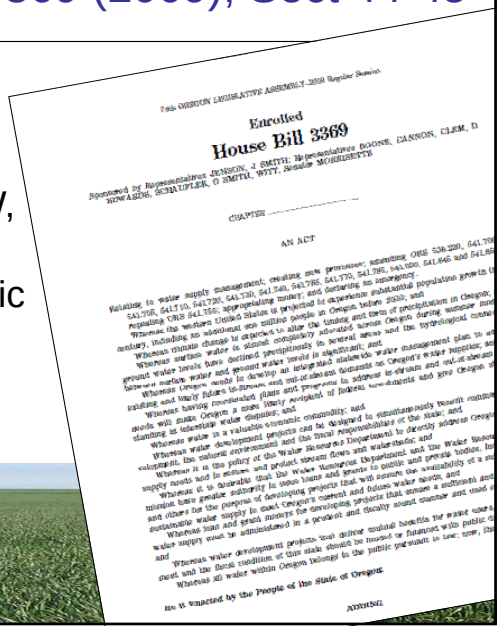
Oregon's Integrated Water Resources Strategy

October 2010
Barry Norris, State Engineer
Oregon Water Resources Department

Presented to AWSE

Oregon's House Bill 3369 (2009), Sect 44-45

- Directs Oregon Water Resources to lead efforts
- Partner with DEQ, ODFW, ODA, other agencies, tribes, stakeholders, public
- Account for coming changes in climate, land-use, population



Enrolled
House Bill 3369

AN ACT

Oregon's Integrated Water Resources Strategy

Goal: understand and meet Oregon's water resources needs…

…instream and out-of-stream
…quality, quantity, and ecosystem needs
…today and in the future

The Strategy will provide an "action agenda" for the next five years.

Recommend Actions in the following areas:

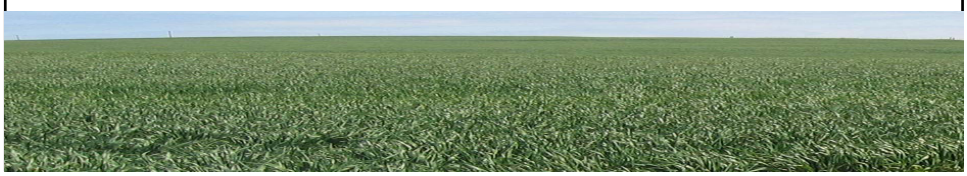
- Information/Data
- Planning Efforts
- Public Policy
- Statute/Rule
- Funding
- Outreach/Education

Some Overarching Principles

- Produce an Integrated Water Resources Strategy that serves as an action agenda.
- Recognize that needs & solutions may differ by basin.
- Maintain and sustain “beneficial uses.”
- Employ an open and publicly accessible process.
- Base decisions on best available science & local input.
- Allow for learning and adaptation over time.

Project Team

- Oregon Water Resources Department
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Agriculture



Agency Advisory Group

- Oregon Water Resources Department
- Oregon Dept. of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Agriculture
- Business Development Department
- Department of Energy
- Department of Forestry
- Dept. of Geology & Mineral Industries
- Department of Housing
- Human Services - Drinking Water
- Land Conservation/Development
- Parks & Recreation Dept.
- Dept. of State Lands
- Dept. of Transportation
- Watershed Enhancement Board
- Economic Revitalization Team
- Environmental Justice Task Force
- Oregon Plan – Core Team

Policy Advisory Group

- **Glenn Barrett**
  Bonanza, Oregon
- **Mike Campbell**
  Stoel Rives LLP Attorneys at Law
- **Jay Chamberlin /Anita Winkler**
  District Manager, Owhyee Irrigation District;
  Exec. Dir., Oregon Water Resources Congress
- **John DeVoe**
  WaterWatch of Oregon
- **Dennis Doherty**
  Umatilla County
- **Bill Gaffi**
  Clean Water Services
- **Patrick Griffiths**
  City of Bend
- **Todd Heidgerken**
  Tualatin Valley Water District
- **Tod Heisler**
  Deschutes River Conservancy
- **Teresa Huntsinger**
  Oregon Environmental Council
- **Tracey Liskey**
  Co-Owner, Liskey Farms
- **Peggy Lynch**
  League of Women Voters of Oregon
- **Janet Neuman**
  Lewis & Clark Law School
- **Eric Quaempts**
  Confederated Tribes of the Umatilla Indian Reservation
- **Mike Seppa**
  Retired Dairy Farmer, Seppa Dairy Co.
- **Lorna Stickel**
  Por land Water Bureau and
  Regional Water Providers Consortium
- **Richard Wells**
  Monrovia Growers – Oregon
- **Joe Whitworth**
  The Freshwater Trust

Policy Advisory Group

- January 19: “Organizational Meeting”
- April 14: Gaps in “Information and Data”
- July 13: Building upon Already-Existing “Plans”
- October 6: “Policies, Programs, Statute & Rule”
- January 6: “Funding, Public Education & Outreach”

Federal Liaison Group

- Bureau of Reclamation (Dept. of Interior)
- National Oceanic & Atmospheric Administration (NOAA)
- Natural Resources Conservation Service (USDA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- U.S. Forest Service (USDA)

- and -

- Bonneville Power Administration
- Bureau of Land Management (Dept. of Interior)
- U.S. Fish and Wildlife Service
- U.S. Geologic Survey (Dept. of Interior)

Project Timeline

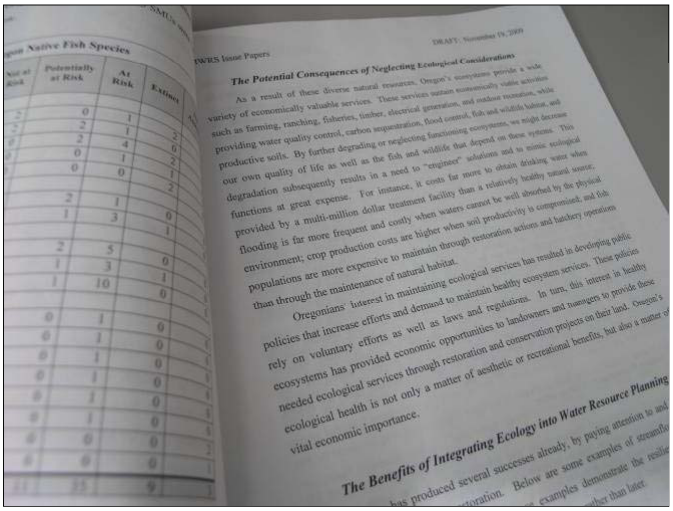
You are here.

Phase I: Setting the Stage (Fall 2009)	Phase II: Identifying Water Resource Needs (Spring 2010)	Phase III: Developing a Framework and Toolbox (2010-2011)	Phase IV: Producing the 1st Strategy (2012)	Phase V: Project Review (2012)

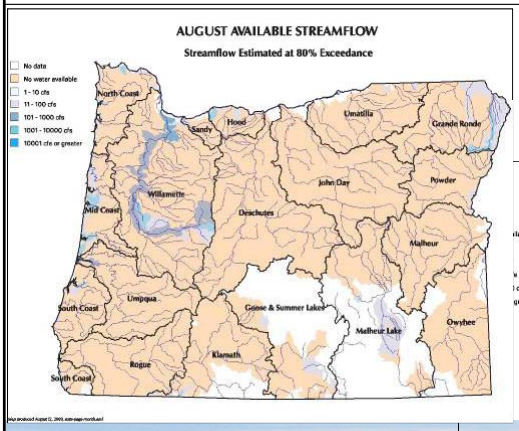
Issue (Background) Papers

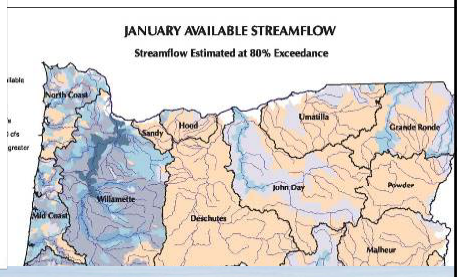
- Overview
- Water Quantity
- Water Quality
- Economy
- Ecosystems & Ecology
- Social
- Climate Change

Taking public comment…



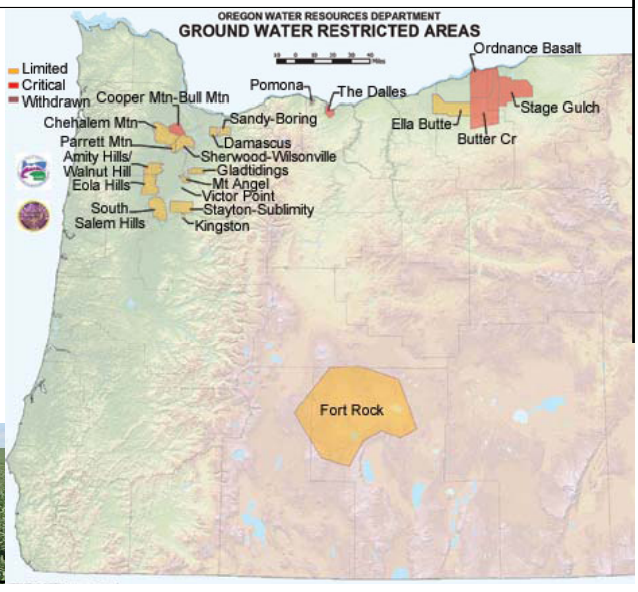
Allocation of Surface Water



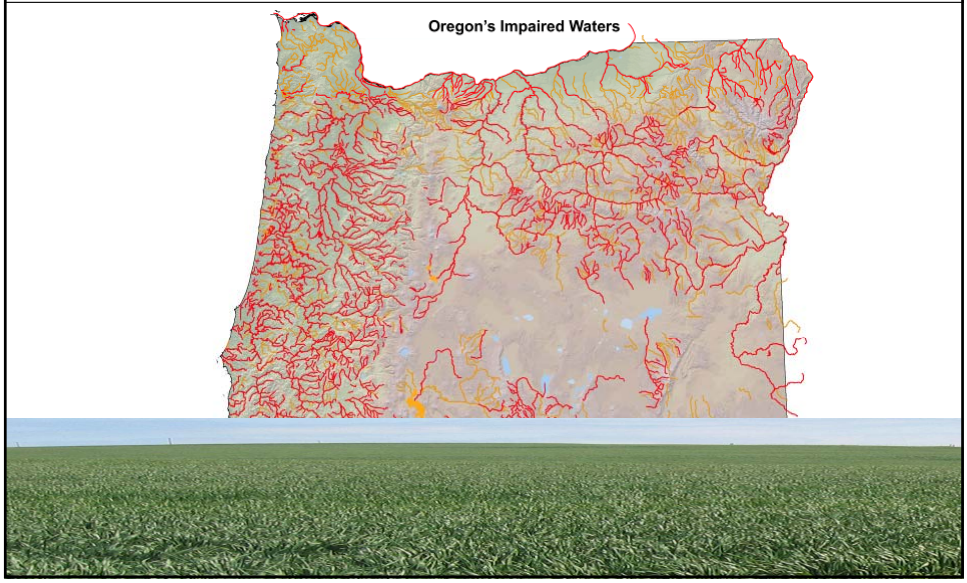


Groundwater

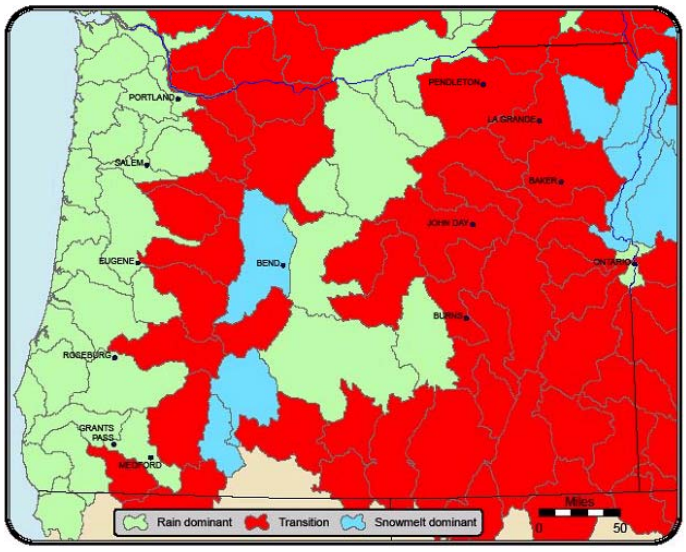
- 2 Areas of Withdrawal (no future development)
- 7 Critical Areas
- 14 Classified or Limited Areas
- 3 GMAs



Water Quality



Effects of Climate Change



What is an “ecological flow ?”

- ***“ecological flows,” which are not currentl¸ defined b¸ statute¸ are instream flows needed to sustain ecosystem functions that native fish and wildlife species depend upon to survive and flourish. An adequately protected ecological flow regime includes baseflows as well as a variety of elevated flows that provide other habitat and ecosystem functions.***

First Component: Baseflows

- Needed for habitat functions such as spawning and rearing or migration and determined with habitat modeling or mapping or hydraulic and even hydrologic methods
- Can also represent mixing flows for water pollution abatement
- Widespread determinations in 1960’s and 70’s
- (Oregon Method)
- (with many made into instream water rights)

Donner and Blitzen River

What's *"new":* Elevated flow needs

Ecological Triggering Flows

Channel Maintenance Flows

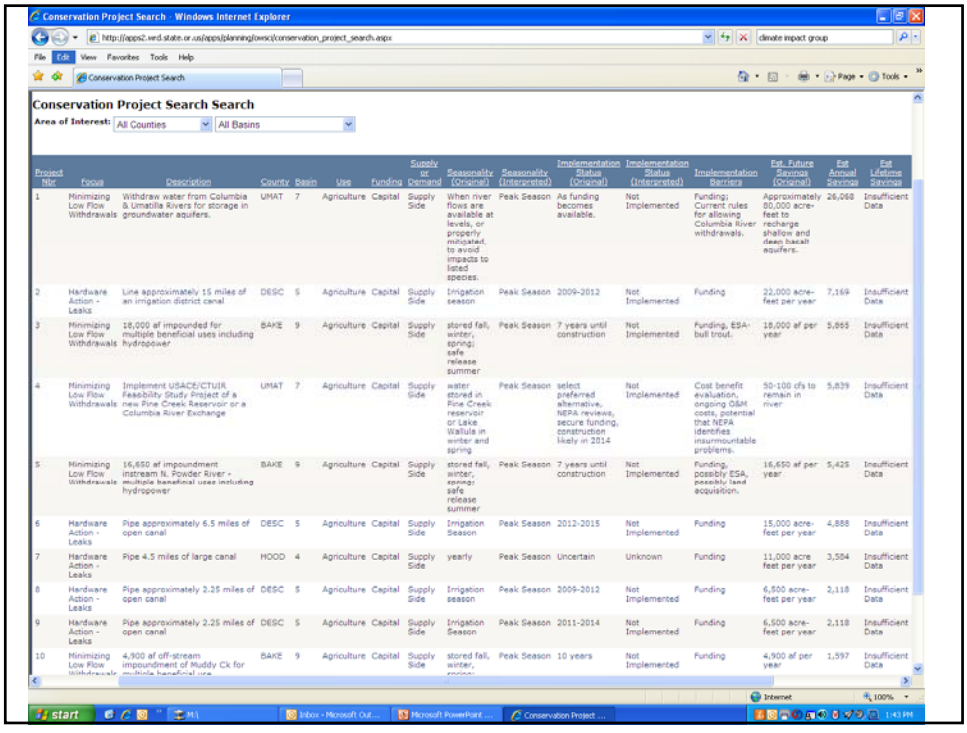
Revolves around storage projects!

Planning Tools in Place

- Inventory of conservation opportunities
- Water demand forecast
- Inventory of potential storage sites

Inventory of Potential Conservation Opportunities

- Statewide
- Project Location
- Project Description
- Estimated Cost
- Water Savings
- Timeline
- Obstacles
- Other



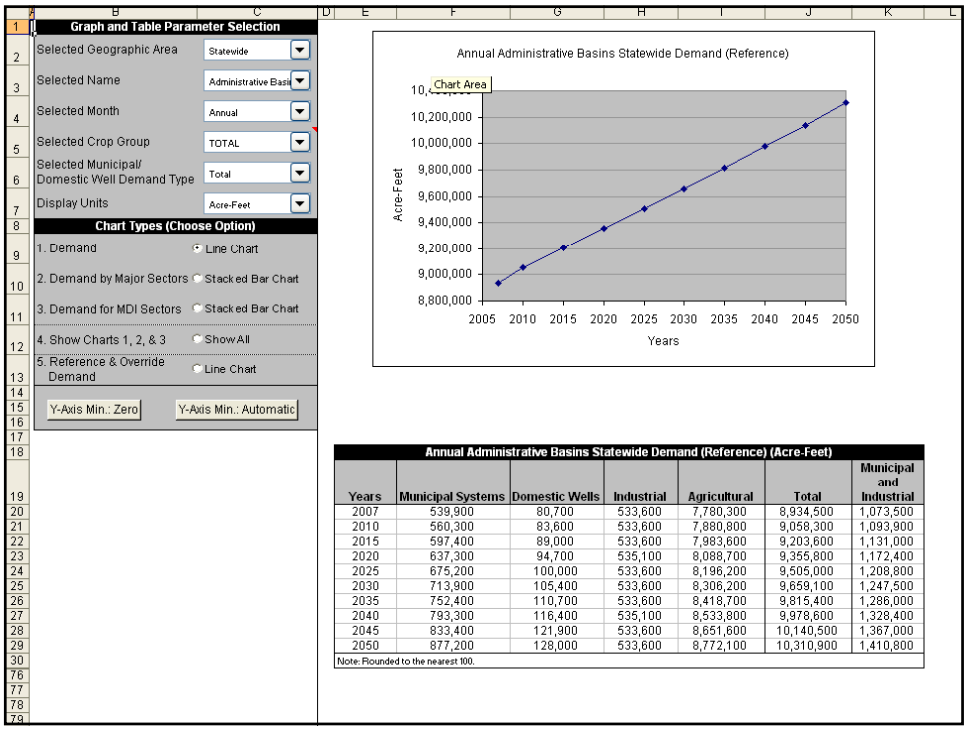
Water Demand Forecast

1.
Out-of-Stream Uses
(additive report individually and as a sum)

Municipal Systems
+
Household Wells
+
Self-supplied Industry
+
Agricultural Irrigation

2.
Instream Uses
(not additive report separately)

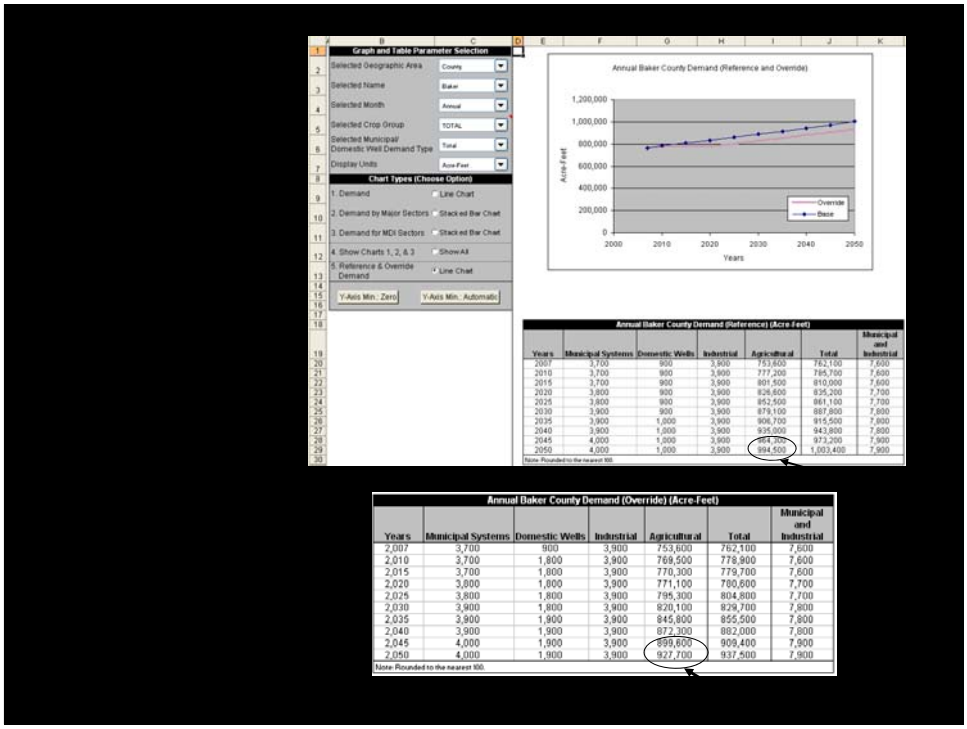
Hydropower
&
Instream (Surrogate)



Annual Administrative Basins Statewide Demand (Reference) (Acre-Feet)

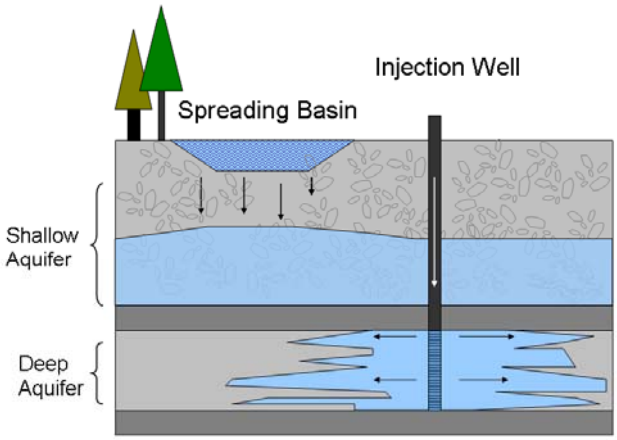
Years	Municipal Systems	Domestic Wells	Industrial	Agricultural	Total	Municipal and Industrial
2007	539,900	80,700	533,600	7,780,300	8,934,500	1,073,500
2010	560,300	83,600	533,600	7,880,800	9,058,300	1,093,900
2015	597,400	89,000	533,600	7,983,600	9,203,600	1,131,000
2020	637,300	94,700	535,100	8,088,700	9,355,800	1,172,400
2025	675,200	100,000	533,600	8,196,200	9,505,000	1,208,800
2030	713,900	105,400	533,600	8,306,200	9,659,100	1,247,500
2035	752,400	110,700	533,600	8,418,700	9,815,400	1,286,000
2040	793,300	116,400	535,100	8,533,800	9,978,600	1,328,400
2045	833,400	121,900	533,600	8,651,600	10,140,500	1,367,000
2050	877,200	128,000	533,600	8,772,100	10,310,900	1,410,800

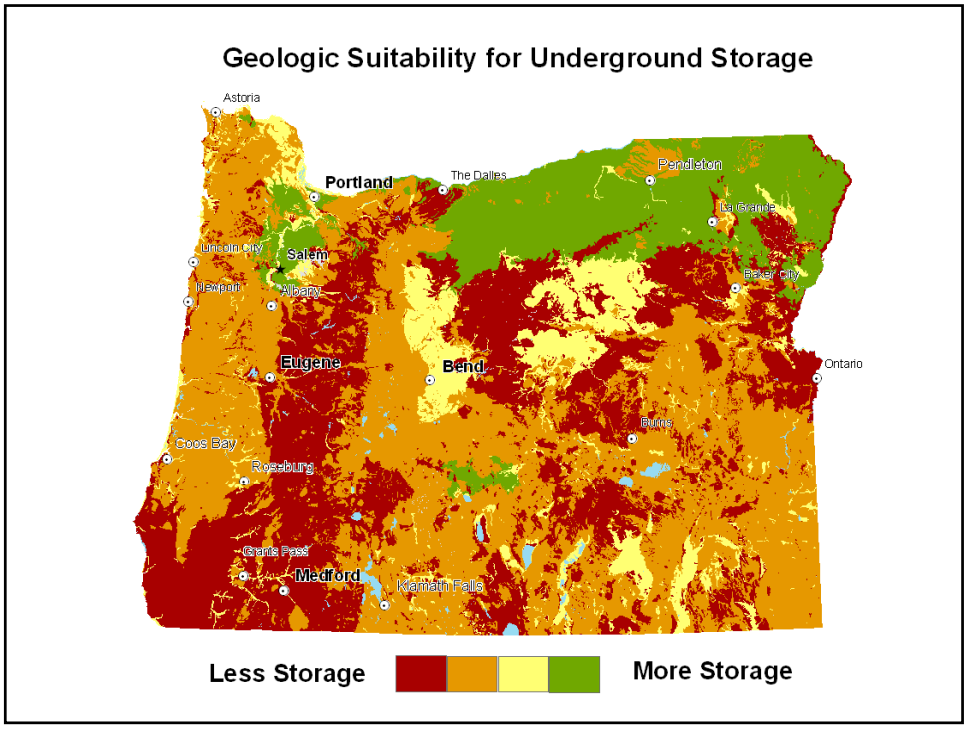
Note: Rounded to the nearest 100.

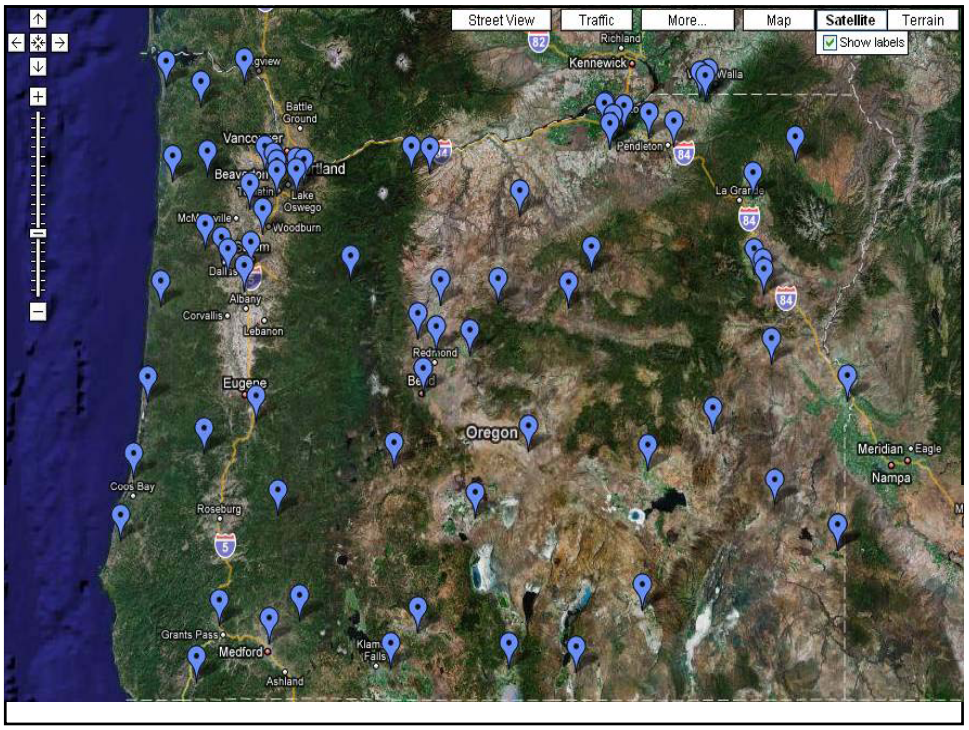


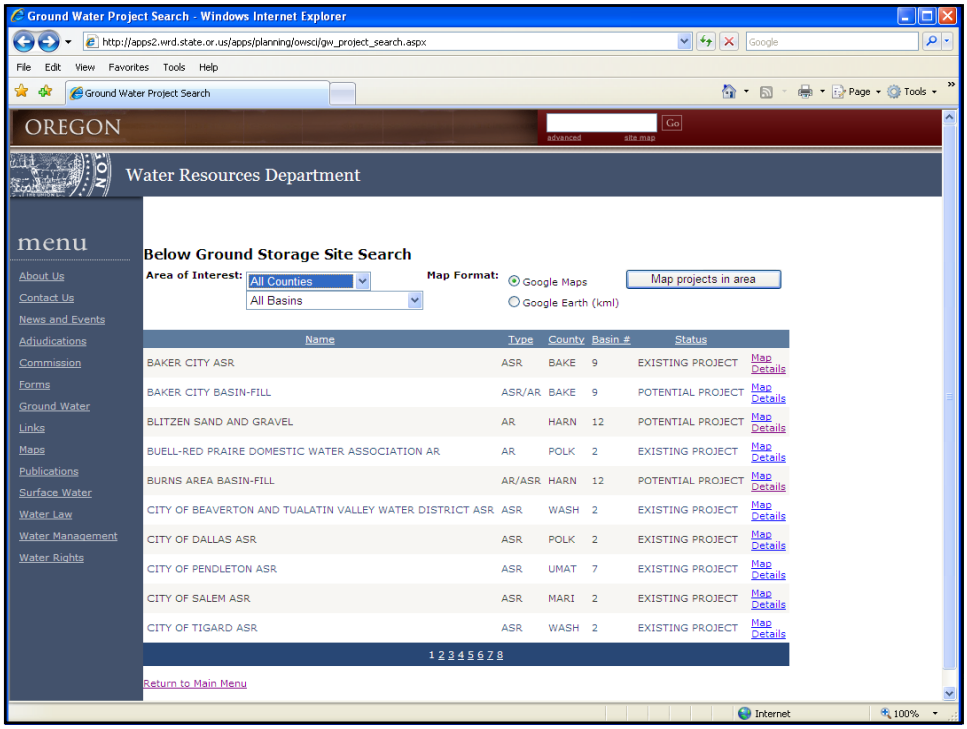
Methods of Underground Storage

- Infiltration
- Injection




Geologic Suitability for Underground Storage
Astoria
Portland
The Dalles
Pendleton
La Grande
Lincoln City
Salem
Newport
Albany
Baker City
Eugene
Bend
Ontario
Burns
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls
Less Storage
More Storage


Street View
Traffic
More...
Map
Satellite
Terrain
Show labels
Kennewick
Walla
Pendleton
La Grande
Battle Ground
Vancouver
Lake Oswego
Woodburn
Albany
Corvallis
Lebanon
Redmond
Eugene
Oregon
Meridian
Eagle
Nampa
Coos Bay
Roseburg
Grants Pass
Medford
Ashland
Klam Falls


Ground Water Project Search - Windows Internet Explorer
http://apps2.wrd.state.or.us/apps/planning/owsci/gw_project_search.aspx
File Edit View Favorites Tools Help
Ground Water Project Search
OREGON
Water Resources Department
menu
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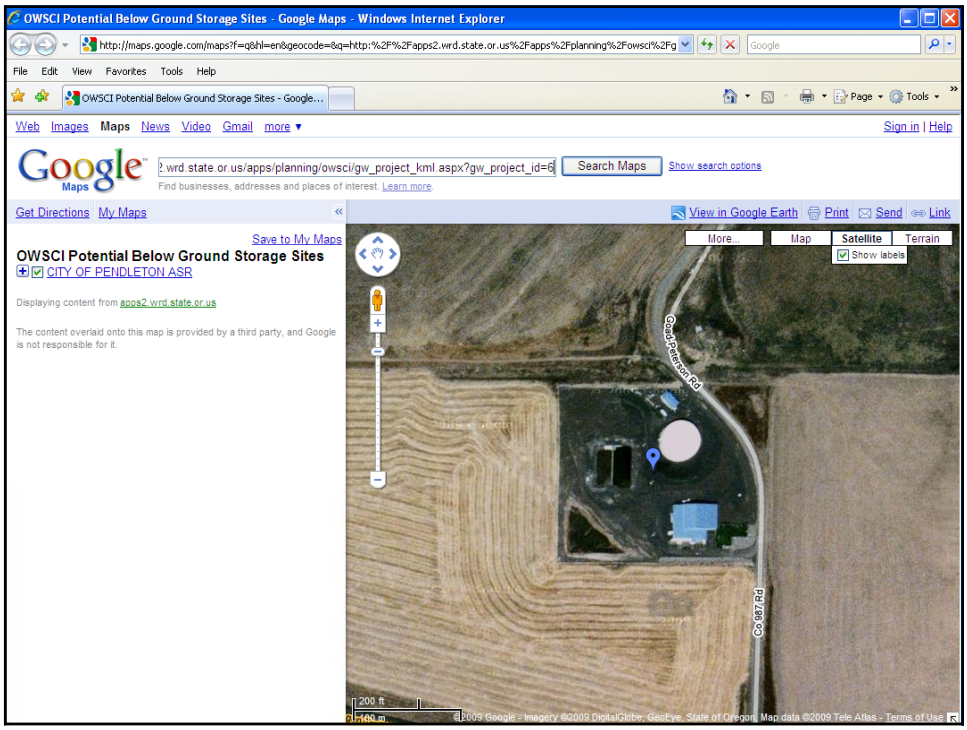
Ground Water
Links
Maps
Publications
Surface Water
Water Law
Water Management
Water Rights
Below Ground Storage Site Search
Area of Interest:
All Counties
All Basins
Map Format:
Google Maps
Google Earth (kml)
Map projects in area
Name Type County Basin # Status
BAKER CITY ASR ASR BAKE 9 EXISTING PROJECT Map Details
BAKER CITY BASIN-FILL ASR/AR BAKE 9 POTENTIAL PROJECT Map Details
BLITZEN SAND AND GRAVEL AR HARN 12 POTENTIAL PROJECT Map Details
BUELL-RED PRAIRE DOMESTIC WATER ASSOCIATION AR AR POLK 2 EXISTING PROJECT Map Details
BURNS AREA BASIN-FILL AR/ASR HARN 12 POTENTIAL PROJECT Map Details
CITY OF BEAVERTON AND TUALATIN VALLEY WATER DISTRICT ASR ASR WASH 2 EXISTING PROJECT Map Details
CITY OF DALLAS ASR ASR POLK 2 EXISTING PROJECT Map Details
CITY OF PENDLETON ASR ASR UMAT 7 EXISTING PROJECT Map Details
CITY OF SALEM ASR ASR MARI 2 EXISTING PROJECT Map Details
CITY OF TIGARD ASR ASR WASH 2 EXISTING PROJECT Map Details
1 2 3 4 5 6 7 8
Return to Main Menu
Internet
100%


OWSCI Potential Below Ground Storage Sites - Google Maps - Windows Internet Explorer
http://maps.google.com/maps?f=q&hl=en&geocode=&q=http:%2F%2Fapps2.wrd.state.or.us%2Fapps%2Fplanning%2Fowsci%2Fg
File Edit View Favorites Tools Help
OWSCI Potential Below Ground Storage Sites - Google...
Web Images Maps News Video Gmail more
Sign in | Help
Google Maps
?.wrd.state.or.us/apps/planning/owsci/gw_project_kml.aspx?gw_project_id=6
Search Maps
Show search options
Find businesses, addresses and places of interest. Learn more.
Get Directions My Maps
Save to My Maps
OWSCI Potential Below Ground Storage Sites
CITY OF PENDLETON ASR
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Co 987 Rd
200 ft
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Water Resources Department

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- Water Management
- Water Rights

Below Ground Storage Site Details

Project Name: CITY OF PENDLETON ASR
Authorized: LIMITED LICENSE
Status: EXISTING PROJECT
Type: ASR

Location Information (Hide Details...)

Location (longitude, latitude): -118.75686600 , 45.66641700
View on a map
County: UMAT
Basin Name: UMATILLA

Aquifer Information (Show Details...)

Associated Documents

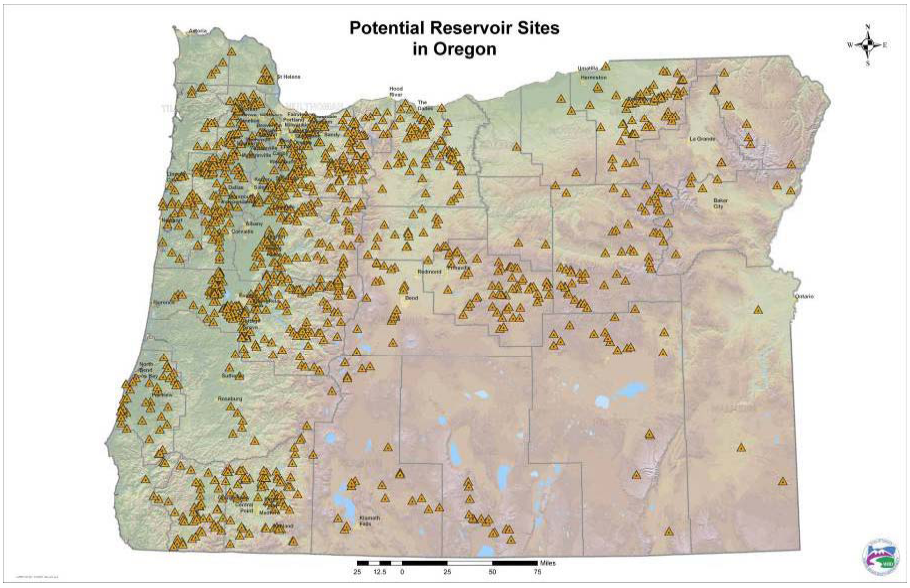
Title	Type	Description
GROUND WATER RESOURCES OF THE ROGUE RIVER BASIN, OREGON	RPT	GEOLOGY, GROUNDWATER, WELLS, SPRINGS, WATER QUALITY (1959)
GROUNDWATER STUDIES IN UMATILLA AND MORROW COUNTIES	RPT	DOGAMI REPORT: GEOLOGY, WELLS, SPRINGS (1949)
PENDLETON 2006 ASR ANNUAL REPORT	RPT	2006 SUMMARY OF PENDLETON INJECTION AND RECOVERY
PENDLETON ASR FEASIBILITY REPORT	RPT	ANALYSIS OF PENDLETON HYDROGEOLOGY, WATER AVAILABILITY, INFRASTRUCTURE
PENDLETON ASR PROJECT OVERVIEW	RPT	PENDLETON ASR LOCATION, HISTORY, GEOLOGY
THE HYDROGEOLOGIC FRAMEWORK AND GEOCHEMISTRY OF THE COLUMBIA PLATEAU AQUIFER SYSTEM	RPT	USGS PROFESSIONAL PAPER 1413-B: HYDROGEOLOGIC UNITS, STRUCTURE, HYDRAULICS (1994)

Associated Wells

Well Log	Tag	Current Well Name	Previous Well Name
UMAT 530		WELL #5	STILLMAN WELL
UMAT 531		WELL #1	BYERS WELL
UMAT 53635		WELL #2	ROUND-UP WELL
UMAT 54072	L 33771	WELL #14	
UMAT 55925	L 33771	WELL #14	

Return to Below Ground Storage Site Search

Surface Water Storage – 1200+ Sites



Water Resources Department

Above Ground Potential Storage Project Search

Area of Interest: Lake County / All Basins

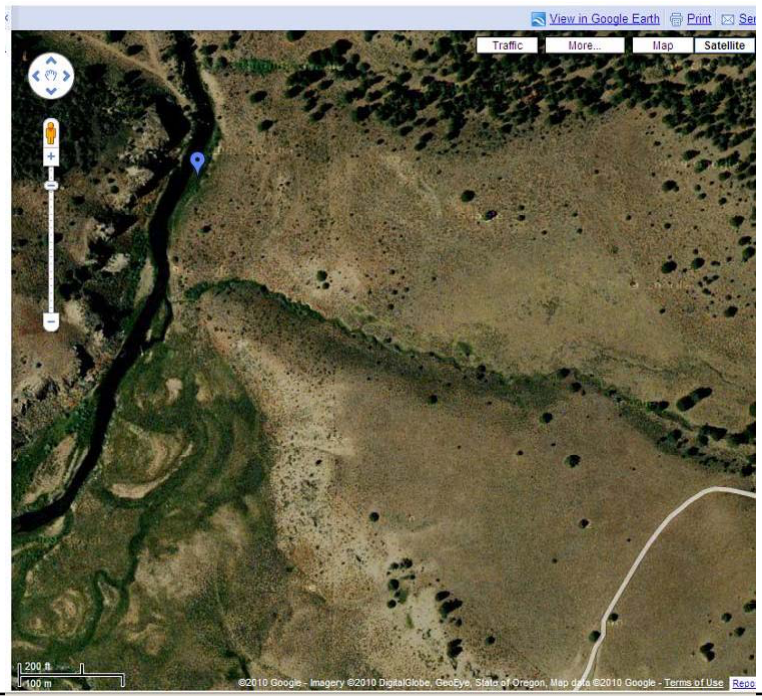
Map Format: (•) Google Maps ( ) Google Earth (kml)

Map projects in area

Project #	Name	Site	Type	County	Basin #	T-R-S	Information Source	
2054	AUGUR CREEK	1	Future project	LAKE	13	38.00S-19.00E-3	OREGON WATER RESOURCES DEPARTMENT, 1988	Map Details
2050	BAUERS CREEK	1	Future project	LAKE	13	38.00S-20.00E-18	OREGON WATER RESOURCES DEPARTMENT, 1988	Map Details
2099	BEAR CR	1	Future project	LAKE	13	34.00S-18.00E-28	USGS RIVER PLANS AND PROFILES 1938	Map Details
2112	BIG VALLEY	1	Future project	LAKE	13	40.00S-22.00E-4	USGS RIVER PLANS AND PROFILES 1939	Map Details
2052	BULLARD CANYON	1	Future project	LAKE	13	39.00S-20.00E-13	OREGON WATER RESOURCES DEPARTMENT, 1988	Map Details
2110	CAMAS	1	Future project	LAKE	13	39.00S-21.00E-1	USGS RIVER PLANS AND PROFILES 1939	Map Details
2048	CAMPGROUND	1	Future project	LAKE	13	38.00S-18.00E-1	OREGON WATER RESOURCES DEPARTMENT, 1988	Map Details
2055	COFFEEPOT	1	Future project	LAKE	13	35.00S-18.00E-4	OREGON WATER RESOURCES DEPARTMENT; DAM SAFETY FILE; COFFEEPOT RESERVOIR 1962-88	Map Details
2051	COX CREEK	1	Future project	LAKE	13	38.00S-20.00E-5	OREGON WATER RESOURCES DEPARTMENT, 1988	Map Details
2049	COX FLAT	1	Future project	LAKE	13	37.00S-18.00E-27	OREGON WATER RESOURCES DEPARTMENT, 1988	Map Details

1 2

Return to Main Menu



Above Ground Potential Storage Opportunity

Project Name: COFFEEPOT
Project Nbr: 2055 **Site Nbr:** 1
Configuration: 1 **Type:** Future project
Information Source: OREGON WATER RESOURCES DEPARTMENT; DAM SAFETY FILE; COFFEEPOT RESERVOIR 1962-88
Remarks:

Location Information (Hide Details...)

County: LAKE View on a map
Basin: 13 **Off Stream:** No
Stream: CHEWAUCAN R -> L ABERT
T-R-S: 35.00S-18.00E-4
Lat/Long 42.55781674, -120.59156407
Oregon Lambert (x, y): 1287658.15893 ,294527.99558
Water Availability Basin: CHEWAUCAN R > L ABERT - AB COON HOL
Land Ownership: USFS NATIONAL FOREST

Project Information (Show Details...)

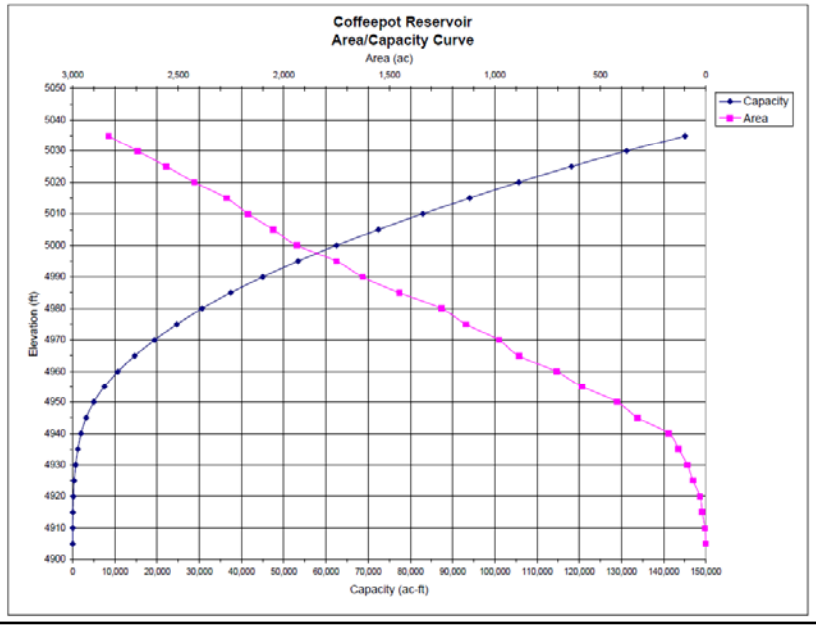
View project area characteristics

Associated Documents

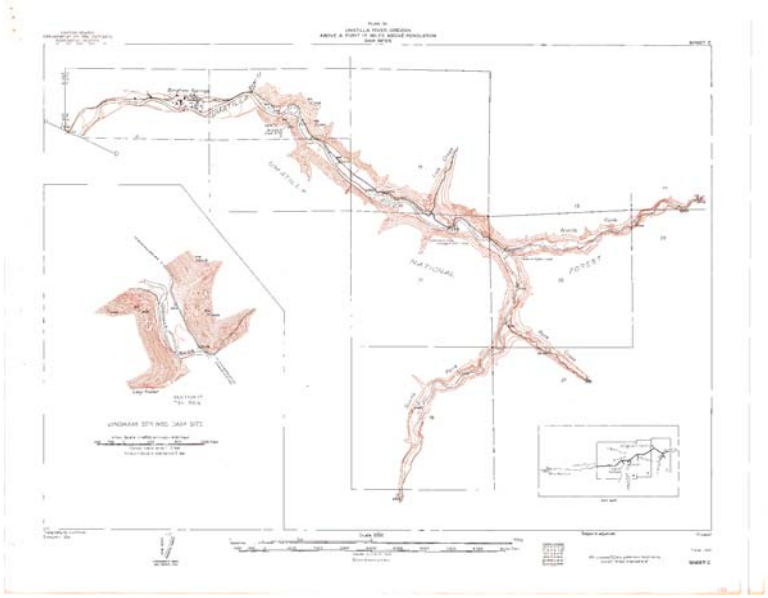
Title	Type
AREA CAPACITY CURVE	
AREA CAPACITY TABLE	
COFFEEPOT DAM ENGINEERING PLANNING REPORT	
MAP OF SITE	
MAP OF SITE2	
PEAK FLOW ESTIMATE	
PHOTO1	
PHOTO2	

Return to Above Ground Potential Storage Opportunity Search

Area/Capacity Curve



Scanned Maps



2010 IWRS Events

- 12 open house events (11 + 1 on-line)
- 31 stakeholder workshops
- 79 survey responses
- September 2009 - August 2010
- Wide variety of stakeholders and partners
- More than 1,000 participants
- Structured discussion ver˛ sim¸ l˛ – brainstorming “vision,” “challenges,” and “solutions.”

2010 Results: "Vision"

The Physical Resource
– healthy aquatic ecosystems
– safe for drinking
– clean for fish
– swimmable water
– provides for all uses

Improving Our Understanding
– population growth, climate change impacts
– useful groundwater data
– public understands the importance of wetlands
– public understands the water use cycle
– watershed approach (think "living systems")

2010 Results: "Vision"

Hopes and Goals for Meeting our Water Needs

– public support (financing)
– protect all beneficial uses
– protect water rights
– regional flexibility
– balance
– water meets land-use planning
– avoid environmental injustices
– connect the consumer to grower
– emphasize local-planning
– protect ecological flows
– increased storage
– increase ISWR's and SWW designations
– prevent point and non-point source pollution
– prevent barriers to movement
– protect watersheds
– promote water efficiency and conservation
– protect agricultural users
– promote recycled, gray water, and rainwater use
– tax incentives
– promote sustainable use of water

2010 Results: "Challenges" to Understanding & Meeting Water Needs

- Changing or Uncertain Regulatory Environment
- Climate Change Threats
- Conflict, Lack of Cooperation
- Data Gaps
- Funding
- Maze of Public Institutions
- Natural Disasters
- Population Growth Threats
- Public Unwillingness
- Threats to Meeting Water Quality Needs
- Threats to Meeting Water Quantity Needs
- Threats to Meeting Ecological Needs

2010 Results: "Solutions" to These Threats

1. **Addressing Groundwater Issues**
2. **Water Conservation / Water Efficiency**
3. **Water Quality / Public Health**
4. **Water Storage**
5. **Allocation and Adjudication**
6. **Water Re-Use**
7. **Addressing Instream Needs**
8. **Climate Change Adaptation**
9. **The Water – Land-Use Nexus**
10. **Restoration**
11. **Water Marketing / Water Banking**
12. **Infrastructure for Water and Wastewater**
13. **Natural Disaster Preparation**
14. **Stormwater / Low Impact Development (LID)**
15. **The Water – Energy Nexus**
16. **Desalination**

IWRS Framework

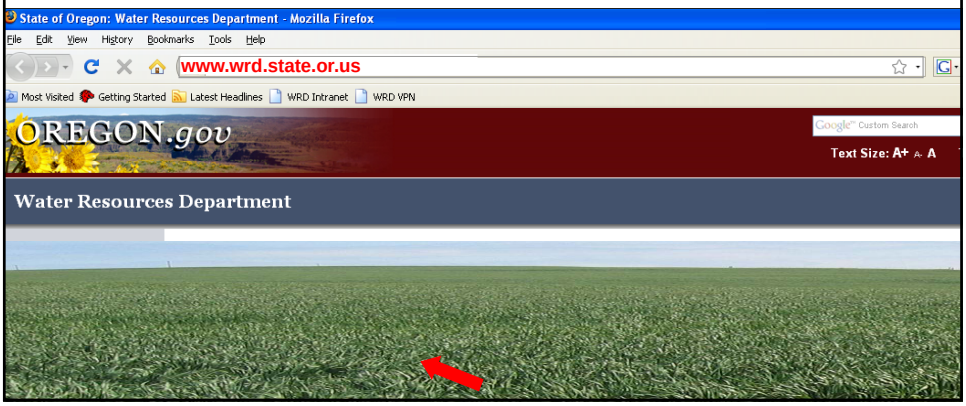
- **Data / Information**
- **Planning & Institutional Structures**
- **Public Policy & Programs**
- **Statute & Rule**
- **Funding**
- **Public Education & Outreach**

Next Steps

- **Take 2010 results document to the October 6, 2010 Policy Advisory Group.**
- **Begin paring down & prioritizing.**
- **The Agency Advisory Group will fill in more detail.**
- **The Policy Advisory Group will help craft recommended actions.**
- **Review and vet with Stakeholders.**
- **Public review / hearings in 2011.**

How to Stay Involved

- Download and review the materials from the project page
- Sign up for the project listserve
- Send any comments to: waterstrategy@state.or.us



Summary / Conclusion

- Developing Oregon's 1st Integrated Water Resources Strategy
- Because It Makes Sense
- 1st iteration due to the Legislature in 2012
- So…Please continue to participate!

Thank You

Please visit:

www.wrd.state.or.us

or email:

waterstrategy@wrd.state.or.us