

DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
Quarterly Report

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TO: Andrew Kolosseus, Unit Supervisor, Southwest Regional Office
Greg Zentner, Acting Section Manager, Southwest Regional Office

FROM: Nuri Mathieu, Principal Investigator, Environmental Assessment Program
Greg Pelletier, Project Manager, Environmental Assessment Program

THROUGH: George Onwumere, Unit Supervisor, Environmental Assessment Program

SUBJECT: White River pH TMDL, Quarterly Report #5: Nov. 2013 – Jan. 2014

Project Code: 12-015

Introduction

Several areas of the White River are on Washington State's list of polluted waters (303(d) list) for pH and require a cleanup plan, or total maximum daily load (TMDL). Past studies have documented excursions of the upper pH criterion (8.5) and suggest these conditions are the result of nutrient inputs to the river.

To develop a TMDL for the river, the Washington State Department of Ecology (Ecology) conducted a series of water quality surveys between August and October of 2012. Ecology will use this data to develop and calibrate a numerical water quality model of the river to simulate continuous pH and other water quality parameters.

This quarterly report summarizes the data quality review, analysis, and preliminary model setup activities to date.

Progress to Date

Communications

During this quarter, the project team:

- Completed a draft matrix of scenarios, with an initial TMDL scenario outlined. Existing conditions (2012) summary information was added to the matrix for all point sources.

- Received finalized water quality data from the Muckleshoot Indian Tribe for Hydrolab deployments conducted at River Mile ~10.
- Met to review the temperature calibration for the model, via web conferencing.

Data Collection

No data collection activities took place in this quarter.

Provisional Results

No provisional data is included in this report; however, specific provisional results may be available upon request.

Data Quality Review and Modeling Progress

During this quarter, the project team:

- Entered project data into Ecology's Environmental Information Management (EIM) database. Final data is on the internet at: <http://www.ecy.wa.gov/eim/>. 'Search for data' by 'Studies' using Study ID: *GPEL0010*.
- Continued to refine auto-calibration parameters for the pH/nutrients model. Ran ~10,000 model runs using auto-calibration this quarter.
- Completed RMA models for all synoptic data collected. Productivity and respiration from the RMA outputs were compared to periphyton biomass and instream nutrient concentrations.
- Compiled rates from ~30 calibrated QUAL2Kw water quality models from throughout the Western US. The goal was to find a more current and regional range of rates to use for both manual and auto calibration of QUAL2Kw.
- Completed initial calibration of pH/nutrients model. Additional refinement may be necessary based on review by TMDL drafting committee.

Project Schedule and Upcoming Tasks

Based on the project timeline, the project schedule is currently slipping, given that the project team did not complete the 'choose model scenarios' task by the scheduled date of 1/31/2014. Completion of modeling scenario runs is scheduled for 3/15/2014, which may still be attainable given current progress. The primary tasks in the upcoming quarter will be:

- Perform sensitivity analysis of the initial model calibration.
- Review initial calibration results with TMDL drafting committee.
- Continue development of model scenarios.
- Setup and run model scenarios.

This document is the last scheduled report, prior to the draft final report for the TMDL study. The draft final report is scheduled to be available for external review in December 2014. Additional quarterly reports may be distributed as needed in 2014.