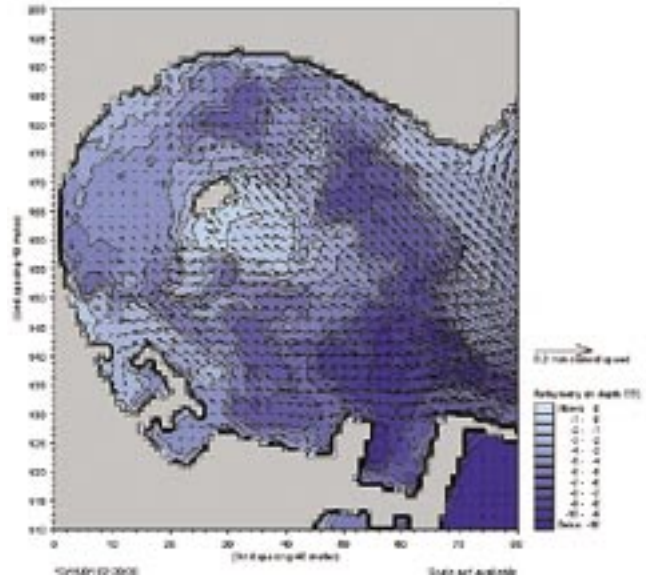
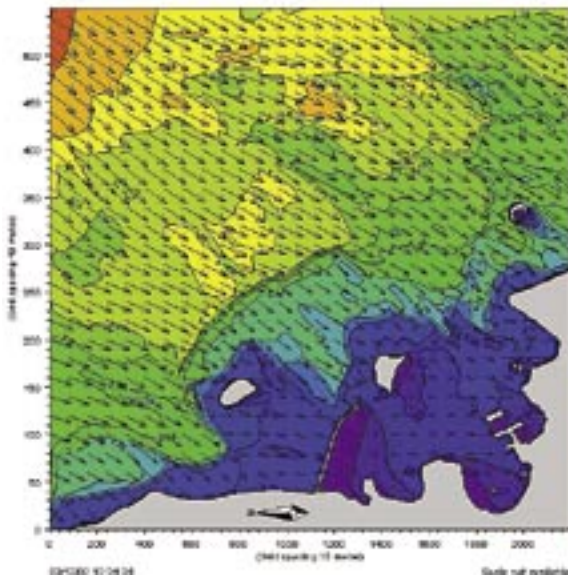


Museum of Islamic Art, Doha Coastal Engineering Study, Qatar

Services:

- Bathymetric survey
- Wave modelling
- Modelling of currents and water quality
- Design basis
- Detailed design of edge treatments (slope protection and sea walls etc)



Project period: 2002

Client: Ministry of Municipal Affairs and Agriculture, Qatar

The Museum of Islamic Art is going to be constructed on a small island of reclaimed land in Doha Bay. The museum will be located in a landscaped park including a small peninsula. The museum itself and the shores of the reclaimed land will be exposed to the wave climate of Doha Bay; a wide open area of approximately 5km x 5km, relatively well protected from the waves in the Gulf by shallow reefs and islands.

The Coastal Engineering Study included establishment of the design basis for the coastal protection structures particularly based on mathematical model simulations of the hydrodynamic conditions. Further, modelling was made of the dispersion

and decay of relevant water quality determinants, such as sediment spill during dredging operations and depositions of dredged material. Model scenarios include investigations of the effect of a nearby Fishing Harbour.

The MIKE 21 modelling system is applied to model current and wave conditions as well as water quality. The model bathymetry was established from a detailed bathymetric survey in combination with data from existing sea charts. Boundary data for the detailed Doha Bay models were taken from an existing hydrodynamic model of the entire Gulf previously developed by COWI. Existing data on water levels, waves and wind were used in the model calibration.

Design considerations include assessment of the need for edge treatment and evaluation of alternative forms of protection.