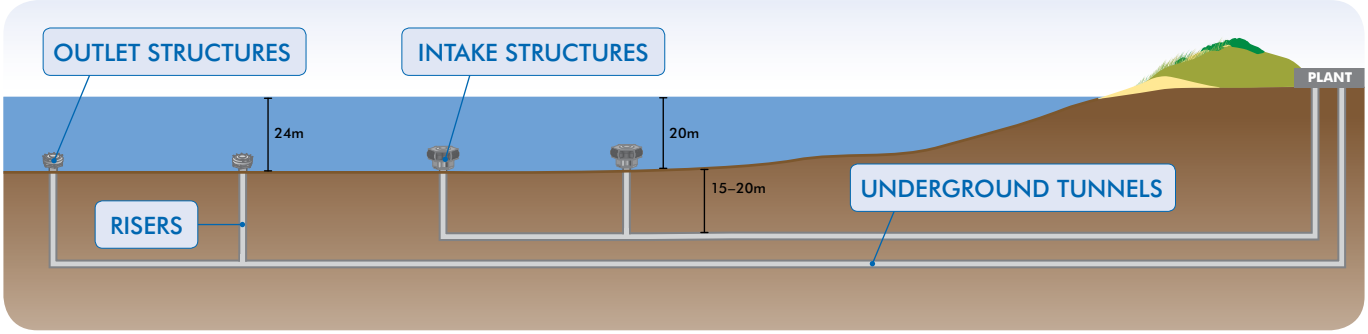
TDV-FS-0032-00

MARINE ENVIRONMENTAL MONITORING AND REPORTING



Safeguarding the marine environment

A multi-pronged approach is being taken to safeguard the environment during the plant's operations. It includes

- Siting the marine structures to avoid sensitive habitats and implementing world's best practice technologies in design, construction and operation.
- A strict regulatory framework with contractual performance requirements and statutory processes that dictate how the plant must operate
- Developing and implementing an Operations and Maintenance Environmental Management Plan (O&M EMP) to ensure compliance with the Project's environmental performance requirements and other applicable legislation
- Implementing a world-class ecological marine monitoring program designed to detect any potential impacts from the operation of the desalination plant
- Rigorous auditing and reporting, overseen by external parties to ensure compliance with contractual and regulatory performance requirements

Location of marine structures

During the design phase extensive surveys were undertaken to determine the best location for the marine structures so that areas of high biodiversity would be avoided. These surveys included mapping of the topography of the sea floor and habitat, with particular consideration of potential biological issues including:

- Diversity, rareness, uniqueness and vulnerability
- Key areas for population and primary production of flora and fauna
- Sensitivity to salinity
- Concentration of larval supply

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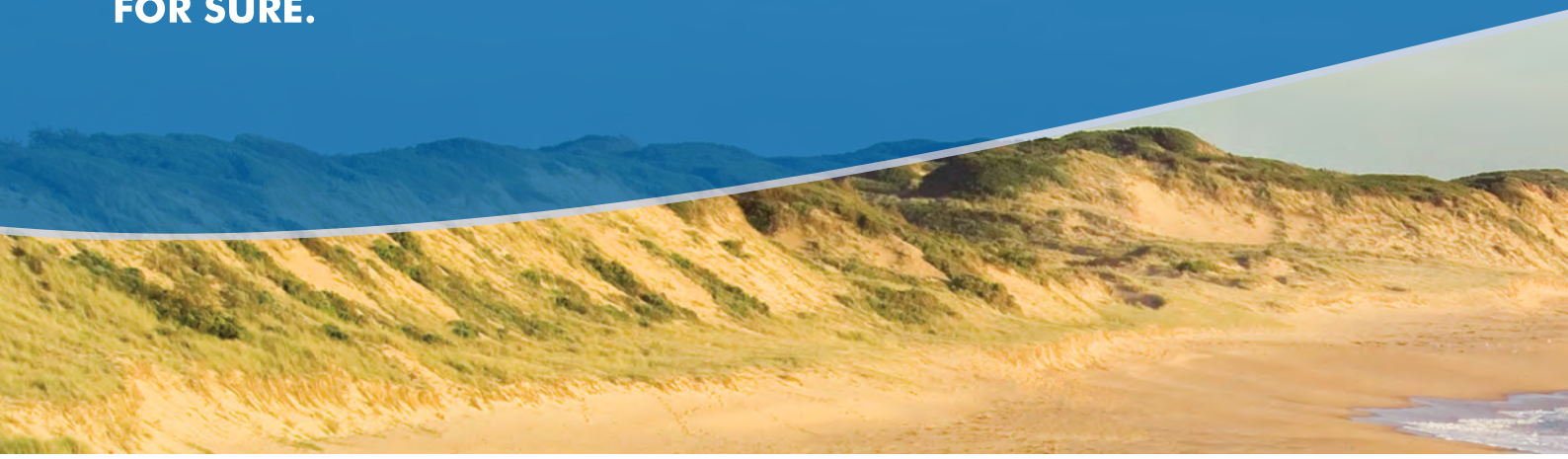

The outlet structures are also designed and located to meet the EPA Discharge Licence requirement for seawater concentrate to be diluted back to background levels within the mixing zone.

The mixing zone is a defined area inside which prescribed background levels for water quality are permitted to be exceeded according to State legislation and environmental policies. Whilst marine uses and values, including flora and fauna are not required to be fully protected inside this zone, all effects must still be minimised.

Prior to discharge the seawater concentrate is continuously monitored to ensure it meets the EPA licence conditions

Marine Monitoring Program

Understanding the marine environment

Information on the marine environment offshore of Williamsons Beach, Wonthaggi, Victoria has been collected on a regular basis since 2008 with the commencement of the VDP's Environment Effects Statement (EES) process. More than 80 environmental studies were completed as part of the EES and included flora, fauna, cultural heritage, hydrology, landscaping, design and visual impact analysis, geotechnical and marine based investigations and social impact research.

Building on the information collected during the EES and tailoring the program to the final design of the desalination plant, a Baseline Marine Monitoring Program (**BMMP**) was undertaken on a quarterly basis from 2009. The BMMP allowed the successful collection of enough data on the marine environment before the plant started operating, to provide a benchmark against during operation. Future monitoring results can now be compared against this comprehensive baseline data set to determine whether there are any changes to the marine environment from the operation of the desalination plant.

The BMMP was undertaken by a team of external specialists, all of whom are highly qualified within their respective fields. This program and all the monitoring results were further reviewed by an independent expert before final signoff.

Operational marine monitoring

An operational marine monitoring program (OMMP) has been developed on the basis of information gathered over five years of investigation and research (EES and BMMP), and allows monitoring of any impact to the marine environment from the operation of the plant.

The program focuses on two regions and the different potential impacts within each region:

Inshore monitoring is undertaken at a depth of 18-20 metres, up to 1.5 kms from the outlet to assess whether there is any impact on invertebrate and plant colonies as result of larval entrainment in the region of the intake structures. Information is collected from:

- Settlement plates located just above the seafloor at eight sites at varying distances from the marine structures to identify flora and fauna types that are establishing in the area and understand what is happening more broadly in the highly variable marine environment

- Diver operated video survey of the reef canopy at 100m transects at each of the eight sites
- Photographic samples of the vertical or near vertical reef faces at each of the eight sites

Offshore monitoring is based around a number of sites within three different areas: within the mixing zone where the outlet structures are located, within a test zone which is adjacent to the mixing zone, and within a reference zone which is at a further distance from the mixing zone.

In the mixing zone some effects of the seawater concentrate may be observed as allowed under the EPA licence. No effects are expected to be observed in the test zone. Observations are made in these zones to confirm this.

No effects from the seawater concentrate are expected in the reference zone. The purpose of monitoring in this area is to make observations about natural variation that may be occurring on a broader scale in the vicinity of the marine structures.

Offshore monitoring information is gathered from:

- Settlement plates located just above the seafloor at 12 different sites within the mixing, test and reference zones
- Remotely operated video survey of the reef canopy around each of the 12 sites

The OMMP will commence as soon as a water order is received from the State and before the Plant starts to produce water. It includes:

- Continuous in-plant monitoring of the seawater concentrate to ensure that it is compliant with the EPA Discharge Licence
- Continuous logging of salinity (conductivity and temperature) at fixed locations on the seabed (implemented in conjunction with the in-plant water quality monitoring)
- Monitoring of the outlet structures to ensure they are performing correctly and that the seawater concentrate is being mixed correctly
- Ecological surveys by both Remotely Operated Vehicle (ROV) and divers
- Periodic ecotoxicology testing of the seawater concentrate

Reporting

The Marine Monitoring program is overseen by the Marine Monitoring Management Group (MMMG) which comprises EPA, the Department of Environment and Primary Industries, AquaSure and DTSJV, as well as an independent external reviewer from the University of NSW.

A rigorous, systematic reporting system for the BMMP and the OMMP is applied. Data is collected during operation and processed by the team of external specialists. This data is compared against the baseline data and previous OMMP monitoring events, and statistically analysed to identify trends and look for potential impacts. If any impacts are detected this is reported to the Marine Management Group who oversee the response and further investigation.

Formal reporting on the OMMP is done annually when the plant is operating.

In addition the VDP must provide an Annual Performance Statement to the EPA to confirm that it has met all the requirements of the Discharge Licence. The EPA must be immediately notified of any non-compliance with the licence conditions.

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State Government Victoria

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