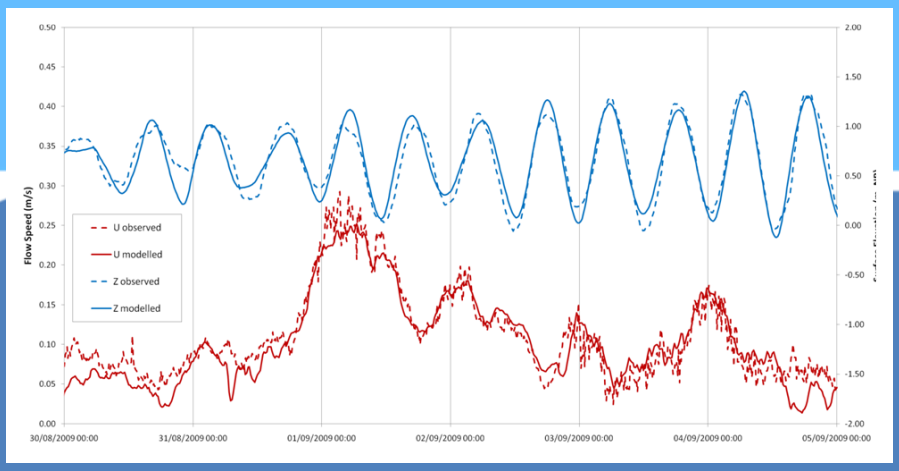
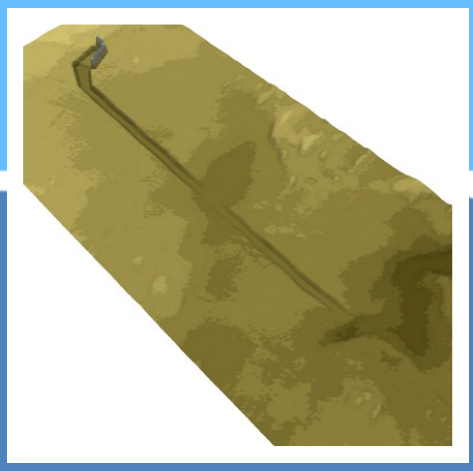
PROJECT Porto Presidente Kennedy Marine Terminal Expansion





PROJECT DESCRIPTION

Coldwater Consulting Ltd. was contracted by Ausenco-Sandwell to undertake an assessment of sedimentation and shoreline response in the vicinity of a proposed marine terminal expansion at the Presidente Kennedy Port, Brazil. The aims of the study were to:

- review hydrodynamic and sediment conditions in the study area;
- develop a computational flow model of the study area including the effects of tides, winds and the Brazil Current;
- evaluate the response of the study site to construction of the proposed expansion in terms of sedimentation and erosion including an assessment of expected maintenance dredging requirements, and;
- evaluate expected shoreline response to the proposed development.

CLIENT

Ausenco-Sandwell
Vancouver, BC

LOCATION

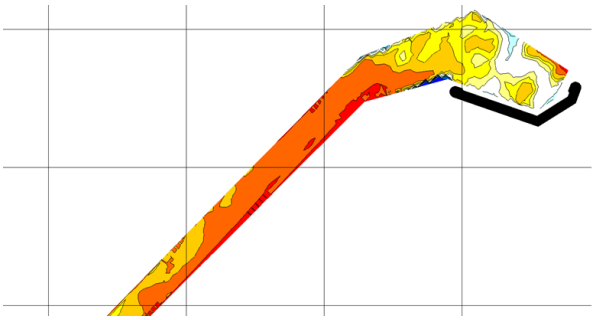
Presidente Kennedy, Brazil

DATE

2011

DESIGN APPROACH

Two separate ADCIRC hydrodynamic models were developed for this study: a large-scale, far-field tidal circulation model and a high-resolution, near-field current model. Wave conditions were established using a nested SWAN wave generation model application. Sediment transport and offshore morphological evolution under the combined wave-current forcing was studied using Coldwater's proprietary model PTM-Morph. The non-cohesive sediments were modelled using PTM-Morph's total load and advection-diffusion approaches. Potential long-term shoreline change was estimated using GENESIS, a model that computes changes to beach plan-shape in response to sediment supply, waves, and the presence of sediment control structures.



Entrance channel infilling estimated using PTM-Morph

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