

**HOOD RIVER BASIN WATER PLANNING STUDY
- STATUS UPDATE -**

July 10, 2013

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1 INTRODUCTION

This document provides an update for the month of June of the Hood River Water Planning Group’s (HRWPG) efforts associated with the Bureau of Reclamation’s (Reclamation) Hood River Basin Study and the Oregon Department of Water Resources (OWRD) Hood River Basin Surface Water Storage Feasibility Study. The objectives outlined for this effort are:

1. Define current and future basin water supply and demands, with consideration of potential climate change impacts;
2. Determine the potential impacts of climate change on the performance of current water delivery systems (e.g., infrastructure and operations);
3. Develop options to maintain viable water delivery systems for adequate water supplies in the future;
4. Evaluate minimum instream flow needs and the impact of climate change and water management alternatives on them; and
5. Conduct an analysis and modeling scenarios of the options developed, summarize findings and make recommendations on preferred options.

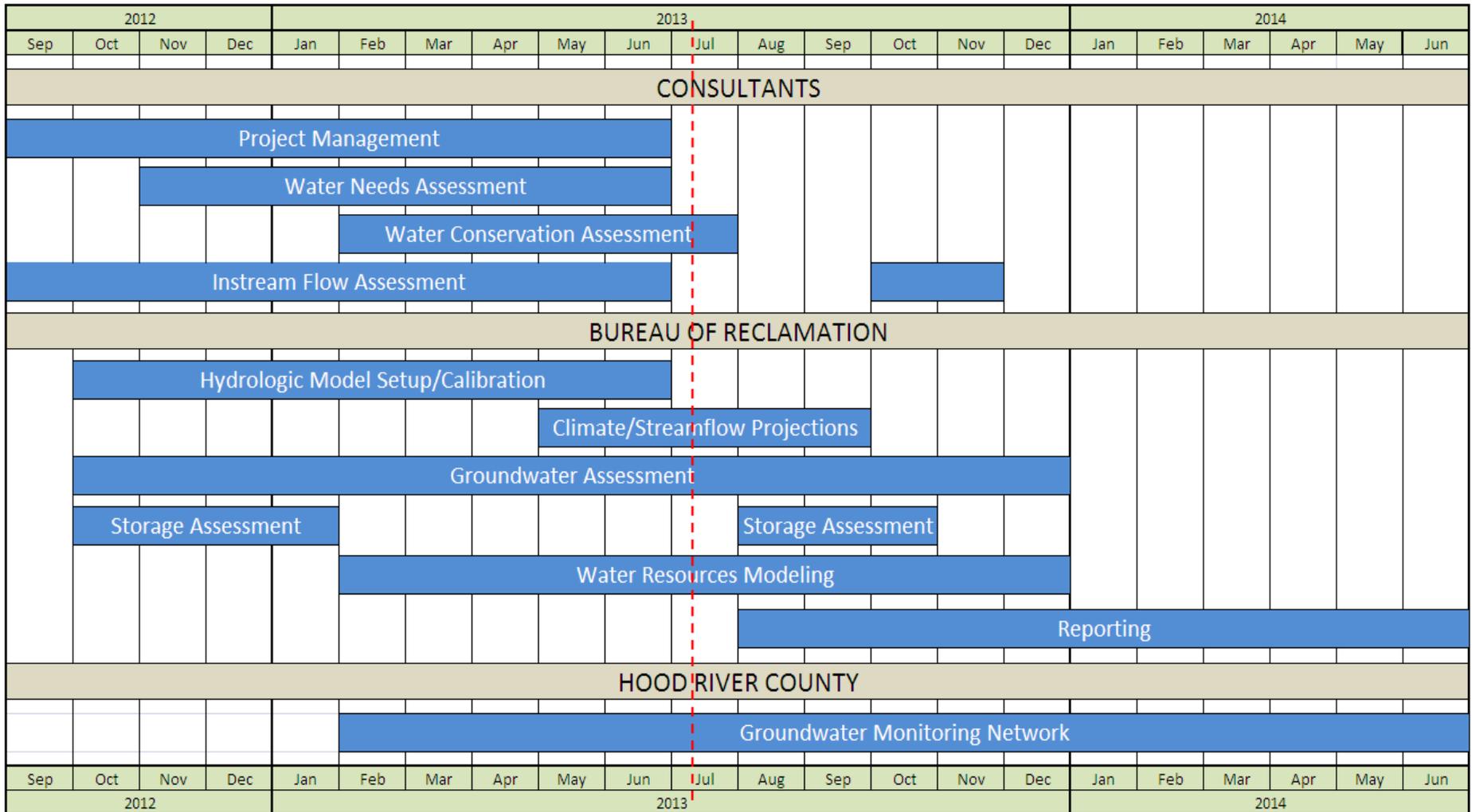
The Hood River Basin Study is conducted with Reclamation and Hood River County (HRC) through in-kind services and the OWRD study was contracted to Watershed Professionals Network (WPN) and Normandeau with coordination of the two studies by HRC. The studies have similar objectives and the key tasks from these studies overlap so Table 1 clarifies each task and the parties involved with completing each task. In the following sections, each task is briefly defined and the to-date progress associated with each task is described.

Table 1. Key tasks associated with the Reclamation and OWRD studies and the responsible parties associated with each.

Key Task	Responsible Party
Groundwater Modeling	Reclamation with assistance by HRC
Climate Change Analysis	Reclamation and WPN
Water Storage Assessment	Reclamation, WPN with assistance by HRC
Instream Flow Assessment	Normandeau
Water Needs Assessment	WPN
Water Conservation Assessment	WPN
Water Resources Modeling	Reclamation

2 SCHEDULE

Hood River Water Planning Study Schedule



3 OVERALL CONSIDERATIONS

This month's status update marks a transition point in the OWRD and Reclamation Studies. The majority of the OWRD Study (Water Needs Assessment, Water Conservation Assessment, and Instream Flow Assessment) are completed. The individual components of Reclamation's Study (Storage Assessment, Hydrologic Modeling, Climate Change Analysis, Groundwater Modeling, and Water Resource Model) are also mostly complete. These seven individual components will be combined together into the water resource model over the next few months. Once all components of the Study are combined into the water resource model, Reclamation and the WPG must determine which management scenarios (e.g. water conservations, storage, groundwater use) they wish to evaluate. Reclamation and WPN are developing a matrix of potential scenarios that the WPG will evaluate at the August/September WPG meeting. The following is a partial list of Study progress and action items. Each item is discussed further within the remainder of this document.

1. The Water Use Assessment is in review and should be final within a few weeks.
2. The Water Conservation Assessments is being edited and should be complete by late July.
3. The Area Weighted Suitability (AWS) indexes are being review by the instream committee and will be approved within the month.
4. The Instream Flow Assessment will be extended to be completed in the fall to incorporate streamflows that will be generated from the management scenarios in MODSIM. Normandeau gave the County three budget options to complete the work in the fall, from which the WPG must decide which one it wishes to use.
5. Reclamation and WPN are developing a matrix of potential management scenarios to evaluate. These scenarios include storage, supply, and demand alternatives to prioritize for analysis. Once a draft list of scenarios is developed, the WPG will review. This is expected to be completed by early August.
6. Hood River County received approval from OWRD to spend the last \$25k of the grant between July 1, 2013 and June 30, 2014. This \$25k, plus an additional \$34k of County funds, makes the available budget to complete the Instream Flow Assessment and continue the Counties involvement in the Study \$59k. Estimates of required budget ranges from \$75k to \$98k, resulting in a shortfall between \$16k and \$39k.

4 GROUNDWATER MODELING

(Jennifer Johnson and Jon Rocha, Reclamation)

Jennifer and Jon have completed the majority of the Groundwater Assessment and are currently developing scenarios to model in MODFLOW.

Completed

Jennifer and Jon developed a list of potential scenarios to model in MODFLOW. The proposed scenarios are described in a technical memo prepared by Jon (see [Groundwater Modeling Scenarios.pdf](#)).

Next Steps

1. Upon consensus of what scenarios to model, Jennifer and Jon will run the agreed-upon scenarios in MODFLOW.
2. Jennifer and Jon will evaluate results from MODFLOW and complete their technical report for the Groundwater Assessment.

5 DHSVM AND CLIMATE CHANGE ANALYSIS

(Bob Lounsbury, Jon Rocha and Toni Turner, Reclamation)

Ted Bohn, University of Washington Climatologist, has calibrated DHSVM and Reclamation is preparing to run the baseline (i.e. historical) model.

Completed

1. Reclamation obtained the calibrated model from Ted Bohn. Reclamation is confirming that the model is outputting streamflow timeseries at all required locations which represent major water resources locations like irrigation district diversions and IFIM locations. Once the location and number of flow points is confirmed, DHSVM will be run under historical climate conditions with data from 1915 to 2011. This 96 year run takes approximately 3 days.
2. Reclamation is currently starting the climate change phase of DHSVM modeling.

Next Steps

1. Reclamation will select future climate change scenarios and upon selection will generate projected streamflow timeseries from each scenario.
2. Reclamation will use that future timeseries generated in DHSVM as input to the MODSIM model to analyze yet-to-be-determined scenarios.

6 WATER STORAGE ASSESSMENT

(Doug Bennett and Roger Wright, Reclamation)

Reclamation submitted their Water Storage Assessment to HRC in December 2012. Once preliminary water resource modeling results are obtained, this assessment will be used to inform potential storage sites to evaluate in MODSIM.

7 WATER RESOURCES MODELING

(Toni Turner, Reclamation)

The majority of the model framework for MODSIM has been completed and Reclamation is in the beginning stages of developing water resource scenarios.

Completed

1. Toni verified locations of streamflow timeseries being generated by the DHSVM model and constructed a GIS shapefile of these locations.
2. Toni is developing a baseline demand timeseries using the draft Water Use Assessment for input to MODSIM. If any major changes are made to the finalized Water Needs Assessment, appropriate corresponding updates will be made to MODSIM.

Next Steps

1. Toni will complete constructing MODSIM under baseline conditions (i.e. no conservation, storage options, or climate projections included).
2. Toni will complete the demand timeseries of all users in the Basin.
3. Upon completion of construction and demand timeseries, the baseline model will be calibrated to existing conditions in the basin. Any significant differences between the model and existing conditions will be addressed.
4. Once the model is calibrated, Reclamation with assistance by the WPG will select water resource scenarios to model in MODSIM.

8 WATER NEEDS ASSESSMENT

(Niklas Christensen, WPN)

Final review of the document is being performed by Les Perkins. He has completed an initial review and will finalize his review by mid-July. A draft of the report is available at: http://watershednet.com/projects/hood_river_basin_study/water_use_report/.

9 INTERACTIVE MAP OF HOOD RIVER BASIN

(Niklas Christensen, WPN and Mike Shrankel, HRC)

WPN has transferred all GIS files to HRC. Mike Shrankel updated the County's web mapping software effective July 1 and is now ready to upload the water map. He plans to have the map available by the end of July.

10 WATER CONSERVATION ASSESSMENT

(Niklas Christensen, WPN)

The analysis for the Water Conservation Assessment has been completed and the report documenting methods and results is being finalized. The report contains the following sections:

- Potable:
- Future demand due to population increase
 - Indoor Water Conservation (toilet and shower retrofit)
 - Outdoor Water Conservation
 - Rate Structure incentives and impacts
- Irrigation:
- Sprinkler / soil moisture sensors
 - Convert to pipe
 - Operational / other
 - OSU crop consumption
- Hydro:
- Lucid and Natel Energy cost and revenue estimates for EFID
 - Potential improvements in MFID (water conservation, connecting Coe Creek diversion to sediment basin)
 - Potential improvements in FID (water conservation)
- Sediment:
- Existing water quality (NTU, particle size, particle composition)
 - Flow rates for treatment (EFID, MFID for Coe and Eliot diversions)
 - Evaluation of potential treatment technologies:
 - Electro-coagulation
 - Chemical-coagulation
 - Filtration
 - Hydrodynamic separation
 - Settling (velocities by particle size, facility sizing, sediment curtains to aid)

11 INSTREAM FLOW ASSESSMENT

(Thomas Gast, Normandeau)

As stated in the June Status Report, completion of the Instream Flow Assessment will require both a time extension and additional funds. The original Instream Flow Assessment RFP and scope of work was for only one streamflow timeseries which does not allow analysis of climate change scenarios or water management alternatives. Because of the need for additional analysis, Normandeau has provided the County with three budget options for completing the work. All work would be completed in the late fall when Reclamation has run water resource modeling scenarios. These budget options are shown in Hood River Timeseries Estimate.doc. Although budget Options #1 and #2 do not have fixed dollar amounts, in the long-run both options would have costs comparable to Option #3.

It is recommended that the County contract with Normandeau for Option #3 as this completes all necessary work and creates an Excel tool and report template that can be used by stakeholders if they wish to rerun any scenarios in the future. The cost for Option #3 (\$8,800) is included in future budget considerations (Section 13 and WPG Budget Options.pdf).

Completed

1. One June 17th, the Instream Subcommittee held a meeting to review AWS (WUA) curves generated by Normandeau and have Niklas present how results from the Reclamations' water resource model, MODSIM, would be used in the Instream Flow Assessment.
2. The AWS curves for all species at the Lower and Upper East Fork sites were not accepted by Subcommittee because ideal flows for suitability were not representative of actual conditions.
3. The subcommittee agreed that AWS curves for spawning and adult Steelhead and spawning Chinook would be the most critical to improve. AWS curves for Cutthroat and Bulltrout in the West Fork were not necessary for the Study because they currently are not present in the West Fork.
4. The subcommittee tentatively agreed on species/life stage/reach combinations to use for further analysis.
5. Thomas prepared a budget proposal for how the Instream Flow Assessment should be completed. Thomas's budget proposal is described in more detail in Hood River Timeseries Estimate.doc.

Next Steps

1. Normandeau will prepare a summary report describing why the East Fork AWS curves were not representative of actual conditions.
2. The instream subcommittee will review Tom's summary and decide how to proceed with the Instream Flow Assessment.
3. The instream subcommittee and WPG need to decide which Normandeau budget option to pursue.

12 GROUNDWATER MONITORING PROGRAM

(Mattie Bossler, HRC)

Two quarterly groundwater level measurements have been taken since expanding the monitoring network. The two main priorities for the monitoring program are recruiting more wells to increase the monitoring network to 60 wells and completing a report documenting the expansion of the monitoring program.

Completed

1. Mattie accompanied Marc Norton and Josh Hackett, OWRD Hydrogeologists, for their second quarter measurements of 39 wells in Hood River County (an additional 4 wells were added to the 35 measured in March).
2. Due to interest from several well owners in testing water quality of their wells, Mattie arranged with the Wicks Water Treatment Plant located in the Dalles, OR to test three wells for nitrates and Total Coliforms. The Well Owners agreed to pay for the testing and Mattie would administer the testing by collecting the samples, taking them to the Wicks Water Treatment Plant, and providing results to well owners. The Wicks Water Treatment Plant was selected because it is an ORELAP accredited lab and is within reasonable driving distance and holding period to deliver samples.

Next Steps

1. Due to OWRD's ability to measure 60 wells in Hood River County, Mattie will prioritize recruiting more well owners into the monitoring network.
2. Mattie will prepare a letter to participating well owners thanking them for participating in the program and providing information where they can read and interpret the water levels measured on the OWRD website.
3. Mattie will continue working on completing a report that will explore different alternatives to continue the monitoring network and document work Mattie has done so far in establishing the monitoring network. Mattie had originally anticipated completing the report by the end of July, but she will work mainly for East Fork Irrigation District from the beginning of July to the end of September. With this shift in work, Mattie will expect to complete the report in late fall when more time can be dedicated to preparing a more detailed report.

13 BUDGET FOR CONTINUING THE WATER PLANNING STUDY

(Mike Benedict and Mattie Bossler, HRC)

HRC is preparing a budget to finish the Instream Flow Assessment as well as continue its involvement in the Water Planning Study. HRC currently has allocated \$59,000 dollars (\$15,000 of County administration funds, \$19,000 of County general funds, and \$25,000 of OWRD grant funds). The proposed budget options range from a minimum of \$75,622 up to a fully funded budget of \$98,511, resulting in shortfalls from \$16,600 to \$39,500. These funds would pay for continued involvement in three areas of the Study:

- Water Planning Technician salary from November 2013 to June 2014.
- Project Manager from July 2013 to March or June 2014
- Completion of the Instream Flow Assessment

The budget options are further detailed in [WPG Budget Options.pdf](#). This document shows the amount of budget allocated to each of the three areas, as well as specific tasks within those areas.