

**Port 2000 - The extension of Le Havre Port in the Seine Estuary  
Sediment management on a large scale project**

Pascal Galichon  
Head of dredging and hydrography div.  
PORT OF LE HAVRE AUTHORITY

Luc Hamm,  
Technical Director  
SOGREAH MARITIME

Jan Vandebroek  
Co-director dredging works  
DREDGING INTERNATIONAL NV

**Abstract**

Port 2000 is the new port development in the Seine Estuary. It consists mainly of a straight quay potentially 4200m. long with a 500m wide background representing twelve berths with designed to receive the largest container vessels under optimum conditions .

An outer breakwater of about 5000m protects the basin. An access channel of about 9000m. long, min. 300m. wide is being dredged to accept largest container vessels 24 hours a day.

The Seine estuary is a macro tidal estuary subjected to semi-diurnal tidal ranges up to nearly 8 m. Tidal currents peak to 5 knots. The site is exposed to SW to NW wave impact. The site is situated close to environmentally high valued protected areas.

Dredging and dike construction works have started in January 2002 and were completed mid 2005. The works included principally about 50 million m<sup>3</sup> of gravel and sand to be dredged, the realization of 10 km of dikes including 2 caissons on both sides of the entrance of the new port.

A global sediment management plan including beneficial use of dredged materials has been applied on the project

Particular items are

- 1) The engineering of the general phasing introducing silt traps reducing the sediment evolution outside the perimeter of the works
- 2) The realization of dredging works to accompany and direct the morphological evolution of the estuary and minimize its impact on nearby navigation channels and mudflats
- 3) Beneficial use of 6 million m<sup>3</sup> of a dredged sand/gravel mixture for the realization of 10km of subbase for the breakwaters. A special partnering program was set up to manage this particular subject between the contractor, the consultant and the client.

The paper will include the presentation of the three items above and their monitoring