



GREEN-DUWAMISH POLLUTANT LOADING ASSESSMENT TECHNICAL ADVISORY COMMITTEE

TECHNICAL ADVISORY COMMITTEE MEETING #1

12424 42nd Ave South, Tukwila, WA 98168

December 10, 2014

TAC PARTICIPANTS

- Glen St. Amant, Muckleshoot Tribe
- Chris Andersen, City of Auburn
- Kym Anderson, Port of Seattle
- Kevin Buckley, Seattle Public Utilities
- Becky Chu, USEPA CERCLA
- Shawn Gilbertson, City of Kent
- Marilyn Guthrie, Port of Seattle
- Kristen Kerns, USACE
- Ryan Larson, City of Tukwila
- Mike Mactutis, City of Kent
- Laurie Mann, USEPA Office of Water
- Dale Norton, Ecology Environmental Assessment Program
- Pete Rude, Seattle Public Utilities
- Jeff Stern, King County DNR/WTD
- Ron Straka, City of Renton

ADDITIONAL MEETING PARTICIPANTS

- Bob Warren, Ecology Toxics Cleanup Program (Steering Committee member)
- Mahbub Alam, Ecology Toxics Cleanup Program
- David Croxton, USEPA Region X (Steering Committee member)
- Mark Dagel, Hart Crowser
- Kelly Foley, EnviroIssues
- Dave Garland, Ecology Water Quality Program
- Todd Kennedy, Tetra Tech
- Rachel McCrea, Ecology Water Quality Program
- Mike Milne, Brown and Caldwell
- Joan Nolan, Ecology Water Quality Program
- Rick Schaefer, Tetra Tech
- Angie Thomson, EnviroIssues
- Martha Turvey, USEPA Region X
- Sen Bai, Tetra Tech (via phone)
- Allen Medine, Tetra Tech (via phone)

WELCOME AND INTRODUCTIONS

Angie Thomson, facilitator, welcomed everyone and led the group in a round of introductions. She provided a brief overview of the agenda for the day and introduced Bob Warren, Washington Department of Ecology (Ecology) and David Croxton, U.S. Environmental Protection Agency (EPA) for opening words.

- Bob Warren thanked everyone for their participation in the Technical Advisory Committee (TAC), explaining how the Duwamish River has been a point of focus for watershed health since 2001 for EPA and Ecology. He emphasized that the TAC is an integral component of the Pollutant Loading Assessment (PLA) and parallels EPA's recent Lower Duwamish Waterway (LDW) Record of Decision (ROD).
- David Croxton noted his appreciation for everyone's involvement. He stated that EPA is excited to be at this point in the Duwamish River cleanup efforts and is looking forward to supporting Ecology on the PLA. He emphasized the importance of protecting the existing cleanup efforts in the Lower Duwamish Waterway (LDW) and noted that the PLA is an opportunity to enhance these efforts.

OVERVIEW OF THE PLA PROCESS

Joan Nolan, Ecology Water Quality Program, provided an overview of the PLA process.

- The PLA will be developed through the oversight of an EPA/Ecology Steering Committee, the technical expertise of the Technical Advisory Committee, and feedback from Interested Parties.
- The primary role of the TAC during this phase of the project is to provide feedback on the technical approach for the model, including helping to identify existing studies and data gaps for model development.
- The TAC will meet monthly for the first six months of PLA model quality assurance project plan (QAPP) development.

Angie led the group in a discussion about how the TAC will operate, including the role of the TAC, who will be represented on the TAC, who will sit at the table, and what is expected of TAC members.

- Each entity may have 1-2 representatives at the table, in an effort to provide well-rounded expertise but not overshadow anyone's voice.
- The goal of the TAC will be to gather a wide range of opinions and ideas regarding pollutant loading in the Green-Duwamish watershed. Recognizing that a diversity of opinions is good, consensus-based decisions are not required.
- There may be an option to participate in meetings via conference call, but it is preferable that representatives attend in-person. Future conference call options will depend on the reliability of the conference call system.
- There will be a common space for document sharing.
- Meetings will be scheduled on a standing basis, but representatives will have an opportunity to provide feedback on when the standing meeting will occur. Efforts will be made to avoid dates with other standing meetings associated with the watershed.

Actions

- The Project Team will adjust the operating guidelines to reflect the changes to representation.
- The Project Team will explore options for conference call lines at future meetings.
- The Project Team will look into the best platform for document sharing (e.g. Dropbox, SharePoint, and Ecology Website).
- The Project Team will send out a Doodle Poll to identify the best time for standing meetings.

PROJECT CONTEXT

Rachel McCrea, Ecology Water Quality Program, gave a presentation on the overarching context for the PLA process and identified the type of information that the TAC could provide. Some highlights from the presentation included the following:

- The PLA is driven by Clean Water Act (CWA) impairments in the Green-Duwamish Watershed, based on sediment, water column, and fish tissue data.
- Ecology is interested in looking at the larger watershed context because recent studies show that toxics (i.e., PCBs) are found in exceedances of existing criteria in tributaries and the Green River mainstem, before entering the Duwamish River. Quality of incoming water and sediments becomes an important issue in the LDW.
- There is a need to understand diffuse and point sources of pollution and compare pollutant reduction alternatives. This will allow for better management decisions, protection of existing cleanup efforts, and prediction of short and long-term water quality improvements.
- There is a need to better correlate sediment, water column and tissue data such that pollutant reduction in one medium can be correlated to pollutant reduction in another medium.
- TAC representatives can help identify existing efforts and studies, what pollutant or pollutant groups should be modeled in the PLA, data gaps, additional data needs, and how to accurately represent sources and pathways for pollutants.

Following the presentation, the TAC committee discussed the greater context for the PLA and the role of the TAC. Some highlights from the discussion included the following:

- The PLA will be completed in phases. The long-term goal for the PLA is to maximize pollutant reduction levels through management actions. A Total Maximum Daily Load (TMDL) may be conducted in the future if it is needed.
- There is a need to clarify the geographic extent of the watershed area to be included in the model.
- EPA has recently issued its Record of Decision (ROD) under the CERCLA program that details the in-waterway portion of the LDW cleanup. Ecology continues its effort to control sources to the LDW Superfund site as the lead for source control.
- While there have been similar modeling efforts for toxics conducted in other watersheds (e.g. Chesapeake Bay, Delaware Estuary, San Francisco Bay), this project is unique because of the coordination between CWA and CERCLA.

- Funding for this phase of the PLA is for six initial TAC meetings and through development of a modeling QAPP, but the PLA is a priority for Ecology and EPA and there is an expectation of continued funding.

Actions

- The Project Team will make the PowerPoint available for TAC representatives on the shared document drive.

TECHNICAL APPROACH & MODEL OVERVIEW

Todd Kennedy, Tetra Tech, presented on the PLA model and technical approach. The presentation included an overview of the conceptual framework driving the approach, the proposed modeling tools, and an initial assessment of the existing data, modeling, and data needs. Some highlights of the presentation and subsequent discussion included:

- Model framework
 - The PLA model will have three separate but linked components: the watershed model, receiving water model, and food web model.
 - There are 2 modeling scales: watershed level and receiving water level. The watershed model is based on Loading Simulation Program in C++ (LSPC), which contains the same basic algorithms as HSPF.
 - The receiving water model is based on the Environmental Fluid Dynamics Code (EFDC).
 - The food web model is based on Arnot-Gobas and DYNBAM (Biodynamic Model for Bioaccumulation).
 - LSPC is continuous simulation watershed hydrology and water quality model with one dimensional representation of stream. EFDC is a three dimensional model that can be used for lakes, streams, and estuaries to account for the complex mixing and transport processes. The two models can be linked together and connected to a food web model.
 - The technical approach is designed to take into account technical, regulatory, and user criteria.
 - Regarding the WRIA 9 retrofit work, the PLA focuses on water quality pollution rather than the SUSTAIN model focus on stormwater flows.
- Receiving waters
 - Receiving water can be defined broadly (i.e., we are interested in both the LDW and upstream waterways including the Green River); however the EFDC model is used as the primary receiving water model for describing the LDW. The technical approach recommends EFDC for the Lower Duwamish Waterway because the resolution and detail of the LDW is high. The LSPC model is proposed to represent lakes, streams, and rivers upstream, as well as the land draining to those upstream waterways.
 - The upstream extent of the EFDC model will need to be determined and its selection will influence resolution and run times.
- Hydrologic response units (HRUs)

- Hydrologic response units (HRUs) are a key organizing principle used in model development for describing watershed processes. An HRU is a discrete land area with flow and pollutant characteristics. HRUs allow for landscape types to be defined and connected to the hydraulic network, and they form the foundation for developing pollutant loading relationships.
- Development of HRUs for the PLA has not yet begun.
- Land use, land cover, hydrology, contaminants, age of construction, and soil type are potential factors that can be used to define HRUs. The TAC can help inform HRU development and results will feed into the more complex LDW model.
- Data
 - The models will be calibrated using existing baseline data (ambient surface water quality, point source water quality and sediment/solids quality, groundwater quality, ambient sediment quality, fish tissue data, etc.) and building off previous models that have been developed for the LDW and within the watershed upstream.
 - Preliminary data gaps include ambient surface water quality data and point source water quality data have been assessed; these will be evaluated further over the coming months. Feedback from the TAC on these and other data gaps is important for model development.
 - There is a need to assess the quality of data that will be incorporated into the model.
 - The amount of time needed to develop the model may be dependent on data gaps.

Actions

- Ecology will send out a formal, written request to TAC entities for the EFDC model (all versions) and others models.
- The Project Team will send out a link to the technical approach document and appendices.

PUBLIC COMMENT

No public comments were submitted.

NEXT STEPS

Potential topics for the next meeting agenda include:

- Setting measurable goals for the PLA development, project phasing
- Lessons learned from similar efforts in different geographies
- Lessons learned from other modeling effort in the watershed
- Reviewing a technical memo developed by TetraTech: Existing Data and Model Evaluation
- Geographic extent of the model and receiving waterways
- Defining and identifying HRUs
- Types of parameters and feasibility of including parameters in the model
- Model data needs (e.g. including flow or gauge data into the LSPC model)
- Assessment of data quality

Homework: TAC representatives will bring ideas about data needs to the next meeting. Please direct questions to Rachel McCrea, Joan Nolan, or Angie Thomson.

Angie Thomson thanked everyone for their time and adjourned the meeting.