

Evans Head Pollutant Modelling

Evans Head, North Coast, NSW

Background

With proposed upgrades to the sewerage scheme at Evans Head, Manly Hydraulics Laboratory (MHL) was selected to aid the principal design contractor with designing a release that would protect both the coastal and estuarine environments. MHL was selected because of previous work with the principal, previous work at Evans Head as well as the extensive experience with similar investigations on rivers all along the NSW coast.

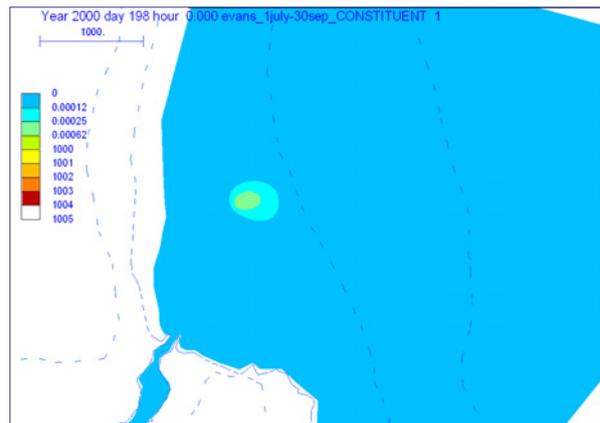
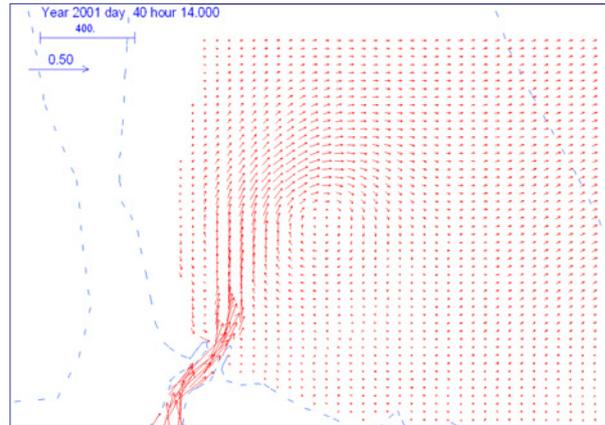
Project Scope

Both hydrodynamics and water quality were investigated to assess the transport and fate of pollutants. A finite element model was constructed of both the river and the coast, and the model was used to simulate hydrodynamics of the combined coast and river system. Using the hydrodynamic results a CORMIX nearfield model was developed to optimise the diffuser design. On top of the hydrodynamics a pollutant release was also simulated to examine the impact that such a release would have.

Our Role

Manly Hydraulics Laboratory was commissioned to provide specialist services and advice, including:

- establish a hydrodynamic finite element model of the coast and river at Evans Head
- use initial hydrodynamic results to optimise the diffuser design
- perform a pollutant dispersion study based on these simulated hydrodynamics
- gather field data at various locations to verify the finite element models.



Results of hydrodynamic and water quality simulations

Outcomes

A successful simulation was achieved which was able to illustrate where the most effective location for the release would be. Use of nearfield modelling was also able to provide insight into how to best optimise the diffuser design. Linking hydrodynamic, nearfield and farfield numerical techniques resulted in MHL being able to achieve the best outcome for the environment as well as the client.