

Agenda

1. Performance Measures

- Acre-feet of water saved in Eastern Washington to benefit people, farms, and fish.
 - Office of Columbia River water development progress.
 - Actions to increase water availability.
- Percent of major Puget Sound rivers below critical flow levels.
- Number of instream flow rules set in Puget Sound Water Resource Inventory Areas.
- Number of permit-exempt wells drilled in Puget Sound counties.

2. Groundwater Monitoring and Responding to the Depletion Issue

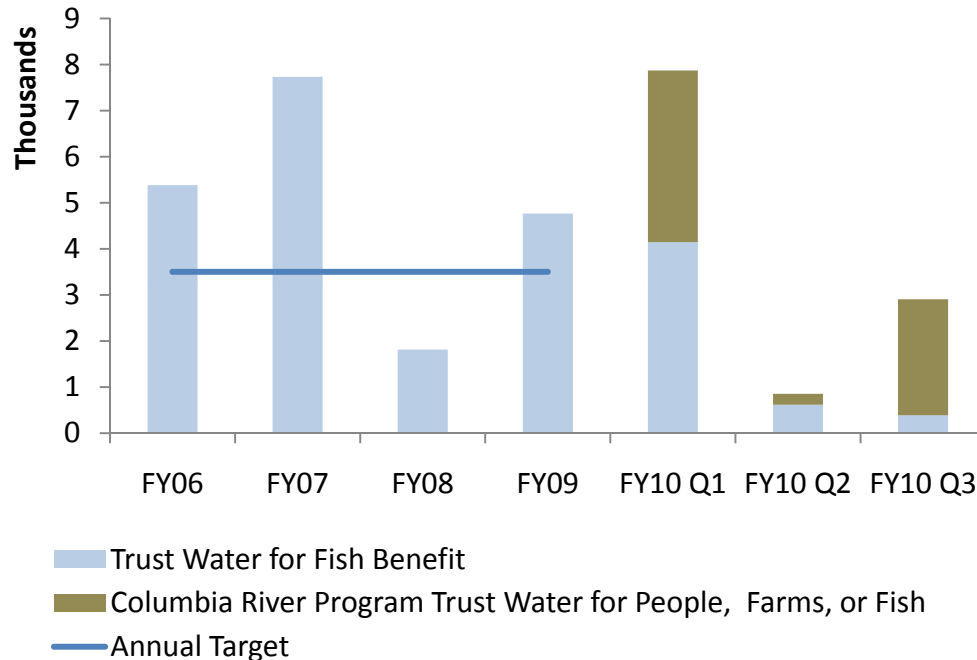
3. Water Budgets to Understand Supply and Demand

4. Water Management and Supply

How much water has been conserved or acquired in Eastern Washington?



Acre-Feet of Water Saved in Eastern Washington to Benefit People, Farms, and Fish



Alternative measures depending on the questions we are trying to answer:
 Amount of 'acquired' water availability placed into the Trust Water Program for 1) instream; and, 2) out of stream benefit:

- Permanent purchases and donations
- Temporary leases and donations
- Conservation projects
- Federal Energy Regulatory Commission (FERC) relicensing

Analysis (Governor Economic Vitality GMAP Measure)

- The graph distinguishes between two programs for acquiring water for the Trust Water Program.
 - Light Blue: Water bought, conserved or acquired from willing water right holders to increase stream flows for fish.
 - Brown: Water acquired through the Columbia River Program created by the Legislature in 2006 to aggressively pursue development of additional water supplies through infrastructure supply development, as well as conservation and acquisition.
 - Ecology's Columbia River Office is beginning the process of moving **145,185 acre-feet** of additional acquired water into the Trust Water Program.
- Several new projects are underway (next slide).
- In the first three quarters of fiscal year 2010, 11,631 acre-feet has been placed into Trust, including 3,961 acre-feet of water released from the Lake Roosevelt Incremental Drawdown (shown in FY10 as the Columbia River Program).
- Many of the new projects in the Columbia River Program are extensive construction projects. As the projects are completed, the amount of water made available by the Columbia River Program will continue to increase.
- Water is bought, conserved or acquired by the state from water right holders. This is done to provide more water supply for people, farms, and fish. Water acquired by the state must be processed and placed in the Trust Water Program.

Office of Columbia River: water development progress - 2010

New Water Supply Developed by Office of Columbia River



Developed

- Lake Roosevelt - 132,500 ac-ft
- Barker Ranch - 6,436 ac-ft
- Col. Basin Irrig. Dist Piping - 2,521 ac-ft
- Donations - 3,728 ac-ft
- Potholes Supplemental Feed Route (conveyance)
- Weber Siphon (conveyance)

Near Term *

- Rocky Reach Pool Raise - 28,000 ac-ft
- Red Mountain AVA/Kiona - ~20,403 ac-ft
- Walla Walla Pump Ex - ~30,000 ac-ft
- Boise Cascade ASR - 1,657 ac-ft
- Kennewick ASR - 318 ac-ft
- White Salmon ASR - 145 ac-ft
- Conservation Projects - Developing
- Yakima River Water Enh. - ~350,000 ac-ft
- Odessa Subarea - 140,000 ac-ft
- Peshastin Piping - 360 ac-ft
- Conservation Com. Retiming - TBD ac-ft
- Chelan PUD Pump Storage - TBD ac-ft
- Sullivan Lake Reoperation - 14,000 ac-ft
- Franklin CDIWM - TBD ac-ft
- Pioneer/Trout Unlimited Piping 1,493 ac-ft



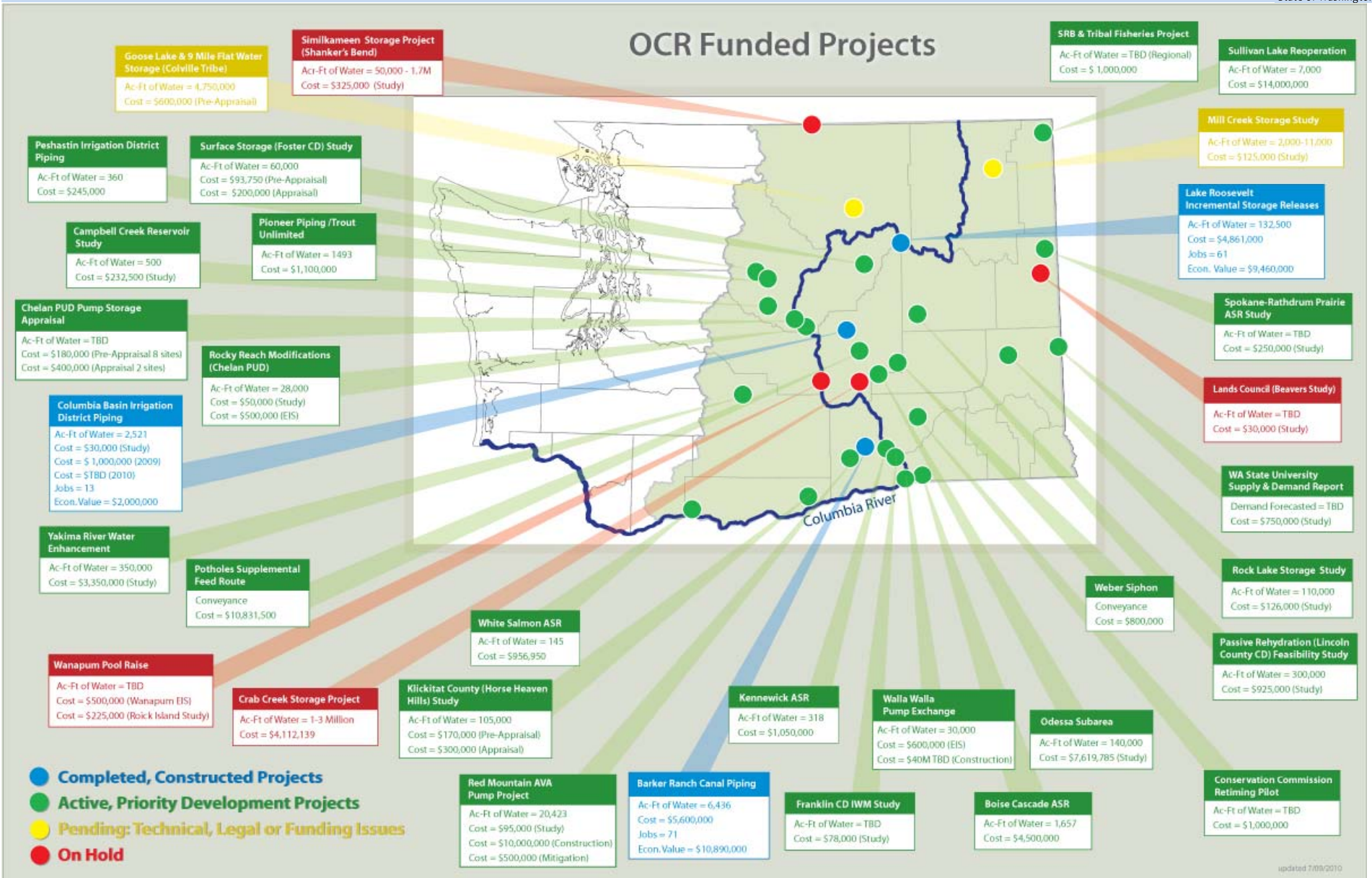
Long Term *

- Lincoln Co. Aquifer Recharge
- Foster Creek Storage
- Mill Creek Storage
- Spokane Rathdrum-Prairie ASR
- Yakima River Water Enhancement Phase III
- Campbell Creek Storage
- Horse Heaven Hills Storage
- Off-Channel Storage
- Rock Lake Storage
- Canada Treaty



*Some projects may be deemed unsuitable for further development after additional review.

What action are we taking to increase water availability in Eastern Washington?



updated 7/09/2010

OCR = Office of Columbia River (Ecology)

Projects to increase water availability in Eastern Washington



Project	Outcome	Target	Status	Progress
OFFICE OF COLUMBIA RIVER CONSTRUCTION PROJECTS				
Lake Roosevelt Incremental Storage Release	Release of additional water from Lake Roosevelt for municipal water use, irrigation and in-stream flow for fish in the Columbia Basin (the amount will be increased to 132,500 acre feet in a drought year).	82,500 acre feet per year beginning in 2009.		14,000 acre feet released in August 2009 under an interim agreement with the Bureau of Reclamation. OCR anticipates release of the remaining 52,500 ac-ft in 2010. Final negotiations on Long-term contract are underway. Construction is underway for the Weber Siphon and the Potholes Feed route.
Weber Siphon	A second siphon is needed at the Weber Siphon Complex to convey water from the Lake Roosevelt releases to the southern portion of the Odessa Subarea. It will eliminate a water delivery bottleneck at the East Low Canal and Interstate 90 near Moses Lake, WA.	Construction is scheduled to be completed in early 2011		Construction is underway. OCR funded design.
Barker Ranch	Approximately 3 miles of open irrigation ditch (west of Richland) was converted to pipe. Conserved water will remain in lower Yakima River to enhance instream flows.	6400 Acre Feet of water (~5% of lower Yakima Flows in a dry year)		Construction has been completed.
Kennewick Aquifer Storage and Recovery Pilot Project	Pilot project to test the feasibility of pumping 300 to 1,000 acre feet of winter surface water into the Kennewick aquifer for in-stream flow and municipal use in the dry summer months.	Pilot project completed by June 2013		Preliminary permit was issued in the fall 2009. Test well to be drilled Summer/Fall 2010. Test well will become retrieval well in final project.
Kennewick Irrigation District Red Mountain American Viticulture Area Pump Project	Diversion point moved from Prosser to Kiona, increasing flows in fish critical reach of Yakima River. Piping/lining improvements will allow for grape irrigation at Red Mountain.	Project completion in 2012.		Contract signed: 2011
Yakima River - Sunnyside Valley and Benton Irrigation Districts improvements	Infrastructure improvements in the Sunnyside Valley and Benton Irrigation Districts. Ecology is providing match funding to the Bureau of Reclamation Recovery Act projects to improve operations and install lateral irrigation piping in Sunnyside and for a pump exchange and piping in Benton.	Project completion in 2012		Piping installation has been taking place with partial completion for the 2010 irrigation year.

- Completed
- On Schedule
- Behind Schedule
- Stopped

Projects to increase water availability in Eastern Washington



Project	Outcome	Target	Status	Progress
Chelan County/ Peshastin Irrigation District Piping	The Peshastin Irrigation District Main Canal will be converted to a closed pipeline.	Project completion in 2012.		Contract signed. Design completed.
Walla Walla Pump Exchange	Water will be pumped from the Columbia River to irrigation districts in Washington and Oregon in exchange for the same quantity irrigation water to remain in the Walla Walla river for instream flow.	Project completion in 2018		\$2-\$3 million allocated for design. Environmental Impact Statement underway.
Franklin/ Grant Conservation District Integrated Water Management	Funding provided to conservation district to conserve water through irrigation water management.	Contract completion: June 2011		CD having difficulty finding cost effective water savings. OCR consulting them.
Sullivan Lake	Water will be drawn from Sullivan Lake to provide an additional 14,000 ac-ft of water for out-of-stream permitting.	Water delivery begins in 2011.		One-time \$14 million payment for 14,000 ac-ft of water, annually.
Potholes Supplemental Feed Route	Project will increase supply reliability to southern Columbia Basin Project by delivering water to Potholes Reservoir. The additional water will ease supply concerns during periods of high demand.	Phase I (Frenchman Hills) completed in 2009. Phase II (Crab Creek) construction complete in 2010		Phase II infrastructure construction on schedule. Working on Dairy relocation.
Trout Unlimited. Pioneer Water Users Instream Flow Enhancement	Project will conserve 1,493 ac-ft by piping 5.5 miles of existing Pioneer Water Users Association open canal, installing a new efficient pump-back water withdrawal system, and changing the point of diversion from the lower Wenatchee River to groundwater wells adjacent to the Columbia River.	Water available in 2013		Contract under negotiation. Construction to begin after contract finalized.
Boise Aquifer Storage and Recovery Project	Pilot project to test the feasibility of utilizing aquifer storage and recovery as a tool to retime water usage from the Columbia River, hence making more water available during the low flow portion of the year.	Pilot project completed by July 2011.		Test wells completed October 2009 and will be used in final project. Hydrological testing completed December 2009. Data analysis underway.

Projects to increase water availability in Eastern Washington



Project	Outcome	Target	Status	Progress
Coordinated Conservation Projects	Piping and lining of irrigation canals (south of Moses Lake): target of 22,500 feet of pipe constructed to replace open canals, 1500 feet of canal lining.	2521 acre feet per year saved water. Expected completion: 2011		\$1 million piping/lining construction project completed. More funding for additional piping/lining construction anticipated.
Manastash Piping	Piping and lining of irrigation canal to restore flows in Manastash creek (west of Ellensburg).	Completion: June 2012		Construction underway.
OFFICE OF COLUMBIA RIVER FEASIBILITY/EIS STUDIES				
Conservation Commission Retiming Pilot	Study of the length of time it takes saved non-consumptive water to reach the Columbia River.	Estimated completion: 2013		Contract signed.
Chelan PUD Rocky Reach Modifications	Studying plan to store an additional 28,000 ac-ft of water behind Rocky Reach Dam.	Water delivery possibly in 2015.		\$50,000 allocated for the study and \$500,000 for environmental impact study.
Yakima River Basin Water Enhancement Project	Address water issues in the Yakima River Basin. The Preliminary Integrated Water Resource Management Plan includes water supply, modification of existing operations, fish passage, and habitat enhancement elements.	Final plan in late 2010		The Yakima River Basin Water Enhancement Project Work Group agreed upon the preliminary plan in Dec. 2009. The elements of the plan will be refined during 2010. A final plan will be submitted to Congress and the legislature once the workgroup makes its final endorsement.
Odessa Subarea Special Study	Funding for environmental impact statement (EIS), planning report, and other associated studies Ecology is conducting with the U.S. Bureau of Reclamation.	Final EIS is scheduled for release in the Fall of 2011		Work on the draft EIS is underway. It is scheduled to be released in the Fall of 2010.
Crab Creek Storage	Off-channel reservoir would store 1.3 million ac-ft of water	Appraisal completed in 2008		Congressional authorization needed before the US Bureau of Reclamation can take any further action.
White Salmon Aquifer Storage and Release Project	Store seasonally available water to enable the City to meet peak summer demands.	Target completion date of June 2011.		Draft feasibility study Summer/Fall 2010.
Mill Creek Storage Study	An additional 2,000-11,000 ac-ft could be stored behind a dam in Mill Creek.	Study completed in June 2010.		OCR decision as to whether to proceed is pending.

Projects to increase water availability in Eastern Washington



Project	Outcome	Target	Status	Progress
Lincoln Co. Passive Rehydration Study	Studying plan to rehydrate the groundwater aquifer using surface water.	Feasibility study due in August 2010.		Awaiting feasibility study.
Land's Council Beaver Study	Study of natural storage and retiming opportunities made available through beaver re-introduction.	No new targets.		Consulted with tribes and local governments prior to committing to further funding. They were resistant to issuing new permits using water saved by this project. OCR assisted proponent in finding other funding.
Rock Lake Storage Study	Plan would increase lake's storage capacity.	Cultural Resource and Water Resource studies due May 2010		OCR will make a decision about future funding after review of study in Summer 2010.
Spokane-Rathdrum Prairie Aquifer Study	Study of rehydration potential for Spokane-Rathdrum Prairie Aquifer.	Report due in August 2010		Future funding likely to be sought from Washington and Idaho legislatures. No effort to secure funding yet.
Wanapum Pool Raise	Raise Wanapum Dam (near Vantage) to allow for storage of additional 70,000 acre-feet of water.	5-7 years to bring water online: 2015/ 70,000 acre-feet per year.		Grant Public Utility District withdrew support. Project on indefinite hold pending re-interest in project.
Campbell Creek Storage	Study of storage project that may yield 500 ac-ft of storage in Chelan County	Study due Sept 2010.		Proponents have difficulty accessing the site. OCR is discussing options with proponents.
OFFICE OF COLUMBIA RIVER PRE-APPRAISAL/APPRAISAL STUDIES				
Foster Conservation District Storage	Three sites in Douglas County providing 60,000 to 194,700 ac-ft of water.	Pre-Appraisal completed in Spring 2010.		Pre-appraisal study complete. One site expected to undergo appraisal study.
Similkameen (Shankers Bend) Storage Project	Dam on the Similkameen River would provide 50,000 to 1.7M ac-ft of water.	Pre-Appraisal completed 2009.		Costly and international agreement unlikely. No further funding anticipated.
Klickitat Horse Heaven Hills Study	Two proposed reservoirs and one aquifer storage project would provide up to 105,200 ac-ft of storage.	Draft pre-appraisal received May 2010		Evaluating pre-appraisal study.

Projects to increase water availability in Eastern Washington

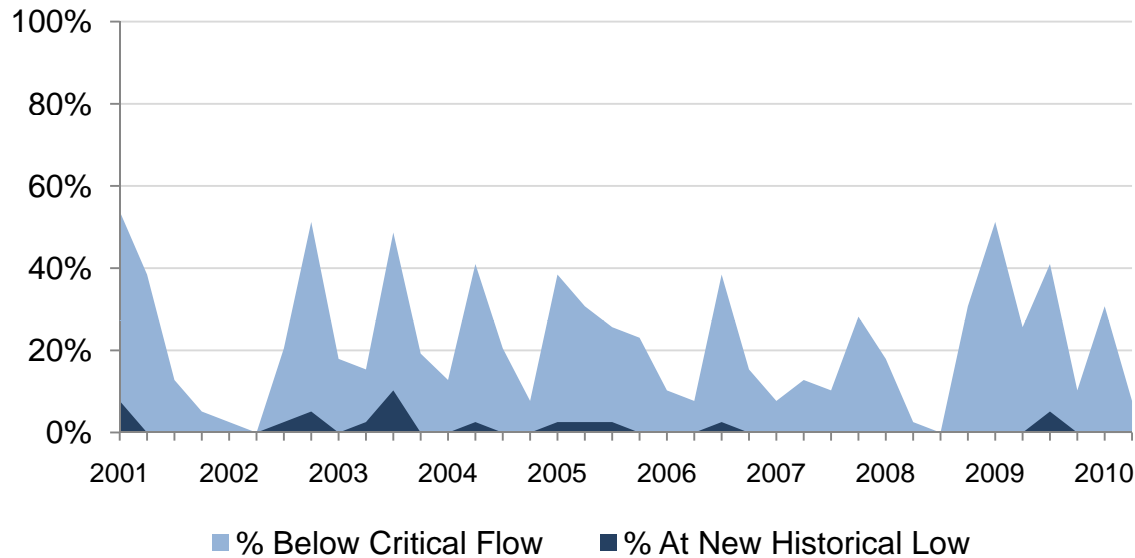


Project	Outcome	Target	Status	Progress
Goose Lake & Nine Mile Flat Storage Project	Investigating sites that could store up to 4.75 million ac-ft.	Negotiations underway.		\$1.2 million set aside for pre-appraisal and appraisal studies. On hold until proponents make decision to fully commit to project.
Chelan Public Utility District (PUD) Pump Storage Projects	Study up to 8 potential pump storage projects.	5-7 years to bring water online. Volume to be determined.		Signed an Agreement in Principal with Chelan PUD in fall 2009. \$225,000 for study and \$500,000 to conduct Environmental Impact Statement.
OFFICE OF COLUMBIA RIVER GRANTS, REPORTS, AND ACQUISITION				
Salmon Recovery Board (SRB) & Tribal Fisheries Project	SRB and tribes will seek land to purchase for habitat restoration and transfer water rights to state.	Contract to be signed Summer/Fall 2010		Contract under negotiation.
Water Acquisition	Water is acquired in fish critical river basins to improve instream flow. Acquisition is made through water right purchases and leases.	Leased and purchased schedule for the 09-11 biennium will result in 12,000 acre feet of water to improve instream flow.		In 07-09, 2,800 acre feet per year was protected for instream flow purposes from water rights acquisition or lease to enhance stream flows.
WSU Supply and Demand Report	Legislative report forecasting water demand in Eastern Washington. Will be the most comprehensive study of water demand ever conducted in the state.	Due November 2011 (required every five years)		WSU examining effect of agricultural markets, climate change, and municipal growth on future instream/out of stream water demand down to the watershed level.
Columbia River Grant Program	Grants for conservation, storage and feasibility projects to increase water availability by up to 10,000 acre feet per year.	Ongoing grant cycle.		Grant applications reviewed as they come in. OCR has funded 22 grants.
Watershed Planning and Flow Achievement Grants	Grants for water conveyance and infrastructure projects to protect net water savings for instream flow.	Grant period is biennial.		For the 09-11 biennium, six projects have received grant funding for stream flow achievement projects. In 07-09, 3,900 acre feet per year was protected for instream flow from water conveyance infrastructure projects.

Percent of 13 major Puget Sound rivers not meeting critical flow levels



Percent of Major Puget Sound Rivers Below Critical Flow Levels



(Skokomish, Deschutes, Nisqually, White, Puyallup, Green, Cedar, Issaquah Creek, Snohomish, Skagit, Nooksack, Elwah, and Dungeness).

Alternative Measure:

The objective is to be able to answer the questions:

- Are stream flows trending lower in the summer months (for fish, farms, and people)?
- Are stream flows peaking higher in winter months (floods and washing out fish eggs)?

The indicators to help answer the questions:

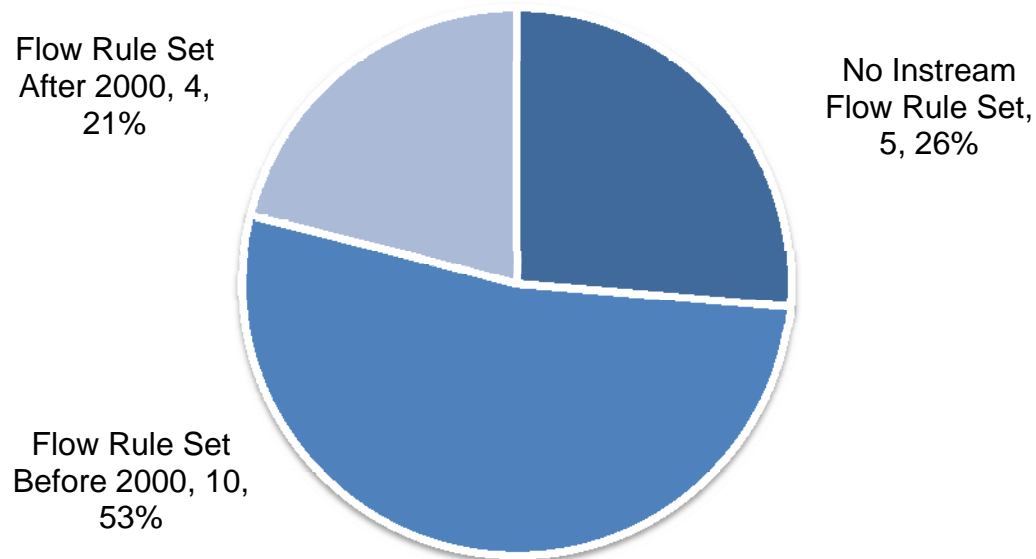
- Trends in 30-day lowest consecutive flows (summer months)
- Trends in 1-day peak flows (winter months)

Analysis (Governor Puget Sound Measure)

- Within Puget Sound, 13 major rivers have been monitored for long-term flow trends
 - Over the past 1 1/2 years, 25% or more of the monitored rivers were below critical levels for a significant amount of time.
 - Five times in the last 10 years flows at more than 25% of the locations evaluated in Puget Sound were below the historical low flows for two or more consecutive months.
 - This data tells us where the in-stream flows for the last day of the month are at with respect to historical ranges (critical flows are set at the historical 20th percentile).
 - Under normal conditions we should only expect in-stream flows on any select river or stream to fall below these critical levels once every five years on average.
- There are two primary factors influencing whether critical flows are currently being met:
- Variable in-stream water supplies primarily driven by weather patterns and ultimately climate change.
 - Out of stream demand for water.

Number of WRIAs* in Puget Sound with instream flow rules

Number of Instream Flow Rules Set in Puget Sound Water Resource Inventory Areas



Proposed Additional Measure:

- Number of stream miles covered by instream flow rules.

Analysis (Governor Puget Sound Measure)

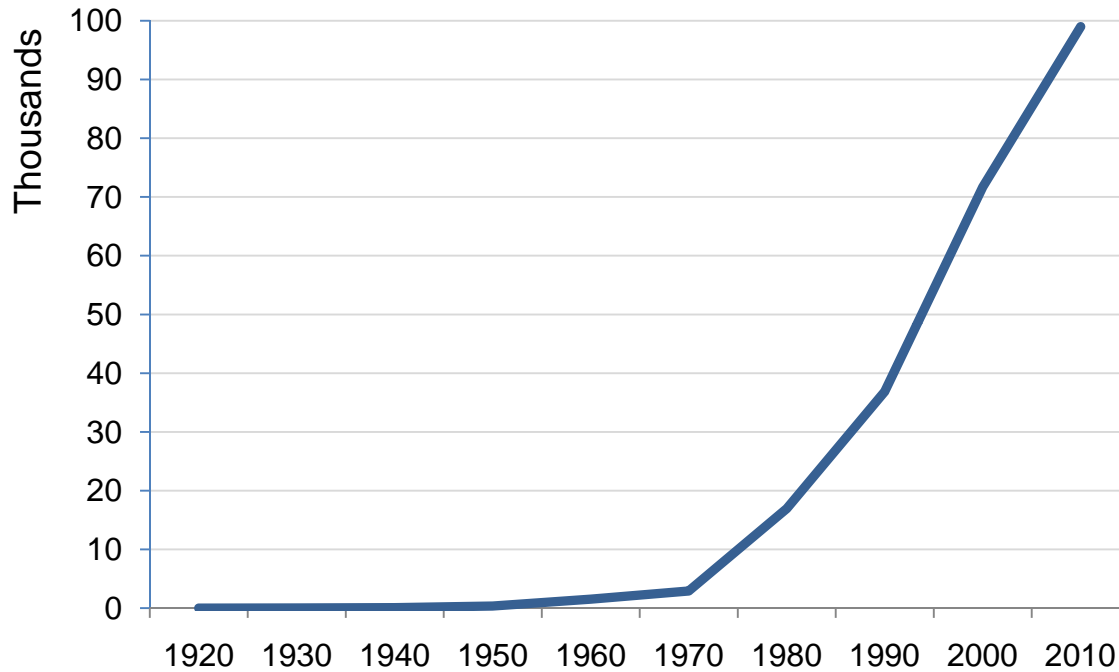
- 75% of the WRIAs have established flow rules: 4 were set after 2000 based on “newer” instream flow science, and 10 are “older” instream flow rules.
- An instream flow rule establishes an instream flow level for different rivers /streams at various times of the year.
- Evolving methods for establishing flows makes the newer rules more protective.
- Ecology is currently reviewing all of the rules statewide to determine where there are gaps to make decisions on revising older rules balanced with setting rules in WRIAs without a rule.
- The current goal is to complete instream flow rules in all WRIAs, focusing on salmon-critical basins first (three of the five remaining basins in Puget Sound would be a priority).
- There are many factors to consider in timing for completion, including endangered species listings, readiness to proceed, statewide priorities, and growth pressure.
- In addition, Ecology does not have enough resources to complete all of the Puget Sound instream flow rules right away.
- A flow rule gives Ecology some regulatory authority to protect instream flows.
- The instream flow gives water right application permit writers and managers the information necessary to make decisions if and when water rights can be issued.
- If a WRIA water basin is closed to further water appropriation, applicants would need to submit mitigation plans to offset their water need impact.

* A Watershed Resource Inventory Area: A "watershed" is an area draining into a river, lake, or other waterbody. Ecology and other state natural resources agencies have divided the state into 62 "Water Resource Inventory Areas" or "WRIAs" to delineate the state's major watersheds.

Number of permit-exempt wells drilled in Puget Sound Counties



Estimated number of permit-exempt wells drilled in Puget Sound Counties (cumulative)



- It is estimated that 112,589 permit-exempt wells have been drilled in Puget Sound Counties based on well logs (the chart shows 98,979; an additional 13,610 have well logs without a year-drilled specified).

Clallam	Island	Jefferson	King	Kitsap	Mason
7,367	4,684	3,794	13,156	11,522	7,227

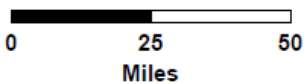
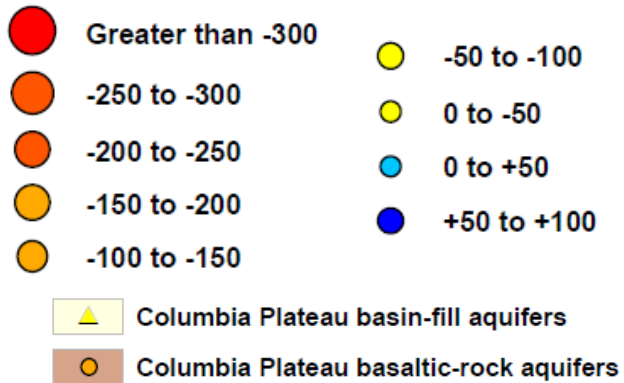
Pierce	San Juan	Skagit	Snohomish	Thurston	Whatcom
15,048	4,558	6,555	14,805	14,100	9,774

Analysis (Governor Puget Sound GMAP Measure)

- A well log is the document the drilling company prepares and sends to Ecology after the well is completed.
- The requirement to submit a well log to Ecology did not exist before 1971. However, historical well use prior to 1971 was not as wide-spread as it is today.
- Compliance by well drillers submitting logs to Ecology has also increased over time, with an estimated 80% well log submittal of the wells currently being drilled.
- Since 1990 there has been an average of over 3,200 new water wells drilled each year within the counties surrounding Puget Sound.
 - The vast majority of these wells are thought to be permit-exempt water supply wells.
 - Although individual permit-exempt wells typically use relatively small quantities of water, almost all of them consume some water and the cumulative impact of the increase in consumptive use each year can result in impairment to senior water rights and instream flow resources.
- Many of the wells drilled in Puget Sound counties occur in basins where Ecology has determined that no water is available for new water rights, in many cases, over 25 years ago.
- Permit-exempt well construction and use will continue to occur because they are the only water supply option in many areas, especially rural areas.

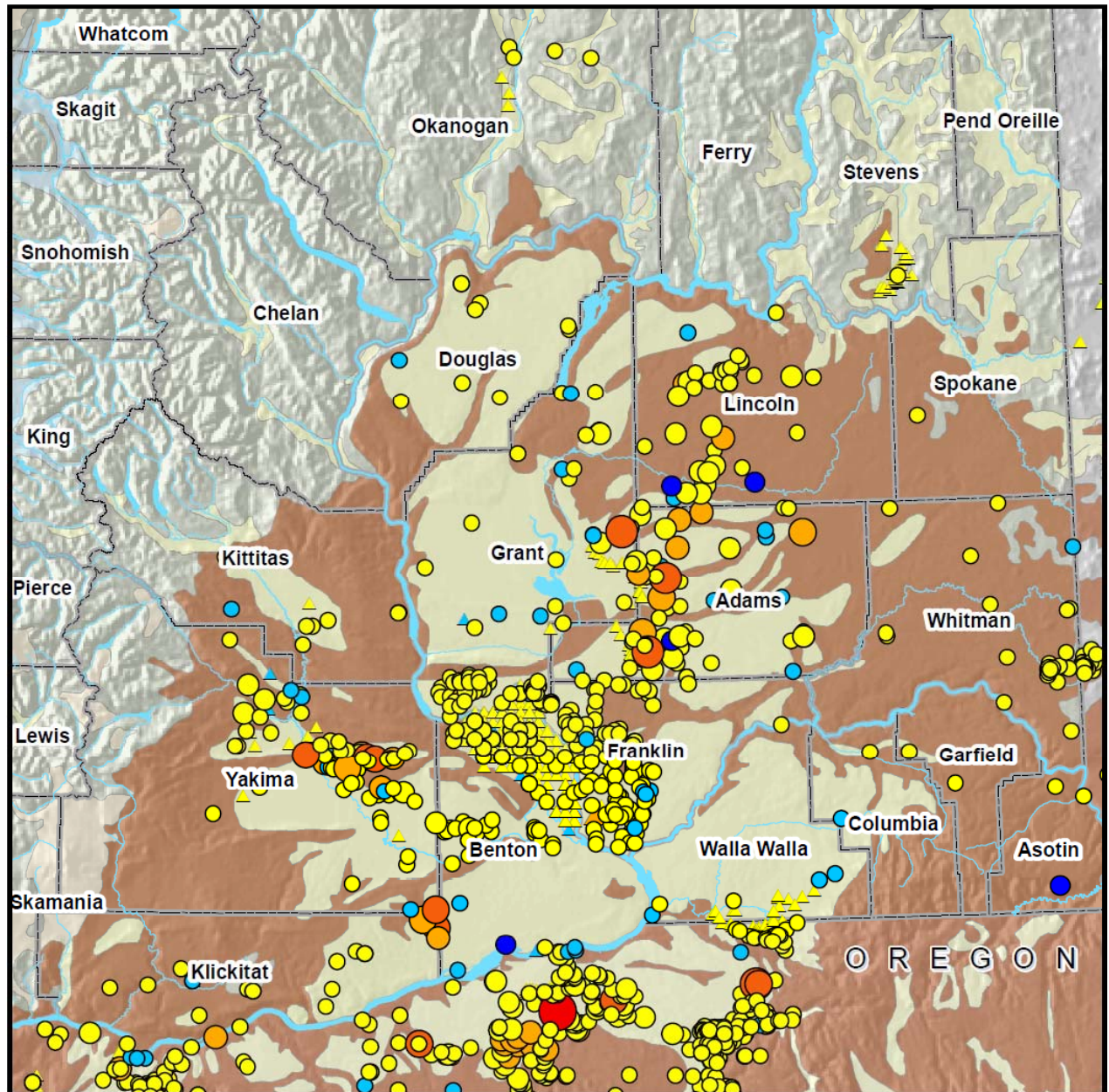
Columbia River Plateau Regional Aquifers have declined in 80% of the nearly 500 wells measured (USGS) from 1984 to 2009

Water Level Elevation Change in feet



Source: USGS Scientific Investigations Report 2010-5040

- Limited groundwater level monitoring networks are in place in parts of WA. Data supports water rights decisions and enhances understanding of groundwater-surface water systems.
- Ecology is proposing to build on the network to ensure science-based management of water resources.
- Sustainable funding for groundwater monitoring is critical to address priority water supply issues throughout the state.



Responding to groundwater depletion requires a diverse range of responses



West Plains

- Sudden drops in the water table due to pumping at rates faster than aquifer recharge.
 - Solution: Pipe water from Spokane water system into area as there is no other water source.

Odessa

- Aquifer decline could cost Adams, Franklin, Grant, and Lincoln counties as much as \$630 million dollars annually in regional sales, a loss of 3,600 jobs, and a loss of \$211 million in regional income.
 - Solution: bring water from Lake Roosevelt as replacement supply.

Kittitas Co Permit-Exempt Wells

- Rapid rural residential growth (primarily permit-exempt wells) can impair senior water rights and stream flows in the Kittitas and Yakima Valleys.
 - Solution: Water Banking

Walla Walla

- Natural Surface Water system has been modified over the years to provide drinking water, irrigate crops and for flood control.
 - Solution: Aquifer Storage and Recovery (ASR) is being used to augment natural Aquifer-recharge as part of overall response to basin needs.

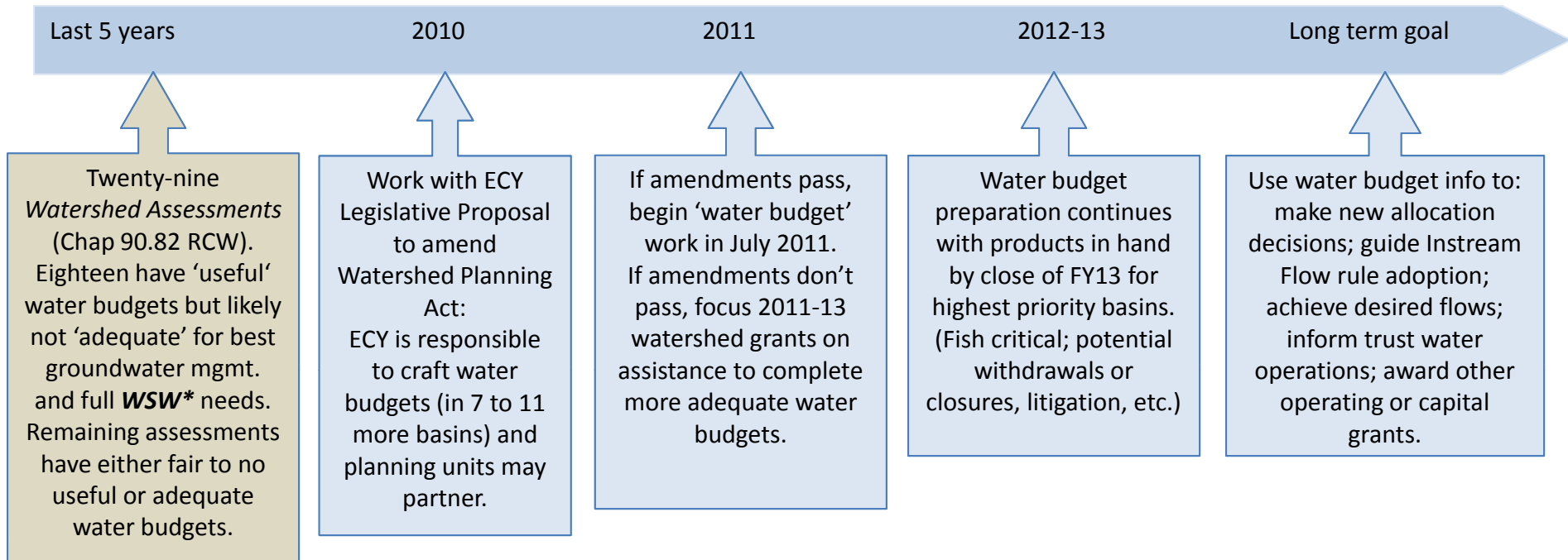
City of Kennewick

- ASR to meet future water supply needs. Kennewick's permit subject to curtailment when biological opinion isn't met.
 - Solution: Surplus water is available in winter, with curtailment typically occurring in summer. ASR will be used to retime supply to meet demand.

These and other projects are highlighting various policy issues:

- The need for good science: ie. water budget that include information on ground water/surface water Interactions
- Permitting Flexibility: For example, working to make ASR a common practice.
- Adaptation: Allow for and fund the useage of Alternative supplies; i.e Odessa being fixed with surface water
- Conservation: Recognize and support measures such as reclaimed water use to slow rate of withdrawals or allowing permitting of water not diverted for use as a result of conservation

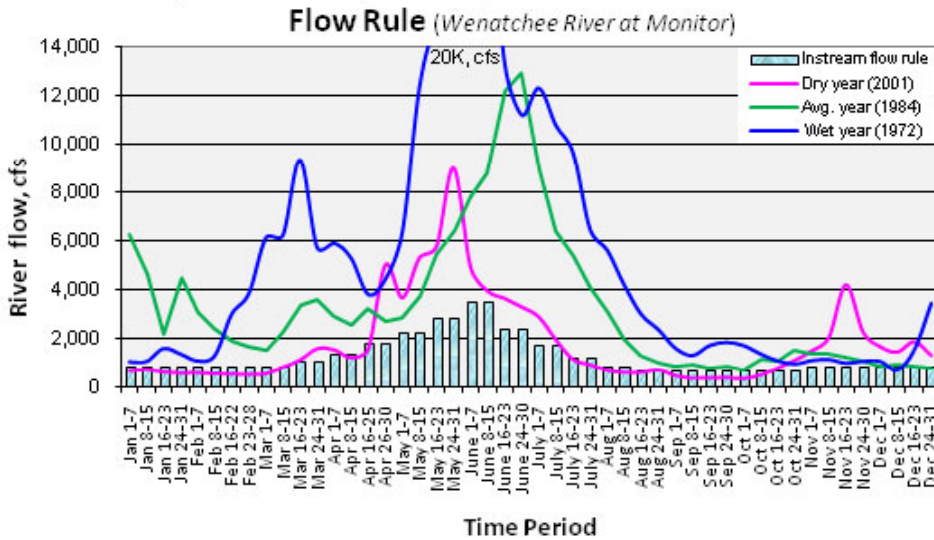
Water Budgets to Understand Supply and Demand



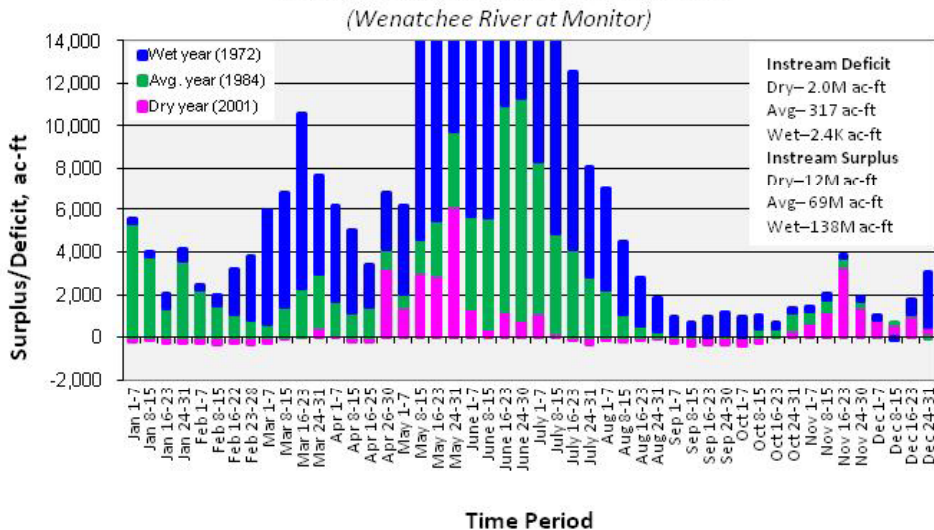
CRITICAL 2010 MILESTONES	WHO	WHEN	STATUS
Reviewed Phase 2 Watershed Assessments and other planning outcomes for water budget 'usefulness' and 'adequacy' for <i>Water Smart Washington (WSM)</i> needs.	Shorelands (SEA) Watershed Team and OCR	July 2010	Done
Work with the <i>WSW</i> Strategic Operations Team, Leads and others on drafting bill policy and financial language amendments.	Zachmann	Aug – Sep 2010	Draft amendments to '90.82' exist; now being discussed
Inventory of water budgets developed by Columbia River Basin Watershed Planning Units during Phase 2 Watershed Assessments (Chap 90.82 RCW) for OCR supply/demand forecasting needs at the Watershed Resource Inventory Area (WRIA) level.	WA State University on contract with OCR	Nov 2011 (Forecasting)	Underway

Water Budgets: Data In ➔ Solutions Out

Comparison of Dry, Average, Wet Year Flows to Instream



Water Surplus/Deficit Evaluation



Water Budgets are Critical for Answering:

- Is meeting adopted flows possible? Dry? Wet?
- What is the potential for retiming flows within/across seasons?
- How does retiming project benefit/impair fish life stages?
- Do conservation projects always make sense – do they move the hydrograph the right way?
- How can we maximize state funds for both instream and out-of-stream uses?
- What projects work best in this location – storage (surface or ground), pump exchanges, conservation?
- Is the basin over-appropriated?
- How does available supply compare to projected demand?
- Is more water the best bang for the fish buck? Habitat? Barrier removal?

Spring Chinook		Life Stage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wenatchee Spring Chinook	Adult In-Migration													
	Spawning													
	Egg Incubation & Fry Emergence													
	Rearing													
	Juvenile Out-Migration													

Summer Steelhead		Life Stage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wenatchee Summer Steelhead	Adult In-Migration													
	Spawning													
	Egg Incubation & Fry Emergence													
	Rearing													
	Juvenile Out-Migration													

Manage and augment water supplies to protect aquatic life *and* optimize water for farms, business and communities.

ACTION ITEMS:

Water Supply

- Provide new water supplies for healthier streams, economic development and growing communities in the Columbia River Basin.
- Expand the state's water supply capacity to provide in- and out-of-stream solutions for water-short basins across the state.
- Establish, and begin implementing, broadly supported water supply & habitat enhancement program for the Yakima Basin.
- Promote integrated water solutions by encouraging conservation, mitigation, restoration, supply, and demand management solutions as appropriate to meet instream and out-of-stream needs across the state.

Water Management

- Improve the state's capacity to effectively manage finite water supplies across existing and future needs.
- Make water supply and demand forecasting and science-based water resource assessment the central element to all water resource allocation, management and supply decisions.
- Prioritize activities that are effective. Identify and adopt new processes to replace less effective ones.