HOOD RIVER BASIN STUDY STATUS UPDATE

September 1, 2013

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September 1, 2013 Status Update

This document provides an update for the month of August 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 in Reclamation's Plan of Study 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; and

4. 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 Herrera, 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 OWRDstudies 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
In-stream Flow Assessment	Normandeau
Water Needs Assessment	Herrera/WPN
Water Conservation Assessment	Herrera/WPN
Water Resources Modeling	Reclamation

OVERALL CONSIDERATIONS

1. Reclamation and WPN staff developed a draft of potential scenarios to consider for analysis. These scenarios include storage, and supply/demand alternatives to prioritize for analysis. HRC can review and sign off on suggested approach in September meeting. Modeling of approved alternatives will commence in September through October.

2. Reclamation developed outline of climate change decision process for presentation to HRC in September. Summary of decisions related to uncertainty and selection of climate change characterization were provided to HRC in August for their early review so Reclamation can continue processing data.
3. Adjusting deadline of project from April 2013 to June 2013. Confirmed verbally with HRC this was acceptable. Draft memorandum being reviewed internally. Will provide to HRC in early September for review and approval.

GROUNDWATER MODELING (JENNIFER JOHNSON, JON ROCHA)

COMPLETED

1. Jennifer working through Steady State and Transient models and incorporating precipitation changes from selected climate change projections. Both met with USGS on Tuesday to go over Steady State and Transient calibrations and implementation of climate data in MODFLOW model.
2. Working on a document describing the limitations related to the scenario output.

NEXT STEPS

1. Continue work on model construction and calibration.
2. Continue work on documentation.

DHSVM (BOB LOUNSBURY, TAYLOR DIXON) AND CLIMATE CHANGE ANALYSIS (JON ROCHA, TONI TURNER, TAYLOR DIXON)

COMPLETED

1. Refined output flow locations to: 1) capture all flows needed in regulated MODSIM model (i.e. for diversions, etc.), 2) capture flows in watersheds with similar physical characteristics to gaged watersheds (i.e. for potential bias correction purposes), and 3) capture flows in locations that, cumulatively, encompass the spatial variability of the Hood River basin (i.e. for potential bias correction purposes based on USGS flow statistics for ungaged watersheds). Have sub-daily and daily time series of flows at new locations in hand.
2. The dynamic glacier extension is not performing correctly -- i.e. output glacier data displays watershed glacial-covered area not changing (i.e. static at 0.689%) through course of ~100 year model run (i.e. 1915 - 2012). Might indicate that glacial melt is not contributing to stream flows in current model configuration. Ted Bohn indicated that he did not look at the glacier component of the model when calibrations were performed. We will be discussing this issue with UW to determine if this can be corrected

3. Generated climate change projections (projection selection, uncertainty, climate characterization) for use in DHSVM to generate future flow data for the climate change projections.

NEXT STEPS

1. Continue processing climate change data (lots of coding/scripting), etc
2. Bias correct simulated historical natural flows (some to be developed).
    a. Use that future flow generated in DHSVM as input to MODSIM model to analyze change scenarios to be finalized in September/October.
3. Provide presentation of this climate change selection process at the September 2013 HRC meeting.
4. Continue working on documentation.

WATER RESOURCE MODELING (TAYLOR DIXON, TONI TURNER)

COMPLETED

1. Because we are limited on gages with long period of records, Reclamation is investigating developing flows using gages with good records from similar basins and applying to Hood River.
2. MODSIM model baseline development reviewed with Project Manager for HRC in August. Adjustments to the model were completed. Baseline development on-going.
3. Redesigned unregulated MODSIM model to reflect updated DHSVM flow points. Performed trial daily runs with new DHSVM flow data to ensure correct/appropriate structure and data output. Will soon be generating updated gains/losses based on bias-corrected DHSVM flows. Bias corrections will be applied today and early next week, if deemed necessary. Should be updating/polishing regulated MODSIM model next week.

NEXT STEPS

1. Run baseline model and compare to existing conditions. Address differences or note.
2. Revise model to incorporate change scenarios agreed to by team.
3. Continue working on documentation.

REPORT WRITING (ALL)

COMPLETED

1. Developing a detailed schedule for completion of draft, final draft, and final reports of main report and all of the technical memos.

NEXT STEPS

1. Finish schedule and present to HRC in September.
2. Continue working on documentation.

WATER STORAGE ASSESSMENT (DOUG BENNETT AND ROGER WRIGHT)

COMPLETED

1. Task completed.

NEXT STEPS

1. Results from Water Storage Assessment will be used in the water resource modeling effort.

NO NEW IN-STREAM FLOW ASSESSMENT (NORMANDEAU)

COMPLETED

NEXT STEPS

WATER NEEDS ASSESSMENT (HERRERA/WPN)

COMPLETED

NEXT STEPS

INTERACTIVE MAP OF HOOD RIVER BASIN (GOOGLE EARTH OR ARC EXPLORER)

COMPLETED

NEXT STEPS

WATER CONSERVATION ASSESSMENT (HERRERA/WPN)

COMPLETED

NEXT STEPS

GROUNDWATER MONITORING PROGRAM (HRC/MATTIE)

COMPLETED

NEXT STEPS

CROP AND IRRIGATION SYSTEM INVENTORY (HRC/MATTIE)

COMPLETED

NEXT STEPS