GREEN-DUWAMISH POLLUTANT LOADING ASSESSMENT

TECHNICAL ADVISORY COMMITTEE

December 10, 2014

Meeting 1

DEPARTMENT OF ECOLOGY
State of Washington

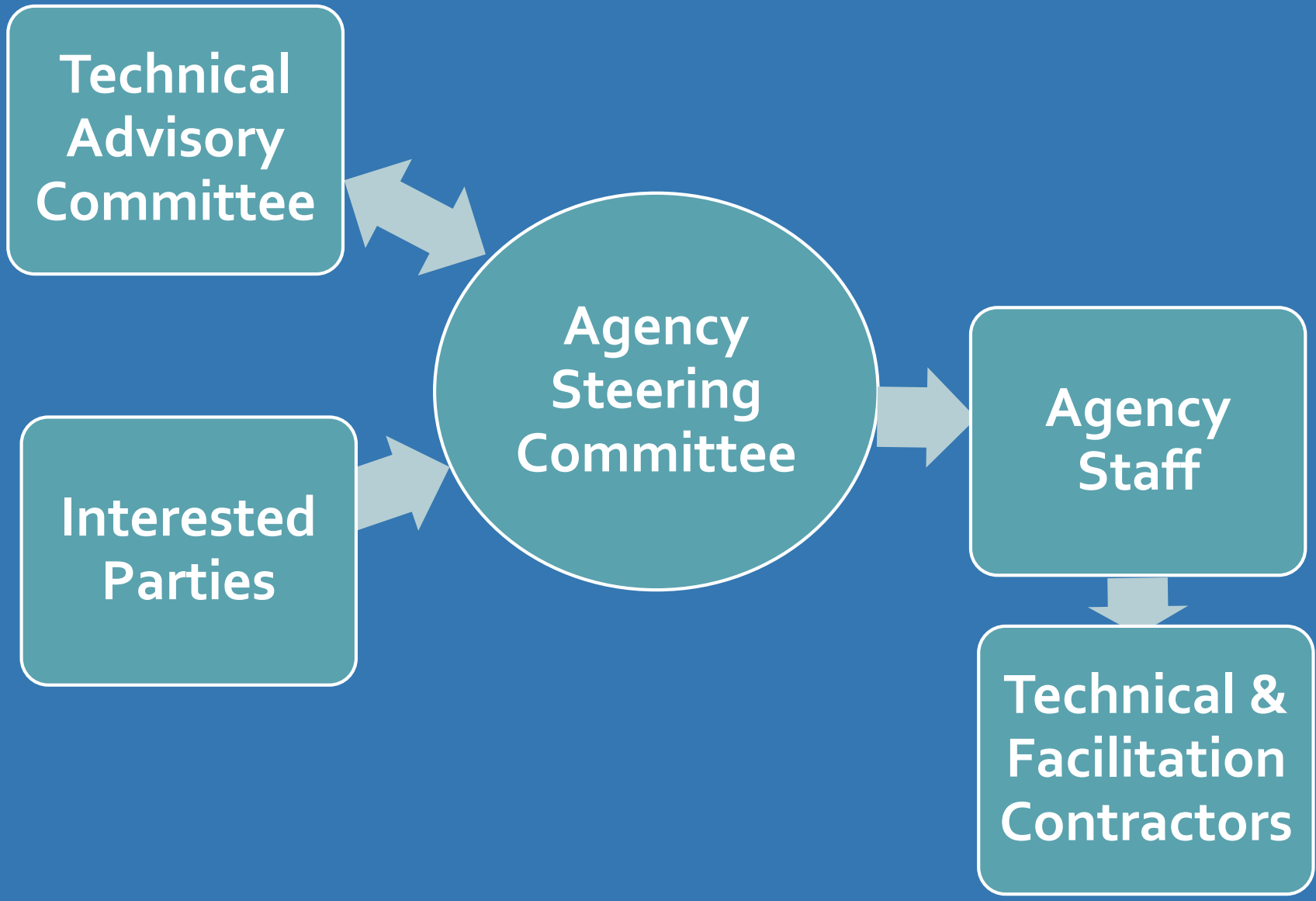
EPA

TAC Meeting Agenda

Time	Topic
1:00 pm	Welcome & Introductions
1:20 pm	Overview of PLA Process
1:50 pm	Project Context
2:20 pm	Break
2:30 pm	Technical Approach Overview
3:00 pm	Data/models Introduction
3:30 pm	Public Comment
3:45 pm	Next Steps
4:00 pm	Adjourn

Overview of PLA Process

PLA Organizational Structure



Role of Technical Advisory Committee

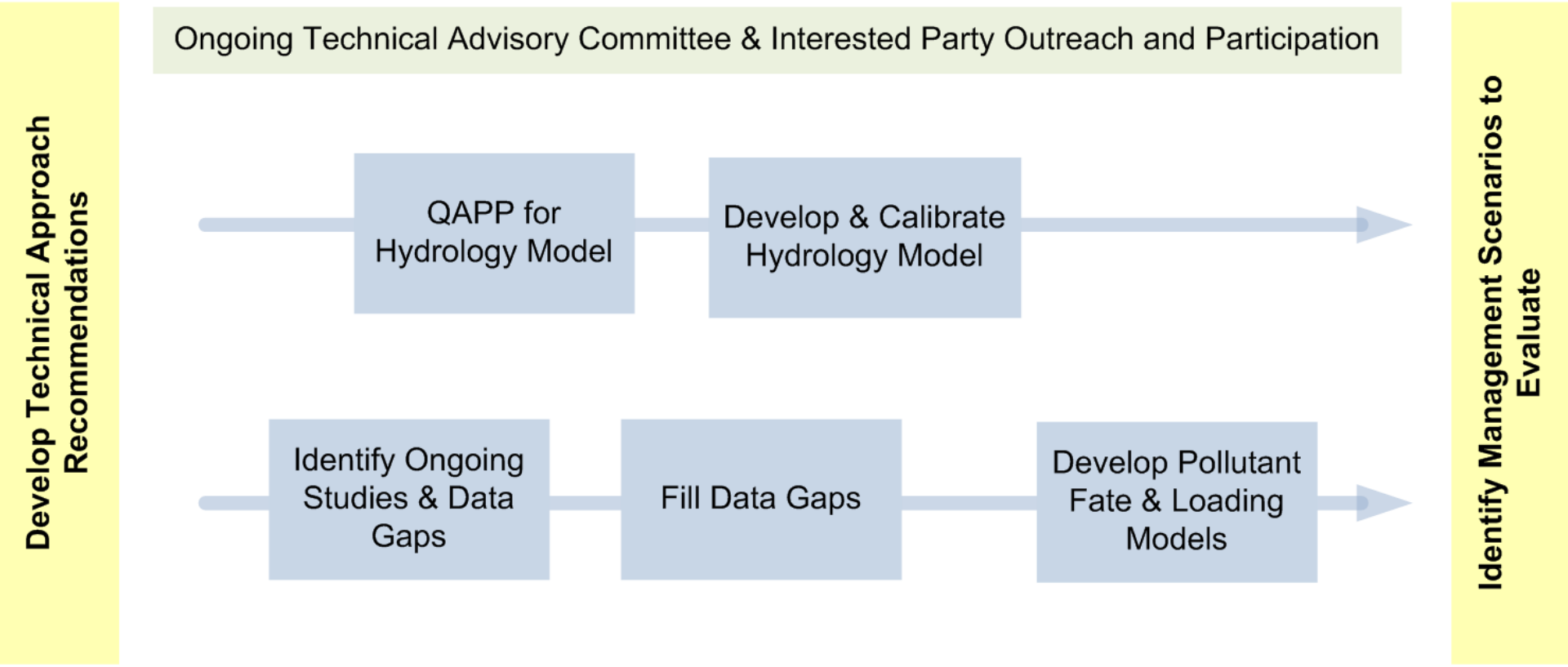
- Act as a technical resource and provide input during development of the PLA
  - Review documents
  - Provide input on models
  - Help identify data gaps
  - Provide first review of materials before presentation to the Interested Parties Group
- Meet monthly through first six months of PLA development
- Representatives from government and non-profits

Interested Parties Outreach

- Open forum for all stakeholders to provide input on development of the PLA
- Review key technical questions and topics
- Hear about work of the TAC and progress on the PLA overall
- First meeting in early 2015

PLA Organizational Structure

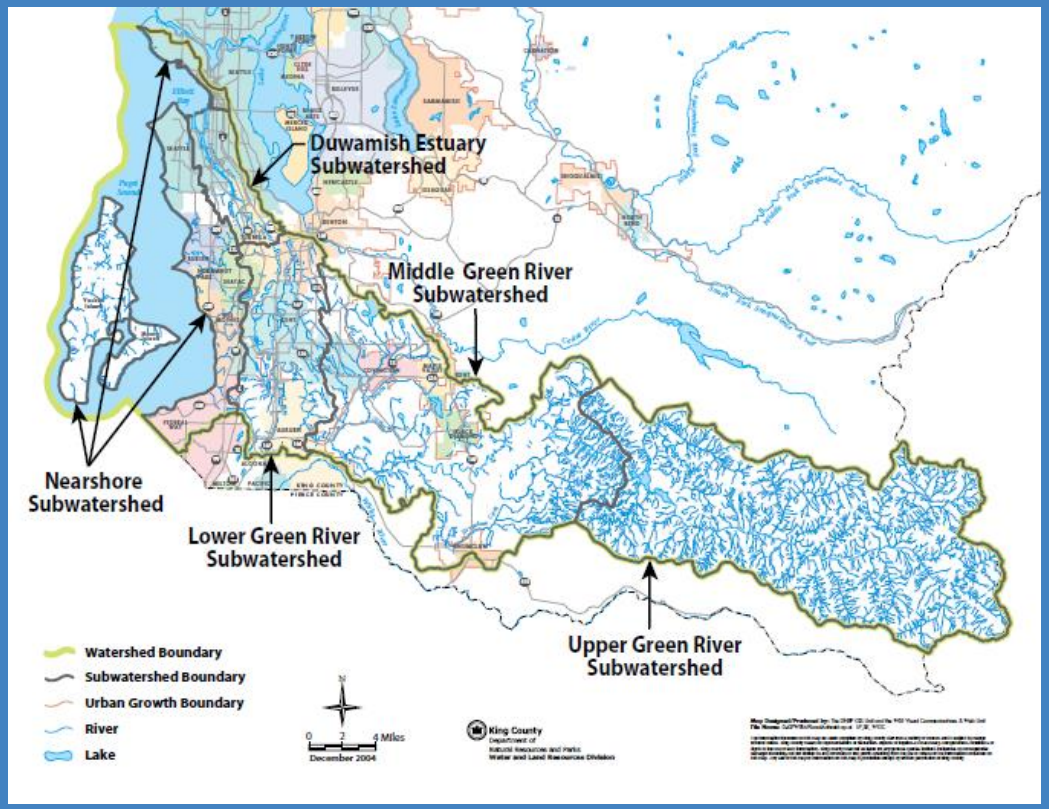
This is a long-term project. Initial phase illustrated below.



Project Context

Green-Duwamish River Watershed

- 480 square miles
- 90 miles long
- Duwamish River
  - Stratified salt wedge
  - 2,000 cfs annual mean flow
  - 99% of sediment load comes from upstream



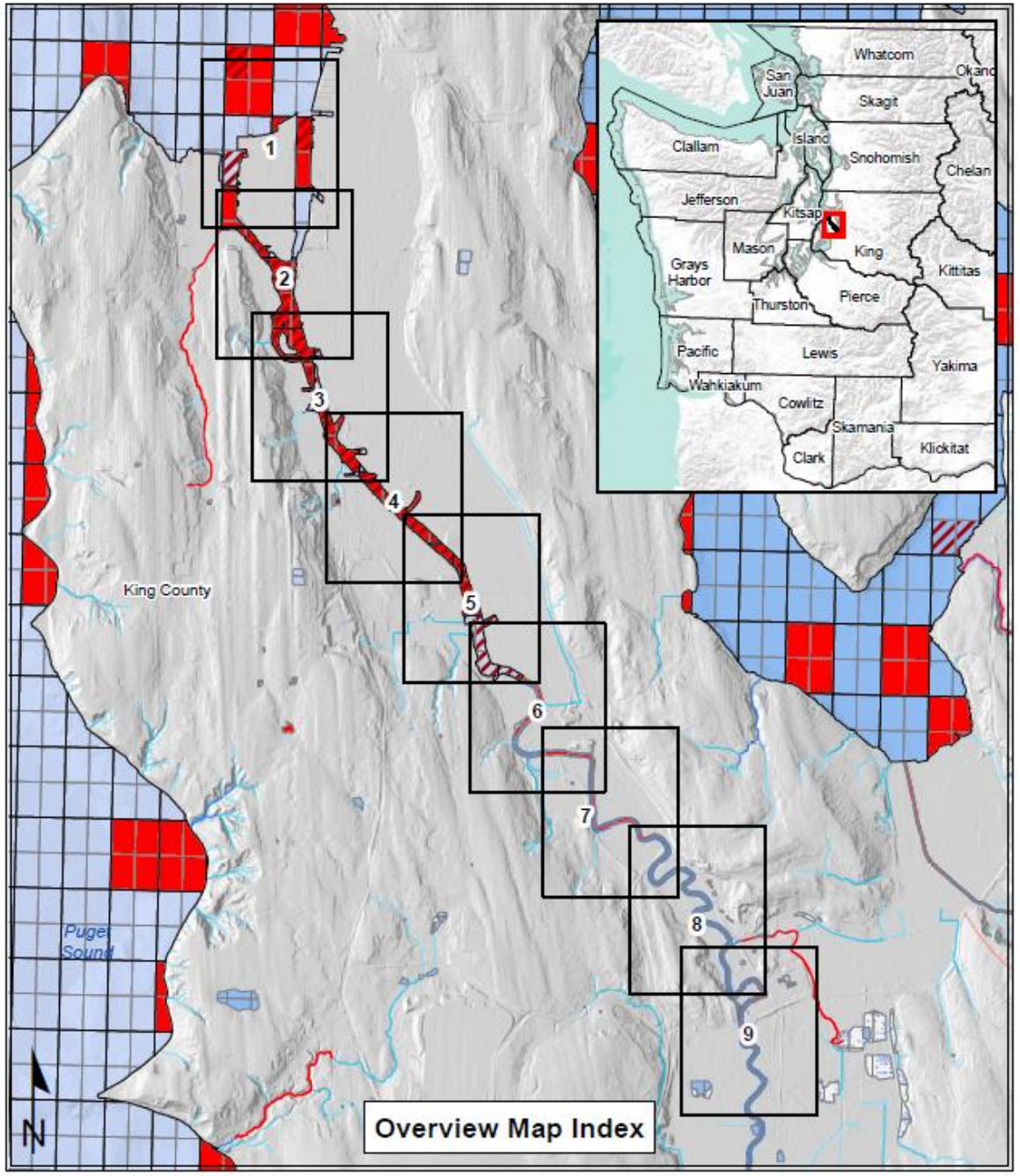
Regulatory Context: Lower Duwamish Clean-up

- 3 Parts to Cleanup:
  - Early Action Areas (e.g., hot spots)
  - Source Control Strategy
  - Waterway Remedy
- Source Control
  - 32 sq mi Source Area
  - Sufficient to begin in-water work
- Superfund Record of Decision
  - Active Remedial Actions (e.g., dredging, capping)
  - Monitored Natural Recovery
  - Ongoing Fish Consumption Advisory (e.g., institutional control)

Selected Remedy	
Dredge or partial dredge and cap	105 acres
Cap	24 acres
Enhanced natural recovery	48 acres
Monitored natural recovery	235 acres
Dredge volume	790,000 cy
Construction time frame	7 years
Time to reduce contamination	17 years
Cost Estimate	$342 million

Regulatory Context: Clean Water Act Impairments

- Water Quality Assessment (2012)
  - -Category 5 = 303(d) list = impaired waters
  - -Category 4 = has a pollution control program
- Listing Basis: Parameter-Specific
  - -Sediment data
  - -Water data
  - -Fish tissue data (back-calculated to water)
- As more environmental data is collected on toxics, additional listings are likely



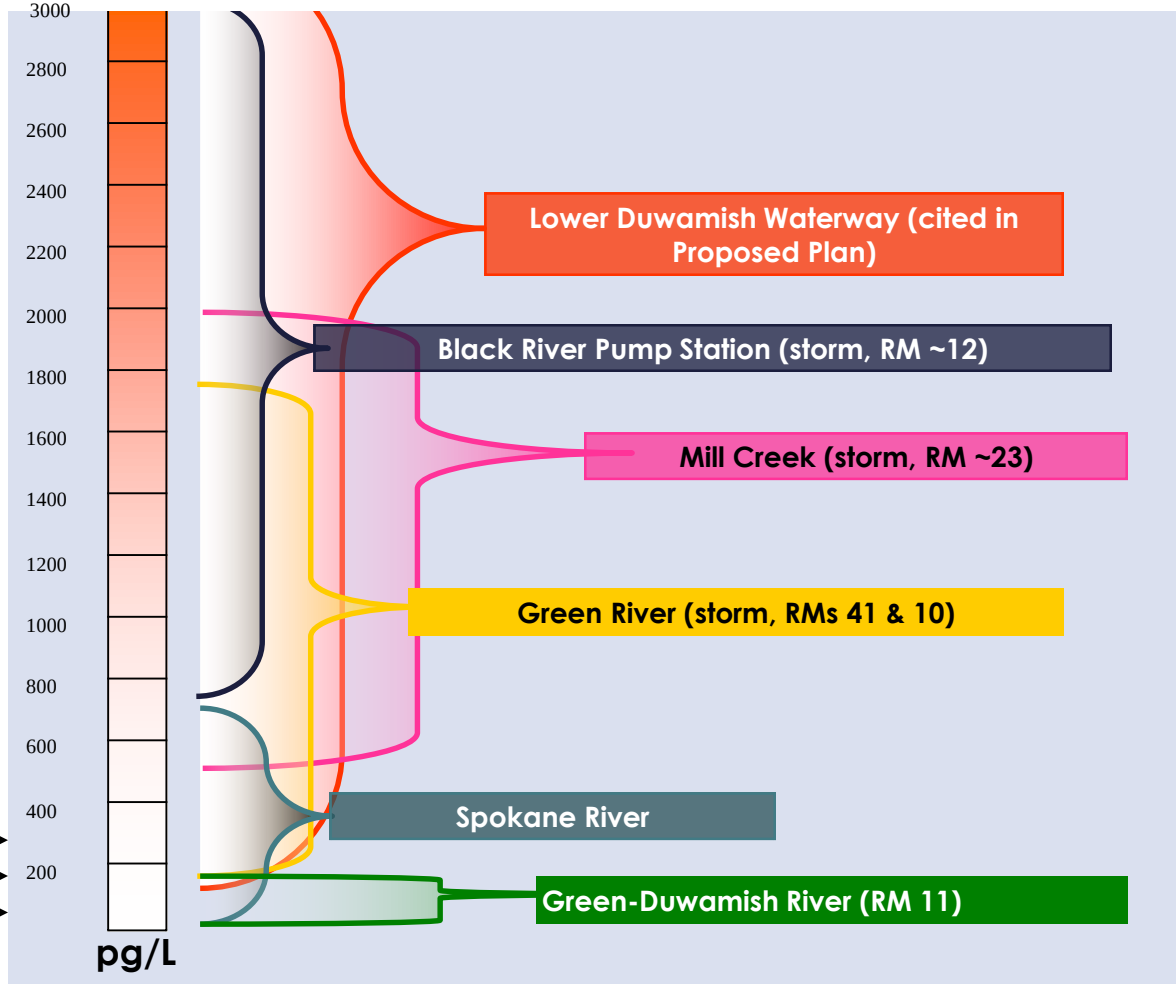
The following maps represent the 303(d) List of impaired waters for Washington State based on the Water Quality Assessment 303(d) List approved by EPA, December 21, 2012.

Green-Duwamish: PCBs in Surface Water

pg/L or parts per quadrillion

Green River & Tributaries storm flow data from King County, 2014

Duwamish River, River Mile 11 data from USGS, 2014



Watershed Management Needs

- Understand pollutant loading from
  - Point sources and pathways (regulated)
  - Diffuse sources (uncontrolled)
- Compare pollutant reduction alternatives
  - Management scenarios
  - Identify priorities
- Predict improvements in fish tissue, sediment and water quality
  - Short term and long term

- Correlate media values
  - Water, sediment, fish tissue
- Inform permits and best practices
- Minimize sediment recontamination
- Improve effectiveness of Lower Duwamish Waterway remedy
- Support adaptive management
  - Modeled outcomes
  - Monitoring data

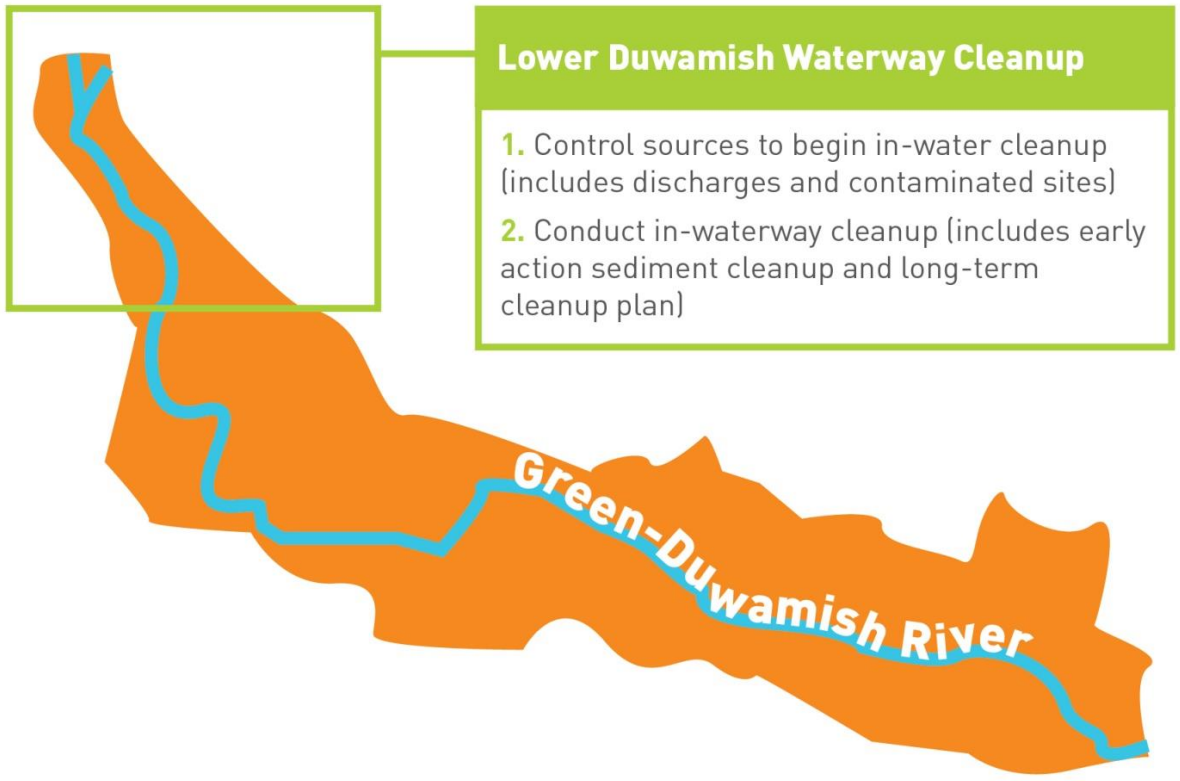
PLA Modeling Tool

Towards Protecting Human Health & the Environment

Green-Duwamish River Watershed

Pollutant Loading Assessment Modeling Tool

1. Identify pollution sources throughout the watershed
2. Develop source reduction targets and strategies (including for diffuse unregulated sources)



Lower Duwamish Waterway Cleanup

1. Control sources to begin in-water cleanup (includes discharges and contaminated sites)
2. Conduct in-waterway cleanup (includes early action sediment cleanup and long-term cleanup plan)

Technical Questions

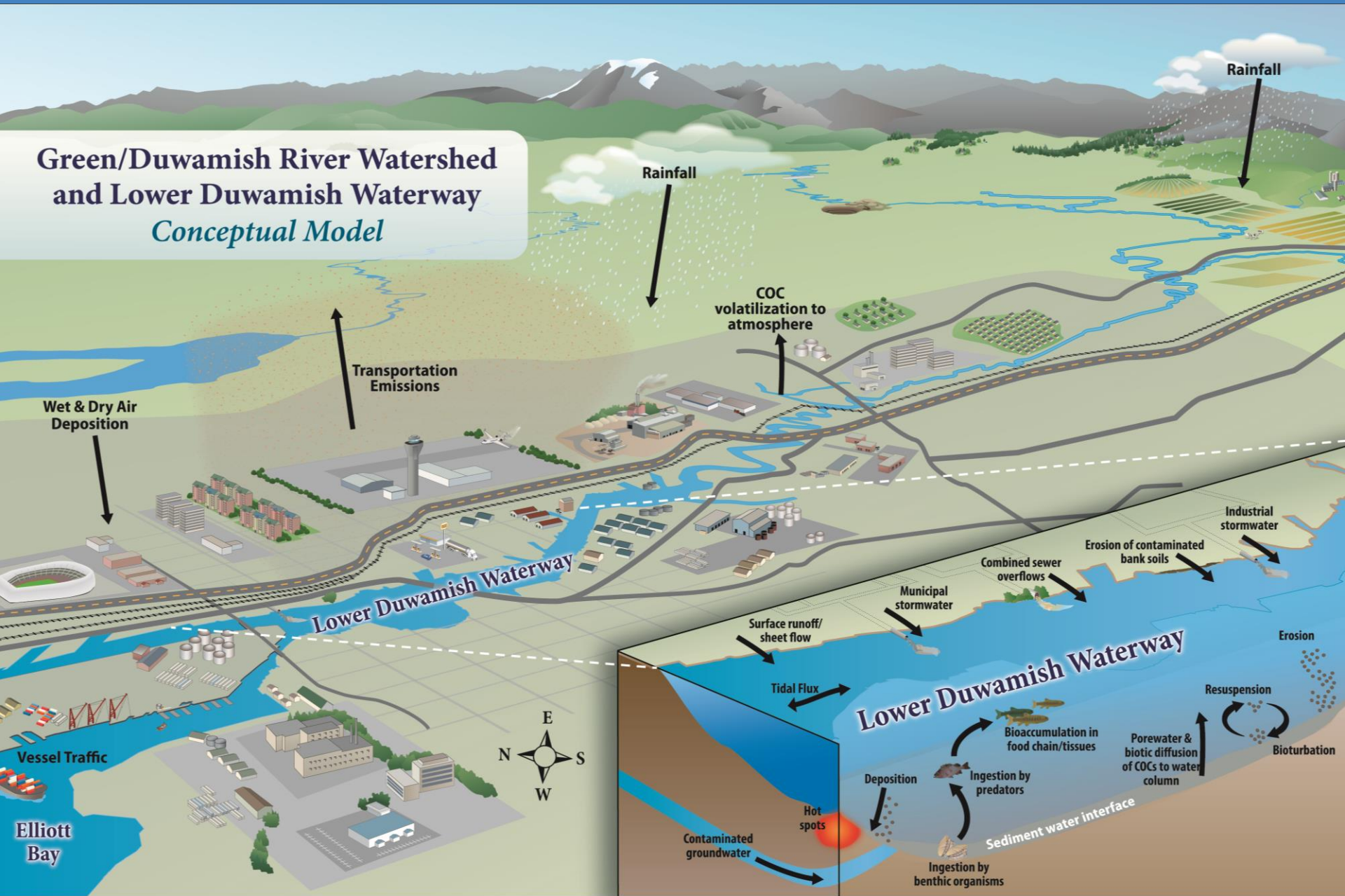
Indicator Parameters & Data Gaps

- Which toxic pollutants should be modeled?
- What, if any, surrogates should be used?
- Is existing data sufficient to calibrate the models?
- What additional data is needed? Why?
  - Ambient vs. discharge
  - Multi-media

Sources & Pathways

- How can the models distinguish between pollution sources and pathways?
  - Sources: building materials, combustion
  - Pathways: stormwater & air deposition
- How to accurately represent drainage and air patterns?

Conceptual Model



Technical Approach Overview