# Capability Statement
## Coastal and Ocean

WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

## Capabilities

- Investigation of coastal and ocean processes
- Assessment of storm surge and coastal flooding
- Estuary management studies
- State-of-the-art numerical modelling of hydrodynamics, waves, water quality and sediment transport
- Planning and impact assessments for works in coastal, estuarine and port environments
- Integrated coastal zone management
- Site selection and water quality impact assessment ocean outfalls
- Cooling water intake and heated discharge studies
- Assessment of the dredging impacts and dredged material management
- Design and implementation of data collection and water quality monitoring programs
- Oceanographic data collection

## Overview

Coastal environments are continuously reshaped by the natural processes of tide, waves, erosion and deposition. Increasing pressure on the Australian, and worldwide, coastline from the competing needs of commercial, recreational and residential interests requires careful planning and comprehensive assessment to preserve these complex coastal dynamics and safeguard our magnificent coastlines for future generations.

Water Technology is a one of Australia's leading coastal and ocean engineering consultancies offering a comprehensive range of services to the coastal community. With staff benefiting from over 30 years experience in the industry, we provide the understanding and technical excellence necessary to meet these specialised engineering and environmental challenges. We combine leading edge technology with outstanding project experience to deliver economic and environmentally sustainable solutions.

We have experience in all facets of the coastal environment, from inter-tidal regions to deep sea ocean conditions; from ecological assessments to structural appraisals. Project dimensions cover an expansive range from regional climate change studies to local boat ramp dredging applications.

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# Selected Projects

## Gippsland Climate Change Study

Client: Gippsland Coastal Board

Coastal vulnerability and threat assessment of the east Victorian coastline using IPCC and CSIRO climate change predictions and large scale spectral wind-wave modelling to identify areas of coastline susceptible to sea level rise and altered wave conditions.

## Queenscliff Coastal Processes

Client: Parks Victoria

A coastal process assessment of sediment transport and beach movement to evaluate the effectiveness of the Parks Victoria sediment management strategy at Queenscliff. The investigations included a condition assessment of the existing pier structure and recommendations for future management of the area.

## Gippsland Lakes 2nd Entrance

Client: Gippsland Coastal Board

An assessment of the potential impacts of a second entrance on water levels, salinity, flushing and tidal velocities throughout the Gippsland Lakes and its impact coastal processes along the Ninety Mile Beach.

## Port of Adelaide Dredging Environmental Assessment

Client: Flinders Ports

A detailed numerical modelling assessment to determine the fate of material suspended in the water column due to dredging of the Port of Adelaide entrance channel and following dredge spoil disposal.

## Wave and Tidal Power Assessment for the Victorian Coastline

Client: Sustainable Energy Authority of Australia

A comprehensive numerical modelling investigation to identify areas along the Victorian coastline where environmental conditions are sufficient to economically support wave and/or tidal power generation.

## Whyalla Desalination Plant

Client: Arup Water

Investigations to assess the likely impact of a proposed desalination plant at Whyalla included numerical modelling to determine the capacity of Spencer Gulf to accept the brine discharge, and near-field modelling to provide preliminary sizing of the required outfall diffuser.

## Docklands Hydraulic Assessment

Client: Port of Melbourne Corporation

Extensive 3D hydraulic modelling of water movement within Victoria Harbour to investigate the fate of litter entering the harbour, and to assess the effectiveness of possible mitigation options.

## Wyndham Harbour

Client: Watsons Pty Ltd

Water Technology carried out coastal and environmental investigations to obtain EES and Coastal Management Act Consent approval for the construction of a 900 berth marina and residential development at Werribee South. The investigations covered a wide range of topics including hydrodynamics (waves, tides and currents), coastal processes and beach management, dredging, breakwater design and water quality and circulation.