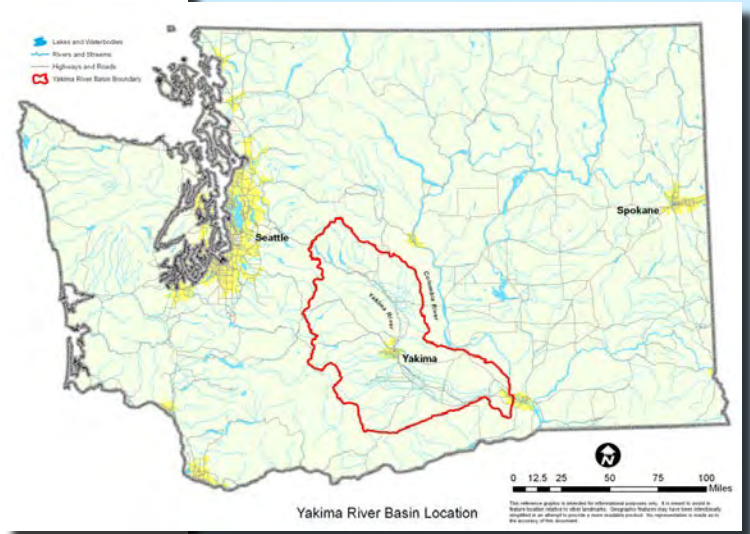
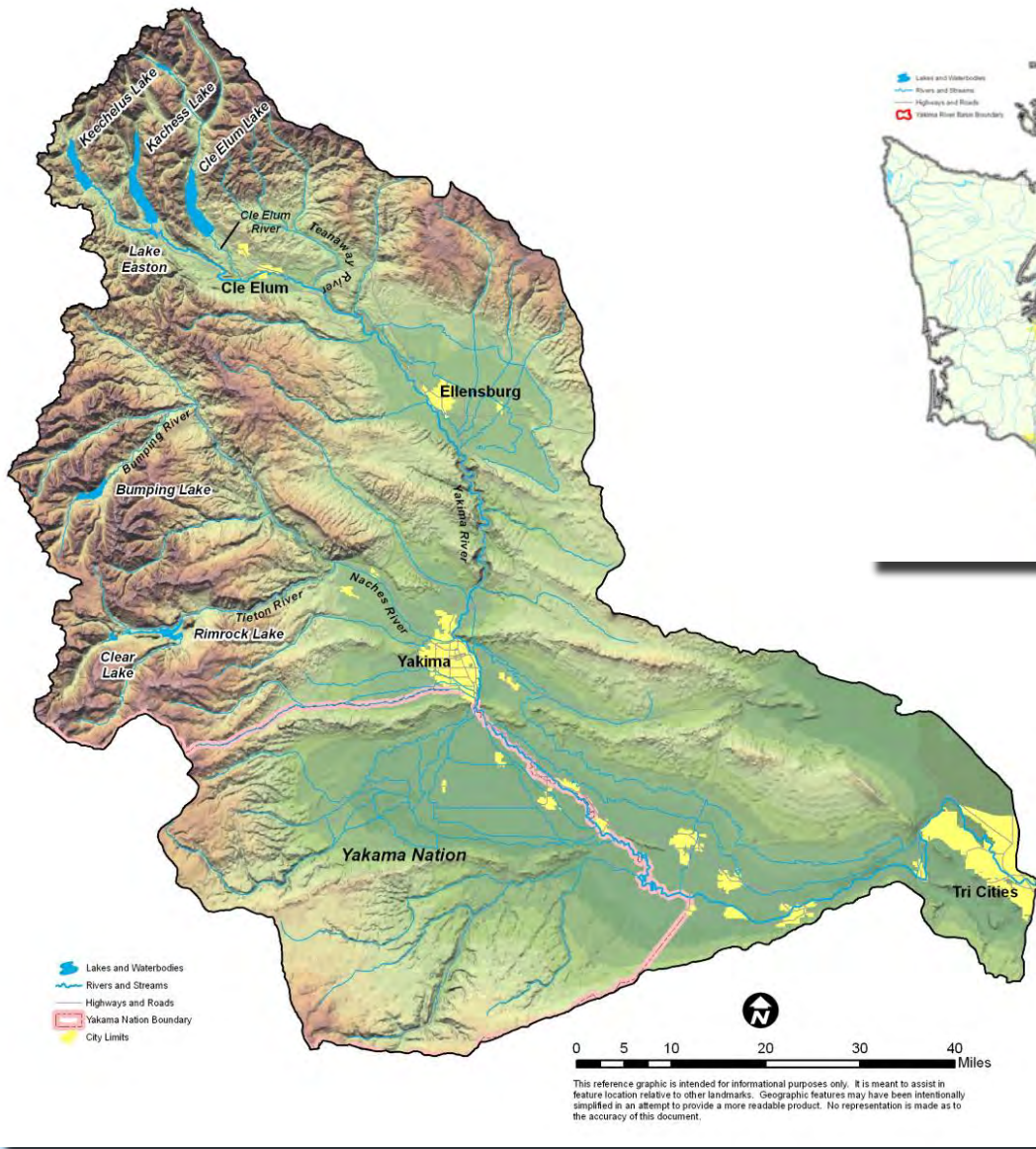


Yakima River Basin Integrated Water Resource Management Plan

**2012 AWRA Washington State Conference
The Columbia River, Basin and Treaty**

September 13th, 2012



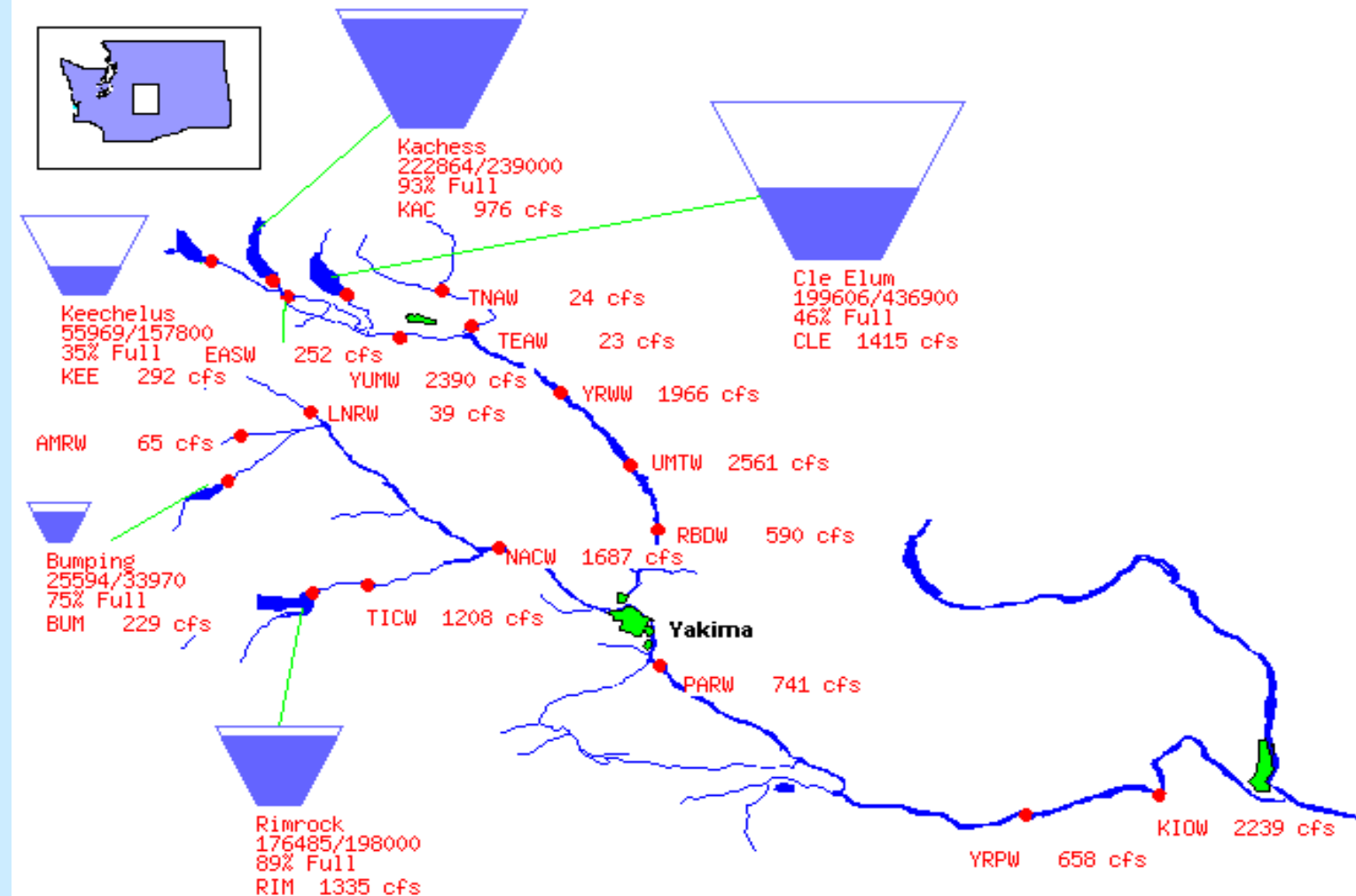
- Basin size = 6,155 sq. miles
- Irrigated cropland = 500,000 acres
- \$2.3 B food processing industry
- \$1.8 B agricultural production

Yakima Basin Background

- Managed by Bureau of Reclamation**
- Operates five reservoirs with 1M acre-foot of capacity (average annual runoff 3.3 M acre-feet)**
- Irrigation deliveries = 1.7 M acre-feet**
- Snowpack “sixth reservoir”**

Yakima Basin Storage Reservoirs

09/03/2012



Historic Salmon Runs

Species/Run	Low Estimate	High Estimate	Current Status	Low	Year	High	Year
Spring Chinook	200,000	500,000	Supplemented Population	666	1995	23,265	2001
Fall Chinook	38,000	100,000	Supplemented Population	523	1988	13,000	2002
Summer Chinook	??	??	Extirpated - Began Reintroduction 2008	-		250 to Bonneville	2012
Coho	40,000	150,000	Extirpated and reintroduced	-	till 93	10,248	2009
Sockeye	100,000	200,000	Extirpated - Begin Reintroduction 2009	-		10,000(+15)	2012
Steelhead	30,000	100,000	Wild Population Kelt Reconditioning	505	1996	6,793	2010
Total	408,000	1,050,000		1,700		63,571	
Bull Trout	??	??	Wild Population			2500 to 3000 adults	
Lamprey	??	??	Wild Population			0 to 87 adults	

Yakima Basin Background

- Surface water over-appropriated**
- Droughts in 1992, 1993, 1994, 2001, and 2005**
- Proratable irrigation districts reduced to as little as 37% of allotments**
- Instream flows greatly reduced by out-of-stream diversions**

Water Problems in the Yakima River Basin

Surface Water Users in the Yakima Basin



Senior Water Rights

Pre-1905 priority date:
receives full water right



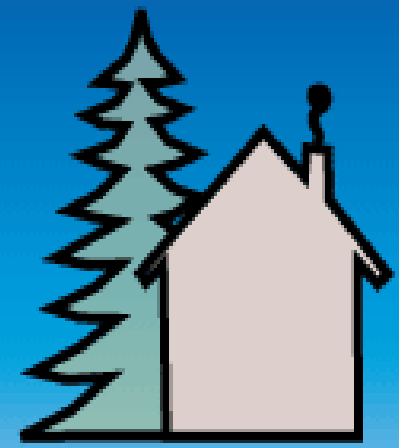
Proratable Water Rights

1905 priority date:
receives ~1/3 to full water
right depending on supply



Junior Water Rights

Post-1905 priority date:
receives no water once
rationing occurs

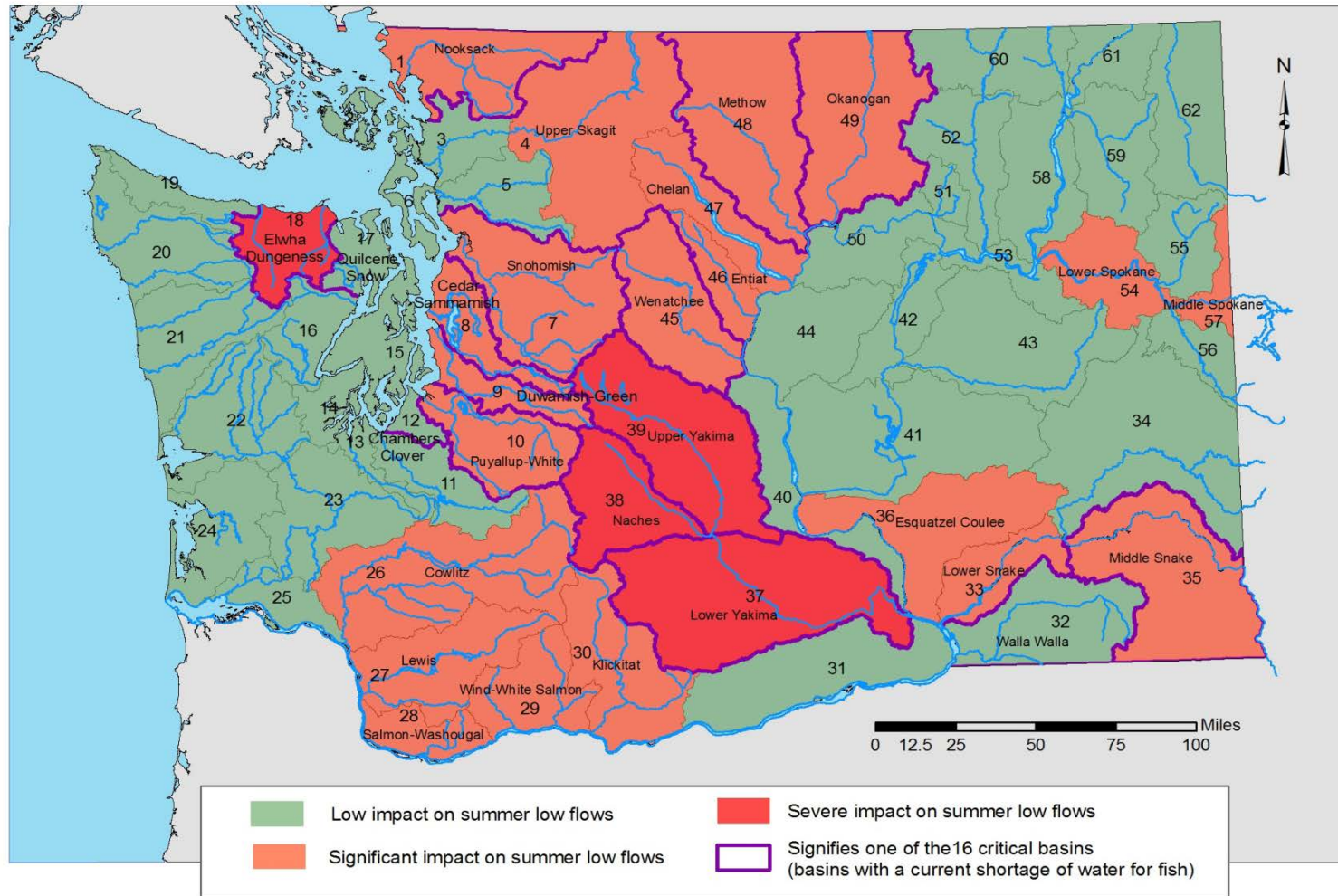


No Water Rights

Surface water use
without a water
right is unlawful

Climate Change Forecast

2040 Projected Climate Change Impact on Summer Flows by WRIA



Yakima River Basin Integrated Water Resource Management Plan Goals

- Provide opportunities for ecological restoration and enhancement**
- Improve water supply during drought years (70% proratable supply)**
- Provide for efficient and adaptable (e.g. to climate) water supply management**
- Contribute to sustainable economy and environment**

Workgroup Members

- **Washington Department of Agriculture**
- **NOAA, National Marine Fisheries Service**
- **Benton County**
- **Yakima Basin Fish & Wildlife Recovery Board**
- **Yakima – Tieton Irrigation District**
- **Yakama Nation – Yakima/Klickitat Fisheries Project**
- **American Rivers**
- **Kittitas Reclamation District**
- **Yakima County**
- **City of Yakima**
- **Kittitas County**
- **Yakima Basin Storage Alliance**
- **Kennewick Irrigation District**
- **Yakama Nation – Natural Resources**
- **Washington Department of Ecology**
- **Washington Department of Fish and Wildlife**
- **US Fish and Wildlife Service**
- **US Forest Service**
- **Sunnyside Valley Irrigation District**
- **Roza Irrigation District**
- **Bureau of Reclamation**

Yakima Basin Integrated Plan Elements

- **Water supply**
 - Market driven reallocation of water
 - Enhanced conservation
 - Surface storage
 - Groundwater storage (passive and active recovery)
- **Structural and Operational Changes**
- **Habitat/Watershed Protection**
- **Reservoir Fish passage**



Yakima River Basin Integrated Water Resource Management Plan

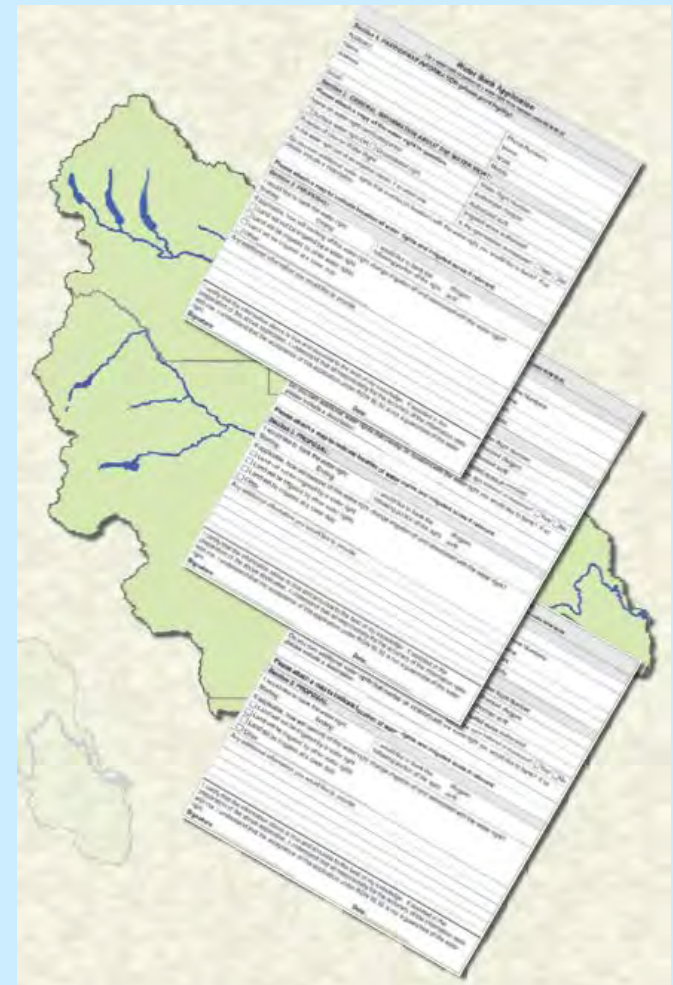
Market Reallocation Element

Near-term effort

- **Build on existing water market programs**
- **Take steps to reduce barriers**

Longer-term effort

- **Focus on water transfers between districts**
- **Allow fallowing within district; leases to outside district**
- **Requires substantial changes to existing laws/policies.**



Yakima River Basin Integrated Water Resource Management Plan

Enhanced Water Conservation Element

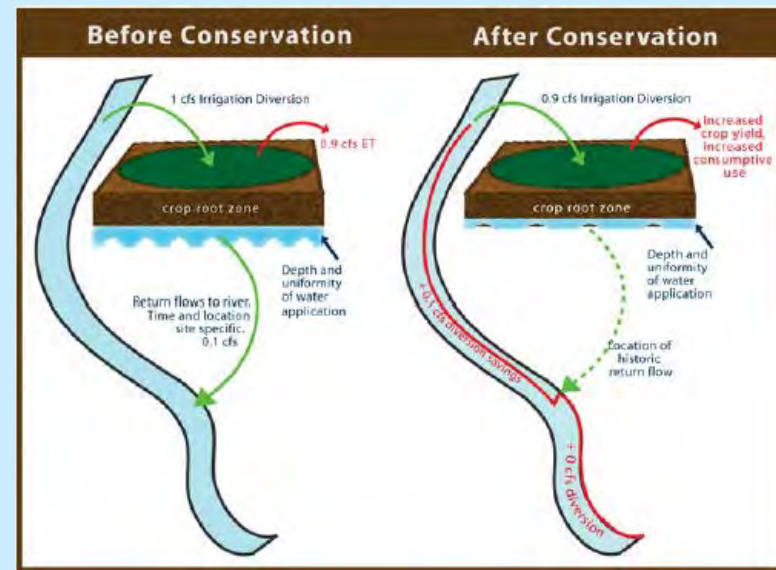
Agricultural Conservation – up to 170, 000 acre-feet

- Lining/piping canals and laterals
- Re-regulation reservoirs
- Irrigation efficiency - reduce seepage, evaporation, and spills



Municipal and Domestic Conservation Program

- Promote efficient landscape irrigation Practices
- Expand education/incentives to encourage voluntary efficiency
- Establish best practice standards



Yakima River Basin Integrated Water Resource Management Plan

Surface Water Storage

Wymer Dam and Pump Station

- 162,500-acre-foot-capacity reservoir

Lake Kachess Inactive Storage

- Access 200,000 acre-feet from inactive storage in drought years

Bumping Lake Enlargement

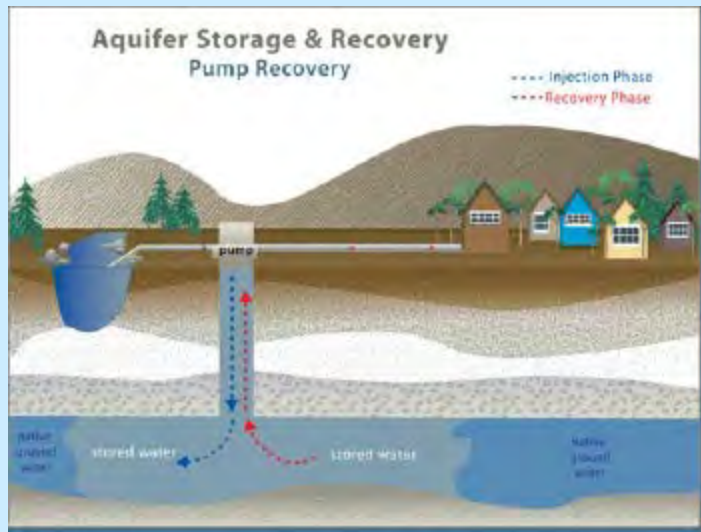
- Construct new dam for additional 164,500 acre-feet storage
- Provide carryover storage



Groundwater Storage Element

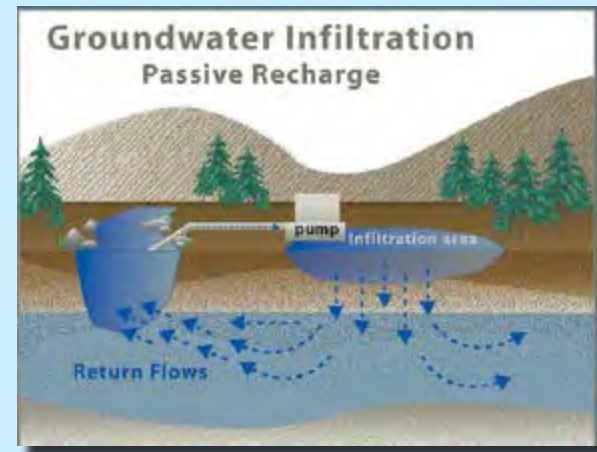
Groundwater storage actions would use surface water to recharge aquifers and store water for later withdrawal and use:

Aquifer Storage and Recovery



Shallow Aquifer Recharge

Divert water into designed ground infiltration systems (ponds, canals) during periods of excess runoff



Yakima River Basin Integrated Water Resource Management Plan

Structural and Operational Changes Element

Lake Keechelus-to-Lake Kachess Pipeline

Kittitas Reclamation District canal Modifications

- Lining and piping laterals - main canal and south branch canal
- Construct re-regulation reservoir at Manastash Creek
- Pump Yakima River water to Manastash Creek irrigators

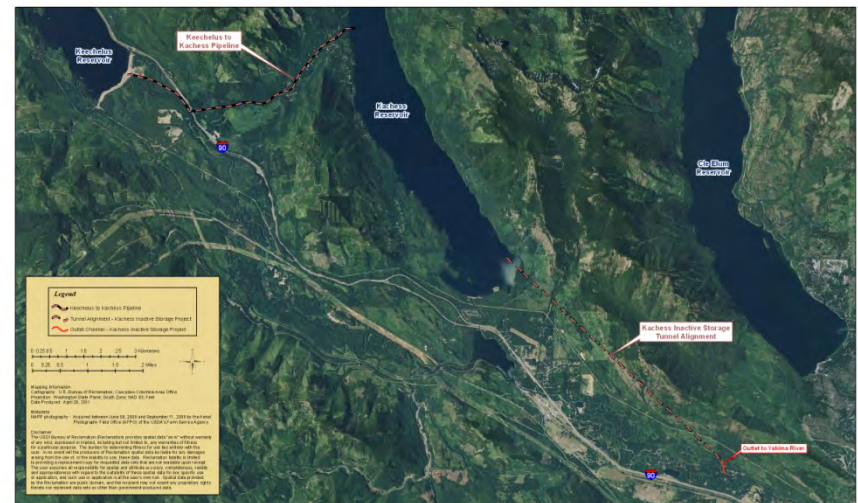


Reduce power diversions at Roza and Chandler Dams – fish outmigration flows

Wapatox Canal – piping/lining; diversions
Consolidations

Raise Cle Elum Lake by 3 feet

Potential Keechelus to Kachess Pipeline and Kachess Inactive Storage Project
(Potential River Route, 2016)



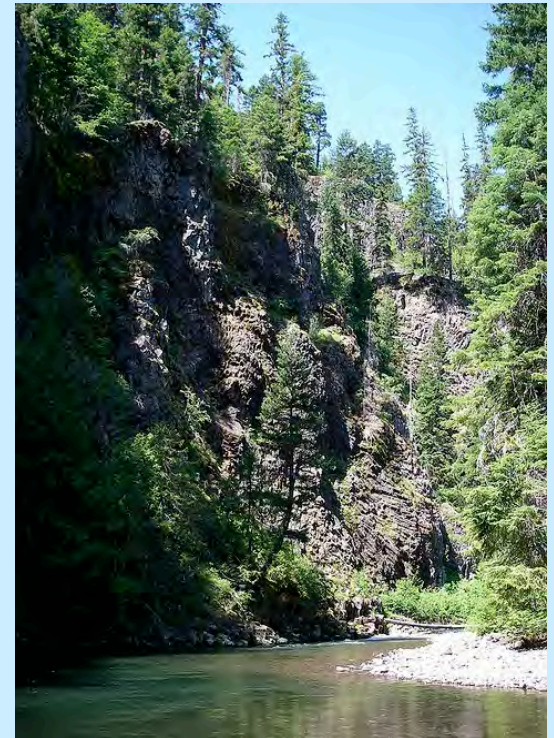
Habitat/Watershed Protection And Enhancement Element

Targeted Watershed Protections and Enhancements

- **Three key areas proposed for land acquisition actions**
 - 46,000 acres in Teanaway River Basin
 - 15,000 acres in Yakima River Canyon
 - 10,000 acres at Little Naches River headwaters

Wilderness, Wild and Scenic River, and National Recreation Area designations

Mainstem Floodplain and Tributaries Fish Enhancement Program



Credit: Tom O'Keefe

Yakima River Basin Integrated Water Resource Management Plan

Reservoir Fish Passage Element

Cle Elum



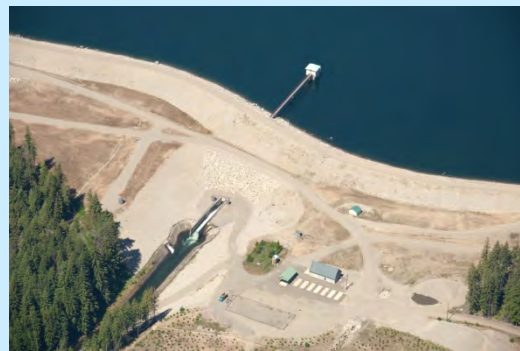
Kachess



Bumping



Keechelus



Rimrock (Tieton Dam)



Provide upstream and downstream fish passage

Benefits:

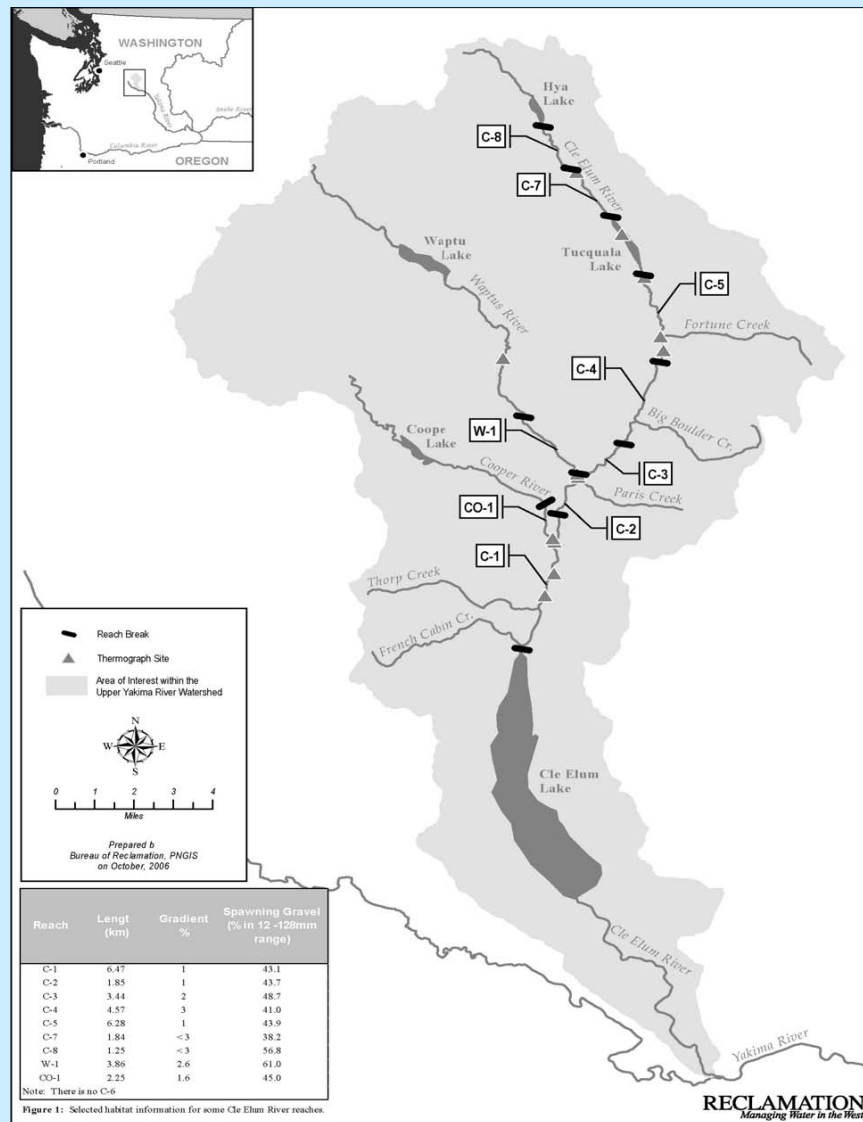
- Increase anadromous species abundance
- Allow reintroduction of sockeye runs
- Provide greater genetic interchange for bull trout
- Providing access to high quality habitat at higher elevations

L. Cle Elum Sockeye Reintroduction

Year	Adults Transported
2009	1,000
2010	2,500
2011	4,500
2012	10,000

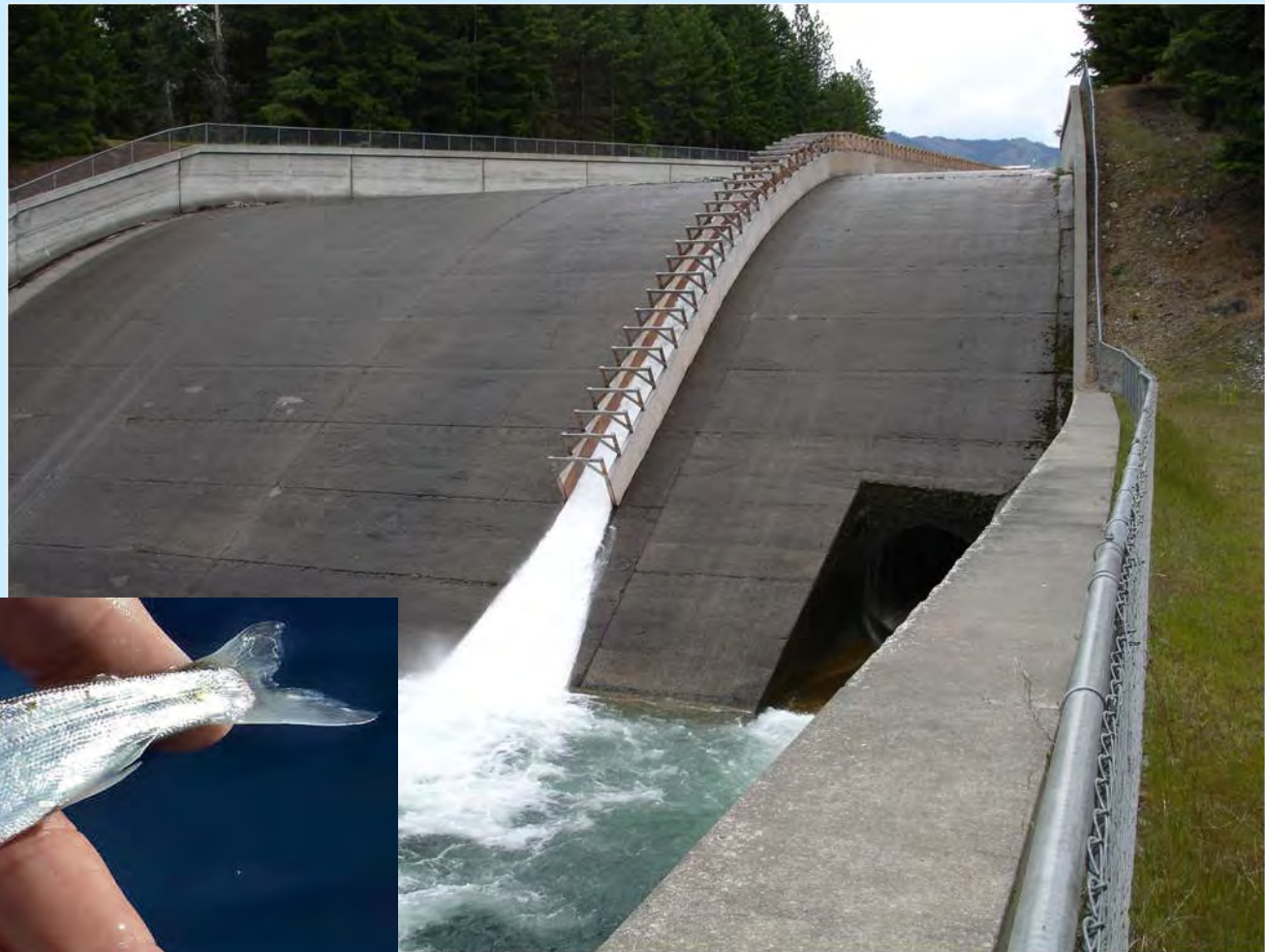


Some of the first sockeye to spawn in upper Cle Elum R. watershed in over 100 years



L. Cle Elum Sockeye Reintroduction

About 80,000 juveniles (progeny of 2009 adult plants) were estimated to have passed Prosser in 2011.



Wild smolt at Roza, 5/10/2011

Results of Plan

- Major fish restoration (~200K sockeye, ~300K salmon and steelhead overall), restored and expanded habitat
- Long-term protection of key watersheds, rivers, and riparian areas
- More certain water supply for farms & and basin residents
- Trade-offs



Photo credit: YKFP

Next steps

- Framework document, NEPA ROD
- More negotiations
 - Detailed discussions of phasing, financing
 - Near-term funding requests
 - New federal and state legislation as soon as 2013
- Project-specific NEPA/SEPA/ESA review



Credit: Scott Butner

Questions?



Credit: Scott Butner