RECLAMATION
Managing Water in the West

**Contact: Wendy Christensen, Columbia-Cascades Area Office, (509) 575-5848, ext. 203**
**Derek Sandison, Washington State Department of Ecology, (509) 457-7120**

# Meeting Notes
# September 23, 2010
**Yakima Arboretum, Yakima WA**

# Yakima River Basin Water Enhancement Project (YRBWEP)
# 2010 Workgroup

**Opening Comments**
Ben Floyd, Anchor QEA, led introductions and provided an overview of the meeting agenda. He then welcomed United States Geological Survey's (USGS) John Vaccaro, Matt Bachman, and Matt Ely.

**USGS – Summary of Work Completed** *by John Vaccaro, USGS*
John presented to the Workgroup a summary of USGS work completed over the past several years. The USGS presentation findings are draft. Presentation handouts were not provided but information packets were available at the meeting containing Yakima River Basin Groundwater 2010 Publications and Products compact disk & Hydrogeologic Framework of the Yakima River Basin Aquifer System packet.

Most of the wells in the basin were accessible for their studies, and data collected from wells are now permanently stored in the USGS national database. (*For the publications and maps discussed, see* http://wa.water.usgs.gov/projects/yakimagw/summary.htm*).* The following studies were noted as some of the most recent conducted by USGS for the Yakima basin:

- Hydrogeology: *Mapped Units in Sedimentary Deposits Study*, and *Basalts at Major Interbeds Study*
- Groundwater Pumpage: *Estimates in Groundwater Pumpage Study*
- Groundwater Recharge (important to understanding groundwater flows): *Operational Watershed Models*
- Groundwater Flow System: *Hydrogeologic Framework: All Inclusive Report*
- Ground and Surface Water Exchanges: *Discharge Study*, *Seepage Investigations* (interactive map), *Thermal Profiles*, and *River-aquifer Exchanges Report*

**USGS –Groundwater Modeling** *by Matt Bachman, USGS*
Matt Bachman continued the USGS presentation with an overview of regional groundwater flow modeling. Matt addressed definitions of groundwater modeling and gave an overview of how the model is built, and the associated detail. The model grid size is 1000 square feet, which is very detailed for a basin-scale model. Also, it is organized by a monthly time step instead of annual time step, which is

more typical in basin ground water modeling efforts. The model grid includes 360,000 cells for the basin). The model maps inflows, diversions, return flows, and wells; it also produces groundwater pumpage data and monthly pumpage over time. Matt reviewed calibration and model fit, location of model 'gages,' and wrapped up with a few map simulations.

**USGS – Model Applications** *by Matt Ely, USGS*
Matt Ely completed the USGS presentation with a discussion on five (5) modeling applications. Matt emphasized results are *preliminary*, and although the applications are not perfect, they can be useful tools in addressing how groundwater usage affects streamflow. The following model applications used a simulated streamflow from a calibrated 'base case.'

Model Run 1: No pumpage

- The simulated annual decrease in streamflow is due to groundwater pumping
- There are upward trends as you move downstream because it has a cumulative effect
- When all groundwater pumping was turned off, streamflow increased 200 cubic feet per second (cfs) at the Yakima River mouth
- This model addresses seasonality of simulated groundwater returns at Parker compared to total pumpage

Model Run 2: No basalt pumpage

- Larger decrease in streamflow as you move downstream and through time
- Basalt pumpage only causes more gradual decrease in streamflow
- Basalt groundwater usage represents approximately 40-45 cfs flow decline at Yakima River mouth

Model Run 3: No exempt well pumpage

- Again, larger decrease in streamflow as you move downstream
- Exempt well usage represents approximately 25-30 cfs flow decline at Yakima River mouth

Model Run 4: Additional pumpage for pending groundwater applications

- Pending groundwater applications, if granted, would represent approximately 80 cfs flow decline at Yakima River mouth

Model Run 5: Existing conditions projected to 2025

- Projected additional 30 cfs decrease in streamflow

Questions and comments were taken at the conclusion of all the USGS presentation.

<u>Workgroup Comments:</u>

- Provide more clarification in the differences in streamflow impact for each type of pumping.
- Provide more details on how effects accumulate downstream.
- What are the confidence levels for the characterized instream flow return impacts for groundwater pumpage? *USGS has the most certainty in results for larger pumpers. The most uncertainty is with the exempt wells. For exempt wells, USGS does not identify each well*

*location, depth and rate. Census blocks were used to aggregate estimated exempt wells into a single model point. Septic system return flows also were not estimated or included, as this was beyond the scope of this model. If septic is considered as return flow, the numbers could change slightly (slightly less impact on streamflow).*

- Are we mining the basalt aquifers? *Deeper groundwater withdrawals have not been fully accounted for. These aquifers generally refill more slowly and usage may be borrowing against the future. The decline is in the basalts, while the shallow groundwater is replenished each year.*

Public comments:

- Numbers are different and skew other results provided in previous studies. Why does the data appear to be misleading? *Not so, because the values are vastly different. To lessen ambiguity, USGS will word results differently in the final report.*
- How do these numbers relate to the study completed in December 2009? Are the numbers close to the assumptions made for the previous study? *USGS hasn't addressed in their most recent work all the numbers presented in their 2009 report, but what was presented today is close to their previous findings.*
- Are you able to estimate what percentage of the exempt pumpage is private, or other? *No.*
- Can you clarify return flow? *USGS will provide follow up information on this to further clarify. Drain or wasteway flows are not distinguished in the model.*

**Review of Previous Meeting Notes and Upcoming Events**

There were no comments on the August 25 Workgroup meeting notes, and notes were approved. Next, Ben addressed the calendar included in the meeting packet, noting that eight subcommittee meetings occurred in February though July; however, those dates were not included in the calendar. The handout identifies the more recent meetings.

**Hydrologic Modeling Results** *by Steve Thurin, HDR*

Steve presented updated hydrologic modeling results comparing two scenarios – a future without the Integrated Plan and with the Integrated Plan. (*For this 45-page PowerPoint presentation and additional information on other topics discussed at the September meeting and described below, see* http://www.usbr.gov/pn/programs/yrbwep/2010workgroup/meetings/index.html*).*

The following items were discussed:

- Will you evaluate other modeling scenarios? *Yes. Each significant revision to the model scenarios takes about 3 weeks to a month to complete (including QC review and documentation). At the October meeting, the modelers plan to present one or two variations on the results presented today.*
- How was the new supply allocated? *The new out-of-stream water supply is only accessed when prorationing drops below 70 percent.*

- What happens to water for instream flow*? Instream benefits accrue in several ways: (1) As a function of increased TWSA, (2) As storage is released to meet flow enhancement goals provided by the Instream Flow Subcommittee, and (3) As operational rules transfer storage and releases to reduce high flip-flop flows.*
- We should have a more statistical variation than just looking at historical record. Should "Monte Carlo" simulation be considered? *This is not part of the current consultant scope of work and will not necessarily increase our understanding of the reliability of the supply.*
- For Cle Elum Reservoir, does it serve as a buffer? *Additional storage will probably be dispersed throughout the entire reservoir by real-time storage balancing; the model is not totally accurate with respect to individual reservoir's end-of-year storage balances.*
- The Keechelus-to-Kachees (K-K) pipeline reduces flow below Keechelus in the summer to improve rearing conditions.
- The instream flow committee wanted a higher winter flow in Cle Elum. This is partially achieved by releasing water to be re-diverted into Wymer.
- Averages blend out year-to-year effects that may be important to consider. Significant amounts of additional results are available. These summaries were to give the group a general feel for the effects of the Integrated Plan.
- Why are the flows lower in some years at Parker than under current conditions? *We need to make sure proratables do not get impacted. There should be a higher flow level at Parker in some years. The flows at Parker are lower because there is additional delivery and consumptive use by irrigation users in dry years. Proratables are protected by calculating what the prorationing level would have been without the project and supplying this amount. In some years the flows are higher.*
- How is this going to impact the summer Chinook/fall Coho reintroduction*? This is being addressed through a separate Yakima River Basin Study task.*
- With conservation projects built in, does this affect KRD supply downstream? Is water also accounted for at Prosser? *Yes.*
- Can temperature be modeled? *YakDSS has an estimate on temperature. Some of the studies look at temperature changes as a function of flow changes per study and scenario (in reach).*
- Sockeye salmon are spawning in Yakima above Cle Elum.
- What power assumptions have you made at Roza? *Assumed current operations.*
- Regarding the Bumping River hydrograph, why can't the slope continue down in July instead of going up then down again? *It is a cumulative modeling effect related to reservoirs operations. Delta in the two curves may cause stranding of fish. We are working to better adjust the reservoir balancing.*
- "Roza Reach" will be renamed to "Selah Reach", or "below Roza Dam."

Climate change

Public comment

- Dave Ortman submitted a letter from the Endangered Species Coalition addressed to the Yakima Basin Workgroup Meeting (*this letter was emailed to the Workgroup on September 27, 2010, and may also be accessed under meeting materials at* http://www.usbr.gov/pn/programs/yrbwep/2010workgroup/meetings/index.html).

Bob Montgomery, Anchor QEA, presented slides on Decision Support System (DSS) Model Indicators (Note: These slides are included in the hydrologic modeling presentation referenced above). The following was discussed:

- Regarding the summary of resource indicators at the Ellensburg Reach, if you apply additional habitat changes, would it make the results more positive? *Yes.*
- In the summary of resource indicators with reservoir levels below bull trout passage threshold, the Kachess Reservoir shows no change between Future Without Integrated Plan and Future With Integrated Plan. Why no change? *Effects equal out between higher and lower reservoir levels based upon new water coming in from the K-K pipeline, and inactive storage withdrawals during drought conditions.* Are these random days over the year? *The days coincide with migration over the year.*

Modeling next steps includes evaluating the Integrated Plan against potential climate change effects. Share results with the modeling subcommittee mid-October and present results at October 21 Workgroup meeting.

**Workgroup Discussion – Feedback and Support for Integrated Plan Out-of-Stream Recommendations** *led by Dan Silver, Ecology Consultant*
Each Workgroup member was asked to provide feedback on the Integrated Plan Out-of-Stream Recommendations provided to date, including any issues that they felt were not adequately addressed (see workgroup packet handout entitled, *Draft Findings – Out of Stream Needs to be Met Through Yakima River Basin Study/Integrated Water Resource Management Plan, Recommendations I and III* that may be found at: http://www.usbr.gov/pn/programs/yrbwep/2010workgroup/meetings/index.html). Workgroup comments:

- Scott Revell – If irrigation is going to support the identified need, include a disclaimer on why KID and other proratable water users are not receiving additional drought supply as part of the plan. Irrigation efficiency will also need to be improved and should account for water savings from agricultural lands being converted to urban uses.
- Max Benitz – We concur with the drought-year criteria of 70 percent of the entity's proratable water entitlement. We have some concern that with the groundwater withdrawal issues and possible climate change impacts. We may need to include climate change and adjustment to flows in drought years. The municipal/domestic water needs represent year 2060 estimates of additional needs adjusted for water conservation measures and irrigated land conversion and

assuming no change in the current groundwater supply. Additional consideration is needed, such as irrigation efficiency effects on supplies. Do not support at this time.

- Ken Hasbrouck – Support.
- Alex Conley – Abstain from making comment per direction from his board.
- Charlie de la Chapelle – Groundwater effects and instream flows not adequately addressed. Do not support. Charlie stated that he thinks it should be increased by 100,000 acre-ft to account for ground water pumping.
- Rick Dieker – Support, noting 70-percent water supply for proratables is a target and not set in stone.
- Phil Rigdon – Support.
- Dale Bambrick – Support.
- Michael Garrity – Would like to see the economic effects from the Northwest Economic Associates analysis before determining support. Does not support the municipal 49,000-af figure because it is based on 234 gallons per capita per day (gpcd) demand. Should be going for a lower gpcd value and associated lower demand need. Would also like to see more analysis on both existing and future water conservation as more agriculture is converted to residential; this also has potential to reduce demand.
- Paul Jewell – Have questions about municipal and domestic conservation, and standards for accessing new water supply for domestic use (i.e., exempt wells). Generally support the values and recommendation, but need more understanding on the basis for the values.
- Ron VanGundy – Support, but concerned that the estimated agricultural need value is a little low. The target is 70-percent supply for districts with proratable rights seeking new water supply in dry years versus the approximate 300,000-af value.
- Mike Leita – Cannot agree. Groundwater is an issue. Municipal numbers/projections are dismissive of this basin and agriculture has a compounding effect on our economy. It needs to be made clear that the County is going to have substantial burden in conservation efforts to make up for future supply needs. Mike is prepared to support additional conservation if the Integrated Plan comes with significant benefits. Lifestyles would change significantly under conservation activities, and the County cannot just sign off without substantial benefits offered.
- John Easterbrooks – Okay with it. Sounds like it is a good target. We do need to address both single and multiyear droughts.
- Mike Shane, City of Yakima – No comment (substituting for Dave Brown)
- Derek Sandison – Numbers sound reasonable. Would like some tweaking of groundwater numbers, and be aware that there may be a need to make adjustments over time.
- Wendy Christensen – Reclamation supports the out-of-stream subcommittee recommendation.
- Dave Fast – Supports but interested in seeing the climate change effect on the number.
- Tom Davis, Washington Department of Agriculture, was not able to attend the Workgroup meeting but reported via email September 22, 2010, that he supports the Out-of-Stream Needs Findings document as long as it is seen as a placeholder that will be revised/updated over time.

Dan restated discussion results. He addressed the members (3) who were not in support, and asked if they had any other suggested numbers? The two counties agreed to provide their position on the out-of-stream needs to the Workgroup in the near future.

**Workgroup Discussion – Feedback and Support for Instream Needs Recommendations** *led by Dan Silver, Ecology Consultant*

Each Workgroup member was asked to provide feedback on the Instream Needs Recommendation (see workgroup packet handout entitled, *Prioritized Instream Flow Needs for Yakima River Basin Study/Integrated Water Resource Management Plan – Table 1* that may be found at: http://www.usbr.gov/pn/programs/yrbwep/2010workgroup/meetings/index.html). Workgroup comments:

- Wendy Christenson – Reclamation supports the Instream flow Subcommittee's recommendation. Derek Sandison – Support.
- John Easterbrooks – Support.
- Mike Leita – Supports, but also acknowledges vagueness.
- Ron VanGundy – Support.
- Paul Jewell – Support. Caveat depends on how the objectives are achieved.
- Michael Garrity – Supports, but this does not infer support for particular actions to get there.
- Dale Bambrick – Support, recognizing this is an integrated system to be used as a guide and tool to evaluate benefits and any detriments.
- Phil Rigdon – Supports, but needs to recognize flow enhancement alone will not solve everything. Flow improvements need to be tied to habitat and fish passage improvements.
- Rick Dieker – General support, but need to address Tieton River habitat versus flow needs, i.e., is the 125-cfs minimum flow the right value, or should this be higher or lower?
- Charlie de la Chapelle – Cannot support. Better comparative analysis in terms of fish numbers and habitat is needed, and do not believe it will improve flows below Parker.
- Alex Conley – Instream Committee needs to discuss modeling results, i.e., look year-to-year, consider results from hydrologic modeling, etc. Information is too vague but will support with reservations.
- Dave Fast – Agree with statement: "rough approximation to achieve needs." Would like to see fish rearing flow needs and whether these rough approximations will achieve these needs. Support but this support for the flow objectives should not to be set in stone if we find better numbers. Flexibility is needed to move fish.
- Ken Hasbrouck – Supports as long as numbers are in draft; some are a little high. Would like to see harder numbers, instead of just rough approximation.
- Max Benitz – Would like to see instream flow goals and targets as we did with out-of-stream water needs. Cannot "support" or "not support" proposed flow objectives when we have no idea of the adequacy of such flows and what they will accomplish in terms of improved salmon and steelhead habitat and instream flow fish needs. Need to quantify numbers for instream flow needs, and cannot support until they are identified. Also, improvements on the current flow

regime in the lower 100 miles of the river, where all Yakima basin salmon and steelhead stocks must migrate, need to be addressed.

- Dale Bambrick – (Regarding Max's comments) There is likely not enough flow available to turn the lower Yakima into suitable rearing habitat. The Yakama Nation has been advocating for cooler water in the lower Yakima through habitat restoration actions, not just additional instream flow.
- Scott Revell – General support. Would like clarification on Chandler Reach, and how lower reach is lower priority. Would like to understand what this means, and would like to see link to habitat needs.
- Tom Davis, Washington Department of Agriculture, was not able to attend the Workgroup meeting but reported via email September 22, 2010, that he is in support of the Instream Needs Findings.

Dan recapped the discussion and reiterated that two members were not in support due to their desire for better quantified numbers to represent instream needs.

**Public Comments**
The Workgroup meeting was opened for public comment. The following comments were received:

- Has this group consciously disregarded the last 50 miles of the river? This could become a fundamental divide.
- We need to look at the municipal demand from a public works perspective, so that when a new diversion comes online, people will see it already integrated in the hydrologic model.

**Cost Estimate Results for Structural Projects** *by Keith Underwood, HDR*
Keith presented preliminary construction and engineering cost estimate results for many of the Integrated Plan projects. No handouts were provided as the cost estimates are still being developed. The following items were discussed:

- Cost estimates do not include permitting, mitigation, or other related costs--what is presented is not the total project cost.
- The cost estimates will be revised over the next month or two.

**Groundwater Infiltration Approach** *by Bob Anderson, Golder Associates*
Bob presented his Power Point on Groundwater Infiltration Assessment for the Yakima River Basin Study. Next steps are to finalize findings and outline pilot study approaches for the Kittitas and Wapato Irrigation Project recharge opportunities (*Bob's presentation may be accessed at* http://www.usbr.gov/pn/programs/yrbwep/2010workgroup/meetings/index.html). The following items were discussed:

- When this water comes back into the river, is it colder or the same? *Probably not detectably different from natural groundwater temperatures.*
- How long will it take to put in test wells and get a pilot test project underway? *One to two seasons.*
- Is there an opportunity to do this in the lower Naches? *I think that there is a fair amount of low permeability in that area.*
- Are there weather constraints? *Yes. An advantage of Thorp is pipe conveyance.*
- Is there enough seasonal variation so we do not overflow? *Yes, this has been accounted for.*
- How does this related to permitting for an Aquifer Storage and Recovery (ASR) well? *Ecology is developing s a permitting process for aquifer recharge. Though not as stringent as ASR permitting, it is still challenging.*
- Groundwater returns could cool down the lower Yakima River.
- Will water rights for withdrawal be an issue? *It will be an issue that will need to be addressed along with other permitting issues.*

**Workgroup Discussion – Feedback on Integrated Plan Development**

Ben recapped some of the August meeting's roundtable discussion, and opened the floor for additional comments on the Integrated Plan efforts to date.

Workgroup comments:

- Scott Revell – Specific to inbasin cooperation, we need to understand each other's expectations. Too many side conversations are occurring. We have a duty to hammer out an agreement and we all agreed at the beginning that doing nothing is unacceptable. Doing nothing does not lead us to a very happy future.
- Derek Sandison – We need to all come up with a plan and work it. If we cannot come to agreement, this process implodes and no one will take the Yakima Valley seriously again for decades.
- Mike Leita – We all agreed to work on developing on an integrated plan. There should not be an artificial date imposed to complete the plan; we have to process all this data in our own ways. To force this to a 'yes or no' vote is unconscionable. Yakima County will not accept a "second best" solution for the whole basin.
- Max Benitz – We need to be realistic on supply options or alternatives. If a few projects are not realized, we need alternative projects identified to meet our goals. The window is shutting quickly; it is time to be understanding of how we address our future needs. If we fall short in one or more of the seven elements, then we need an alternative. I do not feel an alternative is there. (Ben pointed out there are alternatives for storage, for example. The focus is inbasin first. If one or more in-basin projects stall out, then the Columbia River option would be pursued to meet unmet needs.) Max asked to see the list of projects and sequence of order.
- Dave Fast – Feels more comfortable with the process. We are not going to get anywhere if we do not do anything. We need to continue working on the Integrated Plan even if it goes beyond

targeted cutoff dates or artificial deadlines. Funding will pose a challenge. We need to get this resolved for the basin. If it fails, there will not be another opportunity for a long time.

- Alex Conley – Has five things:
  - (1) The Workgroup will need to decide whether it advocates for the whole package, or looks more closely at picking and choosing from among the proposed elements, and if the latter, when would this happen?
  - ?
  - (2) If the package is broken down into parts, the modeling/analysis will need to also be broken down, to see associated benefits/costs as package elements are added or removed
  - ?
  - (3) The Workgroup will have to decide if getting part of the package is acceptable.
  - (4) Pleased on the fish side, and the broad support for habitat package, with the caveat that fish passage approach for all the dams has yet to be resolved, and
  - (5) Would like to talk about operational rule updates that would occur for the Yakima basin project with the Integrated Plan, recognizing many questions will be left unanswered. Want to know the rules we are going to play by.
- Charlie de La Chapelle – Important to have a discussion about the lower Yakima and instream objectives. It is important for the comparative benefits matrix for the plan to include a Columbia River pump exchange option. Groundwater issues need to be solved. Consider issues outside the basin such as the US/Canada treaty and wind power integration.
- Michael Garrity – We are making progress toward a final package. Several discussion items remain for the Workgroup to address--final analysis on water marketing, net benefit to fisheries on flow, passage and habitat and other topics. I do not think we should shoot low, but given the stakeholders around the table and political realities, a half loaf may be realistic.
- Paul Jewell – Still working on researching and catching up; however, still have concerns on municipal and domestic water parts. Would like to see more discussion on how exempt well mitigation would work. The standard is creek basin by creek basin; what I have seen for the Integrated Plan is more on a basin level, and that will not be effective in solving water issues in a subbasin.
- Ron VanGundy – I understand the need to develop the Integrated Plan in a timely fashion and I recognize the money issue, but the main concern is doing it right. I do not believe we can finish the work on the current schedule.
- Mike Leita – We are finally getting all the pieces on the table and assimilating all the positions. We all need to give a little in order to receive. We will be successful as long as everyone realizes no one will get all that they want.
- John Easterbrooks – This is not 'all or nothing,' but more of an incremental approach to improving conditions. We need to try to be realistic; we are not going to get a big solution. We will have to settle for a smaller package. Just make sure everyone gets some of the benefits across the basin, at minimum. Do no harm and try to improve fisheries across the basin. If we can do it, that will be a good outcome. I'll take a half a loaf, but I don't want to end up with nothing. Given the choice of nothing for decades versus a little, I'll take a little.

- Phil Rigdon – This process has been going on for quite a while. Concerned that some are pushing for things others cannot support. We need to understand we need to move forward all together. I would hate to see nothing result from all this. We need to find a path forward.
- Wendy Christenson – Reclamation feels vested in this project. This is a rare opportunity to have the participation by all those at the table. This kind of opportunity does not come around very often. Reclamation will continue to push on schedule and also challenge those not supporting some of the numbers to provide specific alternatives to what is being presented. This group is coming up with recommendations. Ask questions and share thoughts with the Workgroup and keep working hard to find the right solutions. We can do this. Participation is good and Reclamation hopes to see it continue and challenges the Workgroup to finish strong.

Public Comments

- I like the thought that there's always a solution to everything but realize where we are located and that there isn't always a technical solution. In some cases, we may not always be able to find a technical solution to the exempt well issue. The Workgroup is doing a good job.
- This morning we looked at models. Is there a peer review in progress? Is the USGS work coming back to the Workgroup with validations? *Peer review with geologic models is going on internally with USGS, and WSU is peer-reviewing the out-of-stream need numbers.*

**Meeting Wrap-up**

Ben noted the upcoming Workgroup meeting dates:

- 10/21
- 11/19
- Dec – TBD

Meetings begin at 9:30 a.m. and are held at the Yakima Arboretum.

**Workgroup Members in Attendance**

Dale Bambrick, NOAA Fisheries Service
Max Benitz, Benton County Commissioner
Alex Conley, Yakima Basin Fish & Wildlife Recovery Board
Charlie de la Chapelle, Yakima Basin Storage Alliance
Rick Dieker, Yakima-Tieton Irrigation District
John Easterbrooks, Washington Department of Fish and Wildlife
David Fast, Yakama Nation, Yakima/Klickitat Fisheries Project
Michael Garrity, American Rivers
Ken Hasbrouck, Kittitas Reclamation District
Paul Jewell, Kittitas County
Mike Leita, Yakima County
Scott Revell, Kennewick Irrigation District
Phil Rigdon, Yakama Nation

Derek Sandison, Washington Department of Ecology
Bill Lover, City of Yakima
Mike Shane (substitute for Dave Brown), City of Yakima

Dawn Wiedmeier, Bureau of Reclamation
Jim Trull, Sunnyside Valley Irrigation District
Ron VanGundy, Roza Irrigation District

**Other Attendees**
Bob Anderson, Golder Associates
Ryan Anderson, City of Yakima, Wastewater
Cindi Barton, USGS, WAWSC
Melissa Bates, Aqua Permanente
Kevin Bouchey, Yakima County
David Bowen, American Forest Land Co.
Tom Carpenter, Yakima Basin Storage Alliance
David Child, Yakima Basin Joint Board
Wendy Christensen, Bureau of Reclamation
Dan Church, Bureau of Reclamation
Rocco Clark, BIA – Yakima Agency
Stuart Crane, Yakama Nation
Warren Dickman, Yakima Basin Storage Alliance
Ben Floyd, Anchor QEA
Joel Freudenthal, Yakima County
Adam Fyall, Benton County
Chuck Garner, Bureau of Reclamation
Andrew Graham, HDR Engineering, Inc.
Kristi Geris, Anchor QEA
Sean Gross, NOAA Fisheries Service
Jennifer Hackett, Central Washington University
Bob Hall, YBSA/Yakima Auto Dealers
Justin Harter, NSID
Lynn Holt, Bureau of Reclamation
John Houck, Freestone Environmental Services
Joel Hubble, Bureau of Reclamation
Eleanor Hungate
Terry Keenhan, Yakima County
Jerry Kelso, Bureau of Reclamation
Chuck Klarich, YBSA
David Lester, Yakima Herald
Edwin Lewis, Wapato Irrigation Project

Barb Lisk, Office of Rep. Richard Hastings
Chris Lynch, Bureau of Reclamation
Steve Malloch, National Wildlife Federation – Western Natural Resource Center
Larry Martin, Velikanje Halvorson
Tina Mayo, U.S. Forest Service
Jim Milton, Yakima-Tieton Irrigation District
Bob Montgomery, Anchor QEA
Bryan Myre, Yakama Reservation Irrigation District
Tom Myrum, Washington State Water Resources Association
David Ortman, Sierra Club
Elaine Packard, Sierra Club
David Reeploeg, Office of Senator Maria Cantwell
Tom Ring, Yakama Nation
Ann Root, ESA Adolfson
Mike Schwisow, Schwisow & Associates
Bob Stevens
Katrina Strathmann, Yakama Nation
Steve Sundquist
Rob Swedo, BPA
Steve Thurin, HDR Engineering
Keith Underwood, HDR
Ric Valicoff, Roza Irrigation District
Steve Wangemann, BIA Yakama Agency

**Next Workgroup Meeting**
The next meeting will be held October 21, 2010. A meeting notice and agenda will be distributed in advance of the meeting.

**Where to Find Workgroup Information**
Meeting materials, notes, and presentations from the Workgroup meetings will be posted on the project website (http://www.usbr.gov/pn/programs/yrbwep/index.html). A bibliography of information sources, many of which are available online, is also posted on the website. If anyone needs help finding an information source, contact those listed at the top of page 1 or Ben Floyd at Anchor QEA, Richland office, (509) 392-4548, or bfloyd@anchorqea.com.