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This 2010 Columbia River Basin Water Supply Inventory Report was prepared by The Office of Columbia River

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Cover Photo:
Sullivan Lake, Pend Oreille County, WA
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"With strong support and targeted investments from our Governor and the Legislature, our communities, tribes and state and federal agencies are pulling together on projects that secure the water needed for people, farms and salmon."

Ecology Director
Ted Sturdevant
The Office of Columbia River (OCR) is pleased to provide the fifth annual Water Supply Inventory Report to the 2010 Washington State Legislature. The Report gives information and updates on projects, with particular emphasis on the progress and new efforts made in 2010. Some of the 2010 highlights reviewed in this report include preliminary work for issuing new municipal and industrial permits, delivering water to the Odessa Subarea and projects that provide water to irrigators and improve fish flows. In addition to project development, OCR is proposing 2011 legislative amendments to Chapter 90.90 RCW and the Hillis Rule, Chapter 173-152 WAC. Ecology Director Ted Sturdevant summed it up during an Eastern Washington tour of water supply projects: “With strong support and targeted investments from our Governor and the Legislature, our communities, tribes and state and federal agencies are pulling together on projects that secure the water needed for people, farms and salmon.”

In 2006, the Washington State Legislature responded to the water needs of the Columbia River Basin. Chapter 90.90 RCW, Columbia River Basin Water Supply, directs the Department of Ecology (Ecology) to aggressively pursue the development of water supplies to meet the economic and community development needs of people and the instream flow needs of fish. To implement this legislation, Ecology established The Office of Columbia River. By working with tribes, environmentalists, growers, municipalities and other interested parties, OCR provides support for storage and conservation projects and voluntary regional agreements. To help OCR identify and evaluate policy issues and set project funding criteria, a policy advisory group (PAG) was created. Composed of agricultural, environmental, tribal and other representatives, the PAG brings a range of perspectives to policy discussions.

New water supplies and conservation projects are essential to successful water resource management in the Columbia River Basin. In RCW 90.90.020, the Legislature directed Ecology to focus its efforts on developing water supplies for:

- Alternatives to groundwater for Odessa Subarea
- Pending water right applications
- New supplies for interruptible water right holders
- New water supplies for municipal, domestic, industrial and irrigation
- Instream benefits

The “OCR Funded Project” map, on the following pages, illustrates OCR’s dedicated work to find solutions to these five directives.

Office of Columbia River Policy Advisory Group Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dale Bambrick</td>
<td>NOAA Fisheries - U.S. Dept of Commerce</td>
</tr>
<tr>
<td>Dr. Brenda Bateman</td>
<td>Oregon Department of Water Resources</td>
</tr>
<tr>
<td>Gary Chandler</td>
<td>Association of Washington Business</td>
</tr>
<tr>
<td>Kathleen Collins</td>
<td>Water Policy Alliance</td>
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<td>Jon Culp</td>
<td>Washington State Conservation Commission</td>
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<tr>
<td>Jim Fredricks</td>
<td>U.S. Army Corps of Engineers</td>
</tr>
<tr>
<td>Michael Garrity</td>
<td>American Rivers</td>
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<tr>
<td>Rick George</td>
<td>Confederated Tribes of the Umatilla Indian Reservation</td>
</tr>
<tr>
<td>Bill Gray</td>
<td>U.S. Bureau of Reclamation</td>
</tr>
<tr>
<td>Mike Leita</td>
<td>Yakima County Commissioners</td>
</tr>
<tr>
<td>Joe Lukas</td>
<td>Grant County PUD</td>
</tr>
<tr>
<td>Mo McBroom</td>
<td>Washington Environmental Council</td>
</tr>
<tr>
<td>Darryll Olsen</td>
<td>Columbia-Snake Rivers Irrigation Association</td>
</tr>
<tr>
<td>Merrill Ott</td>
<td>Stevens County Commissioners</td>
</tr>
<tr>
<td>Gary Passmore</td>
<td>Confederated Tribes of the Colville Reservation</td>
</tr>
<tr>
<td>Lisa Pelly</td>
<td>Trout Unlimited</td>
</tr>
<tr>
<td>Rudy Peone</td>
<td>Spokane Tribe of Indians</td>
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<td>Rudy Plager</td>
<td>Adams County Commissioners</td>
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<tr>
<td>Phil Rigdon</td>
<td>Confederated Tribes and Bands of the Yakama Nation</td>
</tr>
<tr>
<td>Dave Sauter</td>
<td>Klickitat County Commissioners</td>
</tr>
<tr>
<td>Mike Schwisow</td>
<td>Columbia Basin Development League</td>
</tr>
<tr>
<td>Teresa Scott</td>
<td>Washington State Department of Fish &amp; Wildlife</td>
</tr>
<tr>
<td>Craig Simpson</td>
<td>East Columbia Basin Irrigation District</td>
</tr>
<tr>
<td>Rich Stevens</td>
<td>Grant County Commissioners</td>
</tr>
<tr>
<td>John Stuhlmiller</td>
<td>Washington State Farm Bureau</td>
</tr>
<tr>
<td>Rob Swedo</td>
<td>Bonneville Power Administration</td>
</tr>
</tbody>
</table>
**Completed, Constructed Projects**

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

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

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

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

- **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)

- **Campbell Creek Reservoir Study**  
  Ac-Ft of Water = 500  
  Cost = $232,500 (Study)

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

- **Wanapum Pool Raise**  
  Ac-Ft of Water = 70,000  
  Cost = $500,000 (Wanapum EIS)  
  *SBCA Funding

- **Crab Creek Storage Project**  
  Ac-Ft of Water = 1-3 Million  
  Cost = $4,112,139

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

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

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

**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.
2010 Milestones

Along with meeting the five legislative directives that provide benefits for instream and out-of-stream users, OCR-funded projects produce economic benefits by creating jobs and generating revenue.

The year 2010 resulted in landmark achievements in securing water for both instream and out-of-stream users. The Sullivan Lake Project makes water available to enhance instream flows and for future water rights to cities and towns. The Lake Roosevelt Incremental Releases Project advanced to a stage that allows OCR to begin issuing water rights in 2011. Also, upon completion of the Weber Siphon Project, 7,000 acre-feet of water from the Lake Roosevelt Releases will be delivered to Odessa farmers. The Red Mountain AVA Project will provide irrigation for additional wine grape acreage and improve stream flows in the lower Yakima River.

Along with providing these instream and out-of-stream benefits, OCR projects produce economic benefits by creating jobs and generating revenue. The Sullivan Lake Water Supply Project will generate $2 million annually for the economy. By irrigating an additional 1,785 acres of vineyards, the Red Mountain Pump Exchange Project will inject $9.2 million annually into Washington’s economy. The Lake Roosevelt Incremental Storage Releases Project protects hundreds of jobs and creates $3 billion for the economy (WA State Office of Financial Management).

**Sullivan Lake Water Supply Project (💧)**

The Sullivan Lake Project provides a rare opportunity to create new water supplies in a part of the state where few opportunities exist. Located in Pend Oreille County, the lake is 1,200 acres in area and 330 feet deep. A hydropower facility on the lake is currently being decommissioned. In partnership with Pend Oreille Public Utility District (PUD), OCR negotiated an agreement to re-operate Sullivan Dam to make available 14,000 acre-feet of water for out-of-stream permits and instream flows. The water will be retimed from being released in the winter to being released during the summer when it is needed the most. To ensure that the northeast counties benefit from the water, OCR has proposed 2011 legislation to authorize that permits for this water be issued only to applicants in the Ferry, Pend Oreille, Douglas, Okanogan, Stevens and Lincoln Counties, with a focus on municipal and industrial demands. The project will also provide additional water to improve instream flows in the Pend Oreille River all the way to the mouth of the Columbia. The instream portion will be managed by Department of Fish and Wildlife’s Fish Flow Releases Advisory Group, which is assisting OCR in the management of instream releases.
OCR will reach an important milestone when it begins issuing new municipal and industrial (M&I) permits from water made available through the Lake Roosevelt Incremental Storage Releases. Water-strapped cities and businesses, many who have been waiting years for relief, will be the recipients of the largest block of M&I water, 25,000 acre-feet, that has been developed in decades.

The storage releases would be diverted from The Bureau of Reclamation’s existing 6.4 million acre-foot storage right for water behind Grand Coulee Dam. The releases would result in an additional one foot drawdown of the lake level during the spring and summer months (1.8 feet during drought years). This additional drawdown is small compared to the normal operating range of Lake Roosevelt, which can fluctuate up to 80 feet a year and up to 2.5 feet a day. In 2010, OCR took preliminary steps to evaluate which applicants are eligible to receive municipal and industrial water use permits from this project. Over one hundred eighty applicants are being contacted, site visits are being conducted, and hydrologic work has begun. Permits will be issued once OCR receives a final contract from the Bureau of Reclamation. The Washington Supreme Court’s pending ruling on the definition of “municipality” may affect the status of some applications.

The releases will help endangered salmon and steelhead by adding 27,500 acre-feet to Columbia River stream flows. Additional water releases for fish will occur during drought years. In 2009, Washington Department of Fish and Wildlife chaired a Fish Flow Releases Advisory Group comprised of state, federal and tribal fisheries managers. The group developed recommendations for this project. These recommendations were incorporated into the annual water management plan for the Federal Columbia River Power System.

Another 30,000 acre-feet is being readied for the Odessa Subarea via water service contracts issued by the East Columbia Basin Irrigation District, where, according to Washington State University, declining aquifers could cost Washington thousands of jobs and hundreds of million dollars annually.
Weber Siphon Project (P)

The Weber Siphon Project is needed to deliver water from the Lake Roosevelt Incremental Storage Releases to the southern portion of the Columbia Basin. The project expands the capacity to convey Columbia Basin Project water which will be available for agricultural, municipal and industrial uses. The project constructs a second pipe, nearly 15 feet in diameter, alongside an existing pipeline at the Weber Siphon Complex. This will eliminate a water delivery bottleneck in the East Low Canal where it crosses Interstate 90 near Moses Lake. OCR contributed $800,000 of the $51 million project’s budget. Federal stimulus money paid for the project’s remaining cost. Project completion is scheduled for December 2011.

Washington Department of Fish and Wildlife (WDFW) is one of several contractors developing environmental information for the proposed delivery of project water to groundwater irrigators in the Odessa Subarea. They coordinate a Habitat Evaluation Procedure to estimate habitat damage and determine ways to mitigate, to investigate fish and invertebrate production in Banks Lake and to conduct a terrestrial wildlife survey. Reclamation engineers use the preliminary terrestrial survey data and biologists’ recommendations to design and locate several canal escape ramps and crossings. These crossings maintain wildlife migration corridors that reduce entrapments of wildlife within canals. Together, these studies provide critical information on how to best respond to the impacts to fish and wildlife.

Yakima River Basin Water Enhancement Project (TDHF)

Water shortages are a chronic problem in the Yakima River Basin. Demand for water to irrigate crops, provide drinking water and ensure salmon and steelhead survival is greater than supply. In June 2009 Ecology and the U.S. Bureau of Reclamation brought representatives from The Yakama Nation, irrigation districts, environmental organizations and federal, state and local governments together to form a working group. The goal was to develop a consensus-based solution to the Basin’s water problems. By December 2009, the group agreed upon a preliminary integrated water resource management plan that included water supply, enhanced conservation, modification of existing operations, fish passage and habitat enhancement elements. The plan, which will be finalized by the end of 2010, identifies the type of work that will be done in two phases.
Red Mountain AVA Pump Project

This project highlights OCR’s dual endeavors: benefitting instream needs and out-of-stream users. OCR and Kennewick Irrigation District (KID) worked together to develop a coalition of stakeholders, including the Bureau of Reclamation (Reclamation), the Yakama Nation, and WDFW, to fund and permit a Yakima River project that will help the economy and environment. Water savings from efficiency improvements and past land use changes were used to provide irrigation for additional wine grape acreage. Stream flows increased between Prosser and Benton City by moving the KID’s diversion point down stream. An additional 1,785 acres of irrigated vineyard will inject $9.2 million annually into Washington’s economy. Environmentally, 7,435 acre-feet of water – enough to cover over 11 square miles of land with one foot of water – will be released into a persistently low-flowing stretch of the Yakima River. This will enhance the instream flow for salmon and steelhead. Water from this project will be available in 2012.

Another feature of this project is shrub steppe mitigation. OCR and KID each contributed $500,000 dollars for a pilot project to purchase native shrub steppe lands elsewhere in the state. The land purchase serves to mitigate for the project’s impact of converting lands from shrub steppe habitat to irrigated acres. In July 2010, Ecology, WDFW, KID, and Reclamation signed a Memorandum of Agreement to recognize and act on the potential impacts of OCR projects on shrub steppe habitats.

Columbia Basin Aquifer Storage and Recovery Exploration Project

OCR is investing $1.75 million to evaluate state-owned lands as potential aquifer storage and recovery storage sites. During the next two years, drilling and testing will occur at sites within the Columbia River Basin. Preferred sites will have minimal environmental impacts, low capital costs and will not impair existing water rights. If water supply is developed, two-thirds of the water will be for out-of-stream uses and one-third for instream benefit.

508-14 Project

Ecology is proposing to amend Chapter 508-14 WAC, “Columbia Basin Project – Ground Waters,” which was adopted in 1969 and amended in 1988. This rule currently describes Ecology’s permitting process for commingled naturally and artificially stored groundwater beneath the Columbia Basin Project. The purposes of the rule amendment are to:

- Determine the amount of naturally and artificially stored groundwater in the 508-14 Area
- Clarify the permitting approach for new applicants applying for use of naturally stored groundwater
- Clarify the permitting approach for new applicant applying for use of artificially stored groundwater
- Determine whether or not any existing permittees will receive groundwater certificates

Ecology plans to have the rule-making completed by September 2012.
2009-2010 Projects

In 2006, the Legislature established the Columbia River Basin Water Supply Development Account and authorized $200 million to fund it. As stated in Chapter 90.90.010 RCW, expenditures from the account “...may be used to assess, plan, and develop new storage, improve or alter operations of existing storage facilities, implement conservation projects, or any other actions designed to provide access to new water supplies within the Columbia River Basin for both instream and out-of-stream uses.” Each year, OCR has funded projects consistent with this legislative mandate and has developed separate grant processes for different types of water supply projects, including Modification of Existing Storage, New Large Storage, Conservation and Acquisition.

OCR’s 2009 legislative report discussed a draft funding list for the 2009 competitive grant program. The competitive grant projects primarily focused on making water available for pending water right applicants and improved instream flows. After review by the Policy Advisory Group, OCR selected the competitive grant projects to fund. The corresponding table includes the newly funded competitive and non-competitive grant projects as well as the 2008 projects whose continuing phases were funded.

A wide range of projects were funded. A pilot program with the Conservation District will determine if conservation projects can retime non-consumptive return flows resulting in more water in the Columbia River during July and August. Sites for large storage and pump storage facilities are being studied at Goose Lake and Nine Mile Flat in Okanogan and Ferry Counties. OCR and Chelan Public Utility District (PUD) are collaborating on three projects. The first project involves initial evaluation of eight potential sites for a pump storage facility. From the eight sites, two will be selected for an in-depth evaluation. The second project with Chelan PUD expands the study of potential storage sites at Rock Island. The third project evaluates a three foot pool raise at Rocky Reach Dam. The raise would result in 28,000 acre feet of additional water to be used for instream and out-of-stream purposes. This project would also create power generation opportunities for the PUD. Information on all of the projects can be found at: http://www.ecy.wa.gov/programs/wr/cwp/projects.html

Photo by Richard E. Swanson

The Columbia River near The Dalles.
<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Cost</th>
<th>Water</th>
<th>Status</th>
<th>Legislative Directive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chelan PUD Pump Storage Pre-Appraisal and Appraisal Studies</td>
<td>Pre-appraisal of eight sites Appraisal of two sites</td>
<td>$165,000 (pre-appraisal) $400,000 (appraisal)</td>
<td>50,000 Ac-ft</td>
<td>Contract negotiations underway</td>
<td>Instream Flow Future Supplies Pending Apps</td>
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<td>Chelan PUD Rock Island Off Channel Storage Pre-Appraisal Study</td>
<td>Phase II investigation of potential site</td>
<td>$125,000</td>
<td>151,200 Ac-ft</td>
<td>Contract negotiations underway</td>
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<td>Chelan PUD Rocky Reach Pool Raise</td>
<td>Evaluate a 3 ft pool raise at Rocky Reach Dam</td>
<td>$500,000 for EIS</td>
<td>28,000 Ac-ft</td>
<td>Contract negotiations underway</td>
<td>Instream Flow New Supplies Pending Apps</td>
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<td>Conservation Commission Project</td>
<td>Water conservation projects</td>
<td>$2M</td>
<td>TBD</td>
<td>Project plan completed</td>
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<tr>
<td>CBID Piping</td>
<td>Improve efficiency of water delivery systems</td>
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<td>Foster CD: Moses Coulee Shallow Aquifer Recharge Appraisal Study</td>
<td>Phase II investigation of shallow aquifer recharge at Moses Coulee</td>
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<td>Instream Flow Future Supplies Pending Apps</td>
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<td>Goose Lake &amp; Nine Mile Flat Storage Pre-Appraisal Study</td>
<td>Investigate pump storage and large sites in Okanogan and Ferry Counties</td>
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<td>4.75M Ac-ft</td>
<td>Contract negotiations underway</td>
<td>Instream Flow Future Supplies Pending Apps</td>
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<td>Klickitat County Horse Heaven Hills Appraisal Study</td>
<td>Phase II investigation of surface and aquifer storage sites</td>
<td>$300,000</td>
<td>105,000 Ac-ft</td>
<td>Contract negotiations underway</td>
<td>Instream Flow Interruptibles Future Supplies Pending Apps</td>
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<td>Lower Wenatchee Instream Flow Enhancement Project</td>
<td>Convert open canals to closed pipe</td>
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<td>1,493 Ac-ft</td>
<td>Contract negotiations underway</td>
<td>Instream Flow Future Supplies Pending Apps</td>
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<td>Manashtash Piping</td>
<td>Convert ditches to pipes</td>
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<td>454 Ac-ft</td>
<td>Project underway</td>
<td>Pending Apps</td>
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<td>Mill Creek Storage Appraisal Study</td>
<td>Phase II continued investigation, additional storage study of possible alternatives</td>
<td>$425,000</td>
<td>2,000-11,000 Ac-ft</td>
<td>Work-plan under development</td>
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<td>Peshastin Irrigation District Piping</td>
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<td>Peshastin Pump Exchange Study</td>
<td>Investigate pumping from mouth of Peshastin Creek to irrigation canals</td>
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<td>Contract negotiations underway</td>
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<td>Salmon Recovery Board &amp; Tribal Fisheries Projects</td>
<td>Projects to enhance instream flows</td>
<td>$1 Million</td>
<td>TBD</td>
<td>Discussions underway</td>
<td>Instream Flow Mitigation of new uses</td>
</tr>
</tbody>
</table>

*Funding of projects may be dependent on 2011 legislative appropriations*
Legislative Proposals and Rulemaking

To improve program implementation effectiveness and to maximize and sustain Columbia River water supply investments, OCR proposed the following amendments to Chapter 90.90 RCW:

1. **Expand Cost Recovery Authority:** The Office of Columbia River needs a non-federal cost recovery feature to be successful in developing long-term and sustainable water supplies. OCR already has authority in RCW 90.42.150 to recover costs associated with federal water service contracts, such as in the Lake Roosevelt Incremental Storage Release Project. The proposed legislation will create ways to recover invested funds that will then be available to finance future projects. OCR is currently negotiating cost recovery features into many of its new projects, including the Red Mountain AVA Pump Project and Rocky Reach Pool Raise Project.

2. **Expand Pump Exchange Authority:** RCW 90.90.010(2) (b) states: “Two-thirds of the funds placed in the account shall be used to support the development of new storage facilities; the remaining one-third shall be used for the other purposes listed in this section.” OCR will request that funding for pump exchange projects be included in the two-thirds portion of the account. In many cases, pump exchanges have the storage-like benefits of instream and out-of-stream uses and use major tributaries as water sources for smaller tributaries. In addition, they often have smaller environmental footprints than storage projects. Moving pump exchange projects to the two-thirds portion will create a balance that provides sufficient money to fund pump exchanges, while retaining funds for conservation, instream flow enhancement and other projects. Examples of projects that could benefit from this legislation include the Walla Walla Pump Exchange Project and the Red Mountain AVA Pump Project.

“Active water management means anticipating needs for water in the future and developing an awareness of where it is going to be difficult to meet those needs. We must pursue changes in planning, policy, rule-making and reforming our water laws to meet those challenges.”

Brian Walsh, Ecology Policy and Planning Section Manager
3 **Expand Storage Allocation:** RCW 90.90.020(1) requires that one-third of the water developed from a storage project is allocated for instream uses and two-thirds for out-of-stream uses. Tying the allocation to specific projects makes it difficult for OCR to meet specific local needs and maximize its water supply development potential. The proposed legislation would allow OCR to distribute the one-third/two thirds balance across the full suite of its projects rather than applying it on a project-by-project basis.

4 **Allocation of Water in the Northeastern Counties:** Water supply projects are limited in northeast Washington. The Sullivan Lake Water Supply Project provides a rare opportunity to create new instream and out-of-stream water resources for this area. To ensure that these counties benefit from the project’s water, this legislation authorizes that permits will be issued only to applicants in the six northeastern counties. It also requires that half of the out-of-stream water is for municipal, domestic and industrial uses.

To improve permit processing and clarify how permit applicants can access OCR-funded water supplies, OCR proposed the following amendments to Chapter 173-152 WAC, commonly referred to as the “Hillis Rule.” The amendments would:

1. **Describe OCR’s processing of permit applications** collectively within Ecology’s Central, Eastern and a portion of its Southwest regions. (Currently Ecology organizes workload by regions.) Since OCR spans three regions, this change allows OCR to process specific applications independent of regional boundaries.

2. **Create a new priority processing opportunity for OCR water right applications.** For storage projects that do not conflict with fisheries objectives and are funded by OCR, Ecology may move new applications for diversionary rights into reservoirs ahead of competing applications. This will allow supply projects to be permitted first, which are necessary to fulfill the demand for earlier-filed water right applications for farms, cities and industry.
OCR has added nearly 150,000 acre-feet to Eastern Washington’s water supply and continues to develop additional water resources through near term and long term projects. Once new water supplies are developed for instream flows, they are available for use. Minimal processing is required. However, making water available for out-of-stream uses requires several steps before permits are issued. Numerous requirements are followed and may include: consultations with government agencies, tribal councils and interested parties; environmental reviews and, sometimes, litigation. Typically, it takes one year or more to issue a permit. The graphic below shows the status of OCR’s water supply development activity.

**New Water Supply Developed by The Office of Columbia River**

**Developed**
- Barker Ranch: 6,436 ac-ft
- Columbia Basin Irrigation District Piping: 2,521 ac-ft
- Donations: 6,066 ac-ft
- Lake Roosevelt: 132,500 ac-ft
- Potholes Supplemental Feed Route (conveyance)

**Near Term Development**
- Boise Cascade AR: 1,657 ac-ft
- Columbia Basin I.D.: 2,929 ac-ft
- Conservation Commission I.E.: TBD
- 508.14 Rule Change: TBD
- Kennewick AR: 318+ ac-ft
- Lower Wenatchee: 1,493 ac-ft
- Manashtash: 454 ac-ft
- Odessa Subarea: 250,000 ac-ft
- Peshastin I.D.: Piping: 360 ac-ft
- Red Mountain: 20,423 ac-ft
- Rocky Reach: 28,000 ac-ft
- SRB & Tribal Fisheries: TBD
- Sullivan Lake: 14,000 ac-ft
- White Salmon AR: 145 ac-ft

**Long Term Development**
- 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
- Rock Lake Storage: 110,000 ac-ft
- Spokane-Rathdrum Prairie A.S.R.: TBD
- Walla Walla Pump Exchange: 30,000 ac-ft
- Yakima River Water Enhancement: 350,000 ac-ft

*The first bucket shows the total amount of water currently developed through new projects for out-of-stream and instream uses. The second bucket shows the amount of water expected to be developed within 1 to 5 years. The third bucket shows the amount of water expected to be developed beginning 6 or more years from now.*

*Long term projects are either under study or waiting for federal or other approval. The results will determine if the projects move forward.*
Status of the $200M Columbia River Basin Water Supply Account
(2/3 for storage and 1/3 for conservation and other non-storage projects)

The pie chart shows the current appropriation of funds from the Columbia River Basin Water Supply Development Account. Under RCW 90.90.010(2)(b), two-thirds of the account must be spent on storage and one third for “other purposes.” The arrows surrounding the circle reflect this split. The pie slices in the circle reflect the allocated and remaining funds within each split.

Completed Projects

Seven projects were completed in 2010. Projects included the study of potential sites for future surface storage, conversion of open irrigation ditches and canals to enclosed pipes, and assessment of the effects of diverting winter water from the Columbia River to a future storage site. Several projects were feasibility studies, with their results currently being evaluated.

Of the seven completed projects, two were construction projects. The Barker Ranch Irrigation Canal Piping project is located in Benton County. With funding from OCR to convert an open canal to a closed pipe system, water delivery is now more efficient. The increased efficiency allows Barker Ranch to divert less water from the Yakima River, which adds an additional 6,436 acre-feet of water to instream flows during critical times when fish need it most.

In partnership with three Columbia Basin Irrigation Districts, OCR funded a Coordinated Conservation Plan. This Plan identifies potential water conservation projects within each irrigation district. The net water savings from implemented projects will be used to supply the Odessa Subarea and to enhance Columbia River instream flows. The first project selected was lining and piping leaking canals. Along with local matching funds, OCR committed $1 million that replaced 25,961 feet of canals with pipe and lined 1,500 feet of canals. This conservation effort conserved 1,286 acre-feet of water that will be made available to Odessa farmers each year, starting in 2011.

The following table lists the completed projects. For more details, go to [http://www.ecy.wa.gov/programs/wr/cwp/projects.html](http://www.ecy.wa.gov/programs/wr/cwp/projects.html)

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Cost</th>
<th>Water</th>
<th>Status</th>
<th>Legislative Directive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barker Ranch Canal Piping</td>
<td>Convert canal to closed pipe</td>
<td>$5.6M</td>
<td>6,436 Ac-ft</td>
<td>Construction Completed</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Columbia Basin Irrigation Districts</td>
<td>1. Develop Conservation plan 2. Convert open canals to pipe and line canals</td>
<td>$30,000 Plan $1M piping</td>
<td>5,721 Ac-ft</td>
<td>Plan completed Piping and lining underway</td>
<td>Instream Flow Odessa Subarea</td>
</tr>
<tr>
<td>Foster CD Surface Storage Pre-Appraisal Study</td>
<td>Investigate small water storage sites</td>
<td>$93,750</td>
<td>TBD</td>
<td>Study completed; Phase II funded for Moses Coulee SAR and Rock Island Storage</td>
<td>Instream Flow Pending Apps</td>
</tr>
<tr>
<td>Klickitat County (Horse Heaven Hills)</td>
<td>Investigate ASR and surface storage sites</td>
<td>$170,000</td>
<td>105,000 Ac-ft</td>
<td>Pre-Appraisal Study Completed Phase II, Appraisal Study funded</td>
<td>Pending Apps</td>
</tr>
<tr>
<td>Mill Creek Storage Pre-Appraisal Study</td>
<td>Investigate small surface storage</td>
<td>$125,000</td>
<td>2,000 – 11,000 Ac-ft</td>
<td>Pre-Appraisal Study completed; Phase II, Appraisal Study, funded</td>
<td>Instream Flow Pending Apps</td>
</tr>
<tr>
<td>Similkameen River Storage Pre-Feasibility Study</td>
<td>Investigate large storage site in Okanogan County</td>
<td>$325,000</td>
<td>50,000 – 1.7M Ac-ft</td>
<td>Study completed. Next phase being pursued by Okanogan PUD.</td>
<td></td>
</tr>
</tbody>
</table>
Ongoing Projects

Each year OCR has funded projects consistent with the legislative mandate to aggressively pursue development of water supplies. The table lists previously funded projects that are underway. Information on each project is available at: http://www.ecy.wa.gov/programs/wr/cwp/projects.html.

Table 3: Ongoing Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Cost</th>
<th>Water</th>
<th>Status</th>
<th>Legislative Directive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boise Cascade ASR Pilot</td>
<td>Installation of an ASR system</td>
<td>$6M</td>
<td>1,657 Ac-ft</td>
<td>Pilot under construction</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Conservation Commission Retiming Pilot</td>
<td>Franklin CD &amp; WSCC/CRSIA VRA Retiming Project</td>
<td>$1M</td>
<td>TBD</td>
<td>In progress</td>
<td>Pending Apps</td>
</tr>
<tr>
<td>Crab Creek Storage Study</td>
<td>Investigate large storage site in Grant County</td>
<td>$4M</td>
<td>1 - 3M Ac-ft</td>
<td>On hold</td>
<td></td>
</tr>
<tr>
<td>Franklin CD Irrigation Water Management (IWM) Feasibility Study</td>
<td>Investigate IWM practices and water saved</td>
<td>$78,000</td>
<td>TBD</td>
<td>In progress</td>
<td>Pending Apps</td>
</tr>
<tr>
<td>Kennewick ASR</td>
<td>Installation of an ASR system</td>
<td>$2.25M</td>
<td>318+ Ac-ft</td>
<td>Pilot under construction</td>
<td>Pending Apps</td>
</tr>
<tr>
<td>Odessa Subarea Special Study</td>
<td>Investigate options to provide surface water to replace current groundwater used for irrigation</td>
<td>$8.2M</td>
<td>250,000 Ac-ft</td>
<td>10/2010: Draft EIS; 11/2010: Final EIS</td>
<td>Odessa Subarea</td>
</tr>
<tr>
<td>Passive Rehydration (Lincoln CD) Feasibility Study</td>
<td>Investigate rehydration of basalt aquifers in Lincoln &amp; Adams Counties</td>
<td>$925,000</td>
<td>300,000 Ac-ft</td>
<td>6/2011 Estimated completion</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Potholes Reservoir Supplemental Feed Route</td>
<td>OCR &amp; Reclamation project to improve delivery system to Potholes Reservoir</td>
<td>$15M (ECY)</td>
<td>Conveyance</td>
<td>Improvements to Crab Creek, Pinto Dam and Brooks Lake underway</td>
<td>System Reliability</td>
</tr>
<tr>
<td>Rock Lake Storage Feasibility Study</td>
<td>Investigate potential storage site</td>
<td>$126,000</td>
<td>110,000 Ac-ft</td>
<td>Pending: technical, legal or funding issue</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Spokane Rathdrum Prairie ASR Feasibility Study</td>
<td>Investigate aquifer storage sites</td>
<td>$250,000</td>
<td>TBD</td>
<td>Project underway</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Walla Walla Pump Exchange Study</td>
<td>Investigate stream flow restoration through: acquisition, water conservation, ground water recharge, pump exchange</td>
<td>$650,000* EIS</td>
<td>30,000 Ac-ft</td>
<td>Project underway</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Wanapum Pool Raise Appraisal Study</td>
<td>Investigation of reservoir reoperation</td>
<td>$500,000</td>
<td>70,000 Ac-ft</td>
<td>Terminated</td>
<td></td>
</tr>
<tr>
<td>White Salmon ASR Pilot</td>
<td>Installation of an ASR system</td>
<td>$956,950</td>
<td>145 Ac-ft</td>
<td>Pilot under construction</td>
<td>Instream Flow</td>
</tr>
<tr>
<td>Yakima River Basin Water Enhancement Project</td>
<td>OCR &amp; Reclamation project to develop an integrated water management plan</td>
<td>$10M**</td>
<td>350,000 Ac-ft</td>
<td>Final plan due end of 2010</td>
<td>Future Uses Interruptibles</td>
</tr>
</tbody>
</table>

* SBCA Funding; ** Funded by General Fund Account
Five of the ongoing projects involve storing water in aquifers located throughout the Basin. Underground storage of water for future recovery is a viable approach to augment water availability. The aquifer essentially functions as a water bank. Deposits are made in times of surplus, typically when river flows are high, and withdrawals occur when available water supplies fall short of demand.

Four of the projects are aquifer storage and recovery projects (ASR) and one, Lincoln County Passive Rehydration Project, is an aquifer recovery project (AR).

- An ASR project involves injecting water into an aquifer through wells or by surface spreading and infiltration. The water is then pumped out when needed.
- An AR project involves applying water in a controlled fashion for the purpose of replenishing the aquifer. The water is naturally released back to the environment.

Some recognized benefits of Aquifer Storage and Recovery are:

- Substantial amounts of water can be stored deep underground. This may reduce the need to construct large and expensive surface reservoirs.
- ASR systems are considered to be more environmentally friendly than surface reservoirs. They also offer more protection from tampering.
- ASR may restore and expand the function of an aquifer that has experienced long-term declines in water levels due to heavy pumping necessary to meet growing urban and agricultural water needs.

In addition to these ASR projects, drilling and testing will occur over the next two years on state-owned sites to evaluate potential aquifer storage and recovery storage sites.
Water Supply and Demand Forecast

The second Water Supply and Demand Forecast is scheduled for completion in November 2011. The Forecast will serve as a capital investment planning tool for the state. It will identify and quantify critical water needs and guide decisions regarding state investments in water supply development projects. The Forecast evaluates supply and demand at three geographic levels: 1) basin-wide to include seven states and British Columbia; 2) watersheds within Washington; and 3) the one-mile corridor along the Columbia River Mainstem. Each tier reports on the existing regulatory framework for supply management in the Columbia River Basin and potential changes due to changing legal conditions, policy choices, climate change and water supply projects. Future demands for agriculture, municipalities, hydroelectric power and instream flows are evaluated.

To assist with this project, Ecology contracted with Washington State University (WSU) and Washington State Department of Fish & Wildlife (WDFW). This collaboration allows sharing of professional expertise, scientific data, and state of the art tools. In the first phase of this project, WSU made significant progress on preparing computer models to create different scenarios that use hydrologic, climatic, economic and cropping systems data. This is innovative technology and it is the first time that these computer models have been linked to predict future water supply and demand under changing circumstances. WSU will run modeling scenarios on Washington’s major crops, climate change projections, water availability and distribution, and economic growth and trade options.

Agriculture plays a vital role in the health and vibrancy of Washington’s economy. The foundation of the economic analysis is the baseline forecast of crop production. WSU analyzed data from USDA National Agriculture Statistics Service and other reliable data sources. They also developed baseline forecasts of crop acreage and began work on an economic model of Washington’s agricultural sector that uses economic theory to describe how inputs, represented by quantities and prices, are used to produce outputs. The model will help us understand how changes in future conditions will affect production decisions and water demand.

WSU worked with the University of Washington Climate Impacts Group (CIG) to select and process the appropriate climate data to use for modeling future water availability. Using CIG’s data, the Forecast examines supply and demand under projected 2030 climate conditions. The results of a climate change study by the Climate Impact Group will be incorporated into the 2011 forecast.

OCR in cooperation with WDFW will forecast instream flow demands. Compilation of instream flow data on the Columbia River and tributaries gives information on drought frequency, shows months when instream flows are met and identifies when there is an excess or deficit of water. WDFW will produce an Instream Atlas that prioritizes stream reaches for flow restoration and shows critical fish life stages. Overlaying the instream flow data with the Atlas will help OCR select projects to ensure that projects benefit instream flow and protect fish habitats.

Washington Department of Fish and Wildlife (WDFW) developed a three dimensional cube to help determine what projects provide the best benefits to fish, particularly salmon. Scenarios are evaluated based on the cube’s three parameters: biodiversity, instream flow and habitat condition. For example: While a section of the lower Yakima River has a high biodiversity of salmonid, the poor habitat conditions and low summer flows are detrimental to fish. Therefore, a preferred water supply project would be one that restores the habitat and provides water to enhance instream flows. Knowing the environmental parameters helps OCR and WDFW understand how proposed projects may benefit fish.
Seven new projects were submitted for the 2010 inventory, bringing the total projects compiled between 2006-2010 to 6,182. Each year, Ecology screens the projects in its inventory and meets with project proponents as part of its annual grant program to determine grant eligibility. While the inventory shows approximately 11 million ac-ft of water supplies that could be developed, the inventory includes projects whose feasibility is untested, feasible projects lacking proponents, and feasible projects without adequate funding to construct, permit, and manage. OCR’s prioritization of projects each year also seeks to balance where supply is available with the demands the Legislature directed OCR to solve (i.e. Odessa, fish, interruptibles and new applications). Finally, OCR’s funding ($200 million) relative to the total cost to develop the projects in the inventory ($15+ billion) is small. OCR is favoring projects that leverage other federal, state and local funding sources to maximize the public return on investment.

Table 4: Supply Inventory

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>Number of Projects Listed</th>
<th>Number of Projects with Water Savings (Projects with Cost Data)</th>
<th>Projects with Water Savings &amp; Cost Data</th>
<th>Estimated Water Savings (ac-ft/year)</th>
<th>Estimated Cost</th>
<th>Estimated Cost per ac-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Large Storage (&gt;1,000,000 ac-ft)</td>
<td>5 5</td>
<td>5 (5)</td>
<td>9,580,000</td>
<td>$13,457,886,563</td>
<td>$1,405</td>
<td></td>
</tr>
<tr>
<td>New Small Storage (&lt;1,000,000 ac-ft)</td>
<td>113 117</td>
<td>92 (56)</td>
<td>269,750</td>
<td>$762,920,425</td>
<td>$2,828</td>
<td></td>
</tr>
<tr>
<td>Aquifer Storage and Recovery</td>
<td>38 38</td>
<td>8 (14)</td>
<td>2,581</td>
<td>$8,857,000</td>
<td>$3,432</td>
<td></td>
</tr>
<tr>
<td>Modification to Existing Storage</td>
<td>8 9</td>
<td>7 (2)</td>
<td>70,300</td>
<td>$33,500,000</td>
<td>$477</td>
<td></td>
</tr>
<tr>
<td>Lining/Piping</td>
<td>177 178</td>
<td>115 (131)</td>
<td>484,031</td>
<td>$546,692,587</td>
<td>$1,129</td>
<td></td>
</tr>
<tr>
<td>On-farm Efficiency</td>
<td>5,589 5,589</td>
<td>5,404 (5,412)</td>
<td>263,143</td>
<td>$343,079,425</td>
<td>$1,304</td>
<td></td>
</tr>
<tr>
<td>Irrigation Water Management*</td>
<td>34 35</td>
<td>2 (1)</td>
<td>243,503</td>
<td>$9,167,184</td>
<td>$38</td>
<td></td>
</tr>
<tr>
<td>Automation &amp; System Control</td>
<td>46 46</td>
<td>21 (40)</td>
<td>26,307</td>
<td>$9,757,000</td>
<td>$371</td>
<td></td>
</tr>
<tr>
<td>General Water Conservation*</td>
<td>89 89</td>
<td>5 (9)</td>
<td>12,914</td>
<td>$7,196,300</td>
<td>$557</td>
<td></td>
</tr>
<tr>
<td>Tail Water Reuse</td>
<td>4 4</td>
<td>4 (4)</td>
<td>5,800</td>
<td>$1,040,000</td>
<td>$179</td>
<td></td>
</tr>
<tr>
<td>Surface to Groundwater Conversion</td>
<td>1 1</td>
<td>1 (1)</td>
<td>360</td>
<td>$200,000</td>
<td>$556</td>
<td></td>
</tr>
<tr>
<td>Reclaimed Water</td>
<td>1 1</td>
<td>0 (0)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Municipal Conservation</td>
<td>0 0</td>
<td>0 (0)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Partial Season Acquisitions/Leases*</td>
<td>10 10</td>
<td>5 (3)</td>
<td>80,360</td>
<td>$6,700,000</td>
<td>$83</td>
<td></td>
</tr>
<tr>
<td>Fallowed Corners/Land Retirement</td>
<td>45 45</td>
<td>31 (31)</td>
<td>392</td>
<td>$392,100</td>
<td>$1,000</td>
<td></td>
</tr>
<tr>
<td>Crop Water Duty Reductions</td>
<td>15 15</td>
<td>0 (0)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Land Conservation Programs</td>
<td>0 0</td>
<td>0 (0)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Crop Change</td>
<td>0 0</td>
<td>0 (0)</td>
<td>unknown</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Total (all)</td>
<td>6,175 6,182</td>
<td>5,700 (5,709)</td>
<td>11,039,441</td>
<td>$15,187,388,584</td>
<td>$15,211,338,584</td>
<td></td>
</tr>
<tr>
<td>Total (conservation &amp; acquis. only)</td>
<td>6,011 6,013</td>
<td>5,588 (5,632)</td>
<td>1,116,810</td>
<td>$924,224,596</td>
<td>$925,174,596</td>
<td></td>
</tr>
</tbody>
</table>


* Annual cost per acre; *General Water Conservation projects include public education, planning, researching and developing innovative irrigation implementation.
Expanded Supply Inventory

CD placeholder
Water quality would benefit from reduced irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners. The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion.

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<table>
<thead>
<tr>
<th>Year</th>
<th>Project Name</th>
<th>Location</th>
<th>Services Provided</th>
<th>Estimated Cost</th>
<th>Town</th>
<th>Responsible Agency</th>
<th>Year Saved</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Water Savings 1</td>
<td>Benton CD</td>
<td>Irrigation Canal Lining/Piping</td>
<td>$500,000</td>
<td>Benton</td>
<td>KID</td>
<td>2007</td>
<td>Water Savings 1 is a project that aims to improve water quality by converting an irrigation canal. The project involves lining and piping the canal to reduce water loss and improve flow. It is estimated to cost $500,000 and will be completed in 2007.</td>
</tr>
<tr>
<td>2007</td>
<td>Water Savings 2</td>
<td>Benton CD</td>
<td>Pipe Lining</td>
<td>$300,000</td>
<td>Benton</td>
<td>KID</td>
<td>2007</td>
<td>This project involves lining the irrigation canal to reduce water loss. It is estimated to cost $300,000 and will be completed in 2007.</td>
</tr>
<tr>
<td>2007</td>
<td>Water Savings 3</td>
<td>Benton CD</td>
<td>Irrigation Canal Lining/Piping</td>
<td>$400,000</td>
<td>Benton</td>
<td>KID</td>
<td>2007</td>
<td>Similar to Water Savings 1 and 2, this project aims to improve water quality by lining and piping the irrigation canal. It is estimated to cost $400,000 and will be completed in 2007.</td>
</tr>
<tr>
<td>2007</td>
<td>Water Savings 4</td>
<td>Benton CD</td>
<td>Pipe Lining</td>
<td>$200,000</td>
<td>Benton</td>
<td>KID</td>
<td>2007</td>
<td>The project focuses on lining the irrigation canal to reduce water loss. It is estimated to cost $200,000 and will be completed in 2007.</td>
</tr>
<tr>
<td>2007</td>
<td>Water Savings 5</td>
<td>Benton CD</td>
<td>Irrigation Canal Lining/Piping</td>
<td>$350,000</td>
<td>Benton</td>
<td>KID</td>
<td>2007</td>
<td>This project involves lining and piping the irrigation canal to improve water quality. It is estimated to cost $350,000 and will be completed in 2007.</td>
</tr>
<tr>
<td>2007</td>
<td>Water Savings 6</td>
<td>Benton CD</td>
<td>Pipe Lining</td>
<td>$250,000</td>
<td>Benton</td>
<td>KID</td>
<td>2007</td>
<td>The project aims to reduce water loss by lining the irrigation canal. It is estimated to cost $250,000 and will be completed in 2007.</td>
</tr>
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</table>

**Notes:**
- Water Savings projects aim to improve water quality and reduce water loss by lining and piping irrigation canals.
- The projects are estimated to cost between $200,000 and $500,000.
- All projects will be completed in 2007 unless otherwise noted.
System includes sections 27, 28, 34, 35, 36. 2006 Bergivin/Willow.

Private

Walla Walla City of Walla

- Improve fish habitat, fish passage, and water temperature quality in the Walla Walla River.
- Install moisture monitoring devices to activate an automatic irrigation controller for 35 acres. Reduce pressure on the basalt.

On-Farm Efficiency

- Install weather stations and implement scheduling services across the basin. 2006
- Reduce waterastern, reducing the need for city residents to increase the output of existing wells or drill new water wells as necessary from the Ahtanum Irrigation District. The NYCD has continued to work with AID and has put together a CWCP funded by the DOE referendum 38 to produce the potential, tremendous benefit to Fisheries Resources in the Naches and Yakima river floodplain. Those discussions should be had with the City of North Yakima.

Private

Yakima River

- This Project would pipe/line the NSID delivery system to their approx 293 acres. The ID has worked with NYCD to produce a CWCP funded through DOE's Ref. 38 Program. The ID currently is working with individuals of the NWCD to produce a CWCP funded by the Columbia Basin Institute of Science and Technology. A CWCP has been produced for the Yakima Irrigation District. The amount of water can be obtained as necessary from the Ahtanum Irrigation District. The NYCD has continued to work with AID and has put together a CWCP funded by the DOE referendum 38 to produce the potential, tremendous benefit to Fisheries Resources in the Naches and Yakima river floodplain.

Individuals of WRIA 43 Planning Unit notified the WRIA 43 Planning Unit of its comments on the project November 15th, 2005.

Power and Light in spring 2006 but has not been funded due to shortfalls in contributions in 2006.

Power and Light in spring 2006 but has not been funded due to shortfalls in contributions in 2006.

- The new water well should provide a more current center pivot irrigation system (1811 acres). The ID has worked with NYCD to produce a CWCP funded through DOE's Ref. 38 Program. The ID currently is working with individuals of the NWCD to produce a CWCP funded by the Columbia Basin Institute of Science and Technology. A CWCP has been produced for the Yakima Irrigation District. The amount of water can be obtained as necessary from the Ahtanum Irrigation District. The NYCD has continued to work with AID and has put together a CWCP funded by the DOE referendum 38 to produce the potential, tremendous benefit to Fisheries Resources in the Naches and Yakima river floodplain.
Implementation Team (WIT) is the current projected name for the Planning in WRIA 43. The WIT will consist of state agencies. This potential water conservation project is within the Upper Crab Creek/Wilson Creek Watershed, is currently available on the WRIA 43 website at: http://mapdata.info/wria43/index.html 2006.

Recommend that local communities implement conservation programs as required by the Planning Unit for Phase IV Watershed Planning in WRIA 43. The Draft Watershed Plan for WRIA 43, Upper Crab Creek/Wilson Creek Watershed, is currently available on the WRIA 43 website at: http://mapdata.info/wria43/index.html 2006.

Water conservation within the local communities of WRIA 43 has the potential to save significant amounts of water being pumped from deep wells for these communities treated effluent is feasible. Also recommended that Ecology and WRIA 43 WIT evaluate the potential for transfer of other reuse and reclaim water options from outside the watershed for proper retrofitting these wells with casing and bentonite seals will conserve water in the upper aquifers for nearby domestic wells and hydrologically connected to the upper aquifers. Mitigation strategies be developed to support long range planning as identified in A-6 and A-6.

Abandoned, abandoned wells treated effluent is feasible. Also recommended that Ecology and WRIA 43 WIT evaluate the potential for transfer of other reuse and reclaim water options from outside the watershed for improper cased wells have water cascading from upper aquifers down the borehole to lower aquifers, then excessive.

Conservation District, and Ecology promote agricultural conservation programs through public outreach and educational meetings. If the water to be stored can be cleaned up to drinking water quality, it could be stored in vast basalt aquifers that hydrostratigraphic database (such as the GWMA's) be developed to how many groundwater wells are withdrawing groundwater from each irigated agriculture has the most potential to save the most water in WRIA 43 as well.

ASR (Aquifer Storage and Recovery) has estimated that irrigated agriculture accounted from Water Quantity Issue. Page 4-20, Draft Watershed Plan for WRIA 43, Upper Crab Creek/Wilson Creek Watershed, is currently available on the WRIA 43 website at: http://mapdata.info/wria43/index.html 2006.

The Phase 2 Technical Assessment from Water Quantity Issue.

Abandoned, abandoned wells.
Recommendation for Ecology to fund the development of a well abandonment/renovation program for WRIA 43 to mitigate irrigation wells screened through multiple aquifers to include potential financial assistance to landowners to mitigate impacts from improperly cased wells, inclusive of potential financial assistance for construction of new wells in accordance with WAC 173-160.

Abandoned, uncased wells are a potential cascading threat from upper aquifers down the other nearby domestic wells and provide more water to any local streams that are hydrologically connected to the upper aquifers.

If improperly cased wells have water leaking from upper aquifers, they serve as a source for nearby domestic wells and provide more water to any local streams that are hydrologically connected to the upper aquifers. Properly retrofitting these wells with casing and bentonite seals will prevent the leakage of groundwater from upper aquifers for nearby domestic wells and provide more water to any local streams that are hydrologically connected to the upper aquifers.

Water Storage Issue.

Storage of excess runoff water from Crab Creek and its tributaries for release later in the year is one way to increase the amount of water available for use in summer and early fall when it is most needed. Water storage is one way to add to the amount of water made available by water conservation.
The Planning Unit is 2006 extremely interested in the ESSHB 2860 part of ESSHB 2860.

The Planning Unit is included in the EIS Scoping for the Columbia River Management Program EIS to Derek Sandison, Ecology, June 2, 2006.

Storage of excess runoff water from Crab Creek and its tributaries for release later in the year is one way to increase the amount of water made available by projects. The amount of water stored and released later in the year will depend upon the type and scale of projects implemented across WRIA 43 Unknown Unknown 0-5.

The Steering Committee would request that IF water storage to be included in the EIS Scoping for the Columbia River Management Program EIS to Derek Sandison, Ecology, June 2, 2006.

Recommend that a Water Storage Management Plan be developed included in the EIS Scoping for the Columbia River Management Program EIS to Derek Sandison, Ecology, June 2, 2006.

Recommend the WRIA 43 WIT, Lincoln County, LCCD, and agencies and local Conservation Districts. These local agencies located within the boundaries of WRIA 43. The WRIA 43 Planning Unit requests that the EIS project work more closely with the Planning Unit along with the initiating governments and depend on available funding and staff. The website at: http://mapdata.info/wria43/index.html 2006 Obligate Lincoln, Grant and Adams Counties to actively participate in Phase IV Watershed Planning in WRIA 43.
Other WRIA 43 WIT

Tavares Lake, Neves Lake, Wederspahn Lake, Pacific Lake, and Bobs Lakes. During
implemented in

Asotin County

25 acres, pasture, additional pipe to solid set, install low flow

509

Private

Improvement in water quantity 2006

leaching of nitrate and pesticides and from

Water quality would benefit from reduced

leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

The proposed project would convert 75% of the existing furrow

irrigation to center pivot irrigation. 5% of the furrow irrigation would

125 2006 0-5

509 754-2463, Ron Hull

(509) 754-2463, Grant CD

X5 Property Owner Land O

Haas Hi
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

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Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 15N 30E 11.61 $16

USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 15N 30E 10

USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 15N 30E 01 28.17 $39

Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 28

Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 21

Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 20

Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 19

Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 34

Ron Hull
(509)754-2463,
X5 Property Owner Land O
USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 21

Ron Hull
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USBR-Col.
Grant CD
On-Farm Efficiency 36 Adams 16N 30E 20

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On-Farm Efficiency 36 Adams 16N 30E 19

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Grant CD
On-Farm Efficiency 36 Adams 16N 30E 34

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Grant CD
On-Farm Efficiency 36 Adams 16N 30E 21

Ron Hull
(509)754-2463,
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USBR-Col.
Grant CD
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Ron Hull
(509)754-2463,
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006
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Ron Hull

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Grant CD

Basin Pro

Ron Hull
(509)754-2463,
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Ron Hull
X5 Property Owner Land O

USBR-Col.

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Ron Hull
(509)754-2463,

Grant CD  2006  0-5

Ron Hull

Grant CD

Ron Hull

Grant CD

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USBR-Col.

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Ron Hull
Grant CD
X5 Property Owner Land O
(509) 754-2463,

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USBR-Col.

The reduction in soil erosion. 2006
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

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</table>

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- Ron Hull

- USBR-Col.
Ron Hull

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</table>

The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. The reduction in soil erosion. 2006

Contact: (509) 754-2463,
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

Ron Hull (509)754-2463, X5 Property Owner Land O

X5 Property Owner Land O Grant CD

Grant CD
Water quality would benefit from reduced irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners. The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners. The reduction in soil erosion. 2006
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Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 875 2006 0-5

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 500 2006 0-5

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 625 2006 0-5

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 250 2006 0-5

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 22.5 $31

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 7.83 $10

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 10 $10

Ron Hull, USBR-Col. (509)754-2463, X5 Property Owner Land O 2006 0-5
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Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion.
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion.
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners.

Ron Hull
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion.

- **Grant CD**
  - Columbia River 42
  - Grant 28N 30E 01
  - **$32,625**
  - 2006
  - **0-5**

- **Grant CD**
  - X5 Property Owner Land Operator
  - Basin Project On-Farm Efficiency 41
  - Grant 18N 30E 31
  - **$7,875**
  - 2006
  - **0-5**

The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners.

- **Ron Hull**
  - (509) 754-2463
  - USBR-Col.

- **Grant CD**
  - X5 Property Owner Land Operator
  - Basin Project On-Farm Efficiency 41
  - Grant 17N 30E 9
  - **$125**
  - 2006
  - **0-5**

- **Grant CD**
  - X5 Property Owner Land Operator
  - Basin Project On-Farm Efficiency 41
  - Grant 17N 30E 18
  - **$250**
  - 2006
  - **0-5**

- **Grant CD**
  - Columbia River 42
  - Grant 28N 30E 01
  - **$30,125**
  - 2006
  - **0-5**

- **Grant CD**
  - Columbia River 42
  - Grant 28N 30E 01
  - **$120,375**
  - 2006
  - **0-5**
The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners. Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

Ron Hull
USBR-Col.

(509)754-2463,
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. 2006

The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners.

Ron Hull
USBR-Col.
(509)754-2463,
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<tr>
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<th>Irrigation System</th>
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Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. Ron Hull, Project Proponent, 781-480-4560, (509) 754-2463.
Franklin CD, Grant CD and

Water quality would benefit from reduced leaching of nitrate and pesticides into the ground water.

The proposed project would convert 90% of the existing Handline or pivot irrigation to center pivot irrigation.

Ron Hull (509)754-2463, USBR-Col. 

GWMA estimates. 2006
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<th>Project Name</th>
<th>Description</th>
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<td>Water quality would benefit from reduced leaching of nitrate and pesticides into the round water.</td>
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Water quality would benefit from reduced leaching of nitrate and pesticides into the ground water. Franklin CD, Grant CD and Grant CD, USBR-Col.

The proposed project would convert 90% of the existing Handline or Wheelline irrigation to center pivot irrigation. Ron Hull (509)754-2463, X5 Property Owner Land Owners Coalition.

GWMA estimates. 2006

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</table>
The proposed project would convert 90% of the existing Handline or Wheelline irrigation system to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the ground water.

Franklin CD, Grant CD and Ron Hull
USBR-Col. (509)754-2463,

GWMA estimates. 2006
The proposed project would convert 90% of the existing Handline or Wheelline irrigation to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the ground water. GWMA estimates. 2006

Ron Hull (509)754-2463,
The proposed project would convert 90% of the existing Handline or Wheelline irrigation to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the round water. GWMA estimates. 2006 (509) 754-2463, Ron Hull (509) 754-2463, Ron Hull (509) 754-2463.
Ron Hull
Franklin CD, Grant CD and
Grant 22N 27E

Water quality would benefit from reduced
leaching of nitrate and pesticides into the
water.

The proposed project would convert 90% of the existing Handline or
Wheelline irrigation.

Ron Hull

Franklin CD, Grant CD and

GWMA estimates. 2006

(509)754-2463,
The proposed project would convert 90% of the existing Handline or Wheel line irrigation systems to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the groundwater. The GWMA estimates 2006 $14,700.00 in 2006 for 0-5 years medium term water. The project aims to reduce water usage and improve irrigation efficiency. The project cost is estimated at $8,000,000.00 for 2006, with a potential for reductions in water usage and improved efficiency. The project is expected to yield significant benefits in terms of reduced water usage and improved irrigation efficiency.
Water quality would benefit from reduced leaching of nitrate and pesticides into the GWMA estimates. 2006
The proposed project would convert 90% of the existing handline or wheelline irrigation systems. Water quality would benefit from reduced leaching of nitrate and pesticides into the ground water.

GWMA estimates. 2006

Ron Hull

(509)754-2463,
The proposed project would convert 90% of the existing Handline or

leaching of nitrate and pesticides into the

Water quality would benefit from reduced

Water quality would benefit from reduced

Franklin CD, Grant CD and

Ron Hull

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Water quality would benefit from reduced leaching of nitrate and pesticides into the ground water.
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The proposed project would convert 90% of the existing Handline or pivot irrigation. GWMA estimates. 2006

Ron Hull (509) 754-2463, District Manager, Franklin CD, Grant CD and Franklin CD, Grant CD and

X5 Property Owner Land On-Farm Efficiency 36 Adams 16N 30E 30

Grant 28N 30E 01 5.49 $13

Columbia River 42 Grant 28N 30E 01 14.445 $34

Wheelline irrigation.

Foster Creek 8362 2006

Foster Creek ((509) 745-8362 Property Owner

Owner On-Farm Efficiency 36 Adams 16N 30E 30

las 27N 23 Rock

las 30N 30 Chief Joe Pool

las 31N 30 Chief Joe Pool

Private cost share rate of $1,200/acre at 75% cost share is used at an equivalent of 100% cost share ($1,600/acre). With historical EQUIP funding levels of $500,000 per year, the estimated time for completion would be greater than 10 years.
The proposed project would convert 90% of the existing Handline or Pivot irrigation systems to center pivot. Water quality would benefit from reduced leaching of nitrate and pesticides into the soil. Additional benefits include increased efficiency, reduced labor costs, and improved yield due to more uniform water application and reduced water waste. The project is expected to save $53,744 in 2006 due to reduced labor and water costs. The GWMA estimates that the project will save $31,572 in 2006 due to reduced water use and improved water quality.
The proposed project would convert 90% of the existing Handline or Wheelline irrigation systems to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the round water. GWMA estimates. 2006
Franklin CD, Grant CD and USBR-Col.

Water quality would benefit from reduced irrigation.

Leaching of nitrate and pesticides into the soil would be reduced.

Basin Project to convert 90% of existing Handline or Veka systems to center pivot irrigation.

The proposed project would convert 90% of the existing Handline or Veka systems to center pivot irrigation.

Leaching of nitrate and pesticides into the soil would be reduced.

Owner Land O

GWMA estimates. 2006

Round water.

Franklin CD Mark Nielson Pro

Basin Project to convert 90% of existing Handline or Veka systems to center pivot irrigation.

Leaching of nitrate and pesticides into the soil would be reduced.
Franklin CD, Grant CD and Basin Pro

The proposed project would convert 90% of the existing Handline or Wheelline irrigation systems to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the environment.

GWMA estimates. 2006
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Water quality would benefit from reduced leaching of nitrate and pesticides into the irrigation system to center pivot irrigation.

The proposed project would convert 90% of the existing Handline or On-Farm Efficiency irrigation systems to center pivot irrigation.

GWMA estimates. 2006
Franklin CD, Grant CD and

The proposed project would convert 90% of the existing Handline or

pivot irrigation. Water quality would benefit from reduced

leaching of nitrate and pesticides into the

ground water.

GWMA estimates. 2006

project Columbia River 42 Grant 28N 30E 01 4.275 $10

Gross Revenue 268 2006 0-5

On-Farm Efficiency 36 Franklin 12N 30E 17 $8

USBR-Col.

On-Farm Efficiency 36 Franklin 12N 30E 5

on Farmland 36 Franklin 12N 30E 12

On-Farm Efficiency 36 Franklin 12N 30E 18

USBR-Col.

On-Farm Efficiency 36 Franklin 12N 29E 1

On-Farm Efficiency 36 Franklin 12N 29E 18

USBR-Col.

On-Farm Efficiency 36 Franklin 13N 29E 25

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

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On-Farm Efficiency 36 Franklin 12N 30E 18

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On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 18

On-Farm Efficiency 36 Franklin 12N 30E 1
The proposed project would convert 90% of the existing Handline or Wheelline irrigation to center pivot irrigation. Water quality would benefit from reduced leaching of nitrate and pesticides into the groundwater. GWMA estimates. 2006
Franklin CD, Grant CD and Basin Pro

Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. Franklin CD 2006

The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners.
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. Franklin CD 2006
Water quality would benefit from reduced leaching of nitrate and pesticides and from the reduction in soil erosion. Franklin CD 2006

The proposed project would convert 75% of the existing furrow irrigation to center pivot irrigation. 5% of the furrow irrigation would be fallowed corners.

Franklin CD Mark Nielson Pro
Construct 300,000 gallon capacity reservoir in upper pressure zone. Water savings due to decrease in seepage. Montgomery Water Group.

Replace existing check structures with mechanical gates. Decreases public liability, increases water saving, and concrete piped laterals with fully enclosed gravity pressure PVC pipe systems. The existing weir boxes will also be replaced with flow meters. This is a short term project.

Reduce seepage in two lined sections of main canal by sealing all laterals and concrete piped laterals with fully enclosed gravity pressure PVC pipe systems. The existing weir boxes will also be replaced with flow meters. This is a short term project.

Upgrade other existing distribution pipes. Part of plan to close laterals to conserve gravity head and eliminate tail wasteways will be left in the river or in storage for later use. In short water years this will help reduce fish screening facilities, reduces fish losses due to increased seepage, and power requirements.

Pipe or line East Highline (Unit 1) Canal; water savings due to reduction in seepage; 24.5 miles of lining. Reduces costs associated with weed control and concrete piped laterals with fully enclosed gravity pressure PVC pipe systems. The existing weir boxes will also be replaced with flow meters. This is a short term project.

Reduce seepage in two lined sections of main canal by sealing all laterals and concrete piped laterals with fully enclosed gravity pressure PVC pipe systems. The existing weir boxes will also be replaced with flow meters. This is a short term project.

No. 1 Lateral. Pipe first 1.4 miles of No.1 Lateral that serves 4500 acres.

Pipe or line East Highline (Unit 1) Canal; water savings due to reduction in seepage; 24.5 miles of lining. Reduces costs associated with weed control and concrete piped laterals with fully enclosed gravity pressure PVC pipe systems. The existing weir boxes will also be replaced with flow meters. This is a short term project.
<table>
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<th>Project Name</th>
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<th>Sediment Load Reduction</th>
<th>Improved Health</th>
<th>Other Benefits</th>
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Benefits were water savings, increased property value, sediment load reduction, fruit orchard land.

Benefits were water savings, increased property value, sediment load reduction, pasture land.

Benefits were water savings, increased property value, sediment load reduction, pasture land.

Benefits were water savings, increased property value, sediment load reduction, pasture health and management.

Benefits were water savings, increased property value, sediment load reduction.

Benefits were water savings, increased property value, sediment load reduction.
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higher efficiency of irrigation leaves more volume of water savings is 10% for 2007.

old nozzles on center pivot are replaced with low pressure nozzles and savings is 15%.

potatoes have not been grown for 2 years and may or may not be planted to drass if cost share was made available.

estimated cost of electricity savings is 20 - 25%; ground water table is benefited by reduced rate of water pumping and overall volume of water.

average estimated electricity savings is 2 - 25%; ground water table is benefited by reduced rate of water pumping and overall volume of water savings is 15%.

average estimated electricity savings is 2 - 25%; ground water table is benefited by reduced rate of water pumping and overall volume of water savings is 15%.

...
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<th>Field Size</th>
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Other irrigated crops with lower water duties 2007

20% increase in electricity savings is 5 -

Private landowner 43 Lincoln 26N 33E 27

Crop Water Duty

Reduction 43 Lincoln 26N 33E 27

Irrigation if cost share was made available 2007

Estimated water savings is 10%; ground water table is benefited by

20% increase in estimated electricity savings is 5 -

One field with wheel lines was converted to center pivot irrigation

Some circle corners enrolled into CRP and planted to dryland

Multiple parcels:
<table>
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<tr>
<th>WRIA 40a</th>
<th>Multi-Purpose Assessment, Dave Holland</th>
<th>457-7112</th>
<th>509</th>
<th>New Small Storage, Dave Nazy</th>
<th>509</th>
<th>457-7112</th>
<th>Lining/Piping, 45 Chelan unknown unknown</th>
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|          | Construct a pump station to pump water from the Wenatchee River to a new water tower. |          |     | Evaluate the feasibility of recharging the alluvial aquifer adjacent to Boise Cascade, Barker Ranch, and the Tumwater. |     |          | Recover groundwater under Mission Groundwater Rights, Washing State Groundwater Rights, and the Tucannon River, Pataha Creek, and Asotin Creek. |}
<p>|          | Cut off hydrologically from the main Nason Creek channel. The reconnection via culvert would provide high flow-off channel habitat. |          |     | Roaring Creek Tributary off-channel Reservoir: Potential site for an off-channel reservoir. |     |          | USFS. 2007 |
|          | Recover groundwater under Mission Groundwater Rights, Washing State Groundwater Rights, and the Tucannon River, Pataha Creek, and Asotin Creek. |          |     | Marble Creek off-channel Reservoir: Potential site for an off-channel reservoir. |     |          | USFS. 2007 |
|          | Lake Creek Instream Reservoir: Potential site for an instream reservoir. |          |     | Study water supply option to use the lakes for additional storage, including a potential reservoir adjacent to Beaver Creek. |     |          | USFS. 2007 |
|          | Storm drain facilities landfill. Cold, potable water would be pumped into the existing landfill. |          |     | Water tower would not be used in winter months. |     |          | 2008 |
|          | Preliminary assessment to develop a preliminary understanding of water demands and achieving reliability; instream |          |     |  |          | 2007 |
| Walla Walla Multi-Purpose Assessment, Dave Holland | 407-6038 |           |     | Recover groundwater under Mission Groundwater Rights, Washing State Groundwater Rights, and the Tucannon River, Pataha Creek, and Asotin Creek. |     |          | 407-6038 |
|          | Marble Creek off-channel Reservoir: Potential site for an off-channel reservoir. |          |     | Study water supply option to use the lakes for additional storage, including a potential reservoir adjacent to Beaver Creek. |     |          | 407-6038 |
|          | Lake Creek Instream Reservoir: Potential site for an instream reservoir. |          |     | Study water supply option to use the lakes for additional storage, including a potential reservoir adjacent to Beaver Creek. |     |          | 407-6038 |
|          | Water tower would not be used in winter months. |          |     | Study water supply option to use the lakes for additional storage, including a potential reservoir adjacent to Beaver Creek. |     |          | 407-6038 |
|          | Preliminary assessment to develop a preliminary understanding of water demands and achieving reliability; instream |          |     |  |          | 2007 |</p>
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The project site is one of two potential new storage points for water. The details for this project are laid out in the WRIA 40A Storage Assessment, June 2010. Also, WRIA 40A Watershed Plan.

Proposed storage of 60 acre-feet of water for the irrigation of 40 acres of land. We are looking to implement a regulating reservoir to help with possible flow timing modifications. During low flow periods, we can maintain water delivery without increased pumping. We have a USBR grant to do the preliminary study and some minor funding for related work. Proposed storage of 200 acre-feet of water for irrigation and recreation purposes. Water would be managed during high water or power use by OCR and protected to the confluence of Stemilt Creek as allowed under Greater Wenatchee Irrigation Water and #21 page 5451 Certificate #11. Proposed storage of 60 acre-feet of water for the irrigation of 40 acres of land. We are looking to implement a regulating reservoir to help with possible flow timing modifications. During low flow periods, we can maintain water delivery without increased pumping. We have a USBR grant to do the preliminary study and some minor funding for related work.