



Palouse Basin Aquifer Committee

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March 19, 2009 Meeting Minutes

Moscow UI Facilities Services Center, Jack's Creek meeting Room

Attendance

X	UI: Michael Holthaus, Water Systems Manager	X	WSU: Mike Leonas, Project Manager, Capital Planning & Dev.
	UI: Joe Kline, Director, Utilities and Engineering	X	WSU: Rob Corcoran, Asst Dir, Arch, Engr & Const Services
X	Moscow: Tom Scallorn, Water Dept Superintendent	X	Pullman: Mark Workman (Chair), Director of Public Works
X	Moscow: Walter Steed, City Council Member		Pullman: Art Garro, Maintenance & Operations Superintendent
	Moscow: Les MacDonald, Director of Public Works	X	Pullman: Barney Waldrop, City Council Member
X	Latah County: Paul Kimmell (Vice- Chair), County Representative		Whitman County: Mark Storey, Director of Public Works
	Latah County: Tom Stroschein, County Commissioner	X	Whitman County: Michael Largent, County Commissioner
	Colfax: Carl Thompson, City Administrator		Colfax: Andy Rogers, Public Works Supervisor

Visitors and Others

Bob Haynes, IDWR; Mimi Wainwright, WA Ecology; Mandie MacDonald, Landau Associates; Joe Foote, CH2M Hill; Self; Allyson Beall, UI Waters of the West; Aaren Fiedler, UI; Jim Osiensky, UI; Steve Robischon, PBAC

Call to Order

Mark Workman, PBAC Chair, called the meeting to order at 2:02 PM.

Introductions

The assembled group introduced themselves and their representation.

1) Approval of the February 19, 2009 Meeting Minutes

The draft February minutes were approved by consensus.

2) Presentations –

Grande Ronde Monitoring and Testing Project – Aaren Fiedler

Fiedler presented findings from his graduate research on the Grande Ronde in the Moscow-Pullman area. Among his conclusions: barometric efficiency of monitoring wells is highly variable and significantly influences well responses, boundaries are also significant in modeling responses, and the Grande Ronde where studied appears to behave as a leaky confined aquifer system. Fiedler recommended further refinement of the approach he used, encouraged a basin scale modeling perspective and construction of a monitoring well west of Pullman to better understand basin extent.

3) Unfinished Business -

WoW Systems Dynamics Model: next Steps – Allyson Beall

Beall summarized the content of a revised proposal, the group discussed potential merits and risks associated with the project, and whether the project funding would come from the research or administrative budget. Proposed project funding will come from a 50-50 cost share between PBAC and Waters of the West (WoW).

The group passed (7 in favor, 2 in opposition) a motion to fund the PBAC share of the project from the administrative budget.

4) New Business –

No new business was considered at the meeting.

5) PBAC Projects Progress Report –

Robischon reported Brad Bennett has submitted a first draft of his thesis. Osiensky suggested that Brad should be ready to present his findings to PBAC at the April meeting.

6) Citizens Advisory Group Report

Robischon reported discussions from the CAG meeting centered upon new findings from data loggers installed in Palouse municipal Wells #1 and #3. The wells experience temperature spikes associated with pumping that appear to indicate the wells are exposed to both shallow and deeper water sources. Discussion included whether the temperature spikes were an indication of a possible surface water connection in the area. The spikes may be caused by well construction details close to the wellbore or by a less localized connection between shallow and deeper sources.

7) Budget Report

Robischon had nothing new to report regarding the budget.

8) Other Reports and Announcements –

Changes to Idaho Code for Out-of-State Municipal Service

Steed reported the proposed code changes were defeated (by a vote of 18-0) in the Idaho House Resources and Conservation Committee.

Pullman/WSU Wastewater Reclamation Project

Workman reported an RFP for consulting services (to update the design development report) has been issued, with proposals due April 9.

WRIA 34 Planning Unit

Wainwright reported it appears the operational budget for watershed planning will be cut by 2/3, and there will not be sufficient funds to cover baseline implementation for all the watersheds. Watersheds are being prioritized according to the presence of salmonids within the watershed, existence of watershed planning units, and commitment of the planning units to move forward with instream flow rule setting. If the Palouse Watershed Planning Unit (WRIA 34) does not commit to instream flows, it will be ranked as a medium priority and implementation funding will be possibly \$100K for the next biennium. If the Planning Unit were to commit to instream flows, the watershed would be ranked high priority and might qualify for \$175K over the next biennium.

There was no quorum at the last Planning Unit meeting, so an email vote is being conducted to determine whether to commit to instream flow rule setting. Wainwright noted that the instream flow rules are not limited to surface water but also include conjunctive surface and ground water management.

Water Summit Planning

Kimmell reported the planning committee met March 18 and began planning for a 2009 Water Summit to be held in Pullman in early October. The Summit theme may focus upon surface and ground water linkages and include a water quality component. The agenda may be scaled back this year, with a morning session featuring reports and presentations followed by a leadership forum in the afternoon to take advantage of the combined presence of regulators and elected officials.

Other

Scallorn reported the City of Moscow had not yet installed the software necessary to operate the on/off motor event logger that will be used to test the units for applicability to installation on all municipal pumping wells in the basin. If successful, PBAC will procure additional units and (after installation) will begin to collect pumping information from all the basin's large wells.

Steed reported that IDWR Director Tuthill (at the Senate hearing on the bill to change Idaho Code) was complimentary toward the efforts Palouse Basin residents are taking to manage the local water resource.

Waldrop emphasized the need for the group to spend time evaluating potential research projects and move forward with project initiation this year. Robischon noted that several project presentations have been scheduled for the April meeting, as the student researchers will be graduating and likely moving on prior to the May meeting. Workman indicated that potential projects will be scheduled for discussion at the first available opportunity.

9) Next Meeting –

The next meeting is scheduled for April 16 in Pullman.

10) Adjournment -

The meeting was adjourned at 4:12 PM.

Submitted for review and approved at the April 16, 2009 PBAC meeting.

Steve Robischon, Executive Manager

Participatory Water Resource Visioning Tool for the Palouse Basin

**A Palouse Basin Aquifer Committee and UI Waters of the West
Collaboration
Revised Proposal Date: March 3, 2009**

Summary

This document is a revision of the December 9, 2008 proposal and addresses issues brought up during the February 19, 2009 PBAC meeting. This revision is designed to facilitate improved understanding about how a system dynamics model created in a group process can help PBAC accomplish its goals. In recognition of the concern regarding spending research funding on what some may view as a non-traditional type of model and process we have considered PBAC's mission and goal and their Ground Water Management Plan in this document (see section 2). In addition we have provided examples of other entities using this type of process for research and internal and external education (see introduction). We understand that system dynamics modeling has not been the traditional research model of choice for ground water modeling but also wish to emphasize that even traditional ground water models that have been built with significant amounts of well verified data are not effective at capturing the social and economic implications of water resource management. Water management entities in the case studies listed below recognize this shortcoming and have used system dynamics to aid research and to address economics and social issues. We also wish to emphasize that the proposed process has not been clearly articulated, but rather only process suggestions posed. We would like PBAC input on this important issue (section 3). Who is involved at what stage of a process is important because participation drives the type and quality of the model that is produced. Our goal is that this proposed partnership will create improved understanding of both the physical and the social drivers and feedbacks that have significant impacts on the system as a whole.

1. Introduction

The management of natural resources is becoming increasingly complex. Agencies who manage resources have come to realize the value of public input into the decision-making processes and encourage participation in a variety of forums, which attempt to both educate and gather public sentiments. Due to the complexity of explaining often highly scientific information and juggling a plethora of social values, agencies and communities are more frequently using participatory modeling processes using system dynamics. The water management units in the Middle Rio Grande basin in New Mexico are using this type of model to assist planning processes:

<https://waterportal.sandia.gov/middlerio/models/MRG%20Version%203.3/view>

The US Army Corp of Engineers Institute of Water Resources is using this type of process to aid watershed and drought management decisions in many large systems across the US. The following case studies may be reviewed at:

<http://www.svp.iwr.usace.army.mil/resCase.cfm>.

- Alabama-Coosa-Tallapoosa-Apalachicola-Chattahoochee-Flint Basins Shared Vision Planning
- Boston Metropolitan Studies (National Drought Study)
- Cedar and Green Rivers Drought Preparedness Study
- Colorado River Gaming (National Drought Study)
- Interstate Commission on the Potomac River Basin Cooperative Water Supply Operations
- James River Drought Preparedness Study
- James River Pilot Shared Vision Planning Study
- Kanawha River Drought Preparedness Study
- National Drought Study
- Rappahannock River Basin Commission Water Supply Planning Project
- Lake Ontario-St. Lawrence River Study
- Marais des Cygnes - Osage Drought Preparedness Study
- Susquehanna River Basin Studies (National Drought Study)
- Upper Great Lakes Study
- Western States Water Council Long-Term Planning

The University of Idaho Waters of the West, the Palouse Basin Aquifer Committee and its Citizen Advisory Group have participated in a pilot project to explore the use of participatory modeling to assist with water resource management decisions in the Palouse. The model building process has been a collaborative effort that includes hydrologists from WSU and UI, facility operators from Pullman, WSU, Moscow and UI, representatives from Washington Department of Ecology, Idaho Department of Water Resources, Latah County, Palouse Conservation District, and local citizens.

Building the Palouse Basin model has followed an iterative process that includes workshops and model building between workshops. Modelers build simulations of their understanding of stakeholder concerns expressed during the group meetings. They then return to the group with a simulation model to be vetted by the group. The model continues to be developed with the input and commentary described at each meeting. The process encourages members of the groups to explore individual mental models of water issues on the Palouse. It has promoted discussion of scientific uncertainty, and individual perceptions of availability and conservation. The iterative nature of the process promotes a shared vision of “the problem and potential solutions” through discussion and model development.

The pilot project, which began with its first workshop in March of 2008, had an additional four workshops and many individual consultations. As a process product the group presented the results of their participatory process at the 2008 Palouse Basin Water Summit in October. The presentation included model simulation results of various combinations of “what if” scenarios focusing on growth and conservation. At present the model combines groundwater supply parameters, issues surrounding demand and potential policy considerations for both conservation and “new water”. It includes parameters such as aquifer storativity, recharge, pumping history, projected demand and potential conservation by Pullman, WSU, Moscow and UI, current and potential use of reclaimed water, a hypothetical reservoir, and the potential contributions of individual conservation measures such as low flow toilets or reduced lawn watering.

Throughout the process participants discussed where this project was leading the group and what could happen after the pilot project. There was significant interest expressed in taking this process to “the next step”. Thus we propose to help create a Participatory Water Visioning Tool that is designed to both refine and expand the pilot model and to include additional participants in the modeling process.

Although maintaining the “pilot” perspective may be an asset at this point we recommend a more committed name (recommendations welcome), thus the “Participatory Water Resource Visioning Tool for the Palouse Basin”. We have no doubt the group will revisit how or in what fashion this model should be developed and used. It should be emphasized that participatory model building embraces different personal values and provides the opportunity for those values to be explained to others. Models allow us to agree or disagree. And finally decision support tools are just that; tools support education and improved understanding of the system, they do not make decisions.

2. The visioning tool and process will compliment and facilitate the PBAC 2005 Mission and Goals and the Ground Water Management Plan

This project will help serve a number of the actions described in the 2005 PBAC Mission and Goals statement:

When looking at the long term well records there are several years when there was a rebound or change in slope of well decline rate. The likelihood of reaching the *PBAC 2020 goal to stabilize the declining deep aquifer levels* will be improved with a better understanding of the causal relationship that created past reductions of decline in well levels. Certainly a combination of conservation, education and slow growth could contribute to a “leveling” off; however in consideration of the volume of water that is typically used in the summer for landscaping, weather patterns need to be taken into account. Moreover a better understanding of this situation will aid with the development of a plan for maintaining stabilized aquifer levels (2010 goal).

University of Idaho has agreed to match funds and thus satisfies the following goal that states: *To procure matching funds to facilitate the necessary research and pilot projects to clarify the best options available to regional entities for achieving PBAC goals.*

The pilot project had significant participation from WA Ecology and IDWR. This depth of communication in addition to the regular communication between PBAC and agencies will help facilitate the implied goal: *Work with state agencies to avoid delays and hassles associated with meeting the details of applicable regulations.* With agencies at the table during a modeling process that investigates potential future scenarios such as ASR or a reservoir will elicit conversation and clarification about potential regulatory roadblocks well in advance of potential physical feasibility studies.

This project will help serve a number of the actions described in the 1992 Ground Water Management Plan research and education goals.

PBAC recommended the *acquisition of a computer ground water model for convenient use by the committee and entities* (GWMP appendix 4:2a). Current hydrogeologic research has noted that to date traditional ground water models such as MODFLOW do not offer enough insight into system behavior due in part to the complexity of the system and perhaps also due to limited resources (eg. millions of dollars for the equivalent of oil field mapping). Furthermore in order to be used “conveniently” by the committee for planning support would require the linking of a physical model to an economic model with a user interface appropriate to the committee and entities. A system dynamics platform is capable of combining the two data types and in doing so addresses the following needs.

Education and information exchange. (GWMP 6.2.1)

- Process of discussion during model building process and vetting will improve the exchange of information among entities. Entities can use the model and the process of model building as a communication tool.
- Improve public involvement and education in basin water management issues. A dressed down version of the model can be used for education and outreach and as a repository of information through “pop-up” windows.

Data Base (GWMP 6.2.2)

- With help of local hydrologic experts the model can be refined to help improve agreement on parameter values and improve understanding of ground water system response to consumption patterns. Modifying the model from a yearly to a monthly time step will allow the input of climate data that will help tease out the relationships between demand and parameters such as landscape watering, weather, growth and changes in consumption and conservation.
- Sensitivity analysis can be performed using VENSIM to assess *the sensitivity of model output to model input, particularly in areas where relatively large uncertainties exist in input data.* (GWMP appendix 4:2b)
- A system dynamics model is well suited for revision *as appropriate to accommodate updated information or changing computational or output needs.* (GWMP appendix 4:2c)

Research (GWMP 6.2.3)

- The model can be used to evaluate the effects of various alternative management strategies
- *Economic or cost feasibility of various alternative conservation measures and incremental water supply sources* may be added and the model used to compare potential future scenarios thus the model enabling Entities to *use the model to evaluate alternative management strategies or scenarios* (GWMP appendix 4:2b).

3. Participatory Water Resource Visioning Tool for the Palouse Basin process participants:

There are a number of different ways to go forward with this project with respect to participation (more or less participants) and facilitation (types of meetings) that have the potential to impact level of technical information, transparency and trust, education and outreach. PBAC is encouraged to recommend any process ideas that it feels would benefit this project.

3.0 PBAC members: The pilot project had partial participation from PBAC. More participation would improve the impact of the model and the process. With understanding of time constraints is there a way to be more inclusive of all PBAC members?

3.1 Expert participation: Modelers are willing to meet with experts individually to refine and build out technical portions of the model. Experts will be invited to group meetings with the expectation that their attendance may be limited due to time constraints.

3.2 Same level of group outreach: The original group of participants is to be included due to their working relationships and familiarity with both the process and the model.

Palouse Basin Pilot Project participants:

Waters of the West: Allyson Beall, Jan Boll, Barb Cosens, and Fritz Fiedler.

Community members: Ree Brannon, CAG; Rob Corcoran, PBAC WSU Exe. Dir. Facility Operation; Kevin Gardes, City of Pullman; Guy Gregory, WA Dept of Ecology; David Hall, PWCN; Suzanne Hamada, Palouse Conservation District; Helen Harrington, IDWR; Paul Kimmell, PBAC Latah County; Joe Kline, PBAC UI Dir. Utilities and Engineering Services; Mike McVay, IDWR; Cheryl Morgan, Pullman Citizen; Ken Neely, IDWR; Steve Robischon, PBAC; Tom Scallorn, PBAC Moscow Water Dept Superintendent; Julie Titone, CAG; and Mark Workman, PBAC city of Pullman.

Hydrologic advisors: Jerry Fairley, UI; Kent Keller, WSU; Jim Osiensky, UI; and Steve Robischon, PBAC.

3.3 Increased level of group outreach: WoW understands the political nature of this endeavor and realizes that it may be premature or unrealistic to expect this level of participation over the long run. However in the interest of education and outreach setting up limited meetings, or key invitations to any of the groups or their representatives may be beneficial.

Potential new participants: Elected officials from Moscow, Pullman and Latah and Whitman, more participation from the CAG and potentially including the WRIA. Adding in community members from each of these entities will help maintain the transparency of the process and provide expertise with growth, development, design, economics and conservation measures.

4. Participatory Water Resource Visioning Tool for the Palouse Basin Timeline for Calendar year 2009 (based on December 2008 proposal)

Bi-monthly Workshops between January and September plus individual or working group meetings in between workshops (3 hours per workshop).

October 2009 Water Summit presentation

October –December write up results and plan for 2010

5. Participatory Water Resource Visioning Tool for the Palouse Basin Process products for project year 2009-2010 (dates to be determined)

To help facilitate discussion about the next steps the following has been offered as a point of departure for discussion. WoW recognizes that, as stated in section 3, there are many paths forward from which to choose. We encourage PBAC to work with us as a partner in determining how the project is facilitated.

Potential paths to facilitate refinement and expansion:

1. Hydro-geologic expert workshop(s) to further develop and refine physical side of model. Invitees may include: Dr. James Osiensky (UI), Dr. Kent Keller (WSU), Dr. John Bush (UI Emeritus), Dr. Jerry Fairley (UI), Dr. Fritz Fiedler (UI), Dr. Jan Boll (UI), Dr. Allyson Beall (WSU, Waters of the West), Guy Gregory (WA DOE), Michael McVay (ID IDWR) and Steve Robischon (PBAC).
2. Expansion of conservation options: In addition to further utilizing the pumper's conservation plans, we could have mini workshops at night with the CAG to help further develop this sector of the model. Previous CAG participation was limited by the timing of the meetings. A representative could then attend the regular workshops.

3. The WRIA is close to setting instream flows and limitations on unmetered wells. Should they be invited to the process at this point? Again as with the CAG mini workshops to accommodate their schedule may increase participation.
4. Invite elected officials to the workshops. If they are unsure of attending we could hold individual meetings with elected officials to elicit their thoughts on development and economics. Invitations to the workshops would again be extended. Including elected officials will give them an opportunity to explore their own visions of water resources as well as the visions of others in a neutral venue. It also provides the opportunity for them to explore the options of cooperative water management throughout the process of designing a model.

Presentation: 2009 Palouse Basin Water Summit:

This collaboratively designed presentation will describe the changes to the model over the course of 2009 and insights into the process as seen through the eyes of the participants. This opportunity can be used for education and outreach (Mission and Goals 2005 and GWMP).

**6. Participatory Water Resource Visioning Tool for the Palouse Basin
Budget for Calendar year 2009:**

40k for Allyson Beall. To be split between WoW and PBAC. Waters of the West 20k, PBAC 20k. Details to be determined.