



# STUDIES FOR MARINE WATER QUALITY AND ECOTOXICOLOGY

**Current status:** Studies commencing September 2018

**Consultant engaged:** To be announced

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Marine water quality and ecotoxicology studies assess the overall health of the waters, sediments and ecosystems of the marine environment that might be impacted by the project and the tolerance of marine organisms to various substances within the water. Marine discharges from the project could arise from wastewater or disruption of sediments.

The Ashburton Salt project is working with two different categories of environmental protection for waters. Areas to the north have been categorised by the State Government as having a high level of environmental protection and areas to the south have been categorised as having the maximum level of environmental protection. The levels help guide what project activities will be accepted by the regulators.

## What we are doing

The marine water quality study will undertake a program of monthly monitoring where water samples are taken from the surface and bottom of the water at pre-determined locations. The samples will be assessed for physical and chemical stressors, toxins, and hydrocarbons.

Vertical column sampling will assess temperature, pH, dissolved oxygen, turbidity and electrical conductivity. Wave loggers will be deployed to collect wave data and creek levels will be assessed and monitored at Urala Creek north and south.

The ecotoxicology study will assess the tolerance of marine biota to various substances in the water and predict the impacts on marine biota – from changes to water quality during the construction and operation phases of the project.

Work will focus on wastewater (or bitterns) which is the name given to the discharge from the project

after the salt evaporation process. Bitterns do not contain chemical contaminants, but consist of concentrated naturally occurring ocean salts.

Work will also focus on turbidity and nutrient disturbances brought about by the proposed minor dredging of a berthing pocket and the potential for any seepage from the evaporation ponds.

Specifically, we will:

1. Determine the likely toxicity of the bitterns to be discharged and model the potential impacts on benthic communities and habitats (refer Fact Sheet #8).
2. Identify some local indicator species for specific ecotoxicology testing.
3. Test the tolerance of the indicator species with the predicted bitterns discharge and turbidity, brought about by sediment disturbances (under normal and extreme events).
4. Establish trigger thresholds, below which bittern concentrations may be considered safe.

## FOR MORE INFORMATION:



Experience growth.

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### How we will use the information

The results of the water quality monitoring and marine ecotoxicology assessments will inform aspects of project design to minimise the impacts on water quality and any potential impacts on marine plants and animals.

Bitterns will be piped back into the ocean, in a way which will adequately dilute the discharge to protect marine water quality and avoid effects on marine life.

Dredging for the project will be kept to a minimum (for

a small berthing pocket), with dredge spoil disposed on land, in order to avoid turbidity-related impacts on seagrass beds, coral and the marine environment. Salt ponds will be designed to minimise seepage and avoid salinity-related impacts to groundwater or neighbouring creeks.

Comprehensive monitoring and management plans will be in place across the project.

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### Date of fact sheet review

September 2018

### FOR MORE INFORMATION:

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