

# The Pearl – Qatar, Hydraulic Studies

The Pearl – Qatar is a large man-made island development approximately 10 km north of Doha. The island includes residential, recreational facilities and marinas and covers some 5 km by 3 km.

The island will be constructed in an environmental sensitive area, necessitating detailed studies of the possible impact.

COWI was commissioned to undertake the hydrodynamic modelling for the island development and design of the reclamation and coastal protection structures, including:

- Current velocity and water levels before and after construction of the island
- Modelling of the impact on the wave climate in the surrounding areas
- Design waves and flow velocities
- Flushing characteristics
- Water quality
- Beach stability
- Shoreline evolution
- Sedimentation aspects
- Effect of spill during dredging and reclamation works
- Conceptual and detailed design

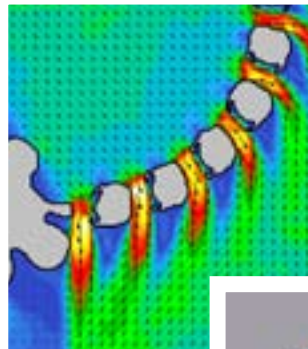
The numerical simulations were made using the state of the art engineering software packages, MIKE 21 and LITPACK.



Masterplan of the island development.



Examples of Garden Penthouses and Pearl Quay.



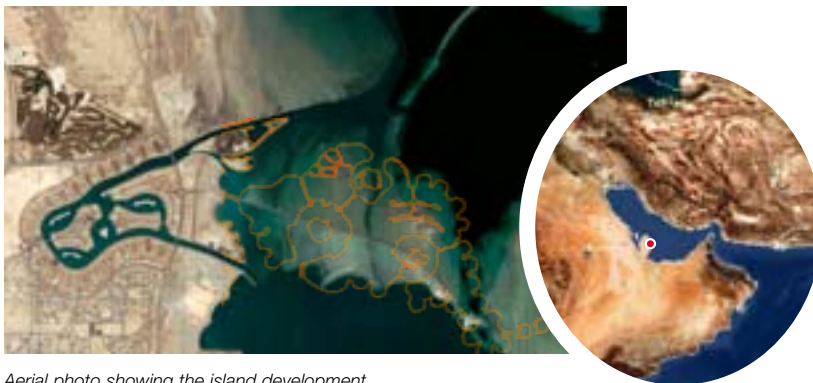
Design flow velocities near the Pearl Quays.



Boussinesq wave modelling.



Mud transport modelling



Aerial photo showing the island development

## Services:

- Numerical modelling
- Design of reclamation and coastal protection

Project period: 2003 - 2004  
Client: United Development Company