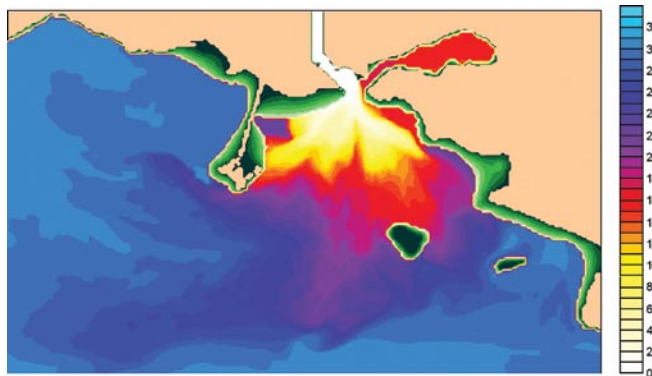
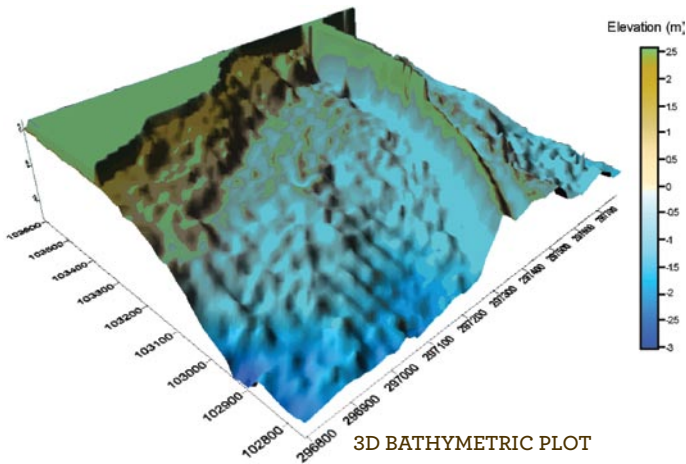


Hydrodynamic & Water Quality Modelling

IN RIVER, ESTUARINE AND COASTAL ENVIRONMENTS

AQUAFAC INTERNATIONAL SERVICES LTD. is a leading Irish environmental consultancy company providing advanced modelling capabilities in marine and fresh waters.



Some of the features of 2D and 3D hydrodynamic models include:

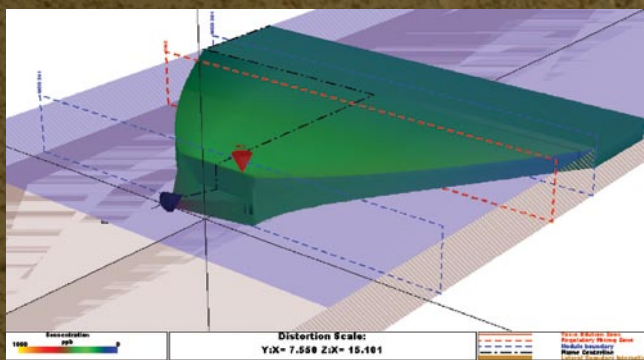
- Wetting and drying simulations
- Different meteorological conditions, e.g. wind, temperature, solar radiation, cloud cover
- Stratification due to salinity and temperature
- Various turbulence schemes
- A microbiological module which deals with the dynamics of microplankton, detritus, dissolved inorganic nitrogen, and oxygen
- Eulerian and Lagrangian transport models for contaminant and particle distribution

AQUAFAC carries a range of modelling tools to assist clients in the planning and design of various projects such as sewage outfalls, industrial discharges, aquaculture activities and engineering works.

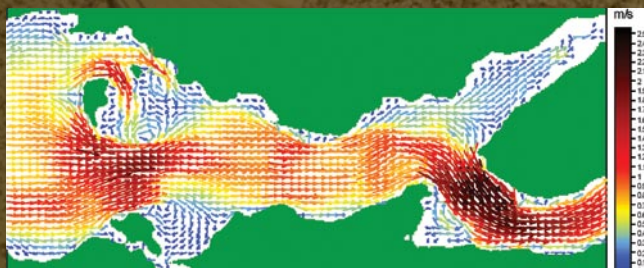
The modelling capabilities offered are:

- 1D, 2D or 3D hydrodynamic modelling
- Solute transport modelling
- Sediment transport, deposition and re-suspension
- Oceanographic modelling for deep sea applications
- River modelling
- Wave climate studies
- Ecological and biological process modelling
- Diffuser design
- Dredge spoil analysis
- Structural modelling

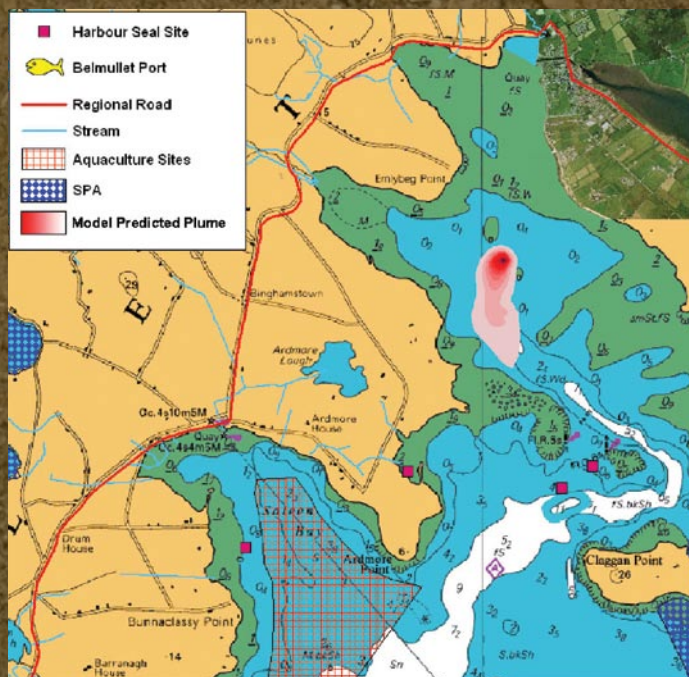




NEAR FIELD PLUME DISPERSION FROM DIFFUSER



VELOCITY VECTOR PLOT



GIS

All the output from the models can be fully integrated with GIS data

Validation of model prediction forms an essential element of every study and relies on a field survey team collecting appropriate data to ensure that model performance can be guaranteed over the range of conditions of interest. Services are offered such as bathymetric measurement (echo sounding coupled with differential GPS positioning), tidal height measurement, flow measurement (recording current meters, Acoustic Doppler Current Profiling, drogues) and dye tracer studies for quantification of dispersion.

PROJECTS UNDERTAKEN BY AQUAFAC INCLUDE:

- 3D Irish Sea model for transport of mussel larvae
- 3D and 2D model study for potential environmental impact of an LNG plant in the Shannon Estuary
- 3D sediment transport and salinity study for a proposed development in Galway Docks
- 2D model study for Killybegs treatment plant outfall
- Hydraulic design of outfall diffuser
- Water quality model study of Killary Salmon aquaculture developments



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