

# Le Havre Port 2000 – Feasibility Study for Compensation Dredging Works in the Seine Estuary



**Financed by:** Port Autonome du Havre Projet Port 2000

**Client:** Port Autonome du Havre (*Port Authority of Le Havre*)

**Date:** 1999 – 2000

**Budget:** € 22 500

**Location:** Le Havre, France

## Assignment:

Soresma-haecon was awarded the technical consultancy and study of the eventual compensation dredging works in the Seine estuary, in view of developing a mitigating action for the development of Port 2000 extension and the associated morphological changes. The study indicated a series of feasible execution methods with cost estimates.

## Scope of Services:

- Technical and economical feasibility analysis
- Identification of execution methods
- Capital and compensation dredging
- Morphological stability of Seine estuary

## Technical Description:

The Port Autonome du Havre (PAH) is planning to construct a 4,200 m long new container terminal in a breakwater protected basin to the South of the existing Port. This is France's most ambitious port development project at the beginning of the new millennium, the Port 2000.



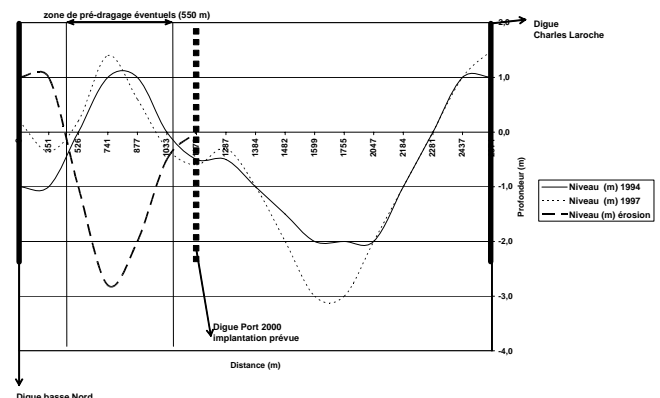
Port 2000 in the Port of Le Havre

The combination of the port and the associated maritime access-channel for Post-Panamax generation vessels will involve large capital dredging works (ca. 50 Mm<sup>3</sup>), shingle foundation dumping works and landfill works.

The Port 2000 is scheduled to extend some 1,000 m southwards into the estuary, causing very likely tidal current contractions. Changing hydrodynamics will induce morphological instabilities of the adjacent bed forms. Since natural seabed consists mainly of highly mobile fine soil and silts, considerable morphodynamical impact is expected.

Therefore, PAH is considering the compensation dredging of the expected erosion pits in front of the breakwater in order to avoid undesired sedimentation in ecological sensitive areas and/or maritime access-channels.

The water team was awarded a technical study on the feasibility of 7.5 Mm<sup>3</sup> compensation dredging work. Based on an overall sediment balance, the morphodynamic impacts are validated both in time and space. Also the associated cost estimate and potential execution methods were presented to PAH together with a sensitivity analysis.



Transversal Profile through the pre-dredging zone

Based on this dredging engineering study is PAH able to decide upon the most appropriate solution from technical and economical points of view. As a result, the technical feasibility study reveals some interesting mitigation/compensation measures upfront the port construction, avoiding associated negative impacts on the global environment.



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