



PROJECT DESCRIPTION

The Columbia River Gateway Project was undertaken by the Port of Vancouver to develop three new berths for the on- and off-loading of bulk and break cargo. As part of this project, a portion of the Columbia River will be dredged for a turning basin. New dock facilities will also be constructed along the north shore of the river.

Coldwater Consulting Ltd. was contracted to evaluate sediment transport processes in the Columbia River in the vicinity of the proposed project and to evaluate the potential effects of changes in ship traffic to sediment transport and bank erosion patterns downstream of the site.

DESIGN APPROACH

The following services were performed:

- collected and analysed data of the existing conditions at the project site;
- evaluated impacts through use of a combination of engineering analysis and computer modeling including the development of a high-resolution digital elevation model (DEM) and a detailed flow model of the study area (ADCIRC);
- analysed and evaluated sediment behaviour using Coldwater's sediment transport modeling software, Particle Tracking Model (PTM) and Eulerian Transport Model (ETM);
- evaluated ship wake impacts through a site assessment of present-day bank conditions downstream of the project site;
- estimated maintenance dredging requirements through the use of modeling software (PTM) as well as through a review of dredging activities at the existing port facilities, and;
- developed a set of conceptual designs to mitigate required maintenance dredging.

CLIENT

Jones & Stokes
Portland, OR

LOCATION

Port of Vancouver, WA

DATE

2006-2007