NORTHERN WATER

Seawater desalination
Fact sheet

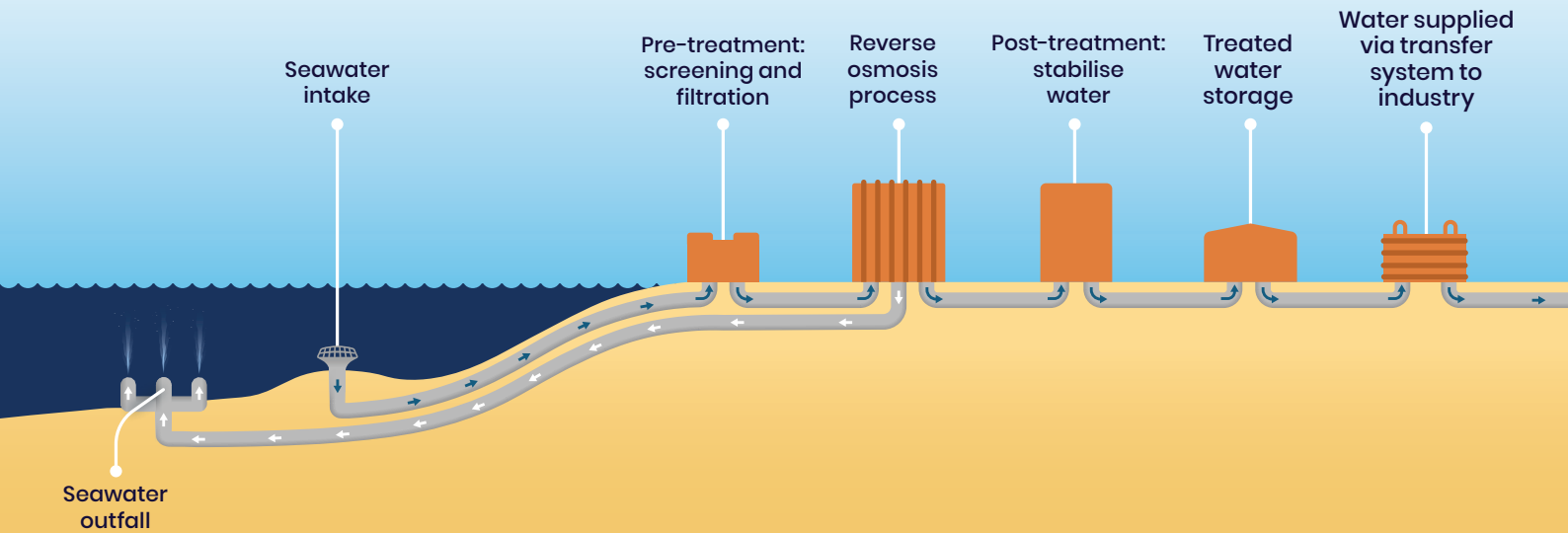
Northern Water aims to provide a secure, climate resilient water source for industry located in South Australia's Upper Spencer Gulf and Far North. The project is located on the traditional lands of the Barngarla and Kokatha Peoples.

What is seawater desalination?

Seawater desalination is the process of removing salt and other impurities from seawater to produce fresh water, using the process of reverse osmosis.

The desalination project will provide water suitable for industry.

The desalination process



CONCEPT ONLY

Government of South Australia

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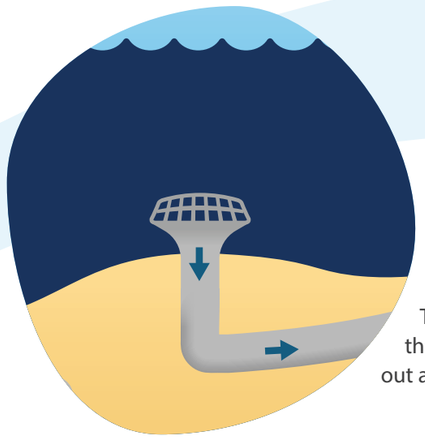
northernwater.sa.gov.au

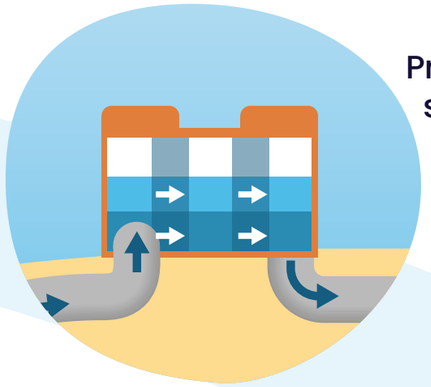
The process explained


ARTIST'S IMPRESSION



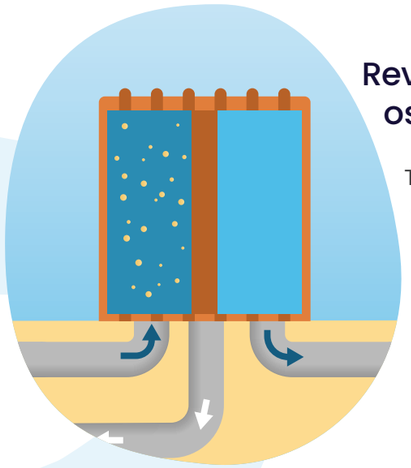
Seawater intake

Seawater enters the intake several kilometres off-shore in deep water. The low velocity of the water entering the intake allows marine life to swim in, out and around the structure.



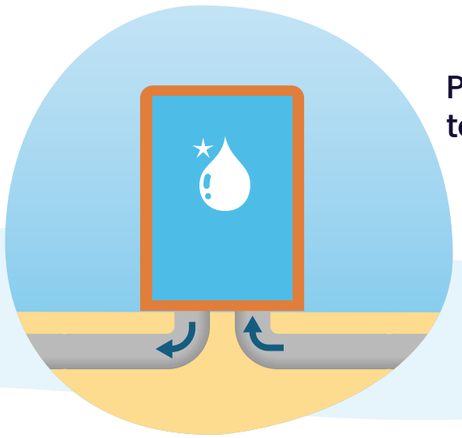
Pre-treatment: screening and filtration

Debris and larger particles such as sediment are filtered out so the seawater is clean enough for the next step in the desalination process.



Reverse osmosis process

The filtered seawater passes at high pressure through a membrane separating the fresh water and the concentrated seawater.

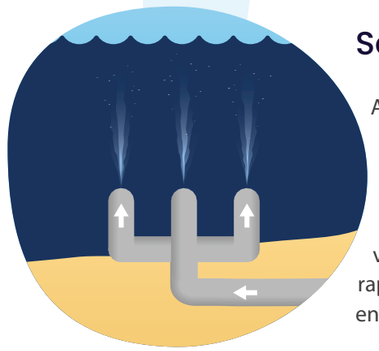


Post-treatment to stabilise water

Minerals* are added to the desalinated water to meet the industry standard.

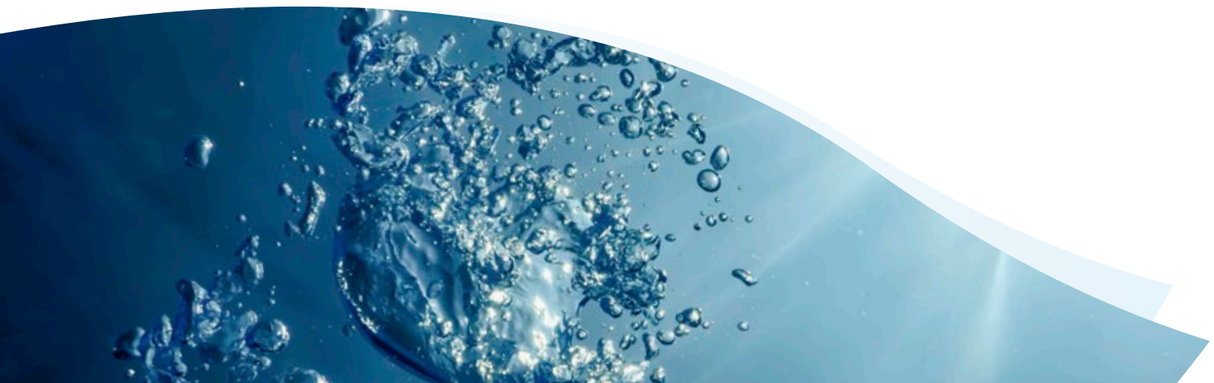
Water supplied via transfer system to industry

A combination of underground pipelines, pump stations, and storage tanks transfer the desalinated water to industry and wholesale users / customers.



Seawater outfall

Approximately half the water in the process is returned to the Gulf through an outfall and diffuser system located several kilometres offshore in deep water. Discharging the water at high velocity causes it to mix and disperse rapidly, quickly returning the marine environment to natural salinity levels.



*Minerals commonly added to desalinated water to meet industry standards include carbon dioxide and lime.

General enquiries

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Desalination – from simple beginnings

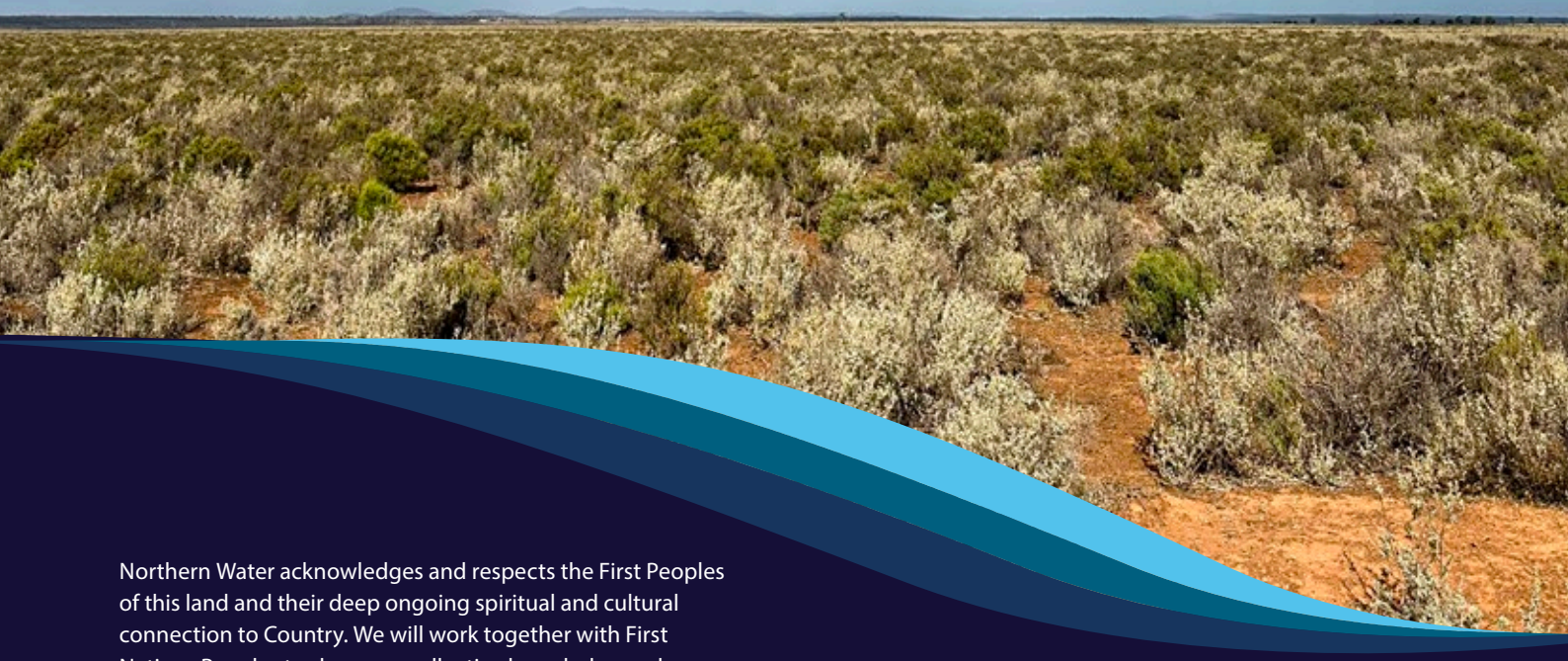
Efforts to purify water through desalination date back to ancient times, with the earliest known attempts made by the Ancient Greeks and Romans around 500 BCE!

Greek sailors boiled seawater to separate out the salt, while the Romans trapped salt with clay filters. Modern desalination methods continue to draw on these same principles of distillation and filtration.

In 1869 one of the earliest modern, large-scale desalination plants was built in Egypt to provide fresh water to steamship crews and passengers passing through the Suez Canal.

Closer to home, a disused desalination plant and water tower – once used to supply fresh water for the Ghan's steam engines – still stand beside the old rail line at Curdimurka on the Oodnadatta Track.

Today there are approximately 23,000 desalination plants in more than 170 countries. Combined, these desalination plants are producing an estimated 95 million cubic meters of freshwater each day.



Northern Water acknowledges and respects the First Peoples of this land and their deep ongoing spiritual and cultural connection to Country. We will work together with First Nations Peoples to share our collective knowledge and recognise the enduring impact of infrastructure on Country.

We acknowledge the Project is on the traditional lands of the Barngarla and Kokatha peoples and recognise their continuing connection to land and waters. We pay our respects to the diversity of cultures, significance of contributions and to Elders past, present and emerging.

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