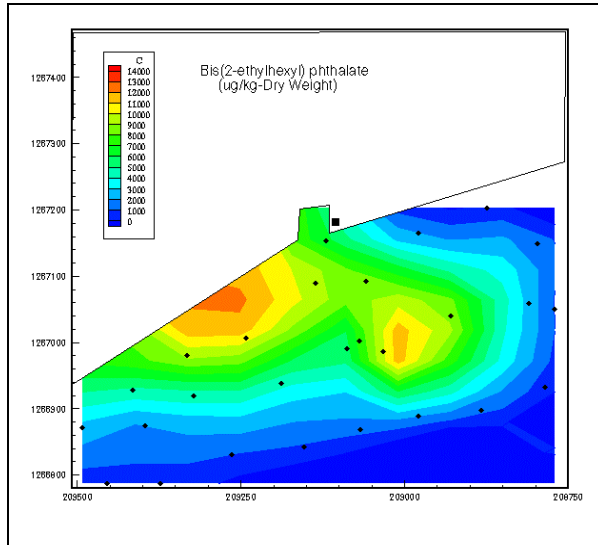


Duwamish River/Elliott Bay Water Quality Studies

The King County Department of Natural Resources (DNR) conducted a number of studies to evaluate and remediate water quality problems along the Duwamish River and in Elliott Bay, in Seattle, Washington. WEST Consultants were involved in four separate studies.



WEST Consultants was part of a team to develop an environmental assessment and to review sediment modeling at the Norfolk and Diagonal/Duwamish discharge sites along the Duwamish River. We characterized the surface and groundwater resources, and discharges, and evaluated the application of a water column/sediment exchange model, METSED, to estimate the potential to recontaminate sediments at the two sites. The scope of work was later extended for WEST to conduct an analytical study, using measured discharges and constituent concentrations, to develop mass balance relationships between the CSO and SD discharges and chemicals observed in the “footprints”.

King County DNR wanted to perform a detailed risk assessment of all CSO and SD discharges to both the Duwamish River and Elliott Bay, (1) to determine if CSO elimination would dramatically improve water quality conditions, and (2) to perform a cost benefit, risk-based assessment of CSO reductions versus the costs of additional treatment facilities. The basis for the risk assessment was the application of a three-dimensional circulation, sediment transport, and toxicant transport model to the river and bay.

WEST Consultants worked on the risk assessment under three separate contracts. First, DNR asked us to review available three-dimensional models and modeling systems, and rank them for their potential application to the Duwamish River/Elliott Bay system. We evaluated 13 suites of models, and ranked the Tetra Tech model, EFDC, as the preferred approach based on a range of technical, computer and institutional criteria. In a second study, we worked with Tetra Tech to train DNR staff, assist DNR in the model application, and to review the results and modeling reports.

Finally, we processed the vast data sets output from the model simulations into more than 20 useful forms for the comprehensive risk assessment.

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