

# HYDRODYNAMIC AND MORPHOLOGICAL SIMULATION STUDY

## FOR THE APPROACH CHANNEL OF ESSAR AT HAZIRA

This project has been set up while the development of a shipping channel in the Tapi river delta was ongoing. Essar Bulk Terminal Limited (EBTL) has asked Royal Haskoning India and Svašek Hydraulics to investigate the effects of the channel on both the flow patterns and morphology. Goals of this study include questions regarding hydrodynamics, future maintenance and large scale morphology.

The Tapi river delta is a highly dynamic area with a tidal range of up to 8 meters and large transport loads of both silt and sand. In addition, the delta is busy with commercial marine traffic. Finally the river is dammed of a few kilometres up stream, leading to an extra dynamic caused by the discharge regime of the reservoir.

An online coupled hydrodynamic (FINEL2D), waves (SWAN) and morphological (FINEL2D) model has been set-up to describe the complex area. Svašek was able to apply this model to successfully predict changes in de hydrodynamics due to construction of the channel. Also predicted sedimentation patterns have been validated by experience after completion of the project itself.

CLIENT

Essar Bulk Terminal Limited

LOCATION

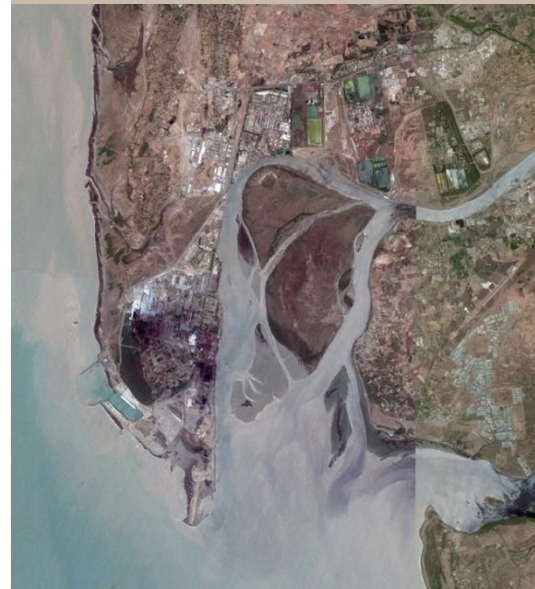
Hazira, India

DATE

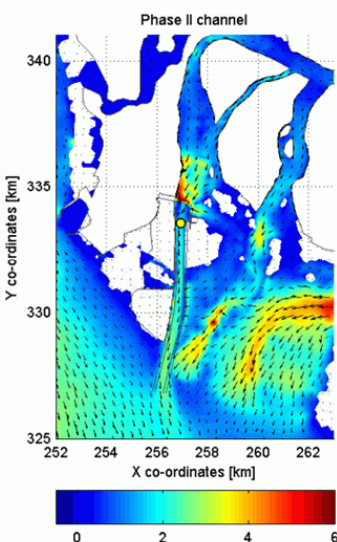
2009

SERVICES

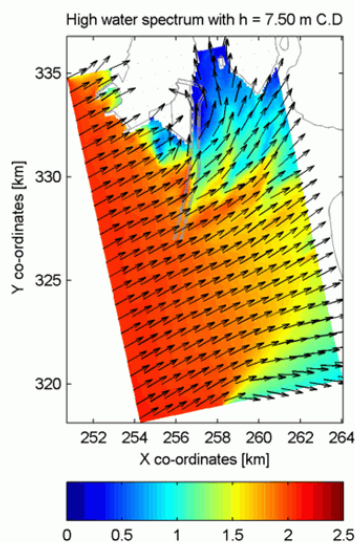
Morphological modelling with coupled FINEL2D-SWAN



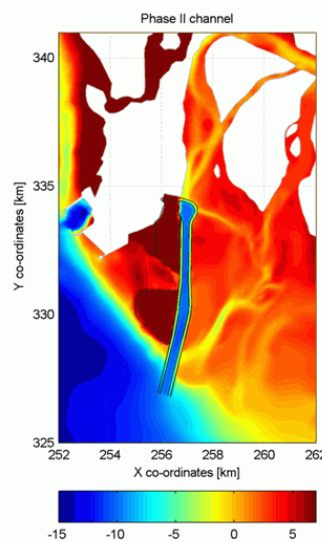
### FLOW



### WAVES



### MORPHOLOGY



**SVASEK**  
**HYDRAULICS**  
COASTAL, HARBOUR AND RIVER CONSULTANTS

Svašek Hydraulics  
Schiehaven 13G  
3024 EC Rotterdam  
the Netherlands

Phone: +31 10 467 13 61  
Internet: [www.svasek.com](http://www.svasek.com)  
E-mail: [info@svasek.com](mailto:info@svasek.com)