



Marine science and the environment



A variety of marine studies were conducted to ensure the best information was used when designing the plant with minimal impact to the marine environment.

Detailed information about the water and seabed around Billy Lights Point was collected, giving new insights to Government agencies and stakeholders on the plants and animals in the area. These studies were planned in consultation with regulators and carried out by qualified experts. Additionally, an independent Marine Science Review Panel, including experts from the University of Adelaide, CSIRO, and other independent specialists, also reviewed the studies.

Mitigation through design

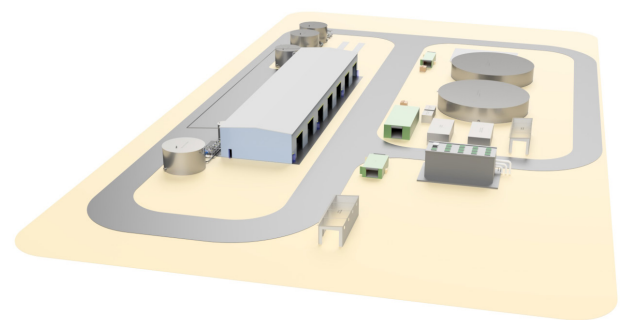
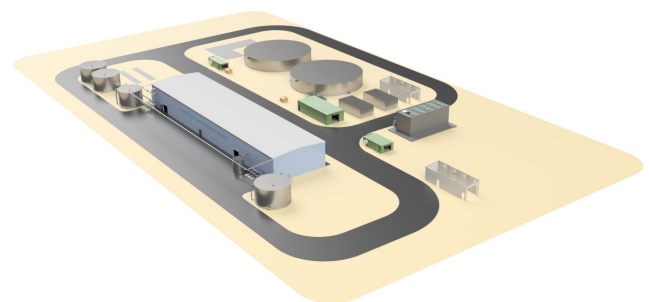
The proposed location, design, and construction method for the desalination plant's marine infrastructure is based on these detailed studies of marine habitats, the seabed, water movement, and baseline marine data, ensuring minimal environmental impact.

The project has chosen a tunnel design for the first section of the marine pipelines to avoid disturbing coastal areas, intertidal zones, and important habitats like seagrass beds and reefs near the shore. Using tunnelling and keeping construction brief will help minimise impacts on marine plants and animals.

Once operational, the desalination plant is expected to have very low impacts on both land and marine environments. Any remaining risks will be managed through detailed monitoring and design features to reduce noise and other disturbances.

Marine studies indicate that the desalination plant can be built as proposed, with minor impacts on the marine environment, including marine animals, cetaceans, plants, and water quality. While some construction impacts cannot be avoided, they will be short-term with mitigation and management measures further reducing potential impacts during construction and operations to the lowest possible levels.

Studies and modelling have shown that any increase in salinity from the plant will be negligible and within natural variability within a short distance (less than 100 meters) from the plant. These levels will be well within the tolerance range of local marine species.



Marine hydrodynamic modelling

The three phases of marine hydrodynamic modelling and marine studies have confirmed that Billy Lights Point is suitable for a desalination plant with minimal impact on the surrounding marine environment.

The modelling of the discharge at the diffusers and the mixing of the plume as it moves away from the diffusers ('mid-field' modelling) has shown that the desalination discharge meets dilution requirements, protects marine species and habitats by quickly mixing the saline waste to background levels.

The far-field modelling, which considered a highly conservative scenario of 12 GL per year (greater than the proposed plant capacity of 5.3 GL per year and a potential future capacity of 8 GL per year), and the near to mid-field modelling, which were based on an 8 GL per year discharge, both show that the actual proposed capacity of 5.3 GL per year

will have even less impact than the models predict. This conservative approach increases confidence that the plant will have minimal impact on the marine environment.

The near, mid, and far-field modelling results all align, indicating that the desalination plant can operate with minimal environmental impact. Local economic activities in the multi-user marine system will not be affected and will comply with environmental legislation, guidelines, and license conditions.

The desalination plant design prevents the recirculation of brine into the intake, meeting all performance targets. The near-field and mid-field models confirmed no visible surface plumes and minimal increases in seabed sediment levels. Overall, the results align with the far-field modelling, showing minimal permanent impacts on coastal processes like water levels, currents, and sediment movement.



Marine mammals

Although marine mammals can pass through any marine waters, the area proposed for the project is not considered an important breeding, nursing, or migration area for these animals under Commonwealth or State legislation.

Boston and Proper Bays are busy areas with shipyards, a grain and cruise liner port, fisheries, and aquaculture activities. The construction phase may temporarily disturb marine mammals, but measures will be in place to stop construction activities if any are observed, preventing harm. The use of tunnelling and keeping the marine construction period short will further reduce the risk of impacting local marine mammals.



For more information



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