

MEETING SUMMARY

October 4, 2016 9:30 AM -12:00 PM 195 North 1950 West, Great Salt Lake West

PURPOSE: Utah Model Group Meeting – Collaboration with University of Utah for Water Quality Model Development

PRESENT:

NameOrganizationSuzan TahirDWQCarl AdamsDWQScott DalyDWQSandy WingertDWQNicholas von StackelbergDWQLaVere MerrittConsultantTheron MillerJR/FBWQCDave RichardsConsultantMitch HogsettConsultantMike MillsJSRIPRamesh GoelU of UJulie KinseyEPADavid BarlowTimp Special Service DistrictChris KeleherUDNRGarland MayneSouth Valley Sewer DistrictJon AdamsTimp Special Service DistrictMark OgrenProvo CityCarly HansenU of URich MickelsenProvo CityMichael BarberU of USarah HinersU of U	PRESENT.	
Carl Adams Scott Daly Sandy Wingert DWQ Nicholas von Stackelberg DWQ LaVere Merritt Consultant Theron Miller JR/FBWQC Dave Richards Consultant Mitch Hogsett Consultant Mike Mills JSRIP Ramesh Goel Julie Kinsey EPA David Barlow Timp Special Service District Jon Adams Timp Special Service District Jon Adams Timp Special Service District Mark Ogren Provo City Carly Hansen U of U Rich Mickelsen Provo City Michael Barber DWQ DWQ Consultant Consultant Consultant U of U U U U U U U U U U U U U	Name	Organization
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Rich Mickelsen Provo City Michael Barber U of U	Mark Ogren	Provo City
Michael Barber U of U	Carly Hansen	U of U
	Rich Mickelsen	
Sarah Hiners U of U	Michael Barber	U of U
	Sarah Hiners	U of U

I. Welcome and Introductions

II. DWQ Model Selection (Nicholas von Stackelberg)

- a. Nick presented an overview of the Utah Lake model selection process (Utah Lake Nutrient Model Selection)
 - i. The model selection process was guided by the Utah Lake Model Stakeholder Subgroup
 - ii. Discussion of key model functions for Utah Lake
 - iii. Final model selection report was delivered to stakeholders on July 12, 2016
- b. Model selection resulted in coupling Water Quality Analysis Simulation Program (WASP) and Environment Fluid Dynamics Code (EFDC)
 - i. Ability to capture physical, chemical and lake dynamics
 - ii. Three-dimensional hydrology
- c. Discussion of collaboration with the University of Utah for model development

- Water quality and hydrodynamic model development for the Jordan River and Utah Lake watersheds
- ii. Model suite will have the ability to predict watershed management impacts on in-lake water quality
- iii. Partnering with the U of U will avoid development of competing models by multiple entities
- iv. U of U would deliver calibrated model for use on Utah Lake numeric nutrient criteria development

Attendee Comments

- i. Miller: How will the stakeholder subgroup interact with model development team?
- ii. Richards: How will zooplankton and phytoplankton communities be incorporated as part of the food web model?

III. University of Utah EPA Model Presentation

- a. Mike Barber presentation of University of Utah's EPA funded project (*Prediction of Nonlinear Climate Variations Impacts on Eutrophication and Ecosystem Processes and Evaluation of Adaptation Measures in Urban and Urbanizing Watersheds*)
 - i. Introduction to research team
 - ii. Study goals and objectives
 - iii. Background and research hypotheses
 - iv. Research approach and activities
 - v. Expected results, outputs, and outcomes.
- b. Sensitivity Analysis to be completed in 6 months
- c. Currently attempting to reproduce Jordan River QUAL2Kw model results in WASP
- d. Entire watershed to be modeled
- e. Macrophytes included in WASP; however, high uncertainty
- f. UofU model will not focus on macrophytes, macroinvertebrates, fish, birds

Attendee Comments

- i. Richards: Does UofU's definition of water quality include physical, chemical and biological integrity? What is the definition of eutrophication?
- ii. Miller: How will the existing Jordan River Qual2K model be integrated with WASP?
- iii. Miller: How will we determine sensitive parameters and integrate field data?
- iv. Keleher: How will macrophytes be incorporated?
- v. Miller/Merritt: Can phosphorus mineralization and resorption be predicted in the model?
- vi. Merritt: Utah Lake quickly reaches nutrient saturation. Nutrients not primary driver. Light/turbidity is limiting and phosphorus is super-saturated. 90% removal of P in Utah Lake through mineralization.
- vii. Merritt: Utah Lake Nutrient Balance Report to be released soon.
- viii. Goel: P sorption dynamics both chemically and biologically mediated
- ix. Goel: Bioavailability of P released into solution is unknown.
- x. Merritt: Model will improve understanding of system. Unrealistic goal to develop model to determine nutrient endpoints in short time frame.

IV. Data Collection to Support Model Parameterization (Discussion)

- a. DWQ will initiate process and stakeholder involvement to develop study plan to prioritize Water Quality Board funding on data collection for key model parameters
- b. Data collection coordination through Suzan Tahir at DWQ

V. Future Modeling Group Participation

- a. Group members want to be involved in data collection
- b. Combine Jordan River and Utah Lake modeling groups?

VI. Action Items

- 1. University of Utah: Provide list of model parameters to the subgroup
- 2. DWQ/University of Utah: Identify processes best simulated outside of WASP
- 3. **University of Utah:** Provide sensitivity analysis results to guide data collection and parameterization
- 4. **DWQ:** Coordinate stakeholder meeting for developing study plan.

NEXT MEETING: January 10th, 2017