

Numerical Modelling

About

Numerical models are a sophisticated decision-support tool. They can provide the user with a wealth of information from natural processes to short-term impacts and consequences over the longer term.

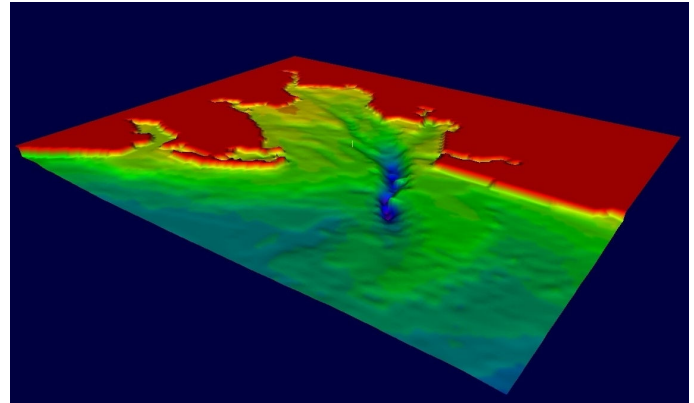
ABPmer has a long established Modelling team which provides a comprehensive service to support hydraulic investigations of river, estuary, coastal and marine systems, offering descriptions of flows, sediment transport, water quality and waves.

We maintain a wide range of sophisticated modelling software to provide the best available solution to meet project requirements. Thanks to our extensive experience of marine and coastal assessment we maintain numerous hydrodynamic models covering UK waters and many overseas areas.

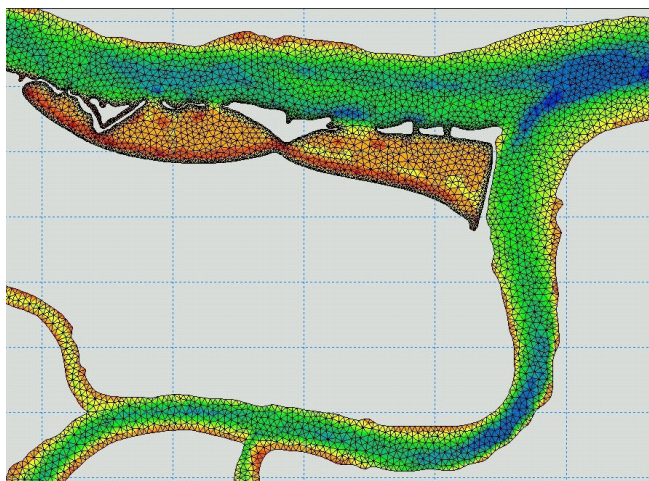
Areas of Application

Working with our Data, Environment and Processes teams we have used modelling outputs to support a wide range of studies:

- Aggregate extraction
- Basin flushing
- Cable/pipeline burial
- Coastal response prediction
- Dredged spoil disposal
- Habitat creation
- Installation of structures
- Intake/Outfall studies
- Joint probability analysis of waves and water levels
- Land reclamation
- Long-term predictions of morphological change
- Managed realignment
- Metocean marine climate analysis
- Navigation channel design
- Oil spill and contaminant dispersion
- Overtopping and flood risk assessment
- Renewable energy deployment
- Wave behaviour in harbours and estuaries



Our Capability



The primary suite of modelling platforms supported by the team include:

- ASMITA** - Empirical model that describes the characteristic areas of an estuary and its evolution towards an equilibrium state following some perturbation to the system;
- DELFT 3D** - 2D & 3D modelling tool from Delft Hydraulics to examine free surface flow regimes in estuaries and coasts;
- LITPACK** - 1D DHI modelling tool for examining nearshore littoral processes and coastal evolution;
- MIKE 3** - 3D DHI modelling tool for complex free surface flow regimes;
- MIKE 11** - 1D modelling tool from DHI to examine hydraulic flows in open channel systems;
- MIKE 21** - 2D DHI modelling tool to examine complex free surface flow regimes in estuaries and coasts;

MIKE FM - 2D & 3D DHI flexible mesh modelling tool used to examine complex free surface flow regimes;

REGIME - Hybrid modelling tool to describe the equilibrium of an estuary and its future evolution following disturbance to the system; and

XBeach - 2D modelling tool for beach and nearshore morphodynamics.

Further Information

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