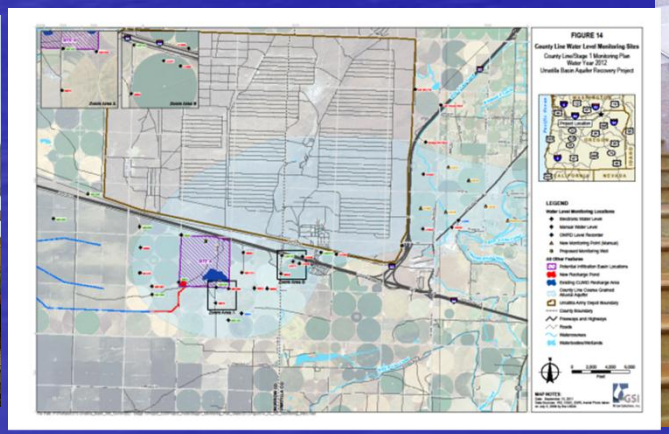
Umatilla Basin Water Commission

The Umatilla Basin Aquifer Restoration "Effort"

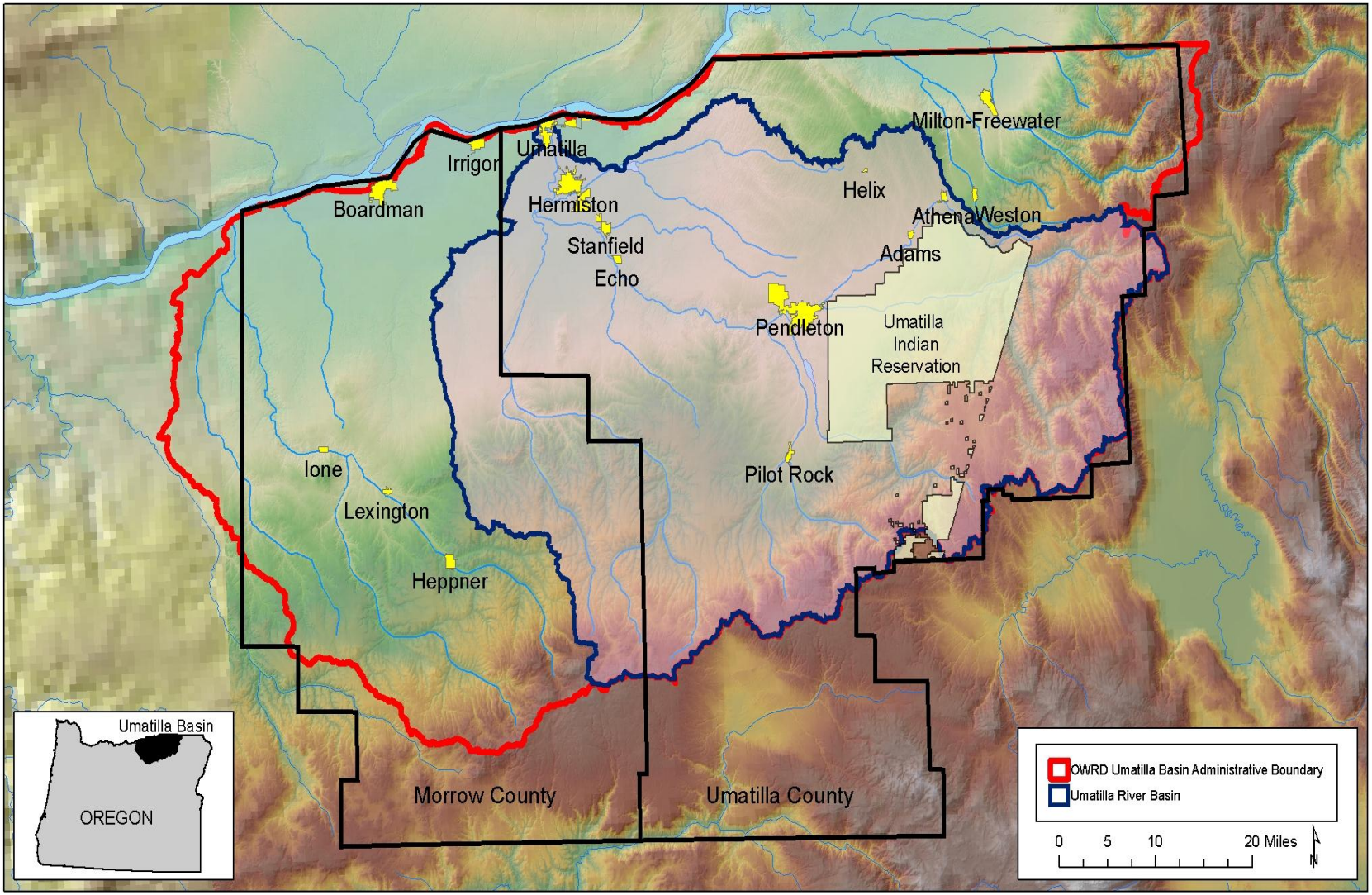
June 18, 2012



Topics of Discussion

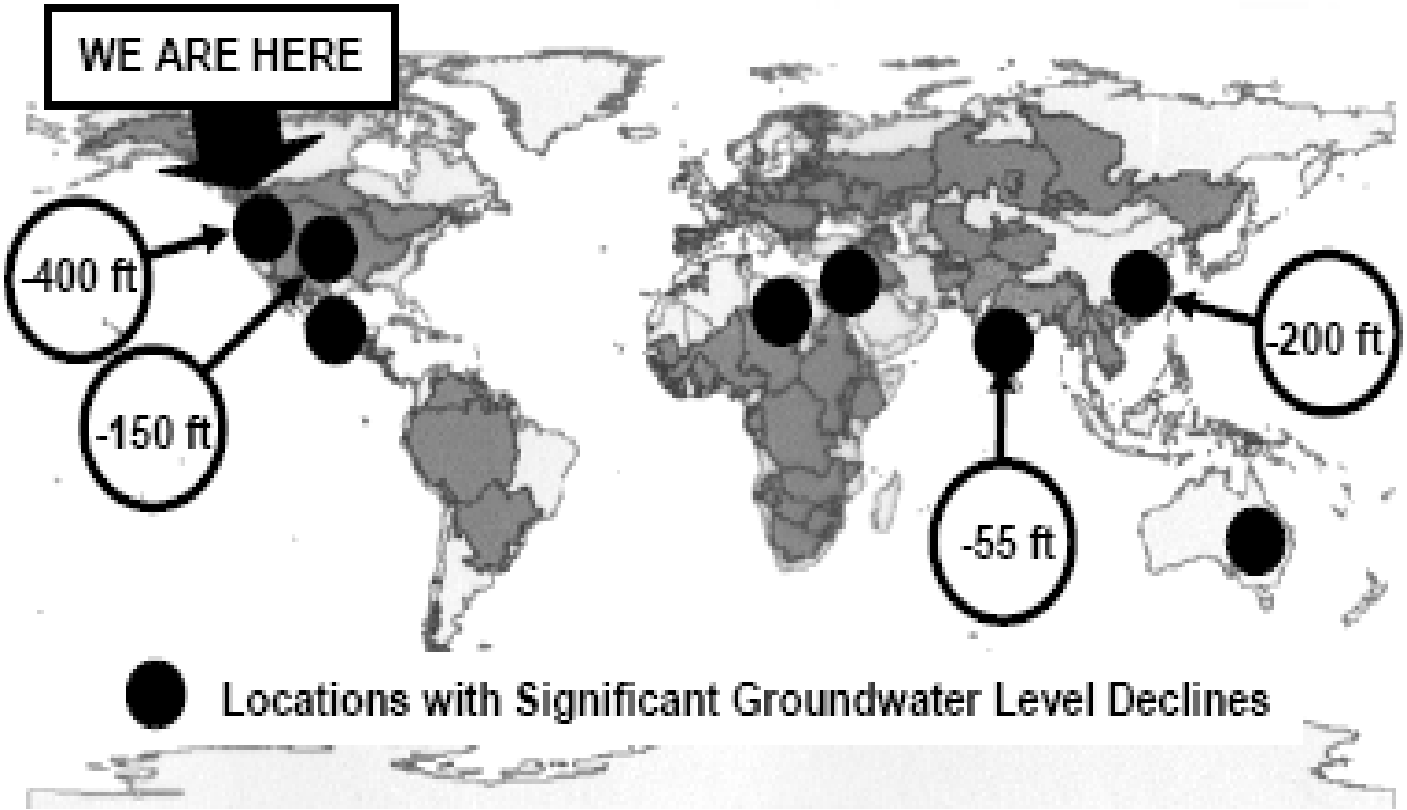
- Background and History of Basin Planning Efforts
- Umatilla Basin Water Commission
  - Mission and Jurisdiction
  - Plans to ensure long-term project success
- Progress of Umatilla Basin Aquifer Recovery Project funded by HB 3369
  - $2.5 million grant and Potential Loan Funding
- Concluding remarks

Umatilla Basin



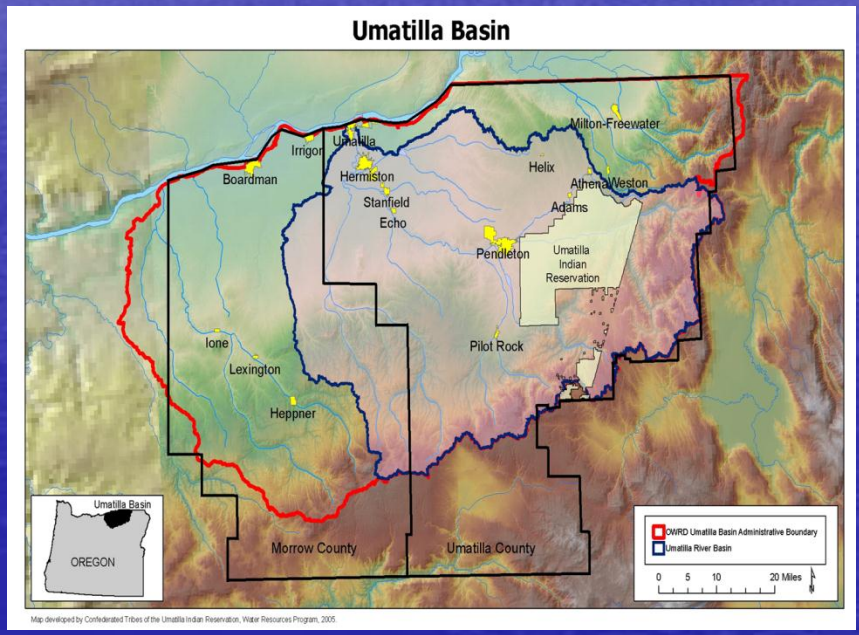
Map developed by Confederated Tribes of the Umatilla Indian Reservation, Water Resources Program, 2005.

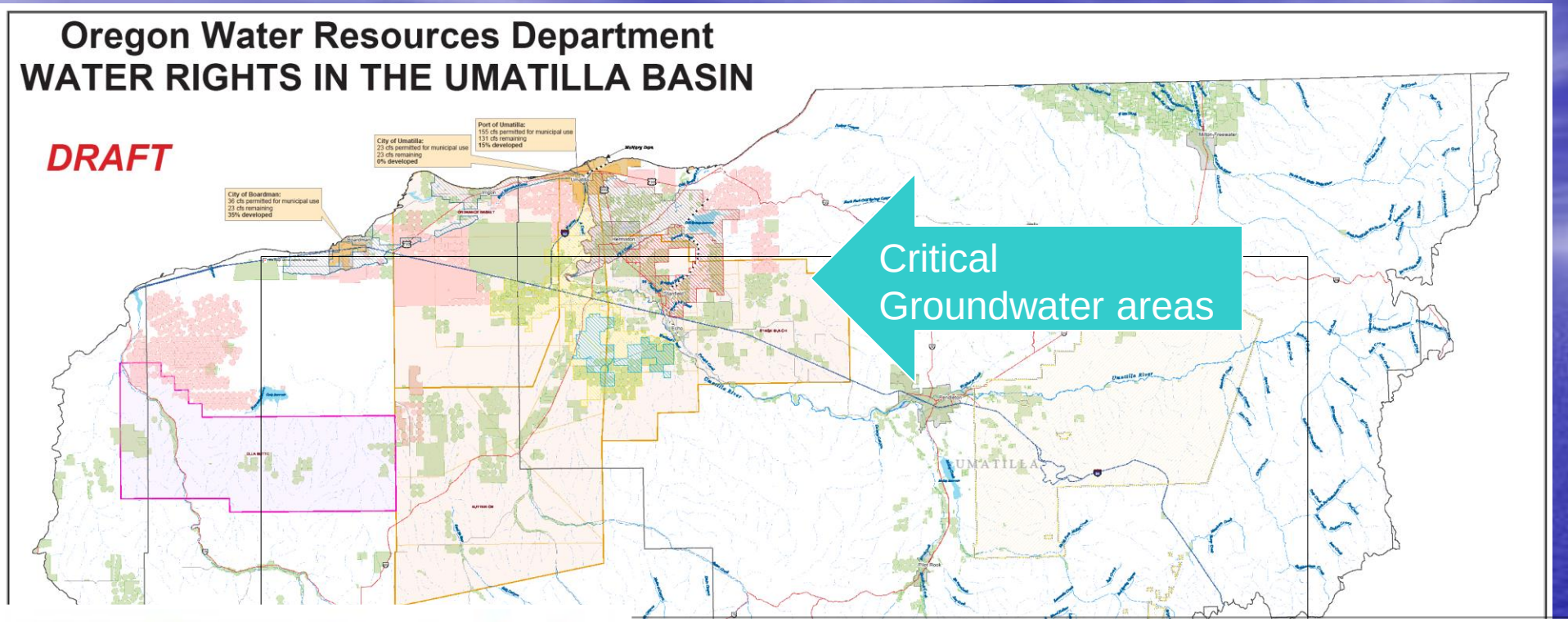
Fissue Eruption

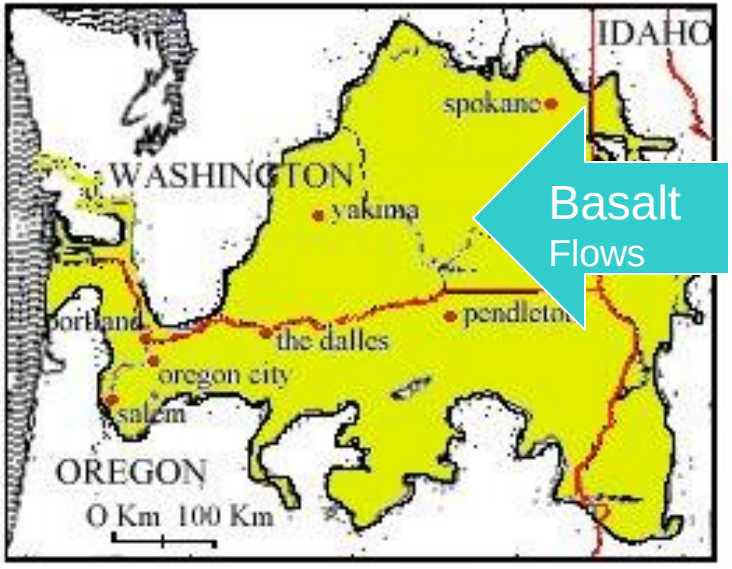


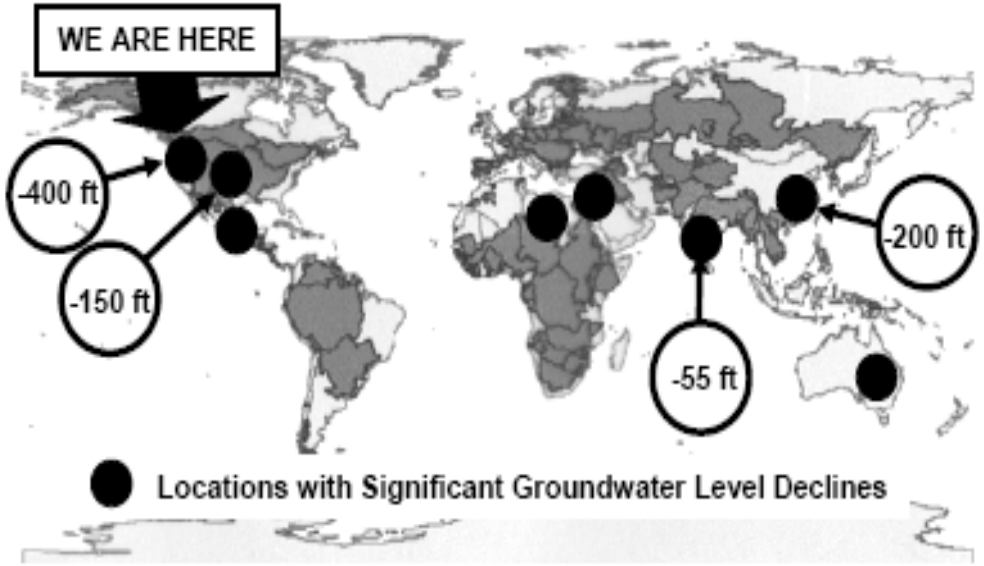
Problem Statement for the Umatilla Basin

- 120,000 acres of curtailed water rights (over 170K demand)
- 500 feet of groundwater level declines
- Degraded groundwater quality
- ESA and Basin wide collaboration put water back in the Umatilla River
- Must settle tribal water rights




Oregon Water Resources Department
WATER RIGHTS IN THE UMATILLA BASIN
DRAFT
City of Umatilla:
23 cfs permitted for municipal use
23 cfs remaining
0% developed
Port of Umatilla:
155 cfs permitted for municipal use
131 cfs remaining
15% developed
City of Boardman:
36 cfs permitted for municipal use
23 cfs remaining
35% developed
Critical Groundwater areas


IDAHO
spokane
WASHINGTON
yakima
pendleton
portland
the dalles
oregon city
salem
OREGON
0 Km 100 Km
Basalt Flows


WE ARE HERE
-400 ft
-150 ft
-200 ft
-55 ft
Locations with Significant Groundwater Level Declines

Compressed Basin Timeline

- 1855 Treaty with the Walla Walla, Cayuse and Umatilla Tribes
- 1916 Adjudicated decree of water rights to use waters of Umatilla River and its tributaries
- 1954 Pendleton Project Investigation by BoR. Concluded that potential irrigable land far exceeded available water supply
- 1958 First reports of water table decline in Butter Creek area
- 1966 Bureau of Reclamation reports that any significant increase in pumping from basalt aquifers would likely result in accelerated decline of water tables
- 1976 OWRD designates Butter Creek a Critical Groundwater Area (remanded until 1986)
- 1976 Critical Groundwater Area designated by OWRD for Ordnance Basalt and Gravel
- 1977 Lost Lake/Depot well owners initiated project to artificially recharge shallow gravel aquifer using existing canal system
- 1986 Critical Groundwater Area designated by OWRD for Buttercreek Basalt
- 1988 Umatilla Basin Project authorized and funded by Congress -- allows irrigators to exchange Umatilla River water for Columbia River water
- 1990 ODEQ declares 352,000 acres in Umatilla and Morrow counties as a groundwater management area (GWMA) due to nitrate contamination
- 1991 Critical Groundwater Area designated by OWRD for Stage Gulch Basalt
- 2004-2008 Development of the Umatilla Sub-Basin 2050 Water Management Plan
- 2008 Oregon Legislature passes SB 1069 authorizing $750 K to complete a feasibility study of the Umatilla Basin Aquifer Restoration Project
- 2009 Oregon legislature passes HB 3369 authorizing $2.5 million in grants and $25 million in
- 2010 - Umatilla Basin Water Commission forms to coordinate the implementation of the Umatilla Basin Aquifer Restoration Project and address basin wide needs
- March 2011 – Stage I of Umatilla Basin Aquifer Restoration Project Completed

Key Principles of this Century

- Relieve CGA irrigation right deficit/demand (+/-175K Acre-feet)
- Prevent further declines
- Utilize Available Columbia River Water when and where feasible
- Minimize demand for Umatilla River water and restore stream flow.
- Fund and/or support data acquisition

Economic Benefits of Restoring 100,000 acre-feet of water supply to the Umatilla Basin

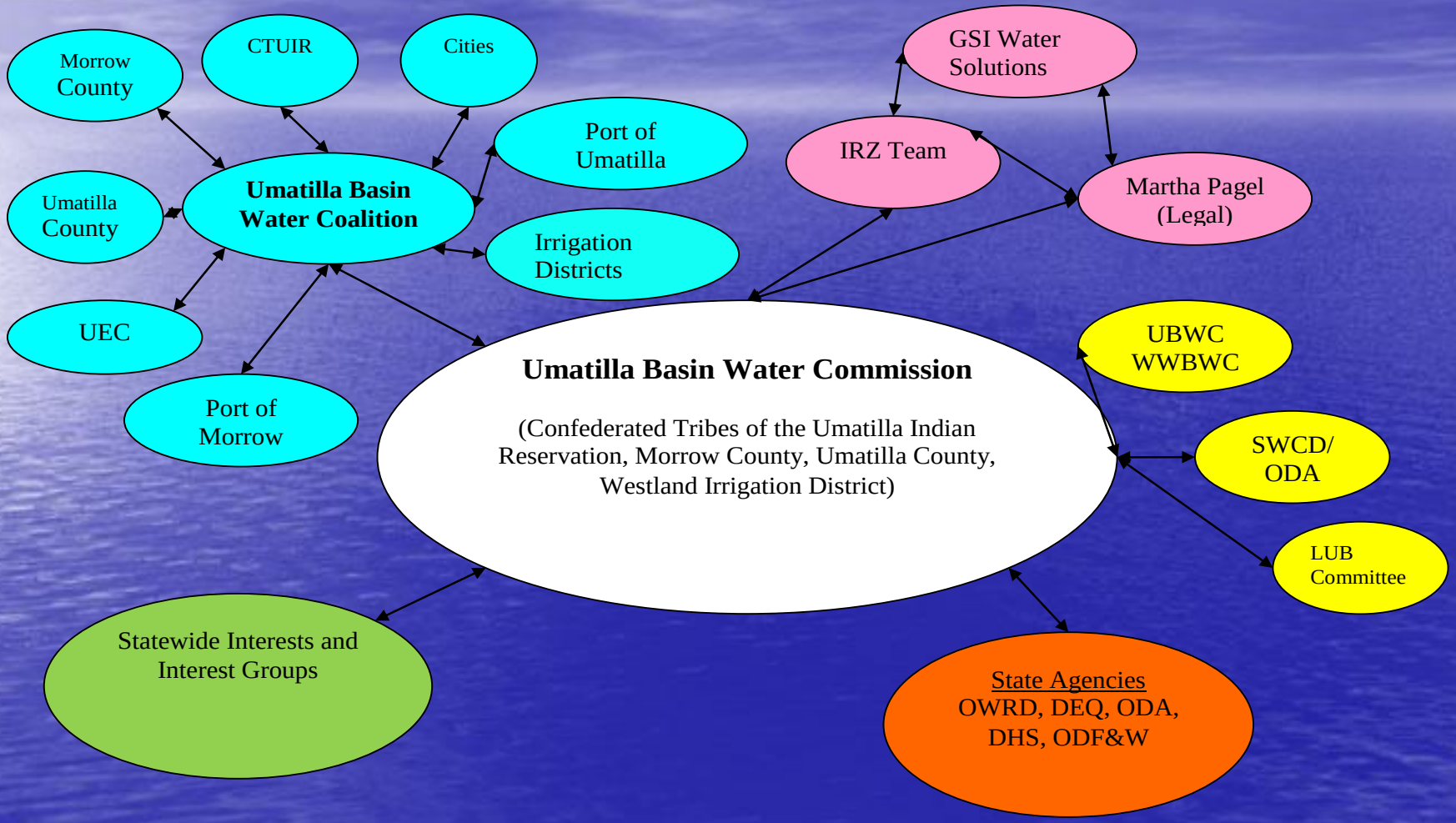
- $116-$344 million increased business activity
- 679-2,074 additional jobs
- $24-$72 million increased labor income
- $1.7 - $5 million additional State tax revenue

Environmental Benefits of Umatilla Basin Aquifer Restoration

- Improved groundwater quality in the Lower Umatilla Basin Groundwater Management Area
- Gradual recovery of basalt and alluvial aquifers in Morrow and Umatilla Counties
- Improved ecosystem function in the Umatilla River watershed
  - Improved water quality and stream flows

The Commission

I



Legend:
Blue: Policy Direction, Lobbying and Funding
Pink: Project Recommendations, Oversight and Monitoring
Yellow: Outreach
Orange: Regulation and State Policy Guidance

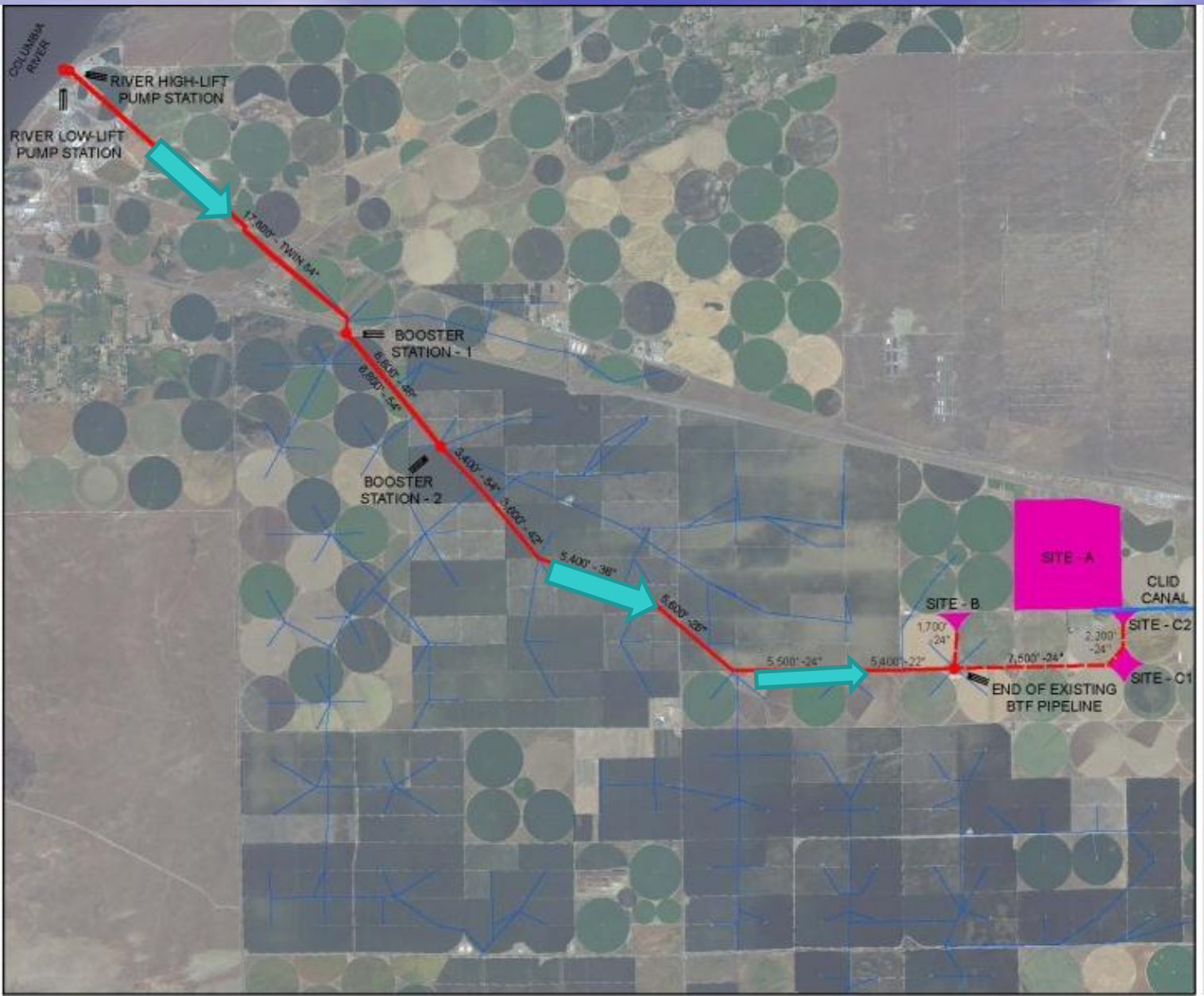
Overview of Umatilla Basin Aquifer Restoration Project

- Feasibility Study funded by OWRD - $750K
- Economic Impact Study funded by USDA
- Stage 1 Implementation Project funded by HB3369 - $2.5M grant from OWRD
- BOR Grant to form a water transaction program
- Managed by the Umatilla Basin Water Commission
- Multiple stakeholders
- GSI, IRZ, SWW and HDR consultants

Umatilla Project Elements

- Basin-Wide Project
  - Provide water for curtailed water rights
  - Recover depleted basalt aquifer
  - Provide enhanced stream flows
- Develop ≥100,000 aft/yr of new C. River water supplies
  - AR Project estimate: 25,000
- Extract shallow groundwater and inject into deep basalt wells or use for irrigation
- Improve shallow groundwater quality
- Leave water in the aquifer that will return to the river or leave water in Umatilla River

Stage 1 Project – County Line



Greenwood Resources
Boardman Tree Farm
Existing Irrigation Infrastructure And Proposed County-Line AR Infrastructure

Umatilla Basin Aquifer Recovery Project

LEGEND

EXISTING AND PROPOSED PIPELINES

- PROPOSED PIPELINE
- BTF MAINLINE
- BTF PIPELINE SYSTEM
- CLID CANAL
- Potential AR Sites

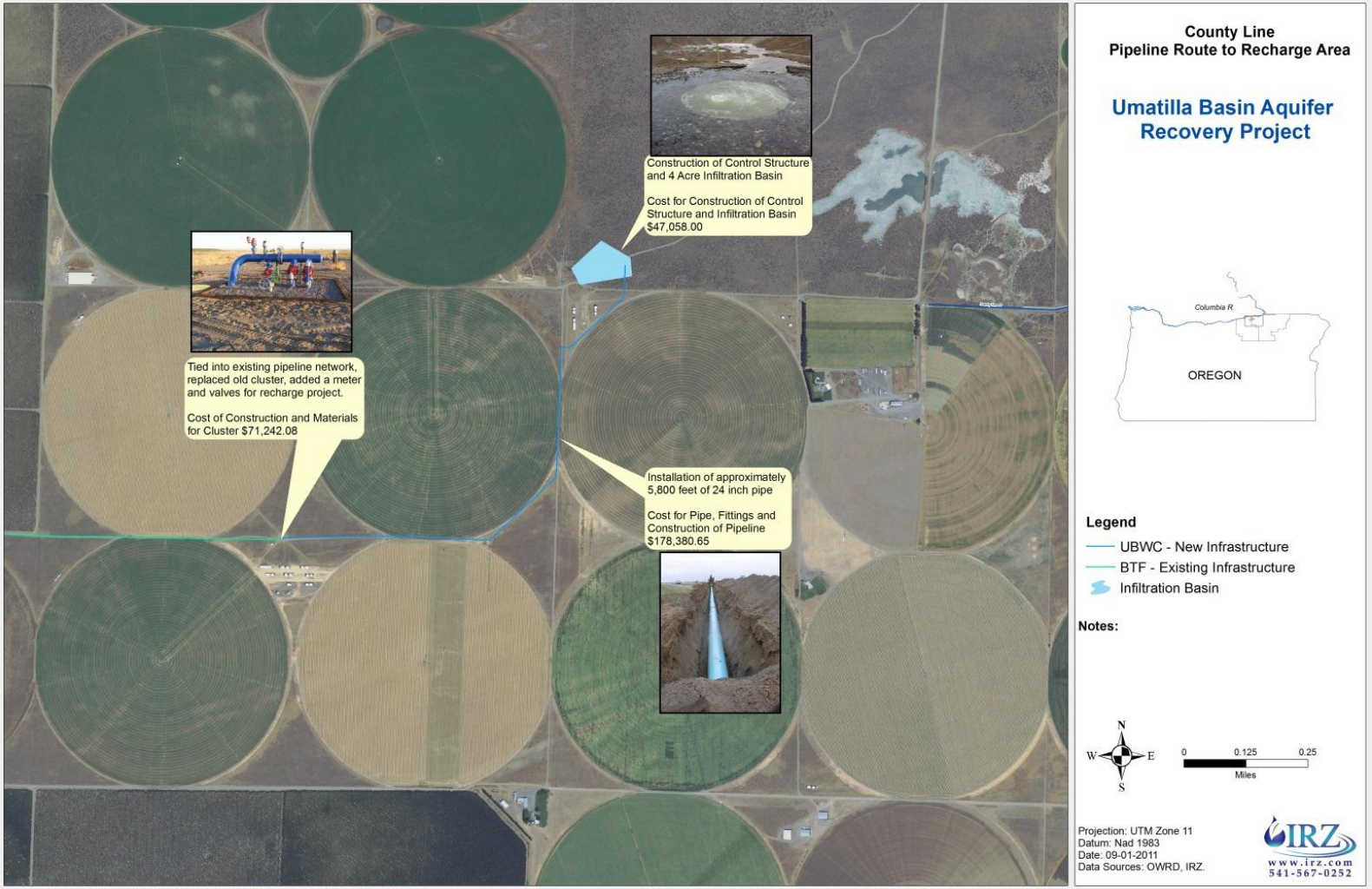
Notes:

0 0.5 1 2
Miles

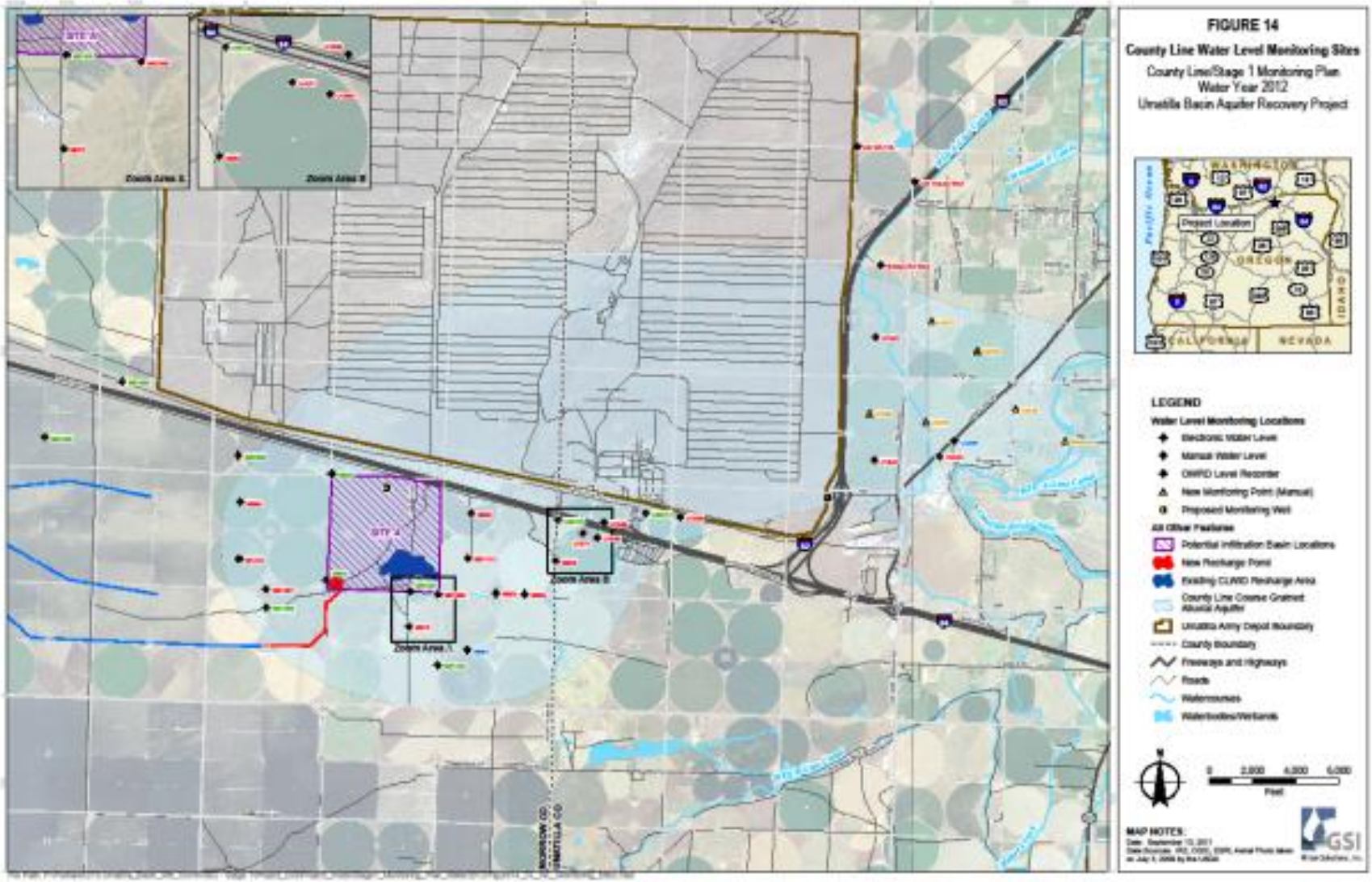
Projection: State Plane
Datum: NAD 1983
Date: November 11, 2010
Data Sources: IRZ, BTF, USGS, USDA

IRZ
www.irz.com
541-567-0252

Stage I Capital Cost = $300,000



Recharge Monitoring Program



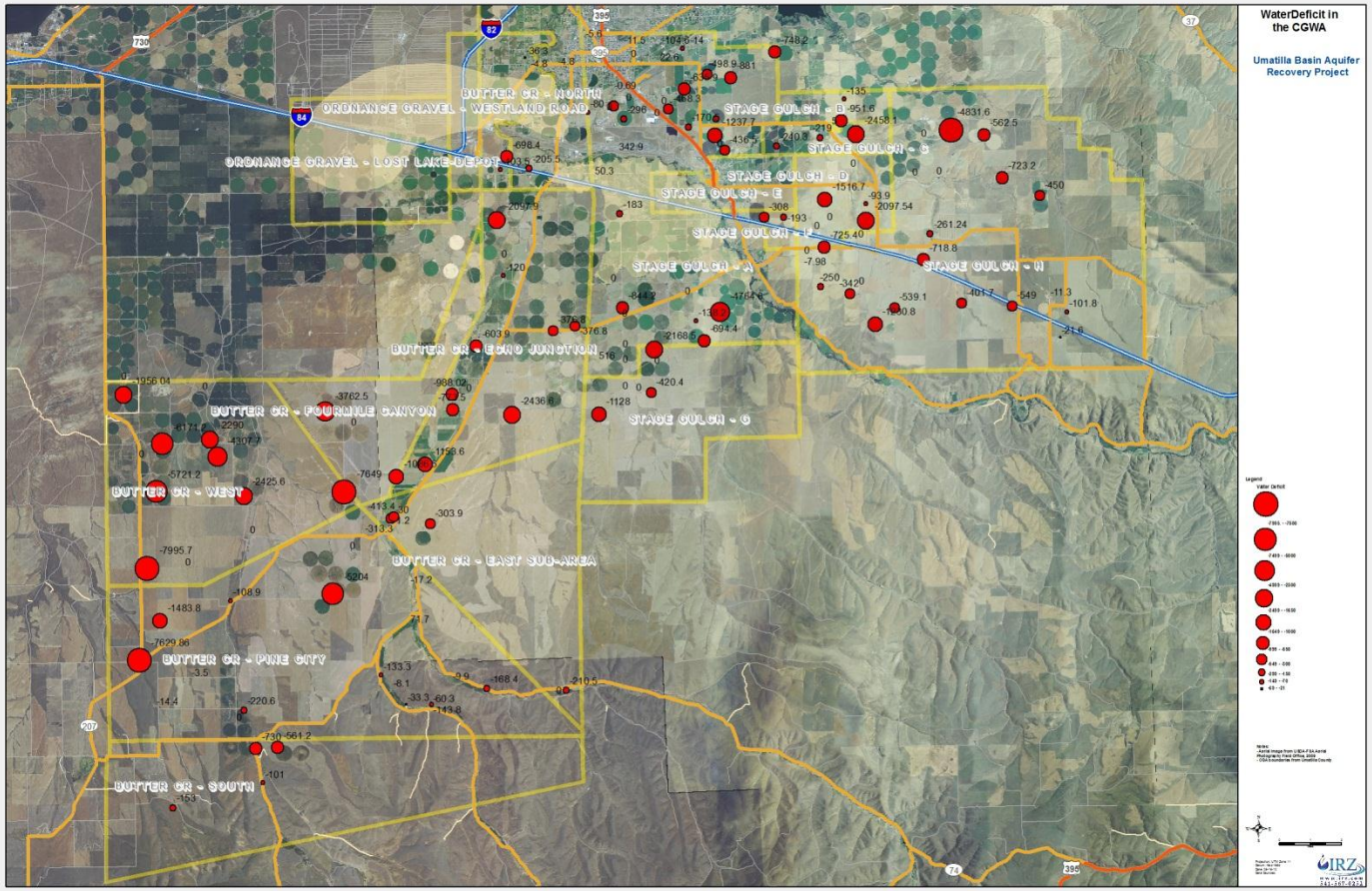
The Market Threshold

Columbia River Water Only				
Item	**Total Cost**	**Cost Per AF**	**Cost Per AF 85% Recovery**	**Cost Per AF 75% Recovery**
C. River Pumping 6,000 AF	$390,000	$65.00	$76.47	$86.67
Monitoring Costs Field, Lab and Analysis	$75,000	$12.50	$14.71	$16.67
Contingency/Admin	$30,000	$5.00	$5.88	$6.67
Total Water Supply		**6,000 AF**	**5,100 AF**	**4,500 AF**
Total Costs (C. River Water Only)	**$465,000**	**$82.50**	**$97.06**	**$110.01**

Umatilla River Water Only				
Item	**Total Cost**	**Cost Per AF**	**Cost Per AF 85% Recovery**	**Cost Per AF 75% Recovery**
Purchase from CLWID 8,000 AF	$88,000	$11.00	$12.94	$14.67
Monitoring Costs Field, Lab and Analysis	$75,000	$9.38	$11.03	$12.50
Contingency/Admin	$40,000	$5.00	$5.88	$6.67
Total Water Supply		**8,000 AF**	**6,800 AF**	**6,000 AF**
Total Costs (U. River Water Only)	**$115,000**	**$25.38**	**$29.85**	**$33.84**

"Blended" Umatilla River and Columbia River Water				
Item	**Total Cost**	**Cost Per AF**	**Cost Per AF 85% Recovery**	**Cost Per AF 75% Recovery**
C. River Pumping 6,000 AF	$390,000	$65.00	$76.47	$86.67
Purchase from CLWID 8,000 AF	$88,000	$11.00	$12.94	$14.67
Monitoring Costs Field, Lab and Analysis	$75,000	$5.35	$6.30	$7.14
Contingency/Admin	$70,000	$5.00	$5.88	$6.67
Total Water Supply		**14,000 AF**	**11,900 AF**	**10,500 AF**
Total Costs (Blended Supply)	**$623,000**	**$44.50**	**$52.35**	**$59.33**

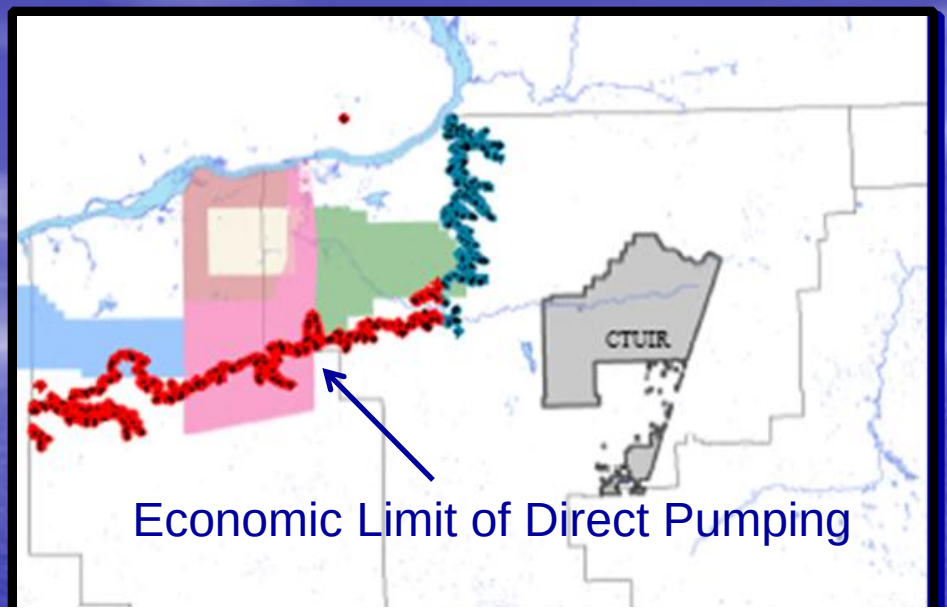
Aquifers in Relation to Wells

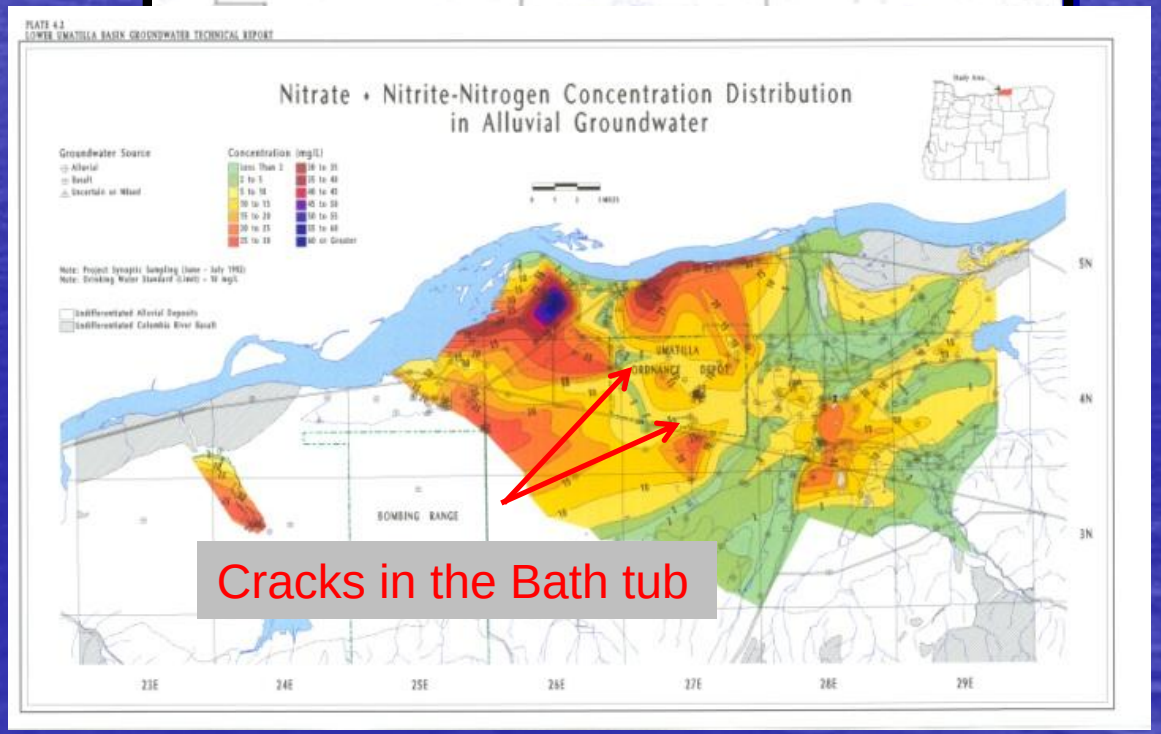


Problems

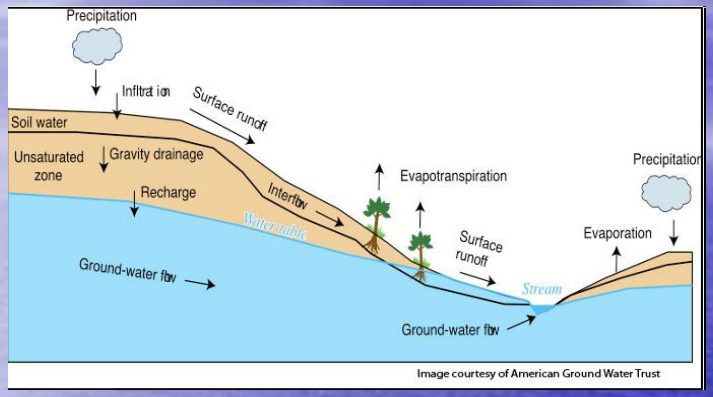
- Trust in Economic Feasibility

1. Main aquifer has cracks and not completely characterized (requiring secondary storage to meet 100K AF Goal)
2. Secondary storage (ASR) is very expensive due to pumping costs
3. Have not vetted all supply opportunities to address true need for ASR
4. Groundwater characterization and water quality monitoring on the shoulders of users
5. Environmental benefit costs currently on shoulders of users

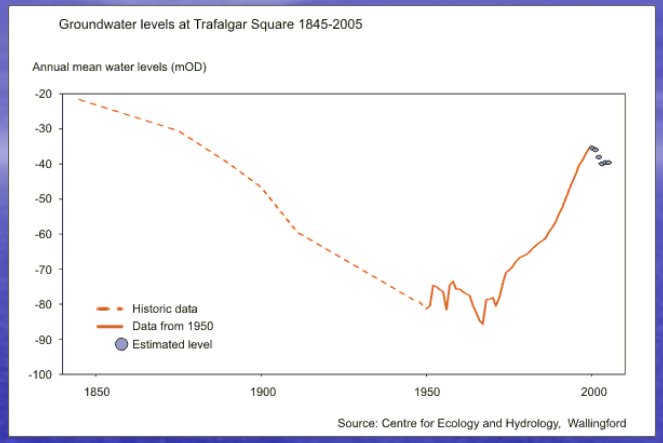




Environmental Benefits Plan

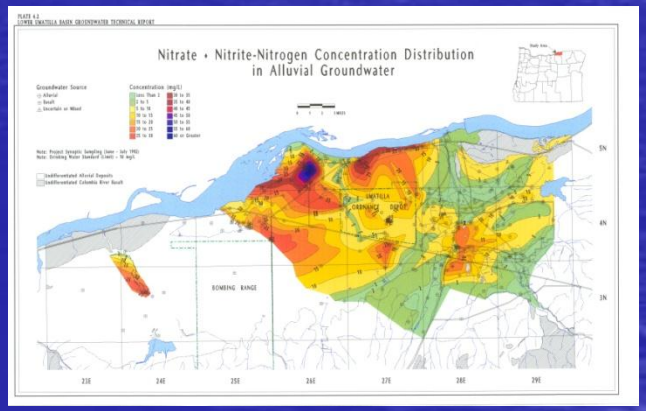


Enhanced Groundwater Return Flow to Umatilla River



Increased groundwater levels

Enhanced Wetlands



Groundwater Quality Improvement

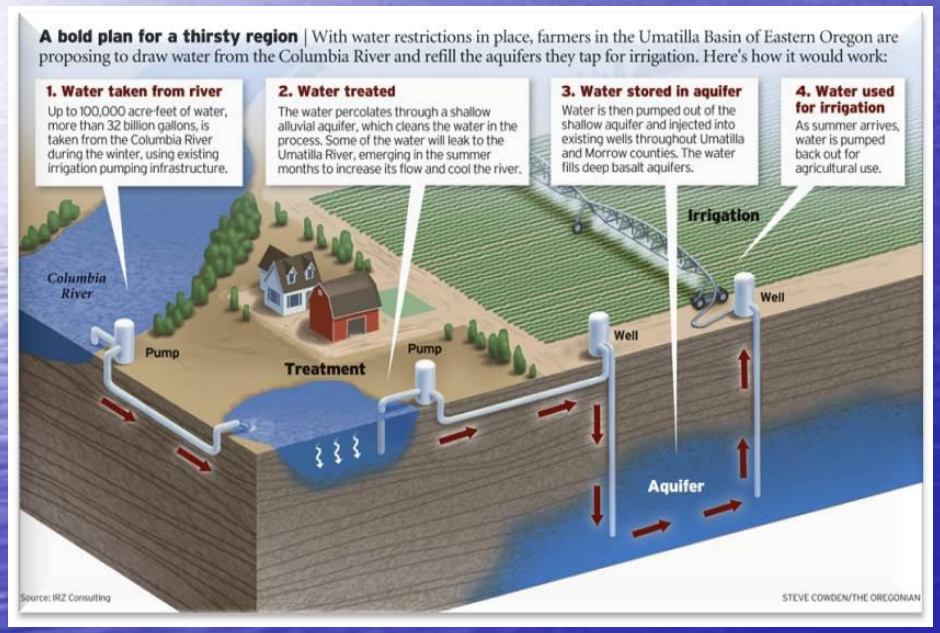
NEB Plan

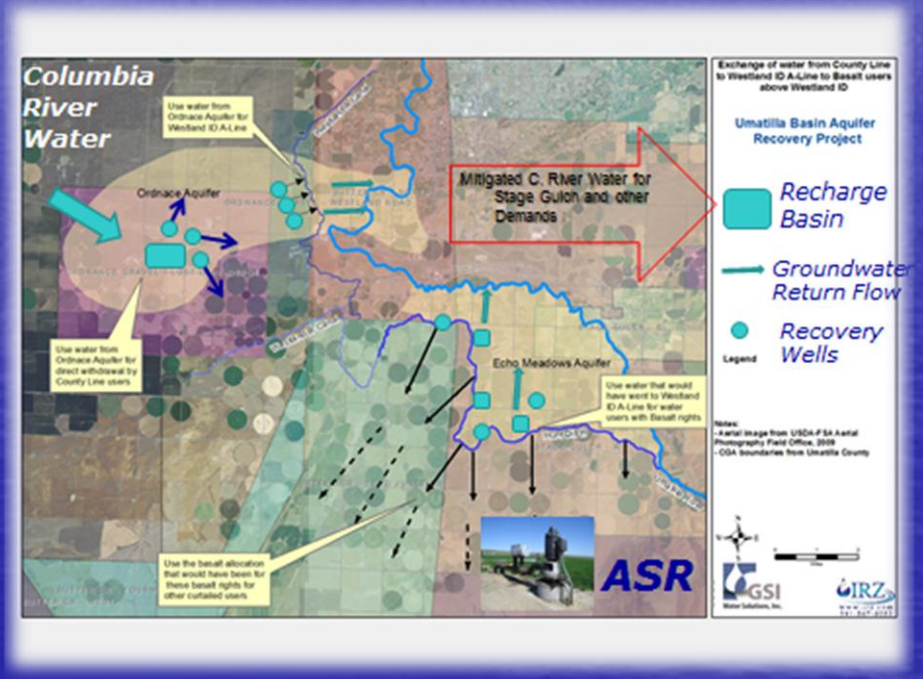
- Required under HB 3369 to design project to dedicate 25% of "new" water to NEB
- NEB must be measurable
- Problems
  - Cost of water and monitoring/measurement may prevent marketability of project
  - The law may prevent us from exceeding NEB expectations with innovative ideas developed by the TAC

NEB TAC

- Identifying ways that we could meet existing bill requirements as the "required alternative"
- Identifying projects that would exceed NEB expectations, including cost share and legal needs to implement
  - Purchases of tributary and stored water rights in Umatilla Basin, Banking Basalt Groundwater, NEB specific AR for return flows
  - NEB projects to be paid by resulting mitigation credits obtained out of C. River mainstem (i.e. trib benefit – mainstem use)

The Project is NOT the Silver Bullet
The Effort IS





Pilot Success leads to:

- Refined Expectations
- Identification of Problems
- Identification of needs that must be addressed to make our 100,000 af “effort” a success

Refined Expectations

- Until more is known about aquifer properties and costs of ASR we are most likely going to get to AR only (20K af)
- We can exceed Environmental Benefit expectations with a little flexibility and trust
  - HB 3369 requirements are too rigid and focused on "new water"

Issues to Address

"AR Alone will not fix all of our problems"

- Why?
  - Alluvial aquifer may not hold enough water requiring secondary storage (ie ASR)
  - Source water costs limit ASR opportunities
  - Alluvial aquifers not accessible by all lands
- Then What?
  - Work to decrease source water costs (work with power providers and extended season)
  - Address water monitoring costs
  - Develop mitigation credit options for pumping
  - Develop program to bank Basalt GW

AR alone will not fix environmental issues

- Why
  - Timing of flows to river difficult to quantify w/o expensive monitoring and modeling
  - Costs may prevent landowners from paying for projects that also benefit environment
- Then What
  - Work with state to address necessary changes to enable a more flexible approach
  - Identify opportunities for cost share (mitigation credits for purchase)

Commission/Coalition Goals

- Groundwater Restoration
  - Deficit Reduction and Water Right Replacement
  - Gradual Recovery of Aquifers
  - Conjunctive Management of Water Supplies
- CTUIR Water Rights Settlement and Use of Federal Infrastructure
  - Assess linkages and alternatives to minimize infrastructure costs
- Focus on 7 Priorities and Project Management Plan Implementation

"In the End"

- Economic Feasibility limits us to building many small projects over time to make one big impact (i.e. Bunts and Singles)
- We can meet and exceed Env. Benefit expectations with a little flexibility
- We can minimize reliance on Basalt GW
- Relationships and cooperation are the true keys to bigger, better outcomes
- If we build smart, they will come