



**GREEN-DUWAMISH POLLUTANT LOADING ASSESSMENT
TECHNICAL ADVISORY COMMITTEE**

MEETING #9 NOTES

TECHNICAL ADVISORY COMMITTEE MEETING #9

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March 15th, 2017

Tukwila Community Center
12424 42nd Ave South
Tukwila, WA 98168

TAC PARTICIPANTS

- Ryan Larson, City of Tukwila
- Kevin Buckley, Seattle Public Utilities
- Mike Mactutis, City of Kent
- Kristen Kerns, Corps of Engineers
- Joanna Florer, Port of Seattle
- Jana Ratcliff, Washington State Dept. of Transportation
- James Rasmussen, Duwamish River Cleanup Coalition
- Pete Rude, Seattle Public Utilities
- Heather Trim, Duwamish River Cleanup Coalition
- Greg Pelletier, Ecology Environmental Assessment Program
- Jeff Stern, King County

ADDITIONAL MEETING PARTICIPANTS

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| <ul style="list-style-type: none"> • Erika Morgan, City of Black Diamond • Ken Workman, Duwamish Tribe • Molly Sullivan, WSDOT • Bill Gardiner, USACE • Laura Wishik, Seattle City Attorney's Office • Allison Crowley, Seattle City Light • Beth Schmoyer, Seattle Public Utilities • Iris Winstanley, Leidos • Debra Williston, King County • Curtis DeGasperi, King County • Jenee Colton, King County • Michael Pagel, Hart Crowser • Alex Horner-Devine, Univ. of Washington • Ben Cope, EPA | <ul style="list-style-type: none"> • Laurie Mann, EPA • Becky Chu, EPA • Dave Croxton, EPA • Mark Henley, Ecology Water Quality • Joan Nolan, Ecology Water Quality • Rachel McCrea, Ecology Water Quality • Rick Thomas, Ecology TCP • Adriane Borgias, Ecology Water Quality • Heather Khan, Ecology Water Quality • Jerry Shervey, Ecology Water Quality • Melisa Snoeberger, Ecology Water Quality • Ralph Svrjcek, Ecology Water Quality • Bo Li, Ecology Water Quality Program • Jon Butcher, Tetra Tech • Brian Watson, Tetra Tech |
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MEETING AGENDA

Time	Topic	Discussion Items	Lead
9:00 a.m.	Welcome and Introductions	<ul style="list-style-type: none"> • Introductions • Review last meeting's progress • Meeting objectives 	<ul style="list-style-type: none"> • Joan Nolan



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Time	Topic	Discussion Items	Lead
9:10 a.m.	Hydrodynamic Model Report	<ul style="list-style-type: none"> • Green/Duwamish River Watershed – LSPC Model Development and Calibration <ul style="list-style-type: none"> ○ Intro ○ Model Set up ○ Results ○ Challenges ○ Demo • Discussion 	<ul style="list-style-type: none"> • Tetra Tech
10:10 a.m.	Break		
10:20 a.m.	PCB Congener Study Phase II	<ul style="list-style-type: none"> • Draft PCB Source Evaluation <ul style="list-style-type: none"> ○ Methodology ○ Overview of findings ○ PCB modeling recommendation • Discussion 	<ul style="list-style-type: none"> • Dr. Lisa A. Rodenburg
11:20 a.m.	Next Steps	<ul style="list-style-type: none"> • Next steps in PLA development process • Next steps for TAC 	<ul style="list-style-type: none"> • Bo Li • Joan Nolan
11:30 p.m.	Adjourn		

WELCOME AND INTRODUCTIONS

Joan Nolan welcomed the TAC members back and went over housekeeping items and introductions. Joan reviewed the meeting goals and objectives and the approval of meeting notes for TAC meeting #8. The meeting’s primary objective is to report out and discuss the status of the hydrodynamic model and the draft PCB source assessment. Joan went over the TAC meeting agenda and encouraged attendees to stay for the scheduled afternoon Interested Parties Meeting #2.

LSPC MODEL DEVELOPMENT AND CALIBRATION

Jon Butcher of Tetra Tech gave a presentation of the LSPC model report development and calibration. He discussed the model set up procedures and data sources, model formulation, external data including meteorological and boundary flows, land use representations, channel configuration and hydraulics, and calibration data.

Q&A / Discussion

- Q: Is the model most uncertain upstream?
 - A: There is less gaging upstream, especially in small tributaries.
- Q: What do you think the next steps should be regarding the Springbrook Creek/Black River calibration?



- A: The Black River pump station is in the model; there is no good record of its function upstream. The gaging records are not great. There may be scour areas. It is an example of an area of concern. We will want to revisit it, and need to continue to collect data.
- Q: The Duwamish gets a lot of groundwater input. What about the inputs from upstream?
 - A: There is less gauging data and less information about groundwater in the upstream streams. We also know that the downstream areas are more urban/more impervious surfaces.
- Q: How have Howard Hanson Dam releases been addressed in the model?
 - A: Dam releases are a boundary condition. There is a gauge below the dam. The water behind the dam is expected to be low in pollutants. The current concern and focus is pollutant loading below the dam. Modeling the Dam release as a boundary condition won't affect the predictive aspect of the model unless you want to ask what may happen in that upper watershed due to climate change.
- Q: Explain your efforts to obtain local stormwater management models from the cities and how much does that affect the accuracy of the model.
 - A: TetraTech did some initial outreach and looked for descriptions of models used in comprehensive plans. Some of these may be consultant products. As they become available, we could use them to refine the LSPC model.
- Q: Explain how land uses have been aggregated, and whether you will have the ability to disaggregate land uses in the future.
 - A: We determined impervious surface by roads, roofs, and other ground level impervious surfaces visible with LIDAR. If there is a certain area that is of more interest in the future, it may be worthwhile to disaggregate other land surfaces.
- Q: Is the LIDAR data from 2006?
 - A: Yes, 2006 LIDAR. We did do a land use comparison, and the change from 2006-2011 is pretty small in the Duwamish/Green area. While land use changes further up the watershed may be large, and potentially contributing some uncertainty, it is unlikely to change the model calibration.
- Q: Will the project include a groundwater model?
 - A: No. USGS did some preliminary work in the 1990s. We think it would be useful to inform the water balance only, unless there is a pollutant load in the groundwater.
- Q: How does the model address delivery of bank sediment?
 - A: It is a one-dimensional watershed model, and can't predict the extent of mobilization of sediment from bank erosion. Some models can do that. We can also combine with geomorphic information to help resolve that. The hydrology will predict shear stresses.
- Q: Can you elaborate on the use of HEC RAS, and how the model tracks channel sediment now?
 - A: The stream segments are 1 mile long, the model is based on real bank data and predicting flow surface elevation. We use those models to aggregate 40 sections into one LSPC segment.

Comment from the City of Kent:

- Regarding input from local cities and their stormwater input/knowledge to fill in data gaps, we do have model of our stormwater system that is about 10 years old. We don't remember getting a request to give that model out.



- Concerning land use: Areas in Kent that were modeled as high density residential probably aren't. They are likely commercial or industrial and there were quite a few areas that are modeled incorrectly. Satellite images will contribute to error.
- Note we have tidal influence at the 200th Street gage. Kent and Tukwila sponsor this gage. High tides affect low flows, so the gage data should be interpreted carefully.

DRAFT PCB SOURCE EVALUATION

Dr. Lisa A. Rodenburg gave a presentation on the draft PCB source evaluation and findings. Dr. Rodenburg explained how the study is conducted, what data the study relied on, and study findings. Overall the study identified Aroclor 1260, 1254, 1248, 1016/1242 as the dominant PCB sources in the watershed. These results are consistent across water sediment and biota. There are a number of inherent biases in the data due to the limited availability of PCB congener data in some media and some locations in the watershed. A report will be made available when it is finalized by the end of June.

Q&A / Discussion

- Q: Does salinity of the estuary and evidence of no dechlorination imply other freshwater sources?
 - A: No. There were essentially no PCBs found in freshwater. Dr. Rodenburg indicated that she has not seen evidence that PCBs are dechlorinating in groundwater based on the available data.
- Q: Were salmon included in the tissue data?
 - A: No. Most of the tissue data is from the Lower Duwamish Waterway and East Waterway Superfund investigations (RI/FS) and is thus limited to resident species in the Duwamish & East Waterway, such as the geoduck. Salmon were not a focus here, and no salmon data for PCB congeners were identified.
- Q: Please explain why you had to throw out a lot of surface water data.
 - A: Some of the surface water samples collected for a couple of the studies we used had a high proportion of non-detected congeners. These samples don't provide useful information about PCB congener patterns and were eliminated. In addition, the number of congeners (or peaks) included in the analysis was limited to 42 because of the high level of non-detects. We need more water data going forward.
- Q: We know that the surface water sample collection silicone tubing had PCBs in it, are PCBs present in silicone caulking?
 - A: Not sure, not a chemist, but there is a difference between methyl and phenyl in regards to the caulk, so silicone caulk is not an issue.

Dr. Rodenburg recommended that the PLA model PCB homologs 3 through 8 to account for most of the PCBs in the system. It is possible to just model one homolog, but others who have done this are now redoing their models to assess all homologs. Dr. Rodenburg also recommended additional data collection.

NEXT STEPS



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Bo Li described next steps for the PLA project and requested comments on the LSPC Model Development and Calibration report by April 14, 2017. The Ecology and EPA project team is preparing to transition away from the EPA-funded contractor Tetra Tech for the technical modeling work in response to changing budget and contracting conditions. Going forward Ecology will provide a dedicated in-house modeler to do ongoing technical work. The Ecology and EPA project team would also like to explore creating a small group of modelers from TAC member entities and other interested parties who can provide additional technical insight into future model development phases. Please contact Bo Li at 425-649-7284 if you are interested in potentially participating in this fashion.

Joan Nolan asked that questions and comments be sent to her and Bo Li. Joan told the attendees that meeting presentations, notes, and other project documents will be placed on the website as they become available. <http://www.ecy.wa.gov/geographic/GreenDuwamish/pla.html>

Meeting adjourned at 11:30 am.

Project Team Action items:

- Identify and draft Hydrodynamic Model Report based on TAC comments (during and following the meeting) where necessary to support the current phase of work. Compile other comments for future consideration.

TAC HOMEWORK:

- Provide comments on the draft Hydrodynamic Model Report to Bo Li by April 14, 2017.
- Review the meeting #9 summary and provide edits by May, 2017.
- Contact Bo Li if you have modeling expertise and interest in participating in detailed model development oversight.

TECHNICAL ADVISORY COMMITTEE MEMBERS

Entity	Representative
City of Auburn	Jenna Leonard, Environmental Services Manager
City of Kent	Mike Mactutis, Env. Engineering Section Manager
City of Kent	Shawn Gilbertson, Environmental Supervisor
City of Renton	Ron Straka, Utility Engineering Manager
City of Seattle	Kevin Buckley, Integrated Planning Program Manager
City of Seattle	Pete Rude, Strategic Advisor
City of Tukwila	Ryan Larson, Senior Surface Water Program Manager
Duwamish River Cleanup Coalition	James Rasmussen, Coordinator
Duwamish River Cleanup Coalition	Heather Trim, Board Member
King County	Chris Townsend, Environmental and Community Services Section Manager
King County	Jeff Stern, Sediment Management Program Manager
Muckleshoot Tribe	Glen St. Amant, Habitat Program Manager
Muckleshoot Tribe	Nancy Rapin, Water Team Leader
Port of Seattle	Kathy Bahnick, Environmental Program Manager
Suquamish Tribe	Rich Brooks, Environmental Program Manager
WSDOT	Jana Ratcliff, TMDL Lead



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US Army Corps of Engineers, Seattle District	Kristen Kerns, Physical Scientist
USEPA Office of Water	Ben Cope, Environmental Engineer
Ecology Environmental Assessment Program	Greg Pelletier, Environmental Engineer
WRIA 9 Watershed Ecosystem Forum / King County Department of Natural Resources	Elissa Ostergaard, Stewardship Coordinator

PROJECT TEAM

Entity	Representative
Ecology Water Quality Program	Joan Nolan, TMDL Lead
Ecology Water Quality Program	Rachel McCrea, Water Quality Planner
Ecology Water Quality Program	Bo Li, Environmental Engineer
Ecology Toxics Cleanup Program	Vacant
USEPA Office of Water	Laurie Mann, Environmental Engineer
USEPA CERCLA	Becky Chu, Remedial Project Manager & Source Control
