YAKIMA BASIN INTEGRATED PLAN

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

WASHINGTON STATE WATER RESOURCES ASSOCIATION
NOVEMBER 30, 2022

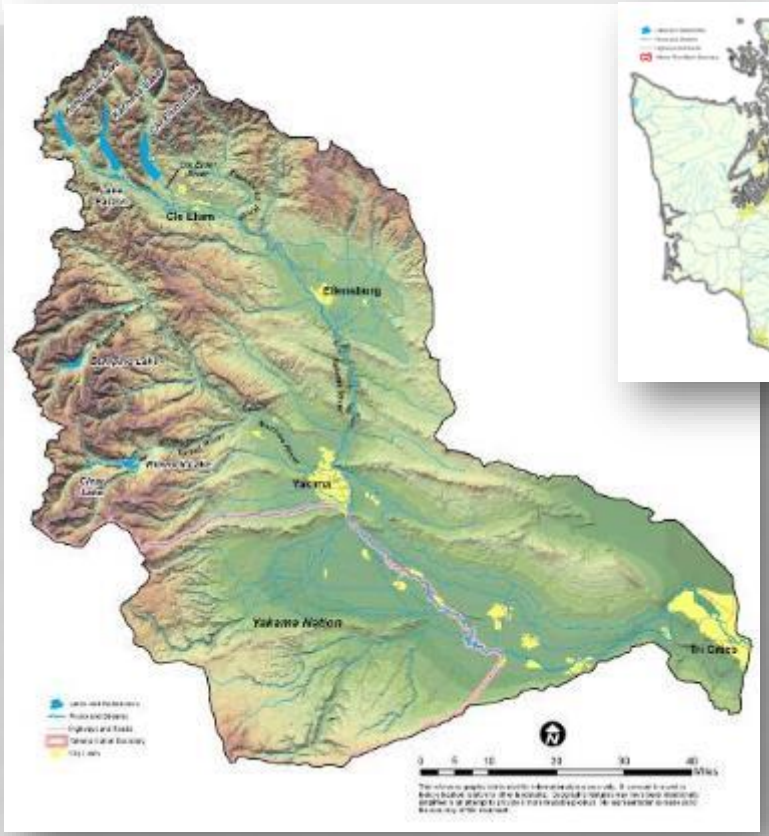
Presented by:

Scott Revell, Roza Irrigation District
Tom Tebb, Washington State Department of Ecology
Wendy Christensen, Bureau of Reclamation
Rick Dieker, Yakima Tieton Irrigation District
Urban Eberhart, Kittitas Reclamation District
Walter Larrick, Consultant, Yakima Basin Joint Board
Jason McShane, Kennewick Irrigation District

OUTLINE

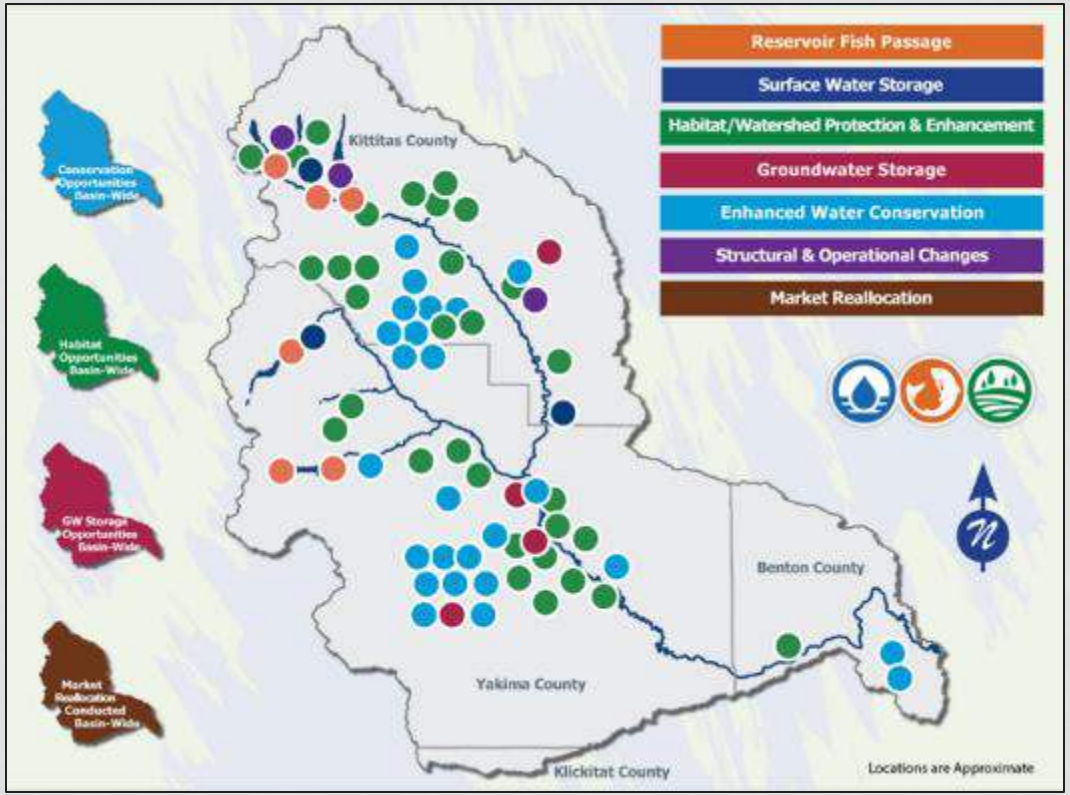
- Overview – Yakima Basin Integrated Plan and Goals
- YBIP Status Update
  - Habitat/Watershed Protection and Enhancement
    - Nelson Dam Removal
    - SDBOC Fish Boom and Sluice Gate
    - Bull Trout Update
    - Sockeye Studies
  - Surface Water Storage Element
    - Kachess Drought Relief Pumping Plant
    - Cle Elum Pool Raise
  - Reservoir Fish Passage - Cle Elum Fish Passage
  - Water Conservation
    - Kittitas Reclamation District Tributary Supplementation

YAKIMA RIVER BASIN OVERVIEW



- 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, 2015 and 2019
- Reduced Fisheries
- $4.5 Billion agriculture economy

YAKIMA BASIN INTEGRATED PLAN



YAKIMA BASIN INTEGRATED PLAN - GOALS

- Goals:
  - Restore and enhance environment, fish and wildlife, including fish passage at federal dams
  - Improve water supply during drought years (70% proratable supply)
  - Provide for efficient and adaptable water supply management
  - Contribute to sustainable economy and environment

YRBWEP WORKGROUP MEMBERS

- **Federal Agencies**
  - Bureau of Reclamation
  - National Marine Fisheries Service
  - U.S. Fish and Wildlife Service
  - U.S. Forest Service
  - U.S. Army Corps of Engineers
- **Yakama Nation**
  - Yakama Nation Natural Resources
  - Yakima/Klickitat Fisheries Project
- **Washington State Agencies**
  - Department of Ecology
  - Department of Agriculture
  - Department of Fish and Wildlife
  - Department of Natural Resources
- **Local Governments**
  - Benton County
  - Kittitas County
  - Yakima County
  - City of Yakima
- **Irrigated Agriculture**
  - Kennewick Irrigation District
  - Kittitas Reclamation District
  - Roza Irrigation District
  - Sunnyside Valley Irrigation District
  - Yakima-Tieton Irrigation District
- **Other Stakeholders**
  - American Rivers
  - Yakima Basin Fish & Wildlife Recovery Board
  - Yakima Basin Storage Alliance
  - Trout Unlimited

YAKIMA BASIN INTEGRATED PLAN ACCOMPLISHMENTS 2013-2022

- **Fish Passage**
  - Completed: Sunnyside interim
  - In construction: Cle Elum, Nelson, Roza
  - In design: Tieton, Clear Creek, Bateman Island, Wapato
- **Water Supply Reliability**
  - 58,868 acre-feet conserved
  - Cle Elum Pool Raise
  - Kachess Drought Relief Pumping Plant
- **Habitat**
  - 40+ restoration projects
  - 62,375 acres acquired
- **Yakama Nation**
  - Wapato Irrigation Project Modernization Plan
  - RCPPs 2015-2017 - $15.75M (total funding)
- **$600M+ in federal and state funding**

HABITAT

- **Habitat Restoration**
  - Supports salmon, steelhead, and bull trout recovery
  - Reaches approach – major restoration underway in 4 of 5 reaches
  - Targeted restoration strategies based on setting and constraints
- **Watershed Lands Element**
  - Conservation acquisitions
  - Cle Elum watershed designation
  - Forest Health

Schaake Project before, during, and after restoration project construction

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Yakima Delta Restoration

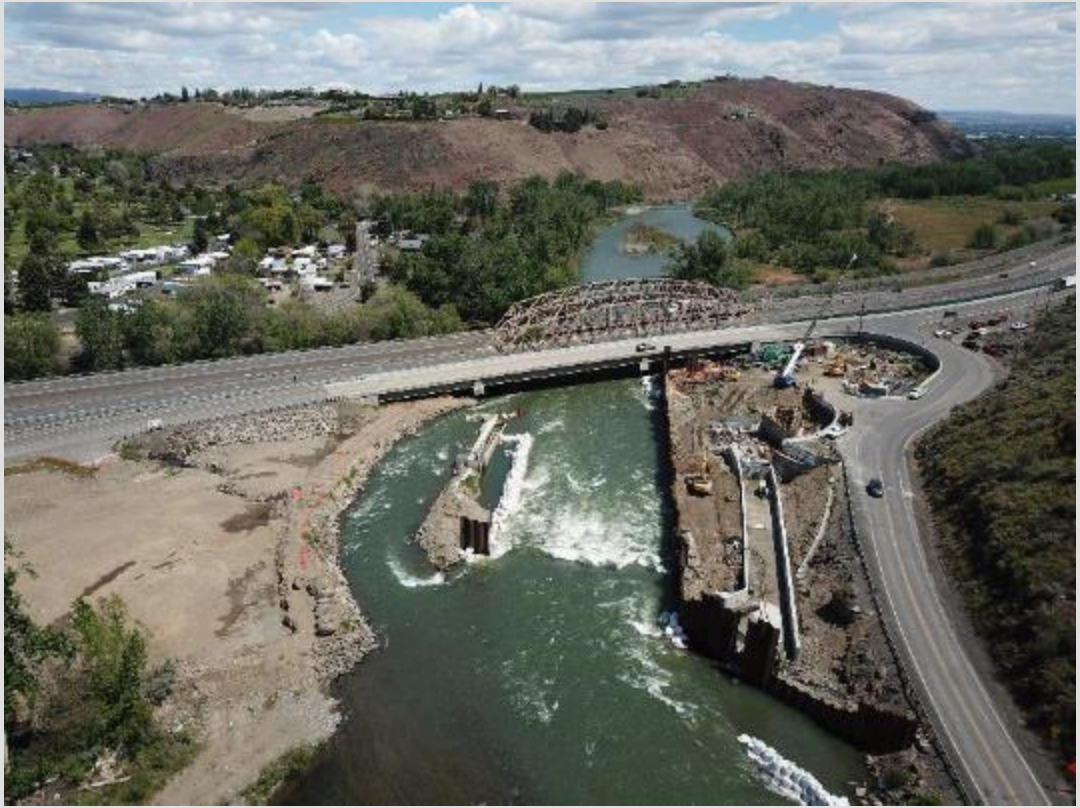
Critical temperature and predation problems

TEANAWAY COMMUNITY FOREST

Recreation, Working Lands & Floodplain Restoration

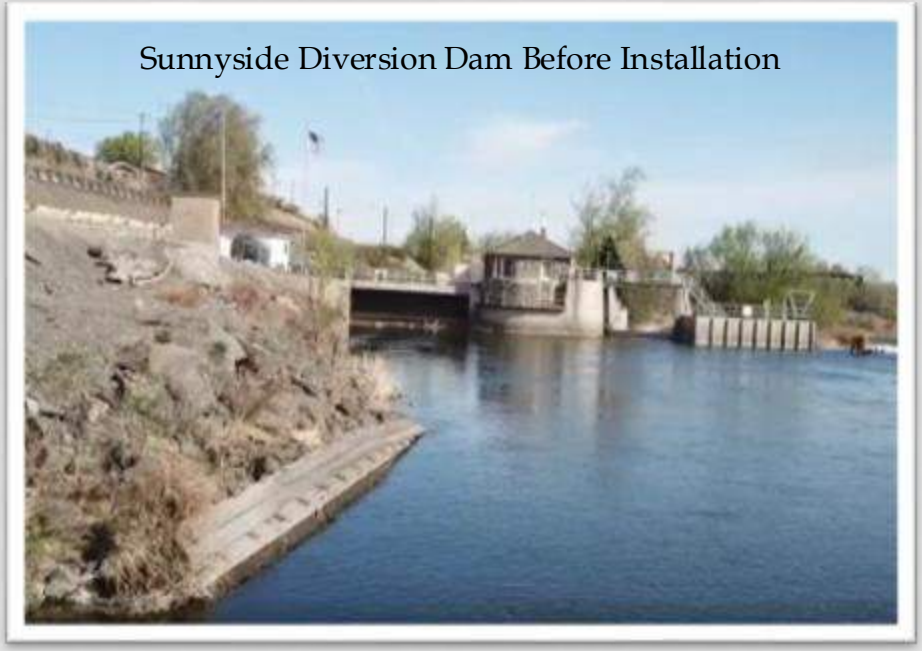
Teanaway Watershed Restoration: 33 miles of watershed functions restored

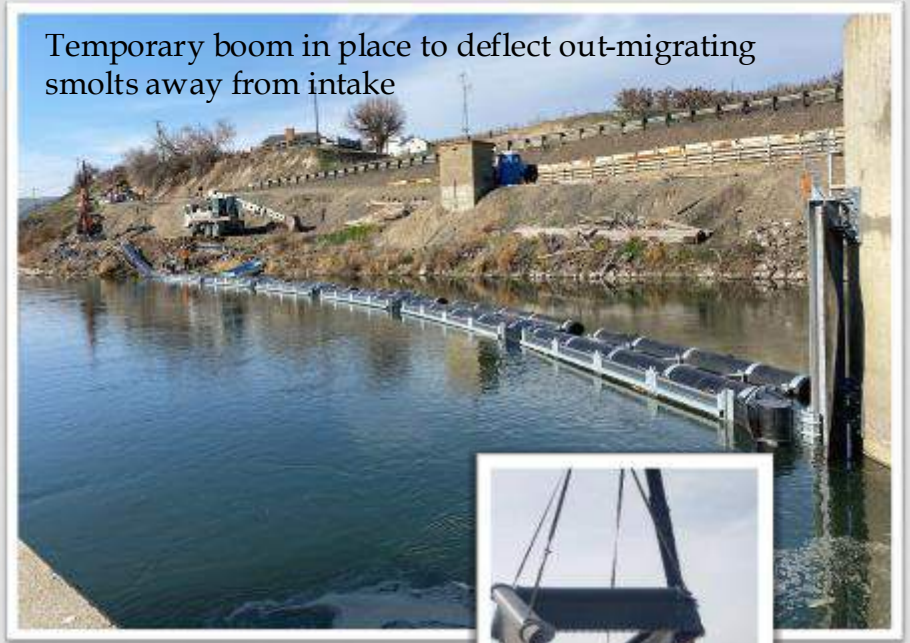
NELSON DAM REMOVAL NATURE-LIKE CHANNEL



- City and County of Yakima
- Improves passage to 309 miles of habitat
- Decreases flood risk
- Improves water supply reliability
- USACE – Lead NEPA Agency w/ BPA and Reclamation
- Phase 1 Cost - $18 M – July 2021

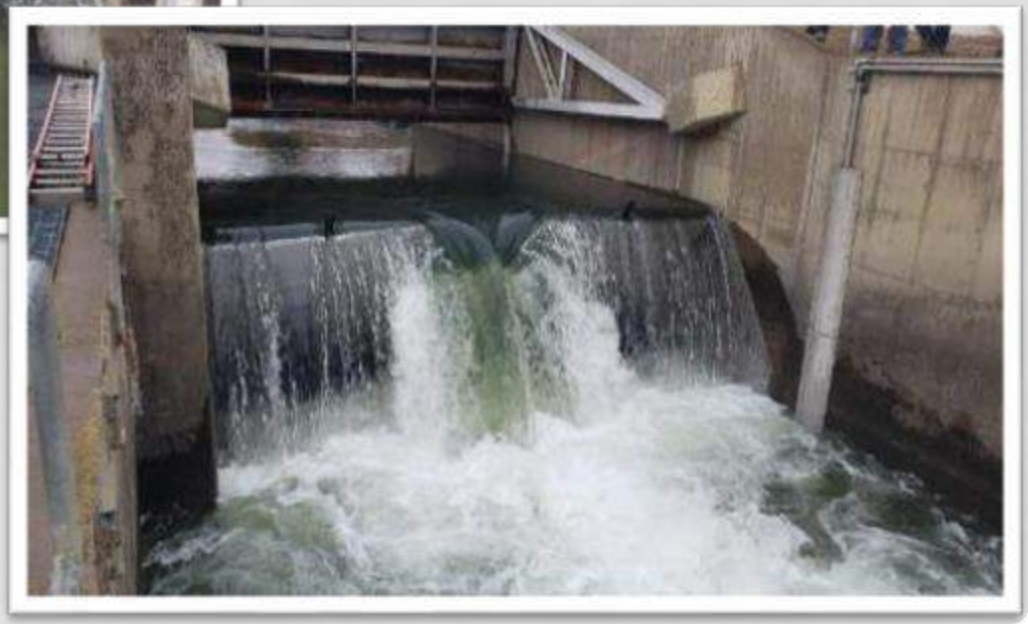
SUNNYSIDE DAM FISH PASSAGE IMPROVEMENT PROJECT


Sunnyside Diversion Dam Before Installation


Temporary boom in place to deflect out-migrating smolts away from intake

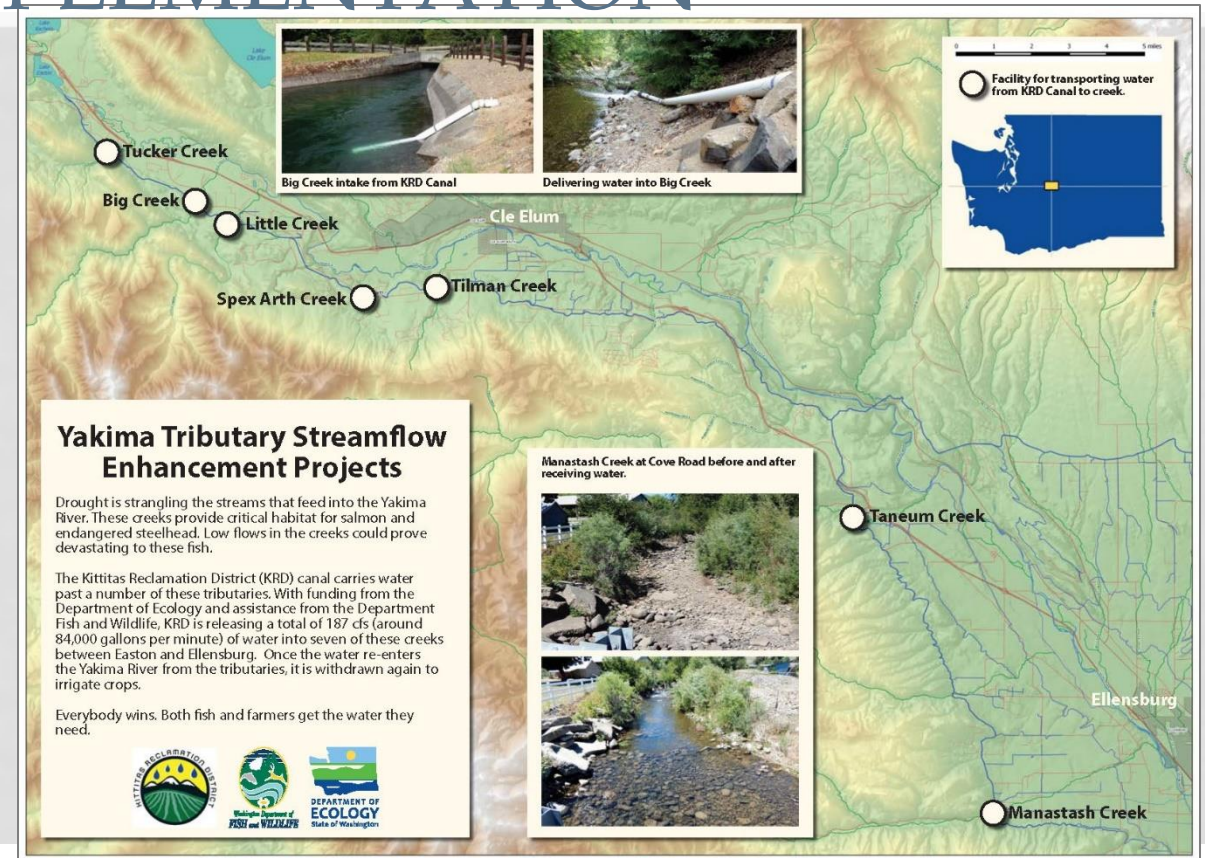
- Adaptive management identified lower river smolt survival problem.
- Concept to construction in one year.

- Fall 2021
- Monitoring is on-going



Sunnyside Dam
Sluice Gate Installation

KRD TRIBUTARY SUPPLEMENTATION



KRD TRIBUTARY SUPPLEMENTATION

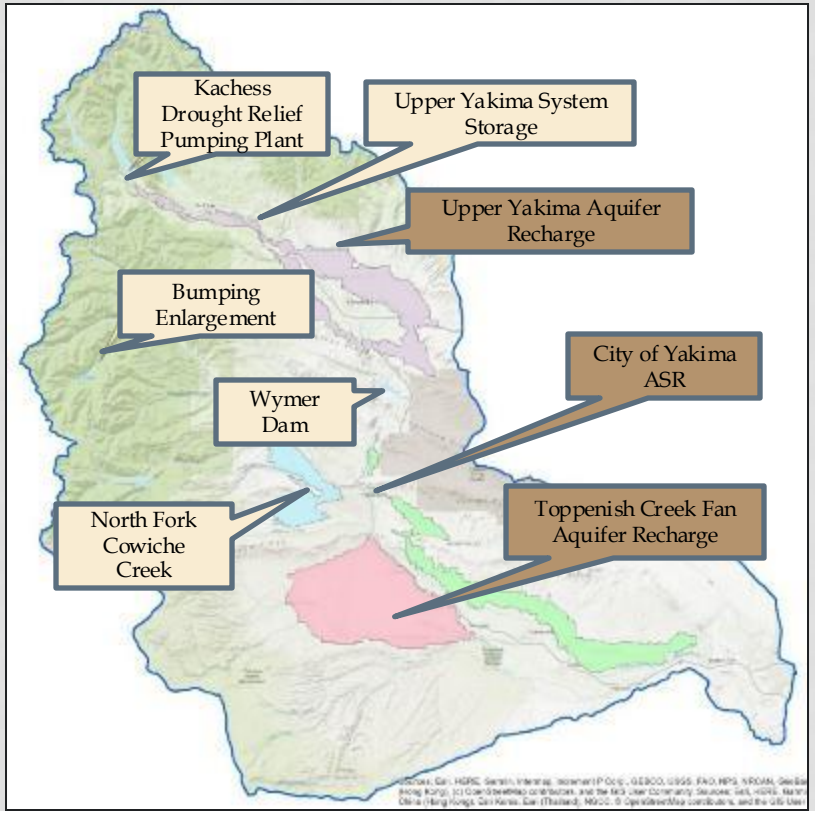
Projects to be completed in the 2022 calendar year	Water Savings (CFS)	Annual Water Savings (AF)	Feet lined or piped
SB13.6 & SB13.8 Pipeline	3.50	1249.6	20,540
North Branch Lining	9.35	3337.8	17,146
South Branch Lining	4.44	1585.2	13,862
South Branch Piping	1.82	634.9	2,900
Total saved by 2022	19.21	6843.2	54,448

Improvements create the ability for the canal to have more capacity to carry water to streams that are part of the tributary supplementation program and for future surface and ground water storage sites.

Kittitas Reclamation District - Water Conservation

WATER SUPPLY RELIABILITY

- **Conservation** - System level conservation 59% of IDP goal of 85,000
- **Kachess Drought Relief Pumping Plant** - Existing Reservoir: Access up to 200,000 acre-feet from inactive storage pool in dry years
- **Upper Yakima System Storage** - New off-channel reservoir, 20,000 acre-feet
- **Bumping Dam & Reservoir Enlargement** - Replace existing dam to add 165,000 acre-feet
- **North Fork Cowiche Creek Reservoir** - New off-channel reservoir 30,000 to 35,000 acre-feet
- **Wymer Dam and Reservoir** - New off-channel reservoir, 163,000 acre-feet
- **Water Marketing**



BUMPING DAM & RESERVOIR ENLARGEMENT

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KRD UPPER YAKIMA SYSTEM STORAGE – SPRINGWOOD

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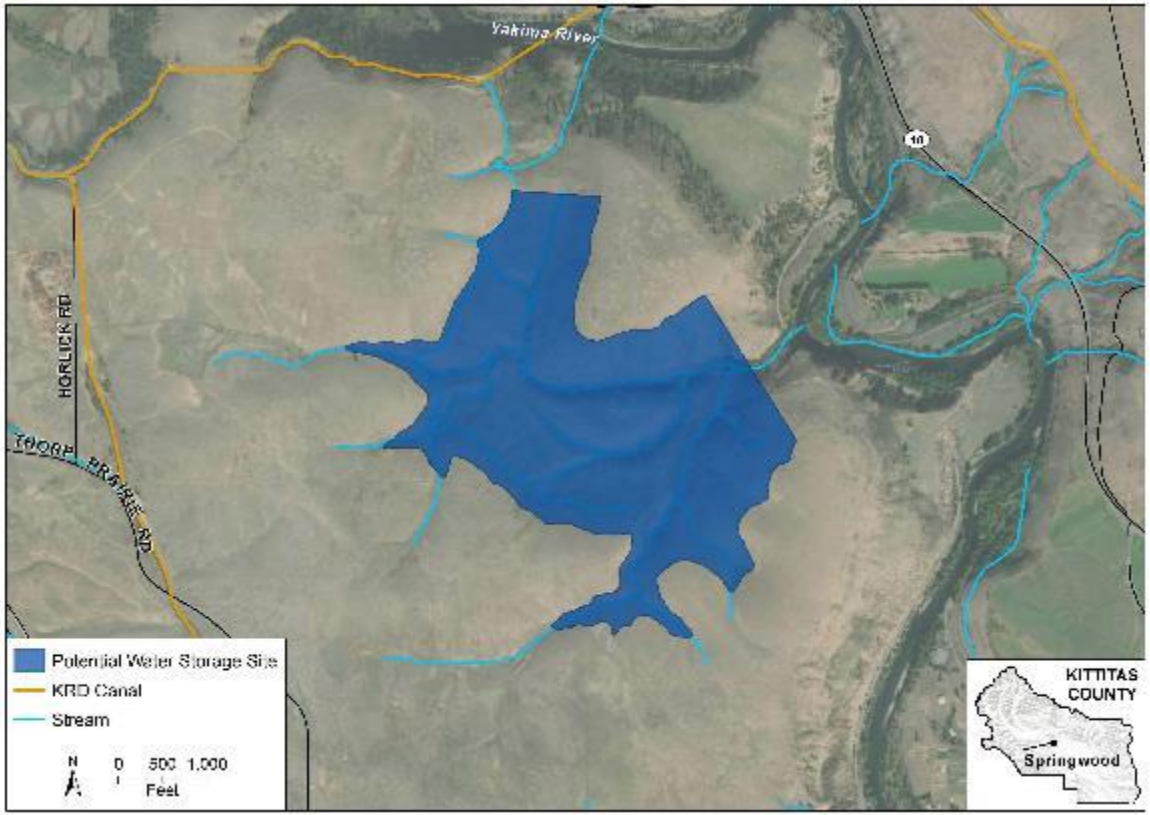
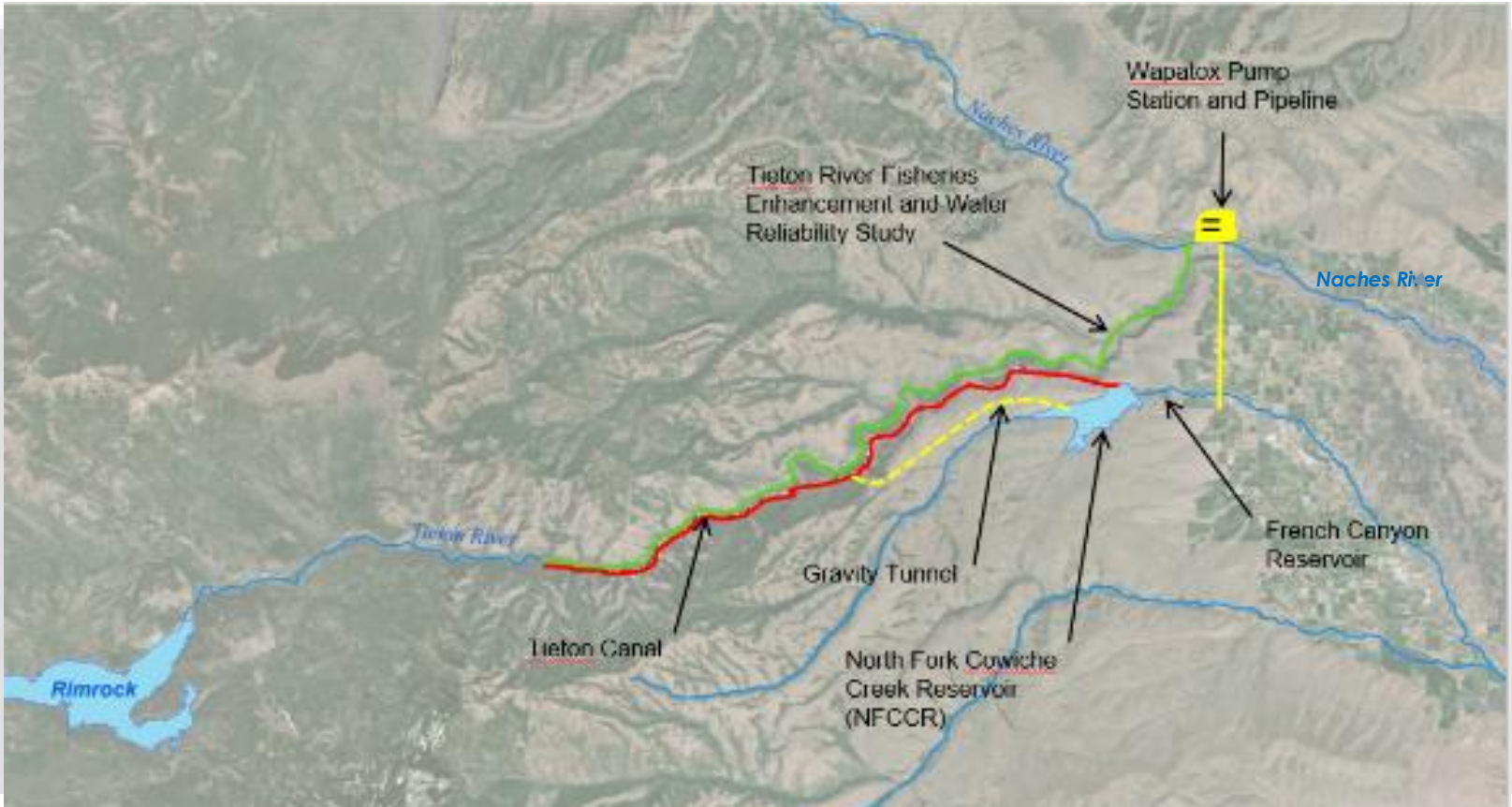
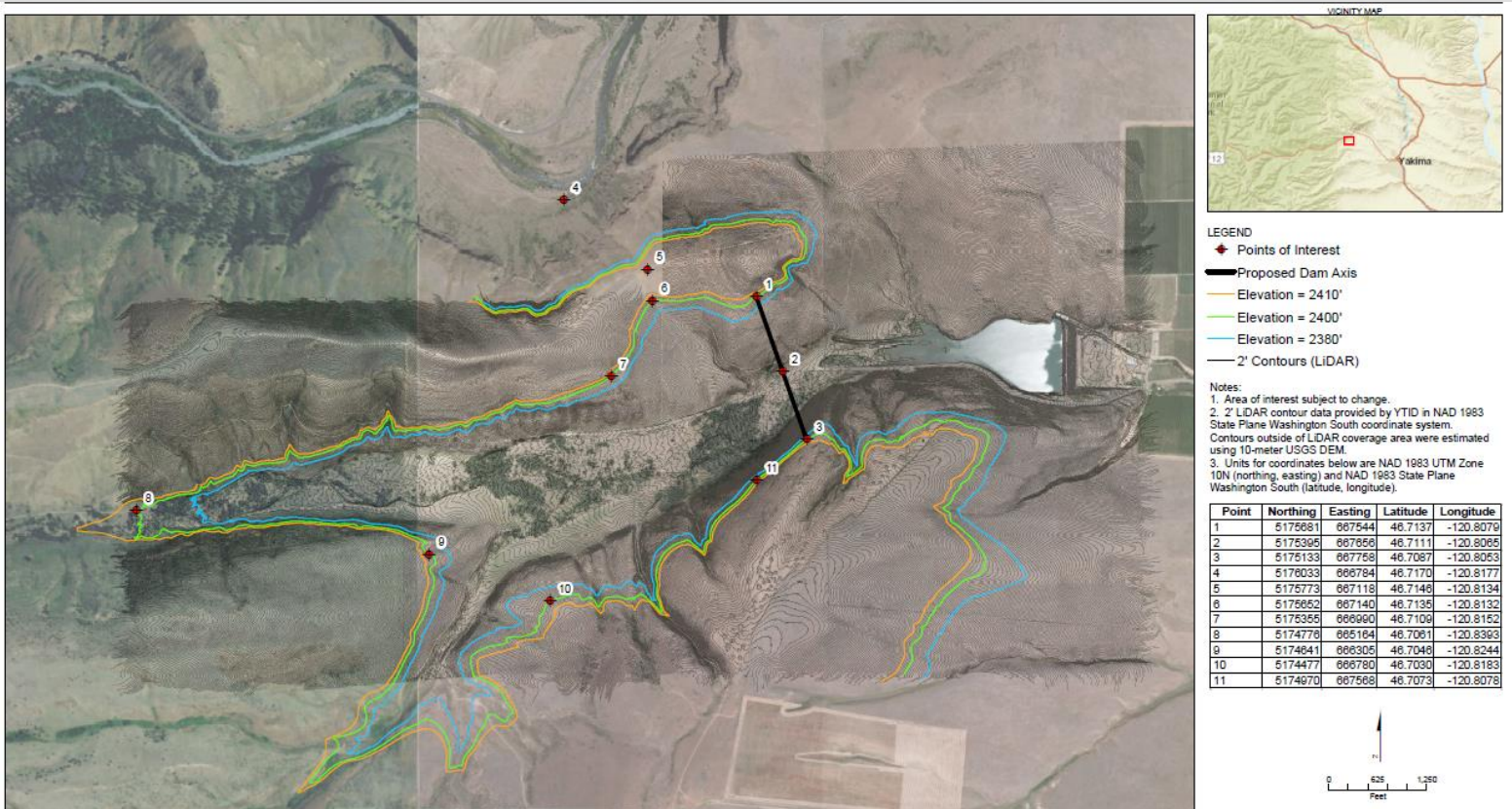


TIETON RIVER RESTORATION AND WATER RELIABILITY PROJECT ALTERNATIVES

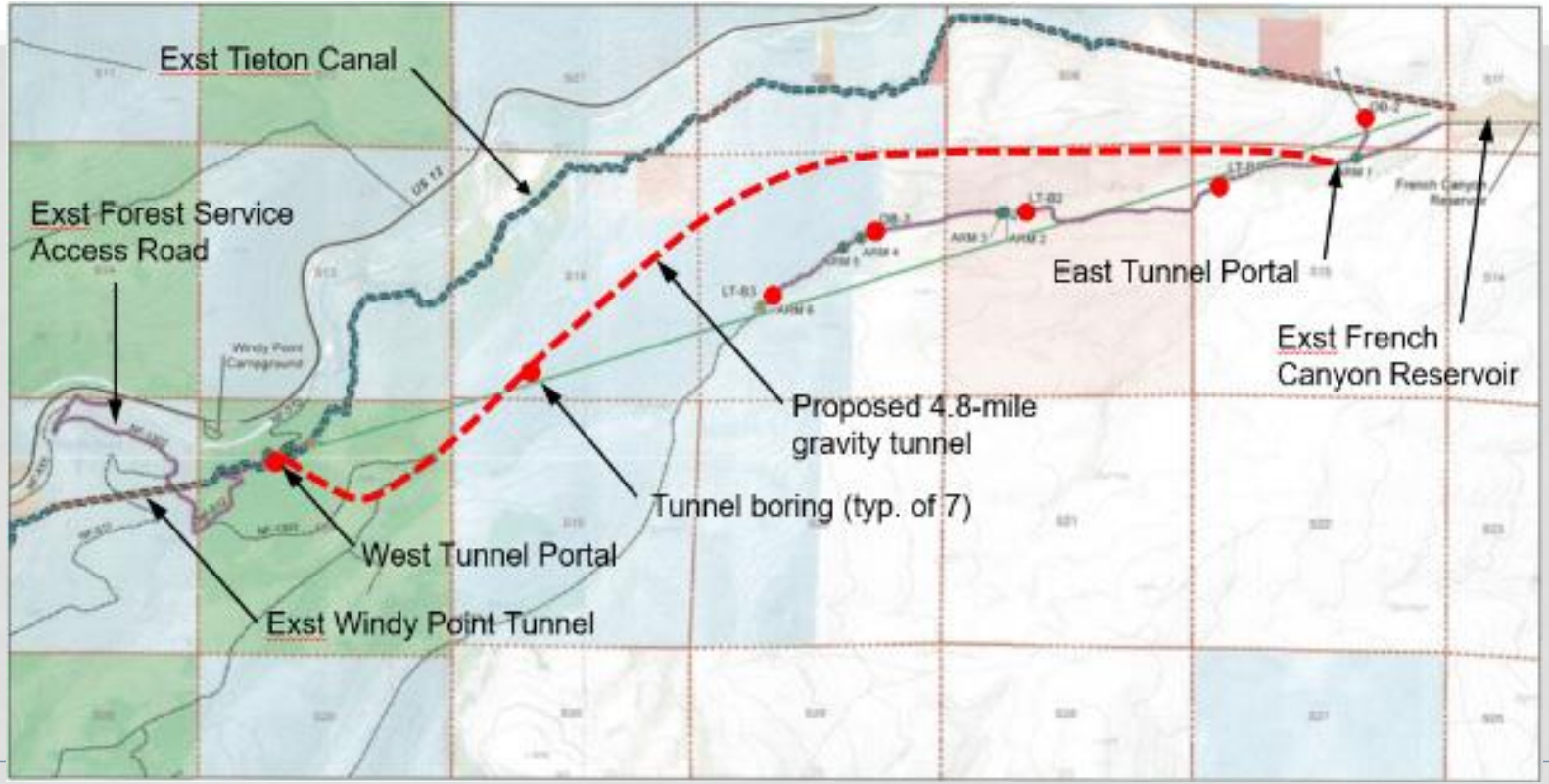


NFCCR PRELIMINARY SITE PLAN



Point	Northing	Easting	Latitude	Longitude
1	5175681	667544	46.7137	-120.8079
2	5175395	667656	46.7111	-120.8065
3	5175133	667758	46.7087	-120.8053
4	5176033	666784	46.7170	-120.8177
5	5175773	667118	46.7146	-120.8134
6	5175652	667140	46.7135	-120.8132
7	5175355	666990	46.7109	-120.8152
8	5174776	665164	46.7061	-120.8393
9	5174641	666305	46.7046	-120.8244
10	5174477	666780	46.7030	-120.8183
11	5174970	667568	46.7073	-120.8078

GRAVITY TUNNEL ALTERNATIVE



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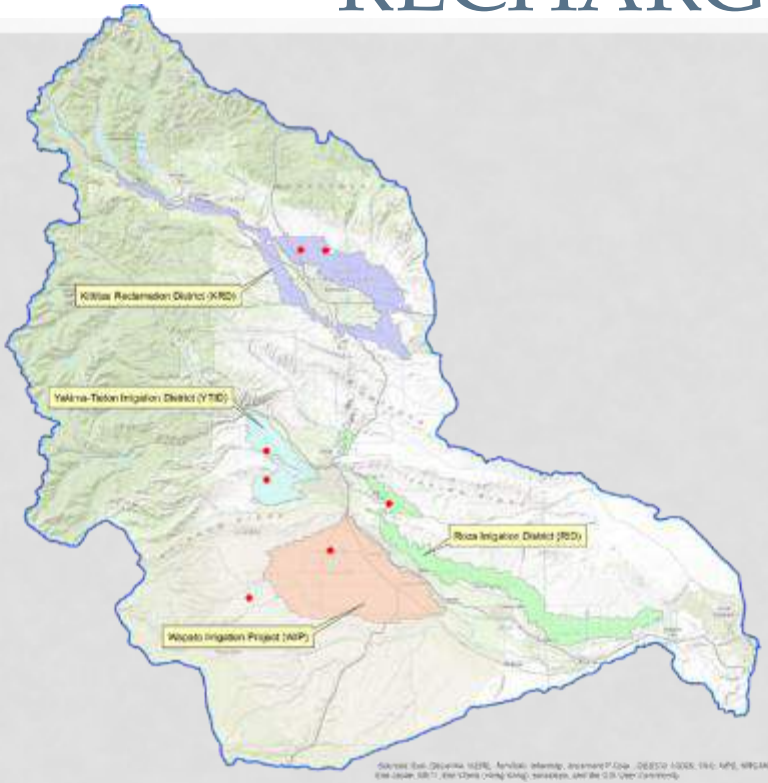
GROUNDWATER MANAGED RECHARGE



- Proposed Areas for managed recharge modeling
- Pilot studies ongoing at Kittitas Reclamation District and Wapato Irrigation Project
- Drilling additional monitoring wells Spring 2019

KACHESS DROUGHT RELIEF PUMPING PLANT

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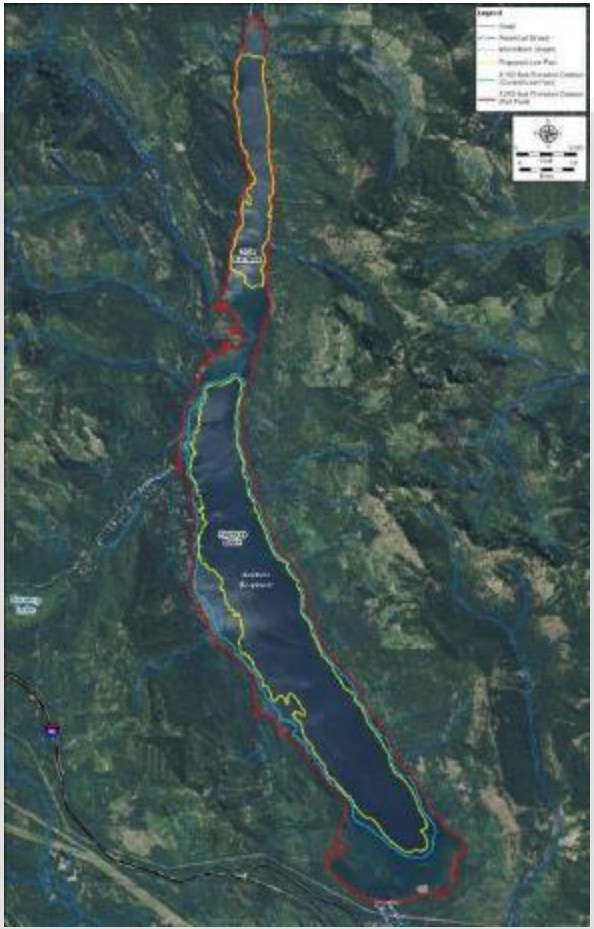
Water Supply: Up to 200,000 acre-feet in a drought year

Drawdown: Up to 80 feet

Surface Area:
Up to 20% less surface area than existing minimum pool

Authorized in P.L. 116-9



KACHESS DROUGHT RELIEF PUMPING PLANT

Photo of Kachess Dam and Reservoir from October 2015

FLOATING PUMPING PLANT OPTION – FEIS 2019

CLE ELUM POOL RAISE PROJECT

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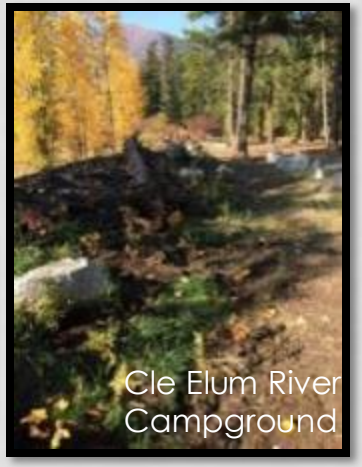
Completed Projects

- Radial Gates Modification
- Saddle Dikes 1, 2, & 3
- Three USFS facilities

Future – Shoreline Protection

- Six shoreline areas along private land



CEPR: WISH POOSH CAMPGROUND& BOAT LAUNCH

- Wish Poosh Campground and Boat Launch, not to scale
- Award June 2020, USFS Facility
- Construction: September 2020 to May 2022

WISH POOSH CONSTRUCTION

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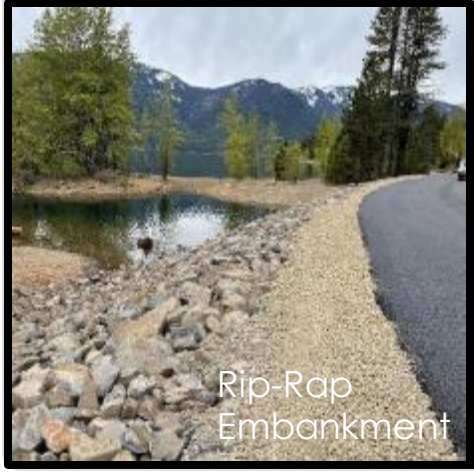
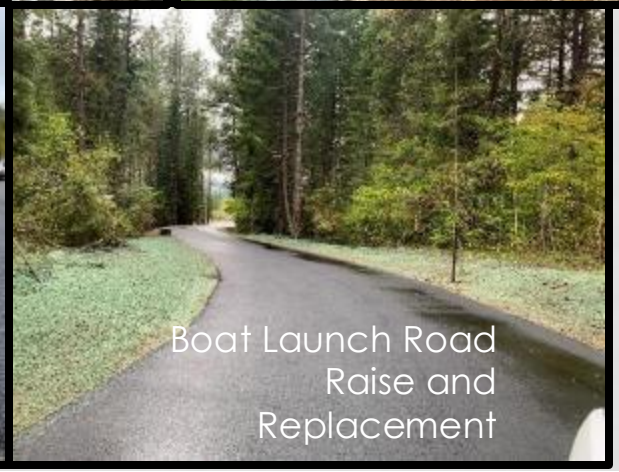
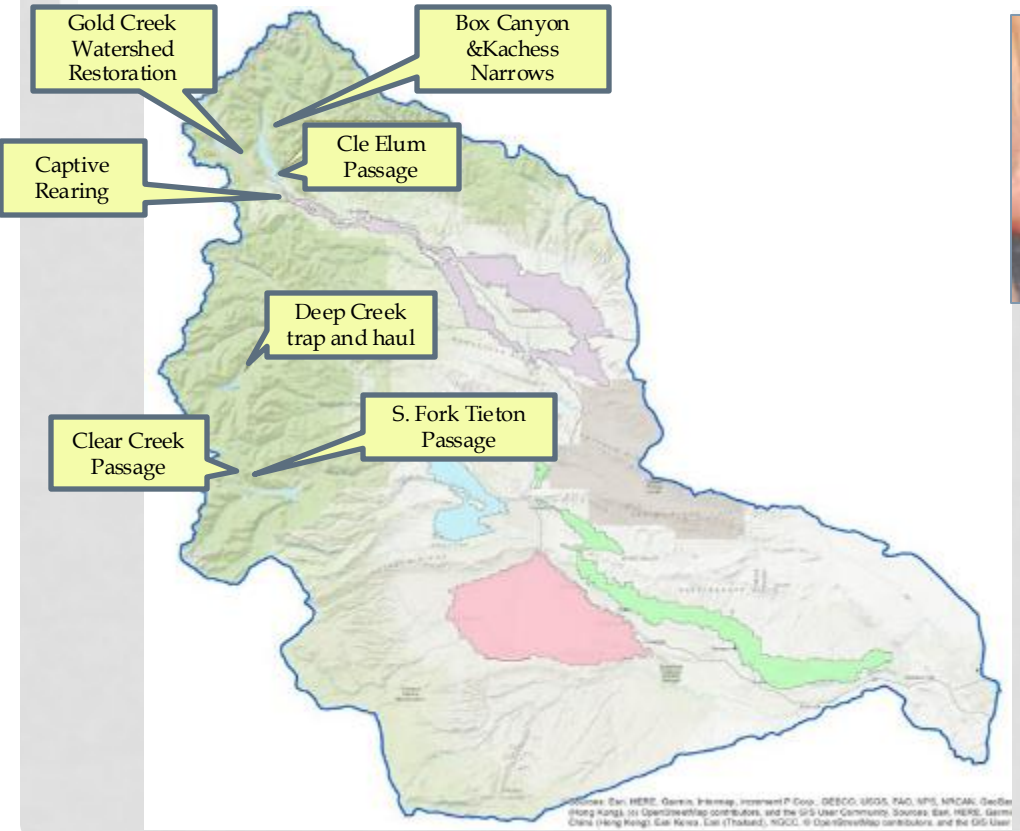




WISH POOSH CONSTRUCTION

BULL TROUT RECOVERY PROJECTS



MOU - Reclamation, Ecology, Yakama Nation, USFWS, WDFW, USFS – signed 2015

- Goal - healthy, harvestable stocks of bull trout throughout the Yakima Basin.
- Effective fish passage at Reclamation reservoirs and tributaries.
- Habitat enhancement in rivers and floodplains.
- Rescue, rearing and conservation hatchery programs.
- Robust surveys, science and planning.

CAPTIVE REARING & RELEASE

Gold Creek

Year	Released	Survival
2020	78	73%
2021	63	98%
2022	87*	

Kachess River

Year	Released	Survival
2020	152	14%
2021	531	89%
2022	600*	

MONITORING & EVALUATION

2021 PIT Tag Detections	
Gold Creek LWR Site	
LaSalle BT	38
Gold Creek Rescued BT	3
Cutthroat	0
Trap and Haul	3
Kachess River Site	
LaSalle BT	8
Kachess R. Rescued BT	4
Cutthroat	2
Box Canyon Creek	
LaSalle BT	16
Kachess R. Rescued BT	0
Box Canyon Tagged BT	6
Cutthroat	0

EASTON RESEARCH AND REARING FACILITY

12 Fiberglass 20' X 4' X 5' Raceways
4 Fiberglass 10' circular early rearing tanks
2 Fiberglass 30' circular late-stage rearing tanks
Chiller and egg room for up to 100K eggs

Phase I:

Capture and Rear up to 3,500 Bull Trout for approximately, 3 months then release. Begin "life boating" Ahtanum Creek.

Reintroduction Areas :

* North Fork Teanaway River
* Taneum Creek

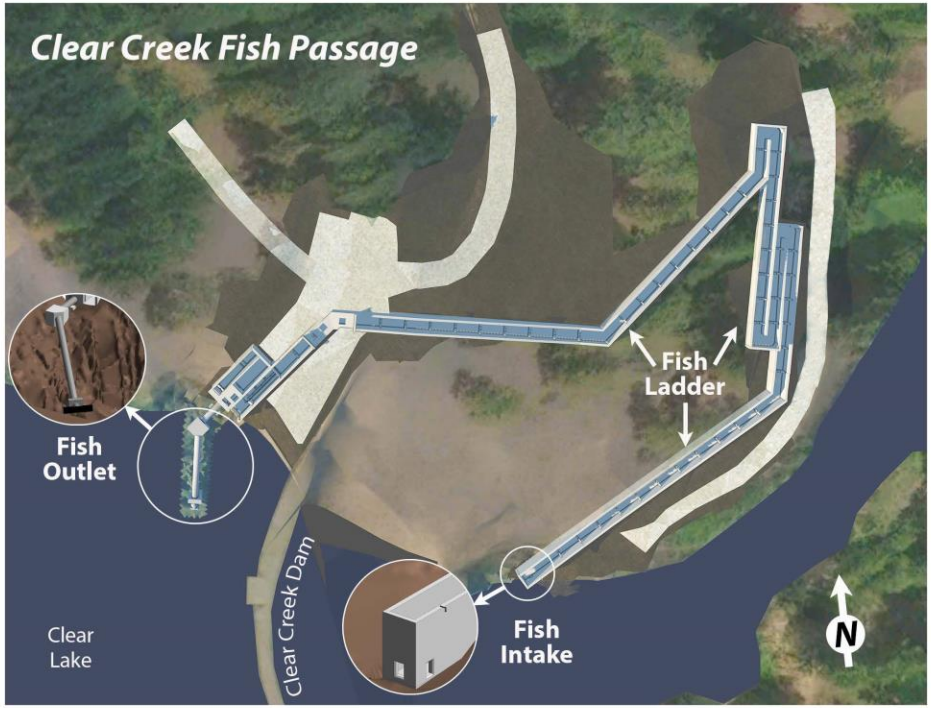
Phase II:

Include Big Creek and Waptus Lake Watershed (Cle Elum) for reintroduction

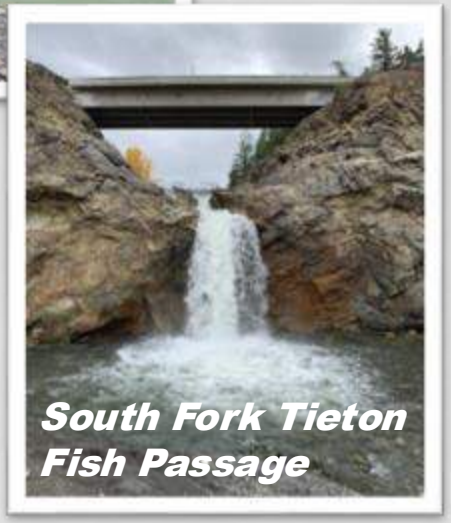
Possible Additional alternatives:

Begin Adult Brood holding
Live spawn adults and use offspring for supplementation and reintroduction

TIETON FISH PASSAGE COMPLEX



37+ miles of habitat above Tieton Dam



CLE ELUM DAM FISH PASSAGE

- Adult and juvenile passage in process
- $200M innovative project
- Cost Share Reclamation/WA
- 4 of 5 contracts completed or in progress
- Fully funded Intake, Gate and Helix Contract FY22 (Awarded in FY18)
- Adult Collection Facility to be awarded in FY23
- Anticipate operational - 2026

CLE ELUM DAM FISH PASSAGE

- Intake structure foundations.

- Intake 6 complete, intake 5 formwork started.

CLE ELUM DAM FISH PASSAGE

- Tunneling through grout block section.

- Intake 6 guard gate and conduits.

CLE ELUM DAM FISH PASSAGE

- Helical Flume Structure in progress (shown on left)
- Overall height of the structure ~110’.
- Tunnel bypass transition (shown on right)
- Tunnel 7-feet interior diameter, 1200 feet long

YAKAMA NATION'S REINTRODUCTION PROJECT

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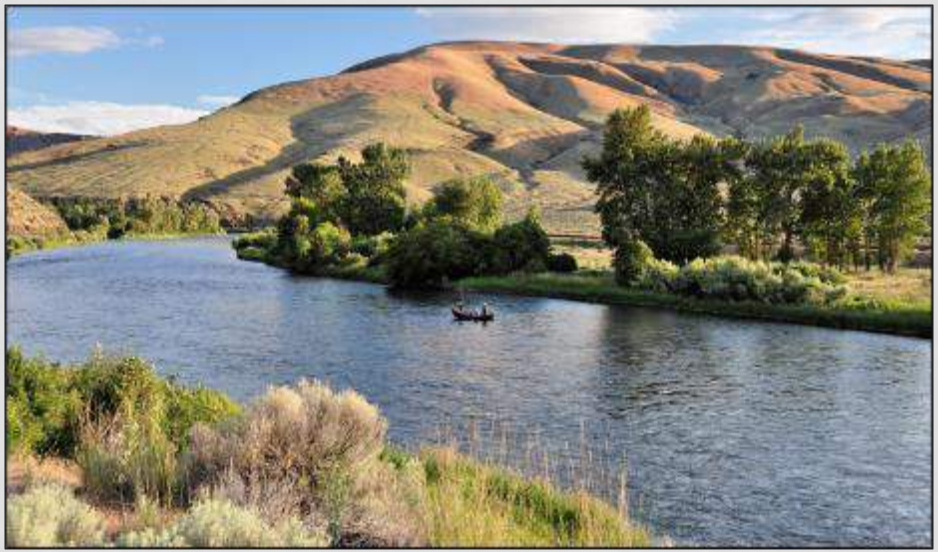
THANK YOU!



Questions?

Website: www.yakimabasinintegratedplan.org