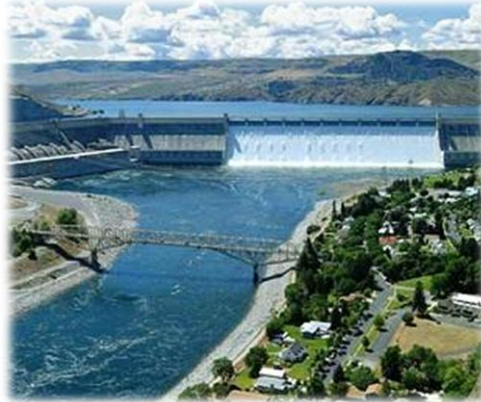


# Oregon Irrigators Meeting

March 30, 2012



Presented By  
**Derek Sandison**  
Office of Columbia River

# **Columbia River Basin Water Management (Development) Act - 2006**

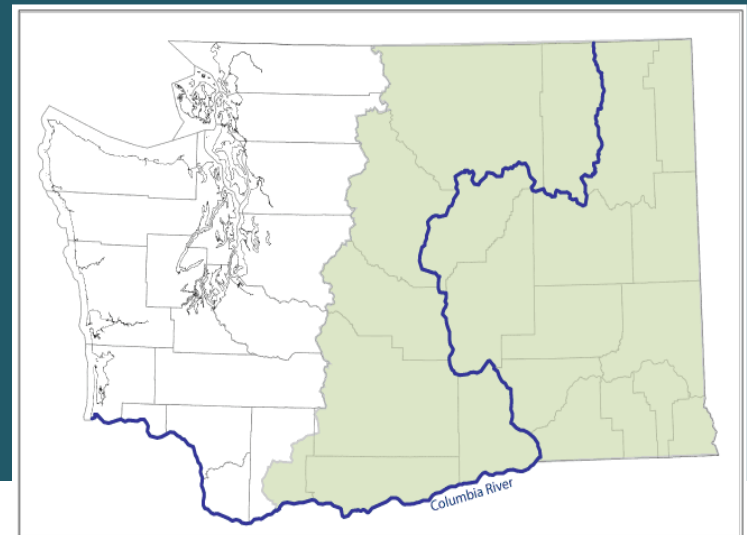
- **Ecology directed to aggressively pursue development of new water supplies for both instream and out-of-stream uses**
- **Significant investment in new storage and conservation**
  - **Capital: authorization for bonds of up to \$200 million**
  - **Operating: \$2.1 million and 15 FTEs**
- **2/3 of funds for study & construction of new storage & pump exchanges**
  - **1/3 of new storage for improving streamflows to benefit fish**
  - **2/3 of new storage for new out-of-stream uses**
- **1/3 of funds for all other water supply projects**
- **Legislative reporting on water supply and demand forecasts**

# **Water Supply Development Account Uses**

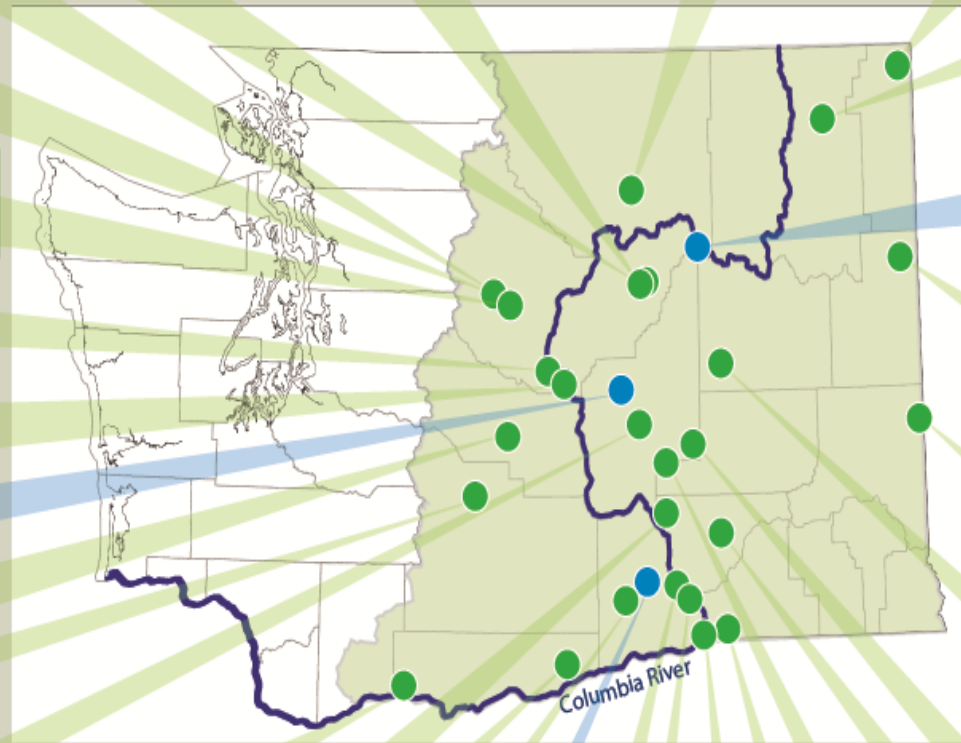
- **Assess, plan, and develop new storage**
- **Improve or alter existing storage facilities**
- **Implement conservation projects**
- **Any other actions to provide access to new water supplies (e.g., acquisitions, leases, marketing)**

# RCW 90.90 – Statutory Focus

- **Alternatives to groundwater for agricultural users in the Odessa subarea aquifer**
- **Sources of water supply for pending water right applications**
- **New uninterruptible supply of water for interruptible water right holders**
- **New municipal, domestic, industrial and irrigation water needs in basin**
- **Water for instream purposes**



# OCR Funded Projects



**Peshastin Pump Exchange Study**  
Ac-Ft of Water = TBD  
Cost = \$200,000

**Chelan PUD: Rock Island Off Channel Storage**  
Ac-Ft of Water = 85,300  
Cost = \$125,000 (Pre-Appraisal)

**Foster CD: Moses Coulee Shallow Aquifer Recharge**  
Ac-Ft of Water = TBD  
Cost = \$93,750 (Pre-Appraisal)  
Cost = \$200,000 (Appraisal)

**Goose Lake & 9 Mile Flat Water Storage (Colville Tribe)**  
Ac-Ft of Water = 4,750,000  
Cost = \$600,000 (Pre-Appraisal)

**Sullivan Lake Water Supply**  
Ac-Ft of Water = 14,000  
Cost = \$14,000,000

**Mill Creek Storage Study**  
Ac-Ft of Water = 2,000-11,000  
Cost = \$125,000 (Pre-Appraisal)  
Cost = \$425,000 (Appraisal)

**Lake Roosevelt Incremental Storage Releases**  
Ac-Ft of Water = 132,500  
Cost = \$4,861,000 (+ \$5.6M, annually)  
Econ. Value = \$3B (Muni/Industrial)  
Jobs = 35,000 (Muni/Industrial)  
Econ. Protected = \$1.1B/yr (Odessa)  
Jobs Protected = 784 (Odessa)  
Econ. Protected = \$9.5M/yr (Drought)  
Jobs Protected = 140 (Drought)

**Spokane-Rathdrum Prairie ASR Study**  
Ac-Ft of Water = TBD  
Cost = \$250,000 (Study)

**WSU/WDFW Supply & Demand Report**  
Demand Forecasted = TBD  
Cost = \$1,000,000 (Study)

**Passive Rehydration (Lincoln County CD) Feasibility Study**  
Ac-Ft of Water = 300,000  
Cost = \$925,000 (Study)

**Conservation Commission Irrigation Efficiencies**  
Ac-Ft of Water = TBD (Regional)  
Cost = \$2,000,000

**Conservation Commission Retiming Pilot**  
Ac-Ft of Water = TBD  
Cost = \$1,000,000

**SRB & Tribal Fisheries Project**  
Ac-Ft of Water = TBD (Regional)  
Cost = \$1,000,000

**Peshastin Irrigation District Piping**  
Ac-Ft of Water = 360  
Cost = \$245,000

**Lower Wenatchee In-Stream Flow Enhancement Project**  
Ac-Ft of Water = 1493  
Cost = \$1,100,000

**Rocky Reach Pool Raise**  
Ac-Ft of Water = 28,000  
Cost = \$500,000 (EIS)  
Cost = \$50,000 (Pre-appraisal)

**Manashtash Piping**  
Ac-Ft of Water = 454  
Cost = \$376,000

**White Salmon ASR**  
Ac-Ft of Water = 145  
Cost = \$956,950

**508.14 Rule Change**  
Ac-Ft of Water = TBD  
Cost = TBD

**Weber Siphon**  
Conveyance  
Cost = \$800,000

**Klickitat County (Horse Heaven Hills) Study**  
Ac-Ft of Water = 105,000  
Cost = \$170,000 (Pre-Appraisal)  
Cost = \$300,000 (Appraisal)

**Kennewick ASR**  
Ac-Ft of Water = 318+  
Cost = \$2,250,000

**Walla Walla Pump Exchange**  
Ac-Ft of Water = 30,000  
Cost = \$600,000 (EIS)  
Cost = \$40M (Construction)

**Odessa Subarea**  
Ac-Ft = 176,343 - 347,137  
Cost = \$8,223,469 (Study)  
Cost = \$841.6M - \$3.314B (Construction)

**Red Mountain AVA Pump Project**  
Ac-Ft of Water = 11,005  
Cost = \$95,000 (Study)  
Cost = \$10,000,000 (Construction)  
Cost = \$500,000 (Mitigation)

**Barker Ranch Canal Piping**  
Ac-Ft of Water = 6,436  
Cost = \$5,600,000  
Jobs = 71  
Econ. Value = \$10,890,000

**Franklin CD IWM Study**  
Ac-Ft of Water = TBD  
Cost = \$78,000 (Study)

**Boise Cascade ASR**  
Ac-Ft of Water = 1,657  
Cost = \$6,000,000

**Aquifer Storage & Recovery Exploration**  
Ac-Ft of Water = TBD (Regional)  
Cost = \$1,750,000

**Chelan PUD Pump Storage Appraisal**  
Ac-Ft of Water = 50,000  
Cost = \$165,000 (Pre-Appraisal & 8 sites)  
Cost = \$400,000 (Appraisal 2 sites)

**Columbia Basin Irrigation District Piping**  
Cost = \$30,000 (Study)  
Ac-Ft of Water = 2,521 (2009)  
Cost = \$1M (2009)  
Jobs = 13 (2009)  
Econ. Value = \$2M (2009)  
Ac-Ft of Water = 2,929 (2010)  
Cost = \$2M (2010)

**Yakima River Water Enhancement**  
Ac-Ft of Water = 350,000  
Cost = \$3,350,000 (Study)  
\* SBCA Funding

**Potholes Supplemental Feed Route**  
Conveyance  
Cost = \$15,147,748

- **Completed, Constructed Projects**
- **Active, Priority Development Projects**
- **Pending: Technical, Legal or Funding Issues**
- **On Hold**

\*All projects funded from the Columbia River Water Supply Development Account unless otherwise noted.

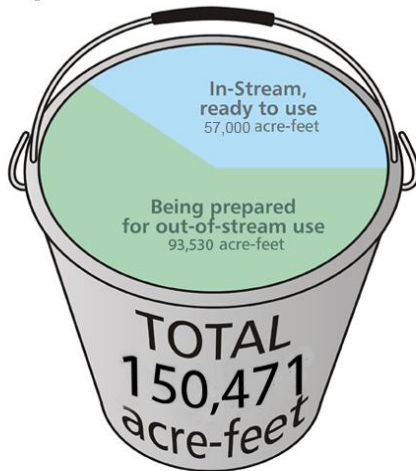


# Accomplishments

- **Developed about 100,000 acre-feet of water for agricultural, municipal and industrial uses.**
- **More than 50,000 acre-feet of water to support stream flows for fish in the Columbia River and tributaries.**
- **A dozen new M&I water rights issued December 2011**
- **Permits for the balance of the M&I water (about 80) will be issued in 2012 - benefit cities like Bridgeport, Pasco, Kennewick, Richland and West Richland.**

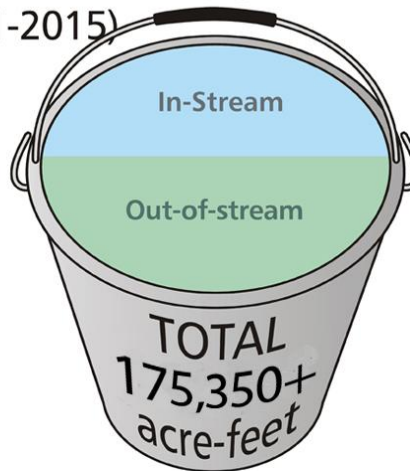
# Water Development Progress - 2011

## Developed



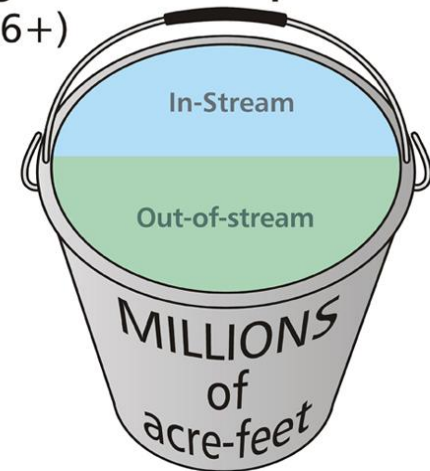
- > Barker Ranch: 6,436 ac-ft
- > Columbia Basin Irrigation District Piping: 5,450 ac-ft
- > Donations: 6,066 ac-ft
- > Lake Roosevelt: 132,500 ac-ft
- > Potholes Supplemental Feed Route (conveyance)
- > Okanogan Water Right Acquisition: 79 ac-ft

## Near Term Development (2011-2015)



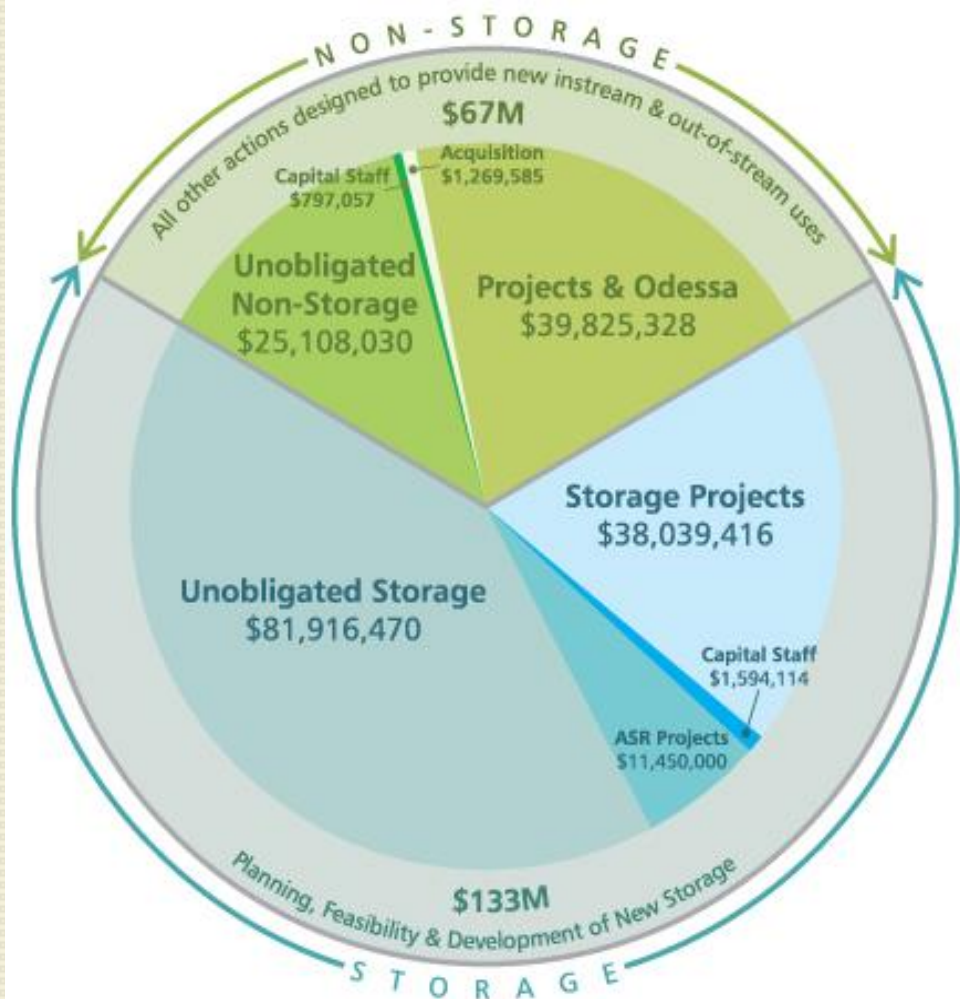
- > Boise Cascade ASR: 1,657 ac-ft
- > Columbia Basin I.D.: 5,337 ac-ft
- > Conservation Commission I.E.: TBD
- > 508.14 Rule Change: TBD
- > Kennewick ASR: 318+ ac-ft
- > Lower Wenatchee: 1,493 ac-ft
- > Manashtash: 454 ac-ft
- > Odessa Subarea: 164,000 ac-ft
- > Peshastin I.D.: Piping: 360 ac-ft
- > Red Mountain: 20,423 ac-ft
- > Okanogan Water Right Acquisition: 958 ac-ft
- > SRB & Tribal Fisheries: TBD
- > Sullivan Lake: 14,000 ac-ft
- > White Salmon ASR: 145 ac-ft
- > Weber Siphon (conveyance)

## Long Term Development (2016+)



- > Aquifer Storage & Recovery Exploration: TBD
- > Chelan PUD Pump Storage: 50,000 ac-ft
- > Conservation Commission Retiming: TBD
- > Foster C.D. Moses Coulee S.A.R.: TBD
- > Goose Lake & 9 Mile Flat Storage: 4,750,000 ac-ft
- > Klickitat County Horse Heaven Hills: 105,000 ac-ft
- > Lincoln CD Passive Rehydration: 300,000 ac-ft
- > Mill Creek Storage: between 2000-11,000 ac ft
- > Peshastin Pump Exchange: TBD
- > Spokane-Rathdrum Prairie A.S.R.: TBD
- > Walla Walla Pump Exchange: 30,000 ac-ft
- > Yakima River Water Enhancement: 450,000 ac-ft

# Status of the \$200M Columbia River Basin Water Supply Account



The pie chart shows the current appropriation of funds from the Columbia River Account. Under RCW 90.90.010(2)(b), two-thirds of the account must be spent on storage & pump exchanges, and one third for “other purposes.” The pie slices in the circle reflect the allocated and unobligated funds. The pie will grow in coming years as cost-recovery of water supply projects occurs.



# Columbia River Basin Long-Term Water Supply and Demand Forecast

Demand Type	Estimated Volume (ac-ft)	Source
2030 Irrigation Demand (new irrigation, Odessa replacement, Yakima Basin supply, and Columbia River interruptibles)	800,000 – 1.1 Million	WSU Integrated Model, Odessa EIS, Yakima EIS, and Ecology 2001 Drought Database
2030 New Municipal Demand (including municipally-supplied commercial and self-supplied domestic)	108,500	WSU Integrated Model
Unmet Columbia River Instream Flows	13,400,000	Ecology data, McNary Dam, 2001 drought year
Unmet Tributary Instream Flows	500,000	Ecology Data, tributaries with adopted instream flows, 2001 drought year
2030 New Hydropower Demand	0	WSU Surveys and Planning Forecast Review

# Office of Columbia River POLICY ADVISORY GROUP (PAG) Members

**Dale Bambrick**

NOAA Fisheries – U.S. Dept of Commerce

**Bill Gray**

Bureau of Reclamation

**Lisa Pelly**

Washington Rivers Conservancy

**Brenda Bateman**

Oregon Water Resources Dept

**Tony Grover**

NW Power & Conservation Council

**Rudy Peone**

Spokane Tribe

**Dave Sauter**

Klickitat County Commissioner

**Matt Watkins**

City of Pasco

**Phil Rigdon**

Yakama Nation

**Gary Chandler**

Association of WA Business

**Mike Leita**

Yakima County Commissioner

**Mike Schwisow**

Columbia Basin Development League

**Kathleen Collins**

Water Policy Alliance

**Joe Lukas**

Grant County PUD

**Teresa Scott**

WA State Dept of Fish & Wildlife

**Jon Culp**

WA State Conservation Commission

**Mo McBroom**

WA Environmental Council

**Craig Simpson**

East Columbia Basin Irrigation District

**Jim Fredericks**

U.S. Army Corps of Engineers

**Darryll Olsen**

Columbia-Snake Rivers Irrigation Association

**Rich Stevens**

Grant County Commissioner

**Michael Garrity**

American Rivers

**Rudy Plager**

Adams County Commissioner

**John Stuhlmiller**

WA State Farm Bureau

**Leo Stewart**

The Conf Tribes of the Umatilla Indian  
Reservation

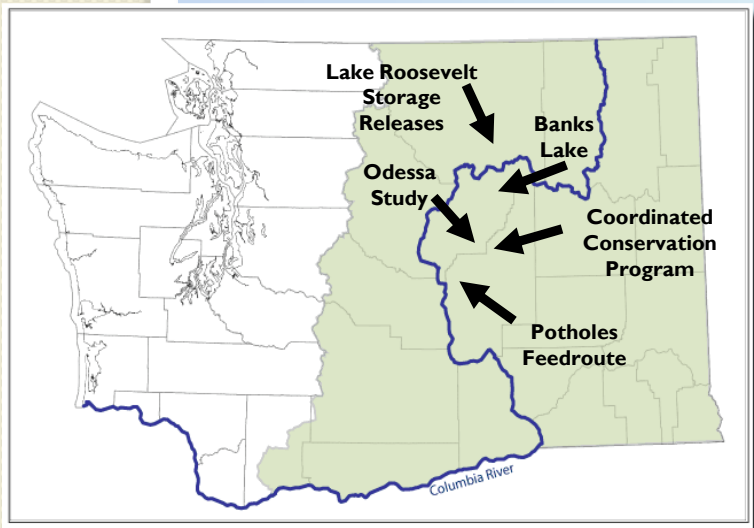
**Gary Passmore**

The Conf Tribes of the Colville Reservation

**Rob Swedo**

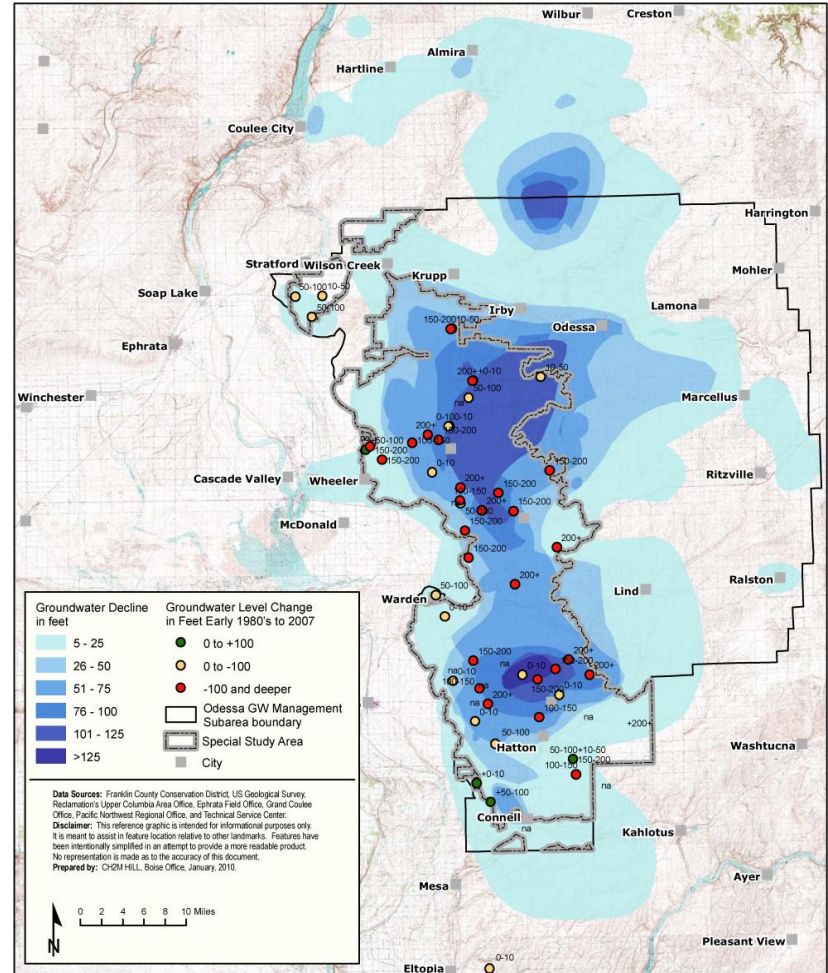
Bonneville Power Administration

# Approach to Finding Alternatives to Groundwater for Odessa



- **Supplemental Feed Route and Other Infrastructure Upgrades**
- **Lake Roosevelt Incremental Storage Releases**
- **Coordinated Conservation Plan**
- **Odessa Subarea Special Study**
  - **Banks Lake Re-Operation**

# Aquifer Decline

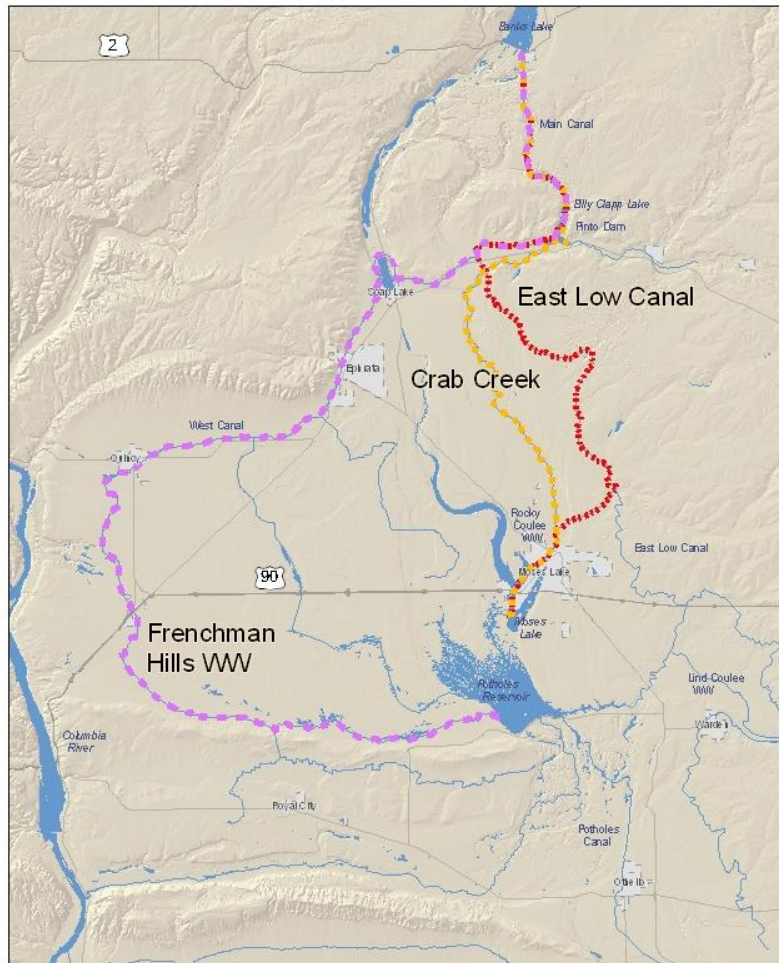


Odessa Subarea Special Study  
Columbia Basin Project, Washington

Map 2  
Groundwater Level Decline in Aquifers  
of the Odessa Subarea, 1981 to 2007



# Potholes Supplemental Feed Route



## Frenchman Hills Wasteway

- **Additional Capacity**  
- 25,000 acre-feet

## Crab Creek

- **Annual Capacity**  
- 100/500 cfs  
- 126,000 acre-feet
- **Spring Flow Capacity**  
- 500 cfs  
- 54,000 acre-feet

# Potholes Supplemental Feed Route

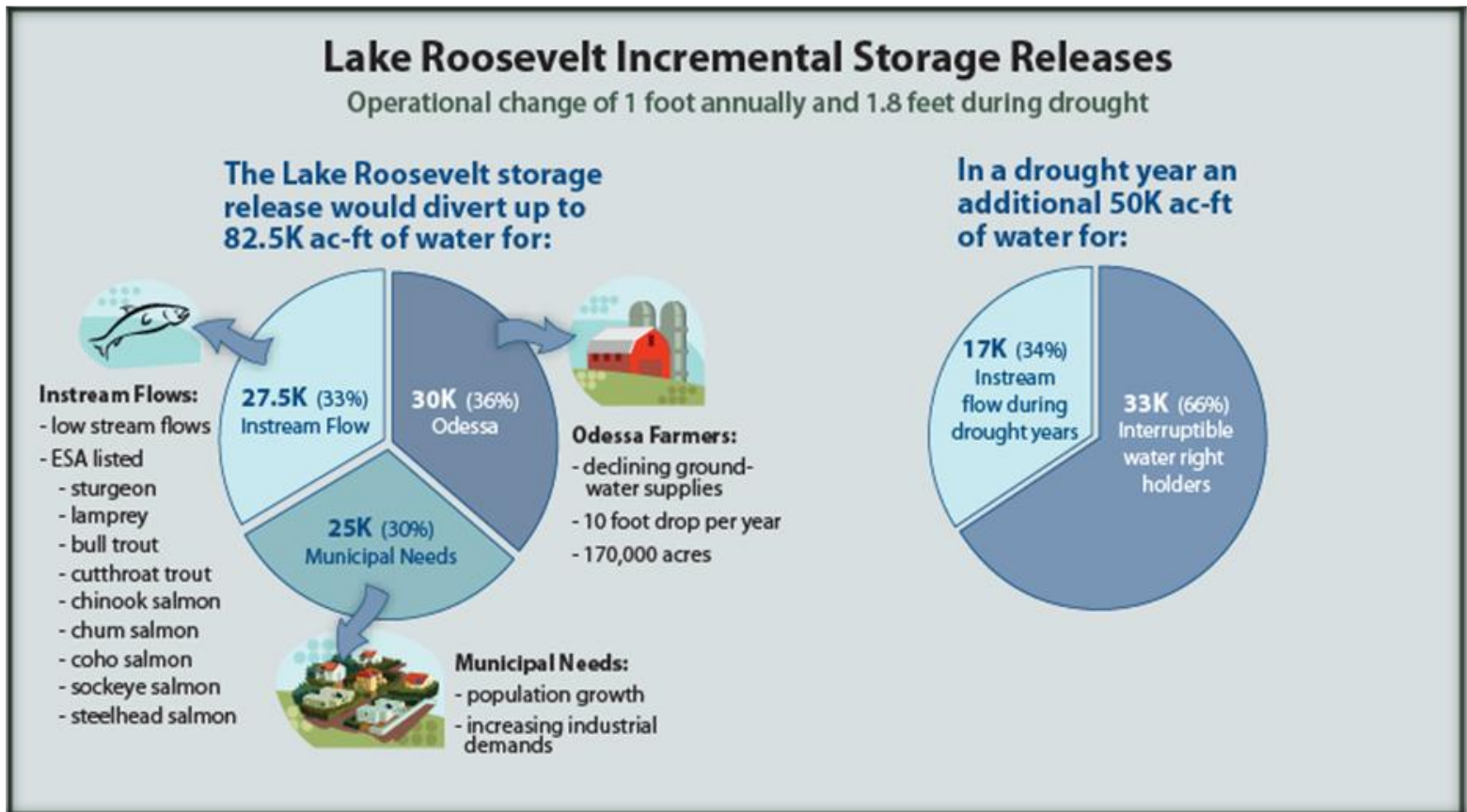


- **Road C**
- **Brook Lake**
  - 4x4 gate and outlet
- **Road I 6**
- **Acquisition**
  - 64 Landowners
  - 123 Parcels

# Lake Roosevelt Storage Releases

## 30,000 Acre-Feet of Water for the Odessa Subarea

- First large block of surface water for ground water replacement
- Weber Siphon under construction. It will allow the delivery of 21,000 acre-feet to the southern portion of the Odessa Subarea





# Lake Roosevelt Incremental Storage Releases Permitting Process & Timeline

\* **Secondary Use Permit S3-30486** issued 2008  
181 cfs / 30,000 ac-ft / 10,000 acres  
for replacement of Odessa  
groundwater with surface water

**Lake Roosevelt**  
(9 MAF Storage Capacity)  
82,500 ac-ft in new  
Secondary Use Permits

Annual Release  
Recommendation



\* **Secondary Use Permit S3-30486** issued 2008  
122 cfs / 15,000 ac-ft / instream flow

\* **Secondary Use Permit S3-30556** issued 2008  
305 cfs / 25,000 ac-ft M&I instream flow /  
12,500 ac-ft instream flow

NEPA (June 2009)

Water Service Contracts (June 2009)

2009 Water Releases (July/Aug)

\* **Trust Water Decisions** (Summer/Fall 2009)

15,000 ac-ft

12,500 ac-ft

25,000 ac-ft

52,500 ac-ft

Weber  
Siphon Complex

Odessa Lands

I-90

I-90

Odessa  
Groundwater Wells  
to Standby Status

\* (~10-20 superseding certificates  
will issue in 2010 to 2012)

\* **Ecology M&I Permits**

- 25,000 ac-ft
- 100+ Applicants
- Notice to applicants of processing order, Winter 2009
- New Permits 2010 to 2015

27,500  
Instream Flow

Pacific Ocean

\* Permitting Process



Pump



Well





This reference graphic is intended for informational purposes only. It is meant to assist in feature location relative to other landmarks. Features have been intentionally simplified in an attempt to provide a more readable product. No representation is made as to the accuracy of this document. Current as of 10 Feb 2009







# Coordinated Conservation

**2009**

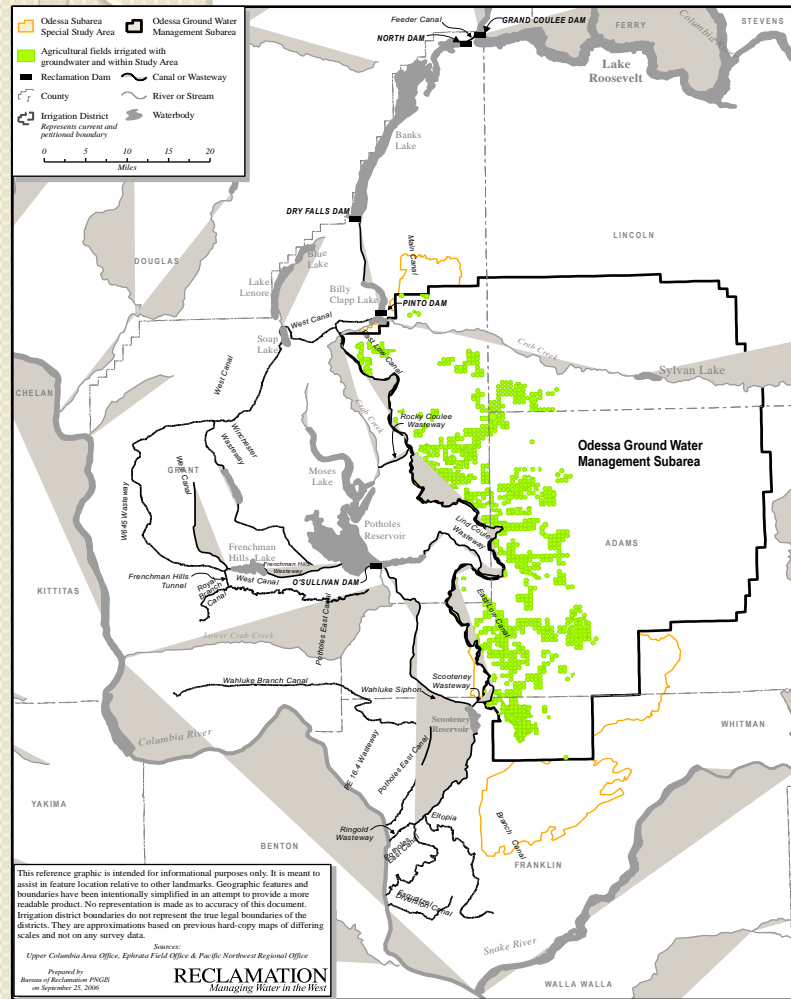
<b>Irrigation District</b>	<b>Type</b>	<b>Length (ft)</b>	<b>AF/year saved</b>
East District	Pipe	17,140	1,973
South District	Pipe	8,821	337
Quincy District	Lining	1,500	211

**2010**

<b>Irrigation District</b>	<b>Type</b>	<b>Length (ft)</b>	<b>AF/year saved</b>
East District	Pipe	16,078	977.3
South District	Pipe	29,450	1054.1
Quincy District	Pipe	8,860	898

# Odessa Subarea Special Study Purpose and Need

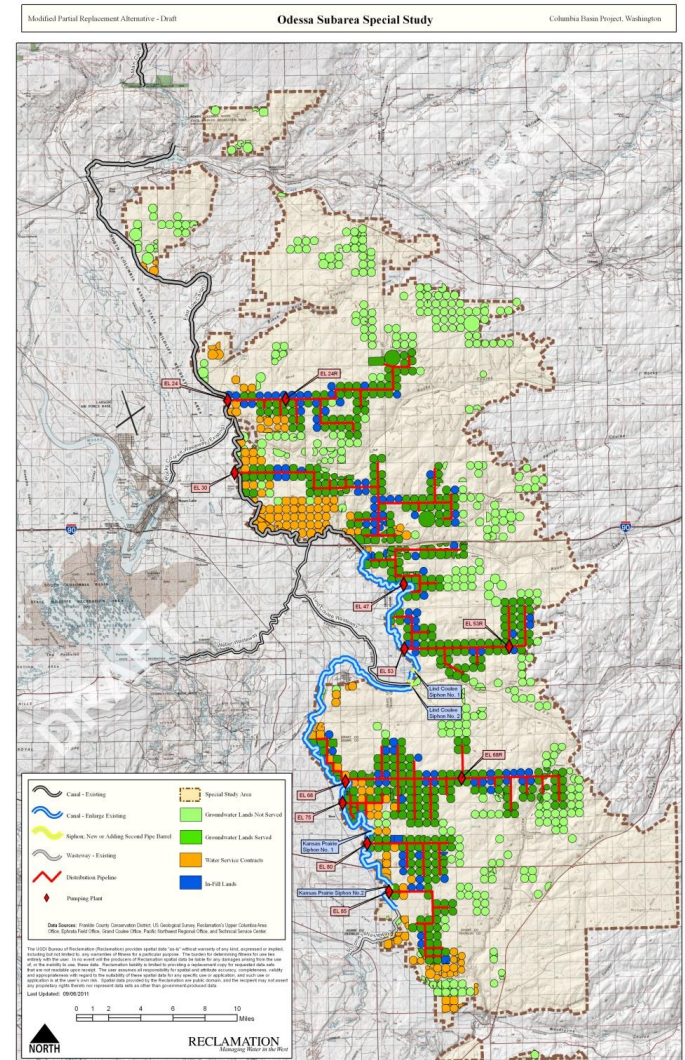
- Replace current groundwater irrigation in Odessa Subarea with surface water
- Avoid economic loss and address declining groundwater for agriculture & other uses
- Fulfill obligation made by Reclamation and Ecology in the Columbia River MOU





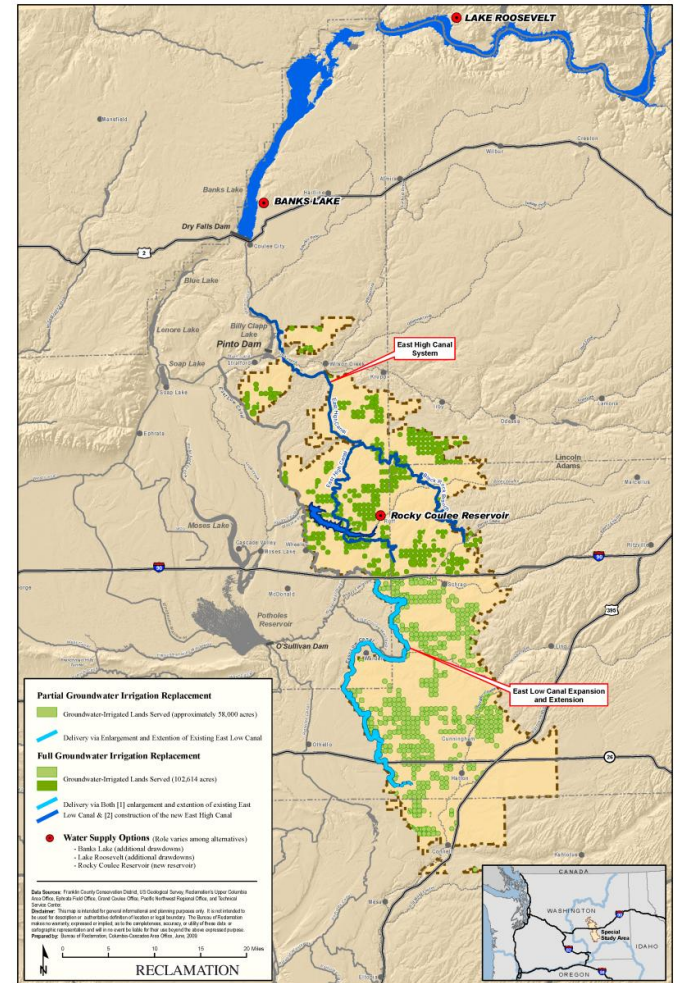
# Final EIS – Modified Partial Replacement Alternative Water Delivery Option - DRAFT

- Deliver water up to 70,000 acres
- 164,000 acre-foot diversion from Columbia River
- Maximize use of existing infrastructure
- Provides replacement water both north and south of I-90
- Would allow phased construction



# Water Supply Options

- Rocky Coulee Reservoir (new)
- Banks Lake Drawdown
- Lake Roosevelt



# Sullivan Lake Reoperation

- **OCR agreement with Pend Oreille County PUD to convert former hydropower facility to water supply operation.**
- **Creates 14,000 ac-ft of additional supply in NE counties.**
  - **9,333 ac-ft for out-of-stream uses (at least 50% for municipals)**
  - **4,667 ac-ft for instream uses**
- **\$14M=\$1,000 per ac-ft**
- **Schedule: 2012-2014 releases, with permits starting in 2013.**





# Red Mountain AVA Pump Project



## The Project

**Move Kennewick Irrigation District (KID)  
Diversion on the Yakima River 20  
miles downstream from Prosser to Kiona.**

## Expected Outcomes

- **Increased water supply will allow for additional 1,785 acres of wine grape vineyards to be planted.**
- **An additional 11,005 ac-ft of water will be added to Yakima River stream flows.**

## Timeline

**Permitting decision in December  
2011, construction in 2012, and new  
lands irrigated beginning in 2013.**

## • Cost

- \$10.595 Million

## • Economic Benefits

- \$9.2 Million Annually
- 103 jobs added

## • Environmental Benefits

- 11,005 ac-ft of water added to a low-flowing stretch of the Yakima River (between Prosser and Benton City)
- 1,200 ac-ft of shrub steppe habitat protected

## • Community Benefits

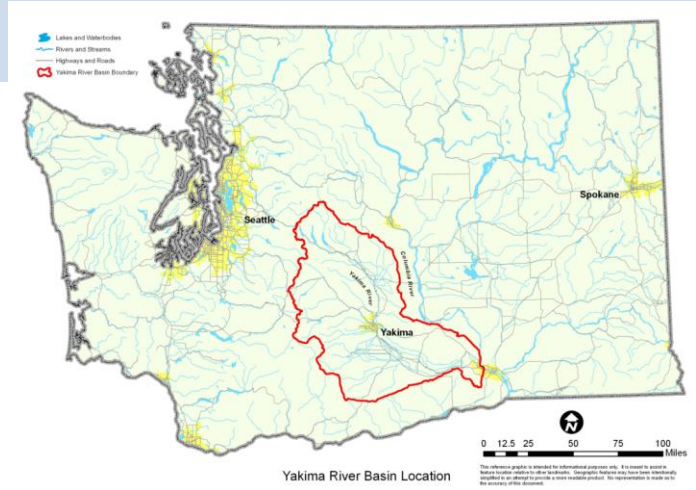
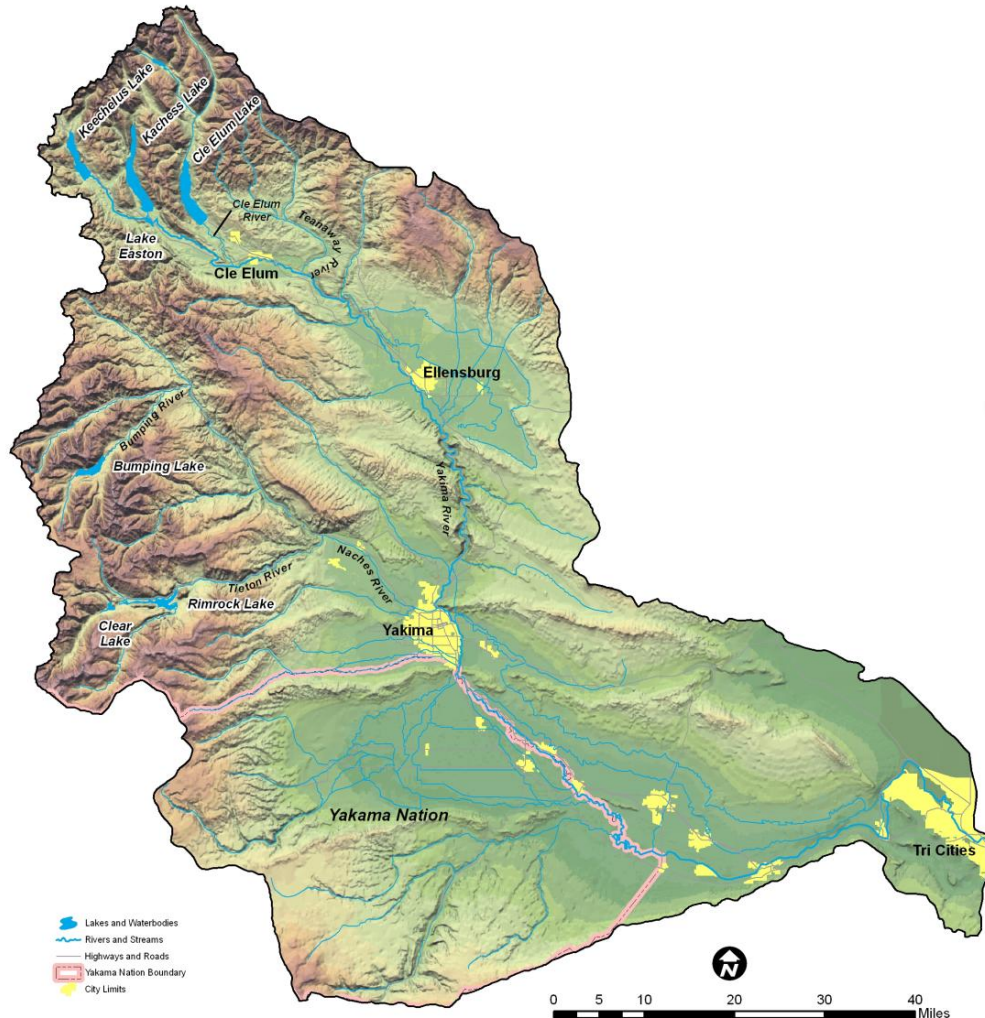
- 1,785 acres of new irrigation

## • Quote

"It benefits the wine, the fish, the state, the landowners out there and our ratepayers," said Scott Revell, planning manager for KID.



# Yakima River Integrated Water Resource Management Plan

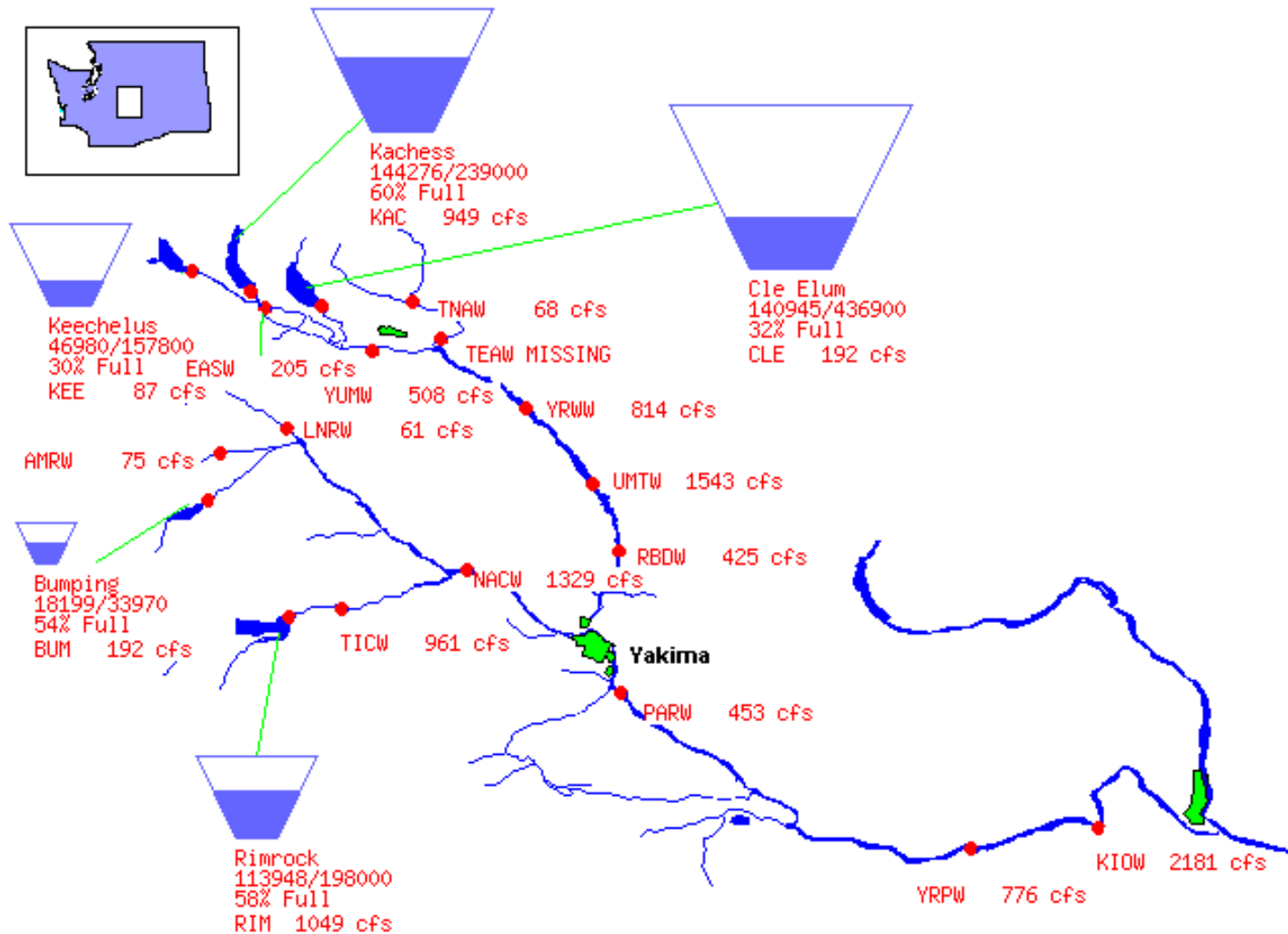


- Basin size = 6,155 sq. miles
- Irrigated cropland = 500,000 acres
- Avg. runoff = 3.3 MAF, Reservoirs store 1.0 MAF Deliveries = 1.7 MAF

This reference graphic is intended for informational purposes only. It is meant to assist in feature location relative to other landmarks. Geographic features may have been intentionally simplified in an attempt to provide a more readable product. No representation is made as to the accuracy of this document.

# Yakima Basin Storage Reservoirs

09/27/2010



# 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**
- **Climate change effects – less snow, more rapid runoff**

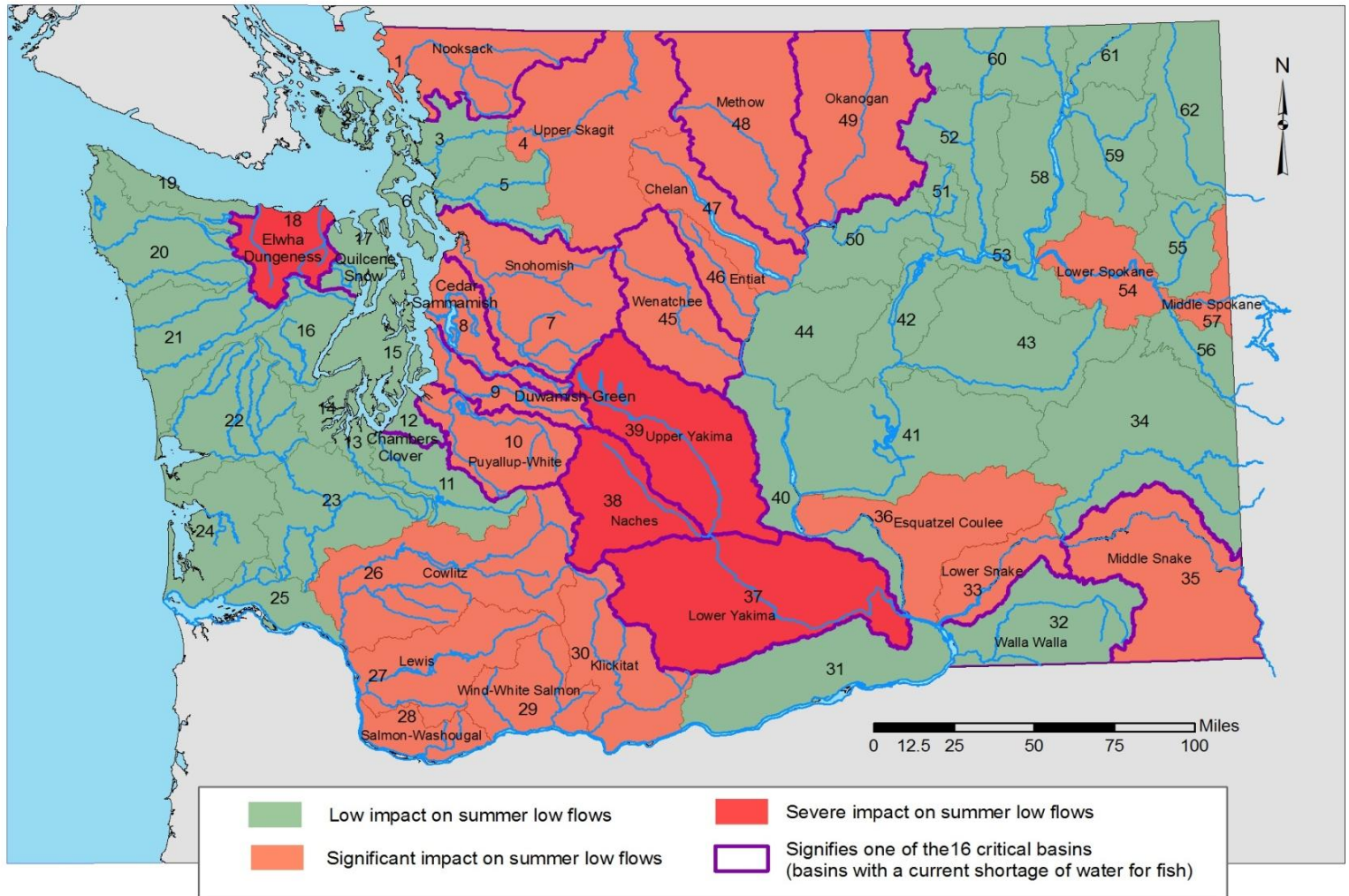
# **Yakima Basin Background**

- **Historic fish runs 300,000 to 960,000 anadromous fish**
- **1981-1990 average fish runs 8,000**
- **Native sockeye, summer Chinook extirpated**
- **Spring and fall Chinook and coho seriously reduced**
- **Steelhead ESA Threatened species**
- **Bull trout ESA Threatened species**



# Climate Change Forecast

## 2040 Projected Climate Change Impact on Summer Flows by WRIA





# Yakima River Basin Water Supply Efforts

1979

YRBWEP Feasibility  
Study Authorization

YRBWEP Phase I: Fish Screens & Ladders

YRBWEP Phase II: Conservation & Instream Flows

Storage Study EIS

Ecology EIS

YRBWEP  
Workgroup  
Involvement

Work  
Group

Basin  
Study

Integrated  
Plan

1980

1990

2000

2010

# YRBWEP 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
- 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
  - Aquifer storage (passive and active recovery)
- **System operation modifications**
- **Watershed/fish habitat improvements**
- **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

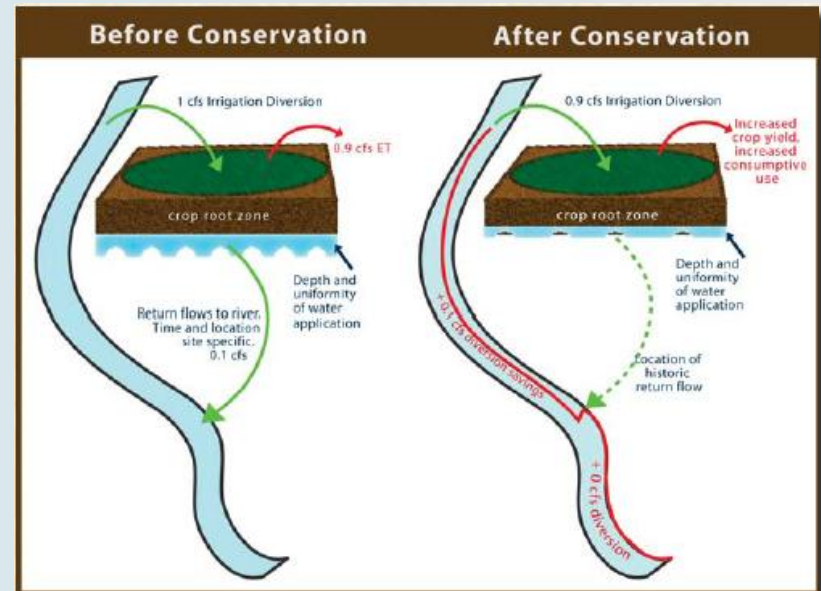
### Agricultural Conservation – Up to 70,000 acre-feet

- 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

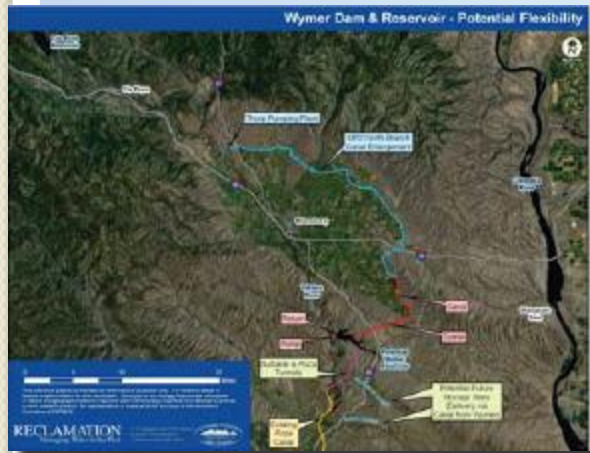
- 162,500 acre-foot-capacity reservoir
- Options for pump station at Thorp or upstream of Lmuma Creek

### 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

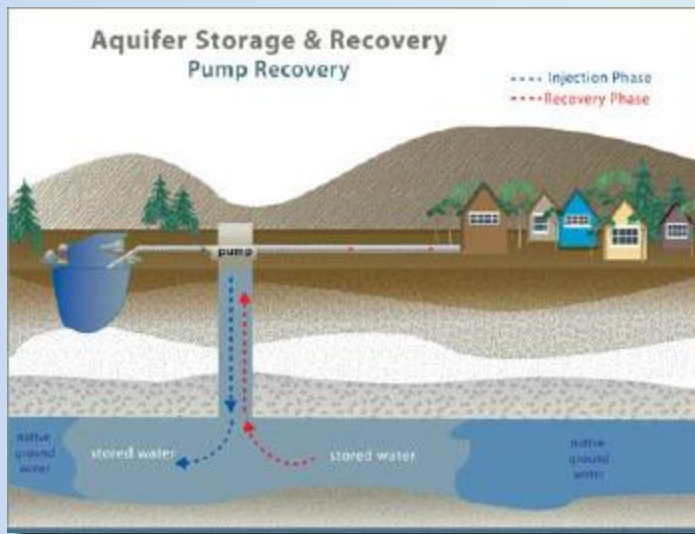


# Yakima River Basin Integrated Water Resource Management Plan

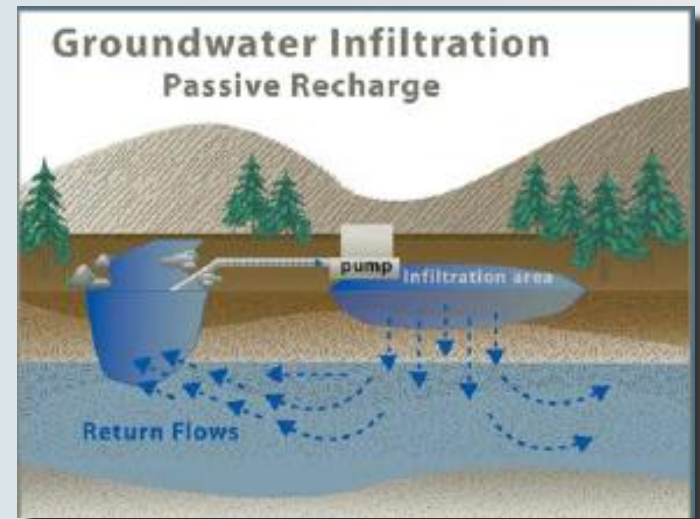
## Groundwater Storage Element

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

### Aquifer Storage and Recovery



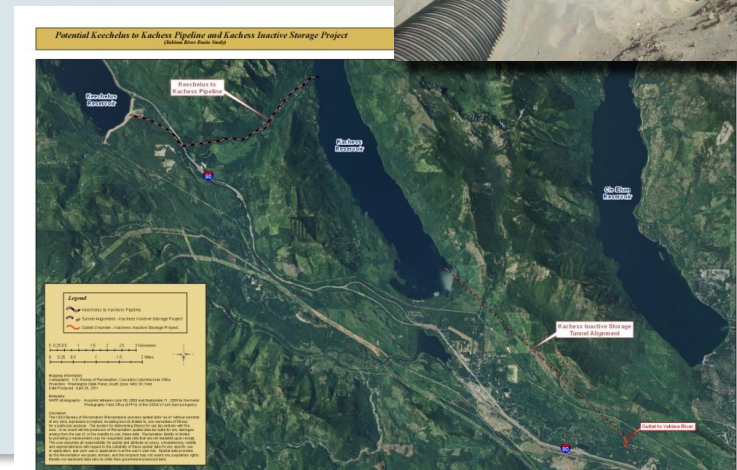
**Shallow Aquifer Recharge**  
Divert water into designed ground infiltration systems (ponds, canals) during periods of excess runoff





# Yakima River Basin Integrated Water Resource Management Plan Structural and Operational Changes Element

- **Lake Keechelus-to-Lake Kachess Pipeline**
- **Aquifer Storage and Recovery**
  - Lining and piping laterals – mail canal and south branch canal
  - Construct re-regulation reservoir at Manastash Creek
  - Pump Yakima River water to Manashtash 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

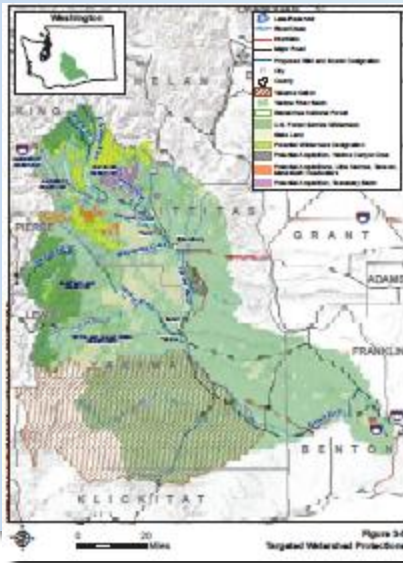




# Yakima River Basin Integrated Water Resource Management Plan Habitat/Watershed Protection and Enhancement Element

## 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
- Consider potential Wilderness and Wild and Scenic River designations



# Yakima River Basin Integrated Water Resource Management Plan

## Reservoir Fish Passage Element

**Cle Elum**



**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

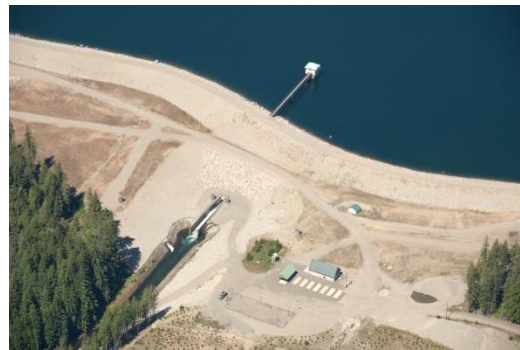
**Kachess**



**Bumping**



**Keechelus**



**Rimrock (Tieton Dam)**



# Challenges Ahead

- **Spatial and temporal distribution of water makes it a scarce resource.**
- **Many competing demands for water – some exclusive (consumptive), some non-exclusive (non-consumptive).**
- **Many parties with a stake in the game: tribes, federal, state, and local governments; agricultural groups; environmental groups.**
- **Columbia-Snake River System:**
  - **Extensively developed for hydropower, flood control, irrigated agriculture, municipal water supplies, navigation, and recreation.**
  - **Enormously important from ecosystem perspective (e.g., salmonids, resident fish).**
- **Uncertainties – FCRPS BiOp, Canadian Treaty, yearly fluctuations in hydrology, long-term climate variability**



**Questions?**