



“Where will our knowledge take you?”

## Port of Townsville

The Port of Townsville is a general-purpose cargo Port adjacent to the city of Townsville, which is the major northern city in Australia. It provides a vital trade link to a relatively remote region and is in close proximity to a number of sensitive environments including the Great Barrier Reef World Heritage Area, the Great Barrier Marine Park, Dugong Protected Areas, sea grass beds, fringing coral reefs, mangrove forests, and the city of Townsville.

BMT WBM has provided services to the port since 1989, aiming to balance port expansion and development with minimising environmental impacts. Such services have evolved, in line with evolving environmental management practices.



## Some BMT WBM Port of Townsville Projects:

### Queensland Nickel Ore Importation Project - Townsville (1989-1993)

- 2D modelling of oceanographic processes;
- Assessment of the fate of any spilled material;
- Extensive field measurements;
- Detailed model calibration and validation;
- Risk of impact to environmentally sensitive areas;
- Assessment of sediment re-suspension and plume dispersion;
- Siltation assessments; and
- Reactive dredging monitoring program.

### Oceanographic Data Collection and Analysis - Cleveland Bay (1993)

- Review and assessment of existing information and data sources;
- Design and co-ordination of a measurement program to address modelling requirements;
- Provision of suitable measurement equipment and instrumentation;
- Deployment and maintenance of instrumentation; and
- Data analysis and compilation for modelling inputs.



### Air Quality Monitoring at Yabulu Power Station (1998)

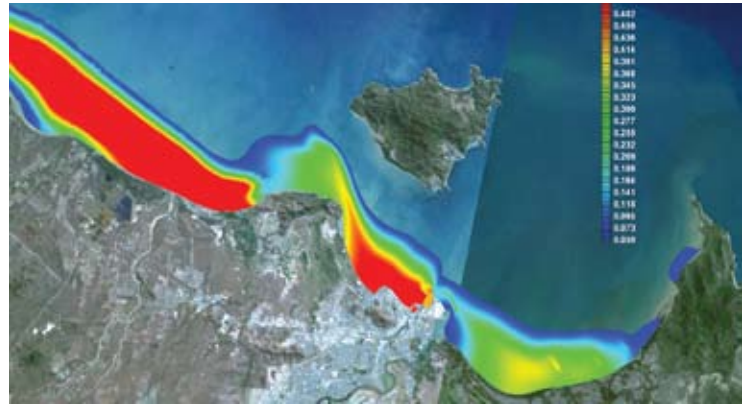
- Stack testing to determine the NO<sub>2</sub> and SO<sub>2</sub> emissions;
- Assessment of the background air quality;
- Development of appropriate air quality criteria;
- Dispersion modelling of the air emissions from the stacks of the dual fuel turbines of the Yabulu Power Stations; and
- Assessment of the compliance with the relevant license conditions.



### Dispersion Modelling of the Stack Emissions from a Bitumen Plant (2000)

- Assessment of the background air quality at the vicinity of the Townsville Terminal;
- Development of appropriate air quality criteria (design ground level concentration of the main air pollutants);
- Dispersion modelling of the air emissions from the existing bitumen plant; and
- Determination of suitable license conditions for the discharges to air from the bitumen plant.

[www.bmt.org](http://www.bmt.org)



### Port of Townsville Stormwater and Marine Water Monitoring Program (2008)

- Review of existing marine and stormwater quality data;
- Identification of stormwater catchments and key drainage points;
- Characterisation of pollution types and likelihood of occurrences from identified catchments;
- Development of a monitoring program for stormwater and marine waters;
- Identification of suitable monitoring equipment and approaches;
- Identification of data storage and management requirements; and
- Assistance with implementation of field monitoring equipment.

### Black/Ross River WQIP Investigations (2008-2009)

- Collation and review of a wide range of relevant data including land use, climate, event-based and ambient water quality;
- Development, calibration and validation of a hydrologic and pollutant export model of the catchments of Cleveland and Halifax Bays;
- Development of 'box' water quality models of the Ross River, Black River and Bohle River systems;
- Development of a 2D hydrodynamic and advection dispersion model of Cleveland and Halifax Bays, with this model being informed by the catchment models; and
- Analysis of a range of effluent discharge and land use scenarios to inform development of a regional Water Quality Improvement Plan.

### Port of Townsville Preliminary Engineering and Environmental Study (2008-Ongoing)

- Modelling of hydrodynamics, water quality and coastal processes;
- Investigation of dredge material disposal options;
- Sediment sampling and analysis;
- Environmental assessment and mitigation strategy;
- Fisheries assessment; and
- Oceanographic field data collection.

