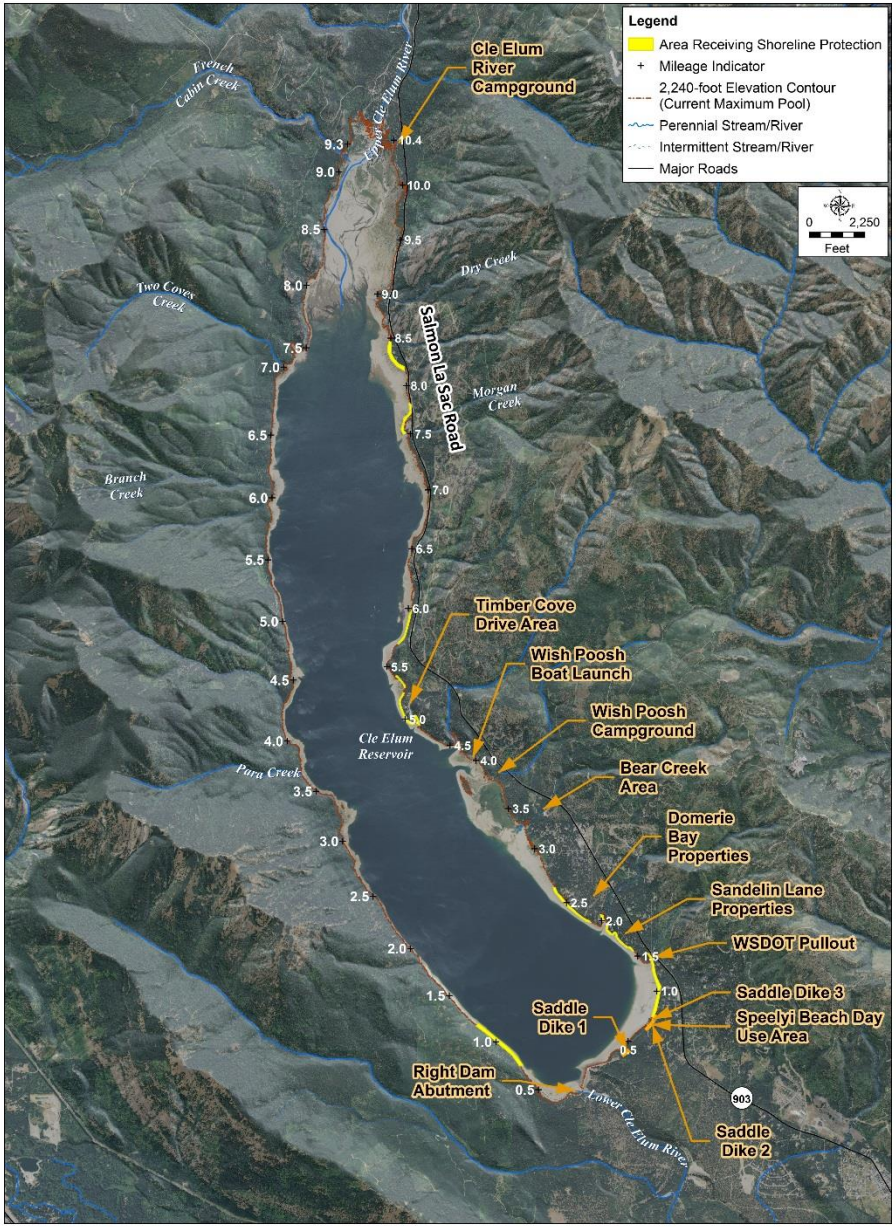

Cle Elum Pool Raise

Shoreline Protection

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Cle Elum Reservoir Existing Shoreline

Cle Elum River Campground

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Cle Elum Reservoir Existing Shoreline

Cle Elum River Campground

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Cle Elum Reservoir Existing Shoreline

Rootwad Shoreline Treatment

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Cle Elum Pool Raise Timeline

Cle Elum Dam Pool Raise	Duration	Status
Radial Gates	2 to 3 years	Completed
Cle Elum River Campground & Speelyi Beach Day Use	1 year	Award - 2017
Wishpoosh & Speelyi Beach	1 to 2 years	Award - 2018
Sandelin	1 to 2 years	Award - TBD
Domerie Bay	1 to 2 years	Award - TBD
Timber Cove	1 to 2 years	Award - TBD
Anna Bell	1 to 2 years	Award - TBD
Morgan Creek & Night Sky Drive	1 to 2 years	Award - TBD

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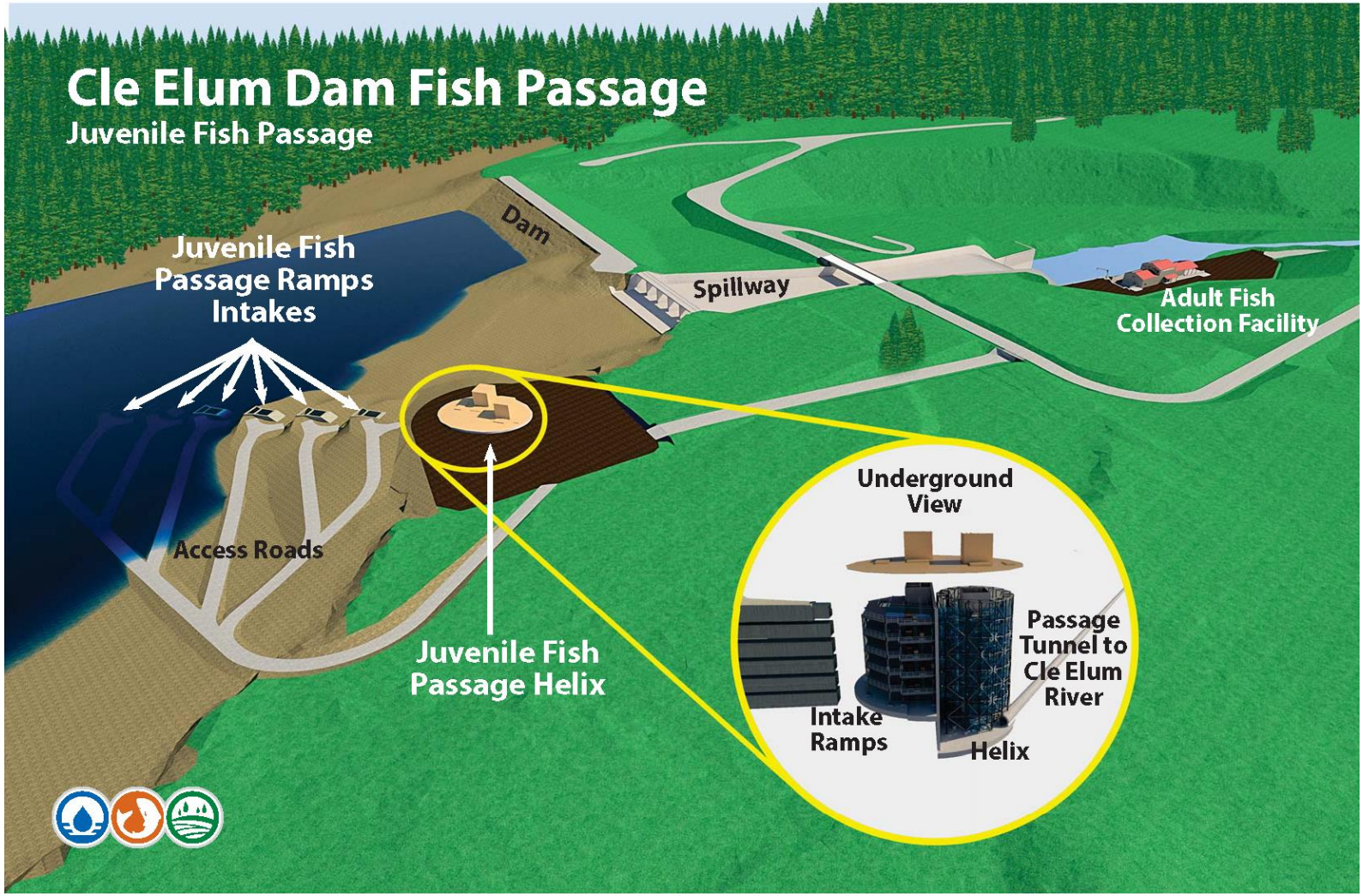
Cle Elum Dam Fish Passage



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2013 - First Sockeye to be born and raised in the Yakima River Basin in over 100 years to return, released into Cle Elum Lake

Year	Spawning sockeye released in reservoir	Returning Sockeye
2009	1,000	
2010	2,500	
2011	4,100	
2012	10,000	
2013	4,000	800
2014	10,000	2,600
2015	10,000	300
2016	10,000	4,600

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Cle Elum Dam Fish Passage Construction - Schedule

- **Final Design complete in 2015**
- **Road and bridge construction contract awarded July 2015 and completed in October 2016.**
- **Secant Pile contract awarded in July 2016, mobilization scheduled for Spring 2017.**
- **Tunnel contract awarded Summer 2017, mobilization scheduled for Spring 2018.**

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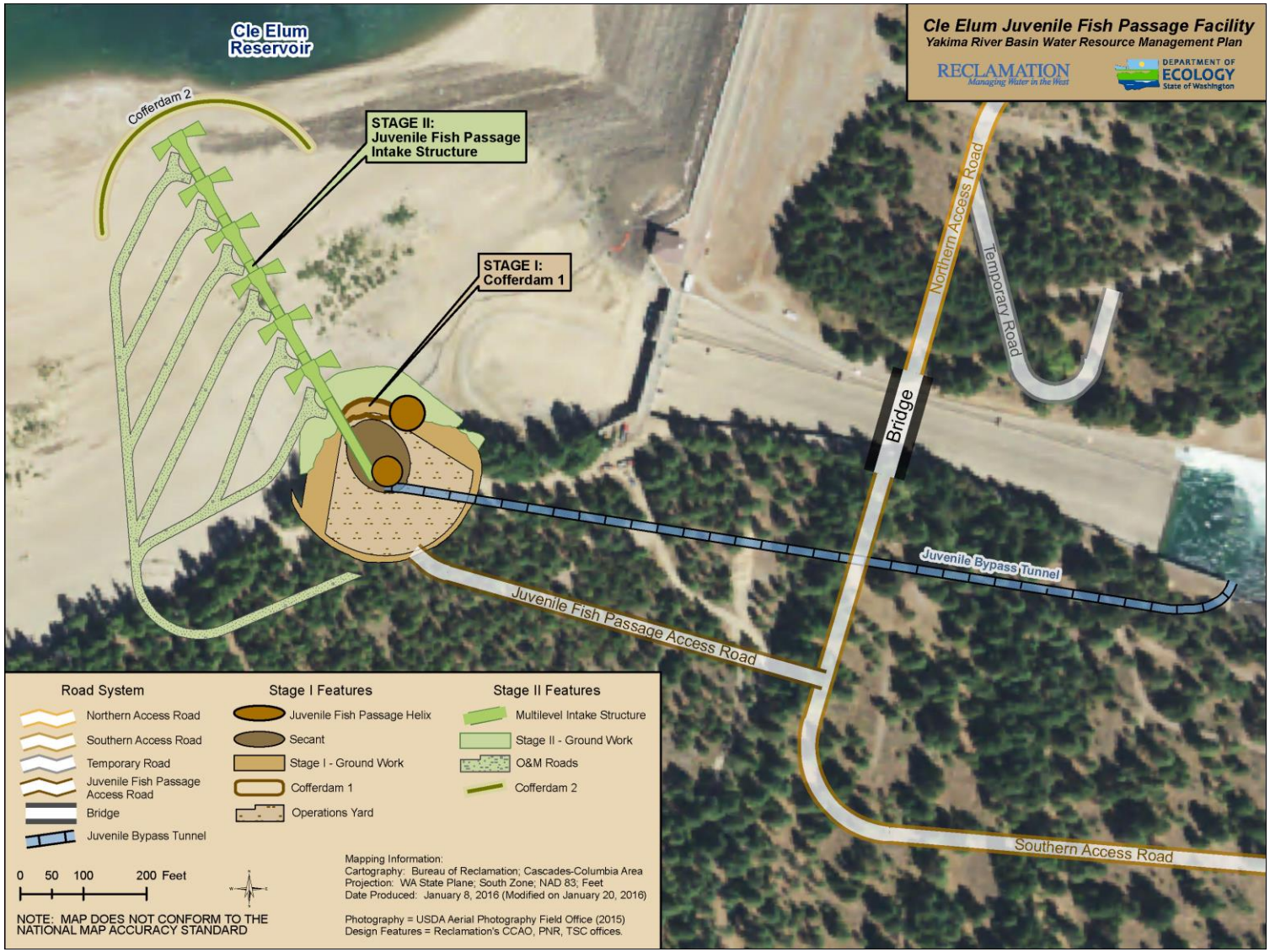
Cle Elum Dam Fish Passage Construction



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Cle Elum Fish Passage
Secant Pile Example

Secant Pile Example

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Cle Elum Fish Passage
Secant Construction

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Cle Elum Dam Fish Passage Construction


Northern Access Road Entrance

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Cle Elum Dam Fish Passage Construction

Completed Bridge Looking East

Completed Bridge Looking West

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Cle Elum Dam Fish Passage Construction

October 12, 2016 Ribbon Cutting Ceremony for new access road and bridge across spillway

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Cle Elum Fish Passage - Adult Facilities

Whooshh Fish Transport System

- **Moves fish through a flexible conduit, using pressure differentials to either push or pull the fish through the tube**

- **The Yakama Nation in cooperation with Reclamation, worked with Whooshh Innovations to test the technology for the Cle Elum Fish Passage Project at Roza Dam in June 2016, and at Prosser Dam October 2016, and will be tested at Cle Elum Dam July 2017**

- **Initial indications are that this technology is economical and fish friendly**

- **http://www.whooshh.com/fish-passage.html**

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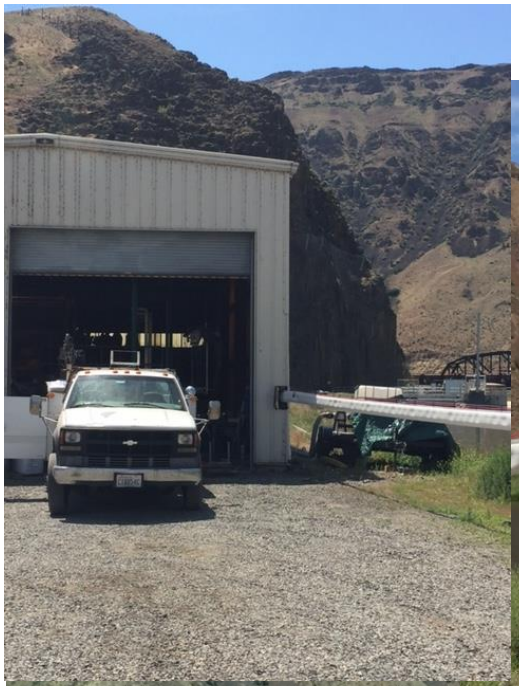
Cle Elum Fish Passage- Adult Facilities

Whooshh Fish Transport System at Roza



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Prosser Fish Passage Test

Whooshh Fish Transport System at Prosser

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Cle Elum Fish Passage Test

Whooshh Fish Transport System, proposed test location at Cle Elum Dam

Approximately 1700’ long, 150’ high,
45 seconds transport time for fish

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Whooshh Fish Transport System at Cle Elum

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Cle Elum Fish Passage Timeline

Cle Elum Dam Fish Passage Project	Duration	Status
Roads and Bridge	1 year 3 mo	Completed - 10/16
Secant Pile	3 to 4 years	In Progress
Tunnel	3 Years	Award - 2017
Intake Structure, Gate & Helix	4 to 5 years	Award - TBD
Splitter Wall	Less than a year	Award - TBD
Adult Facility	3 to 4 years	Award - TBD

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Questions?

For further information on the web:

http://www.usbr.gov/pn/programs/yrbwep/2011integratedplan/

http://www.ecy.wa.gov/programs/wr/cwp/YBIP.html

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