Toukley Desalination Water Treatment Plant
Frequently Asked Questions

ABOUT THE PROJECT

What is the project?

The Toukley Desalination Water Treatment Plant is a planning initiative under the Central Coast Council Water Security Plan (June 2023). It reflects Council's commitment to be "plan ready" to ensure the continued delivery of safe and secure drinking water during a potential severe and prolonged drought.

A Desalination Water Treatment Plant at Toukley would provide the Central Coast community with an additional water source that is not dependent on rainfall. This means when we are in drought, we will still have access to a safe and secure source of water.

Seawater desalination is identified in the Water Security Plan as a future growth option which is a rainfall-independent measure to diversify the Central Coast's water supply. It also forms an important part of Council's Drought Management Plan where it is listed as a potential drought response measure to be activated if dam water levels fall below 45% (currently) storage level of Mangrove Creek Dam.

The primary goal of this project is to investigate and determine the most optimal point for activation based on updated technology and available information.

This phase will produce an implementation plan that looks at activities that take a long time to prepare, such as arranging a barge for offshore construction, ordering equipment for the desalination plant, and starting long-term environmental monitoring of seawater quality, marine life, and ocean conditions. Through this planning, we may find that some work needs to begin before water storage levels reach 45%, so the community's water supply can continue without interruption.

What is the purpose of the project?

The purpose of the current project is to complete essential early-stage planning. This includes developing a concept design and securing the necessary planning approvals. By undertaking this work now, Council is ensuring that we are well-prepared to move into detailed design and construction if water storage levels in our dams fall to critical levels during a future drought.

By planning ahead, we are taking responsible steps to protect our community's water supply, so that we always have water to drink and use, which is essential for our health, wellbeing, and everyday life.

How will the project be delivered?

We are currently in the early stages of planning, which involves commencement of environmental investigations to identify feasible options for a seawater intake structure. The results will inform a concept design and the development of an Environmental Impact Statement (EIS).

Once the planning approval has been granted by the Department of Planning, Housing and Infrastructure, the Toukley Desalination Water Treatment Plant project will then be considered "plan ready" to be implemented if required in the future.

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What are the benefits of a desalination plant on the Central Coast?

As the Central Coast's population grows, so does the demand for water. Apart from providing an emergency source of drinking water, a permanent desalination plant at Toukley would add a new climate-independent water source to the Central Coast water supply system. This would provide a reliable source of supply that is not dependent on future rainfall.

The plant would improve the diversity of the water supply system, and the resilience of the system, to respond to shocks including drought, water quality issues in our catchments (including algae) and other major asset outages.

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WHERE IS THE PROJECT UP TO?

- The approximate location for the seawater intake structure and transfer pump-station has already been determined.
- The concept design for a 30 megalitre per day (ML/day) desalination scheme is in motion, with the infrastructure able to accommodate 40ML/day for future expansion if required.
- The gathering of necessary survey information and studies for planning approvals is currently underway

This planning work will allow Council to better understand the timeframes, costs and environmental considerations involved in constructing a desalination plant at Toukley.

Who is delivering the Project?

The project is being led by Central Coast Council as the water utility for the Local Government Area. Council has appointed GHD (specialist consultants) to support the concept design and statutory approvals process for the proposal.

How would a desalination plant be funded?

Council will consider financing options when the decision is made to proceed with construction. Under a drought scenario, Council would seek grant funding from State and Federal Governments to assist in constructing an emergency supply source. For example, Wyong and Gosford Councils collectively received approximately $80M in funding from the Federal Government during the Millennium Drought to assist in the construction of the Mardi to Mangrove pipeline.

The plant will only be built and funded if it is needed in the future. By having the project approved and a concept design completed now, we 'buy' ourselves valuable time - meaning we can wait a little longer to see if drought conditions improve, before proceeding to detail design and construction.

Once we see drought conditions setting in for a long period, we can build the plant more quickly if it has already been approved.

How many jobs would it create?

This stage of the project focuses on planning only and does not include the construction or operation of the desalination plant. However, if a decision is made in the future to build and operate the facility, it is expected that multiple positions will be created in order to maintain and run the facility.

In addition, the construction phase, if approved, could generate a range of indirect employment benefits, including:

- Local contracting opportunities for suppliers and service providers
- Support for local businesses, particularly during drought, by enhancing water security
- Educational outreach on water sustainability, which may involve schools, community groups, and local organisations.

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ABOUT DESALINATION

How does desalination turn seawater into drinking water?

Desalination uses reverse osmosis.
The process involves several key stages:

Pre-treatment: Seawater is first drawn through intake screens and filters to remove debris and particles. It then passes through an ultrafiltration membrane for further purification.
Reverse osmosis: Water is pushed through semi-permeable membranes that allow only water molecules to pass, effectively removing salts and other impurities.
Post-treatment: The desalinated water is disinfected and re-mineralised to enhance alkalinity. This helps prevent corrosion in the water distribution system and household plumbing. The final product meets the Australian Drinking Water Guidelines ensuring it is safe for consumption.
Storage: The treated water is stored before being distributed to homes and businesses.
Outfall: The remaining concentrated brine is returned to the ocean via an outfall pipe and diffusers, which help it blend back into the marine environment at natural salinity levels.

Why build one if Sydney desalination plant is not used now?

It is. Sydney's desalination plant at Kurnell is currently in operation and is an integral part of the city's water supply system. It's used to supplement the city's water needs, especially when dam levels are low and can provide up to 15% of Sydney's drinking water. The plant can also be adjusted to meet varying water demands and ensure a reliable supply, even during drought, floods, or bushfires.

OTHER WATER SUPPLY CONSIDERATIONS

Why don't we just build another dam?

Council investigated a wide range of options including enlarging the existing Mangrove Creek Dam. Much like building a new dam, the environmental impact was high and the timeframe for construction was long.

Council has focused on enhancing and making the most of existing infrastructure to improve the efficiency and reliability of the region's water supply system. This includes installing a pipeline between Mardi Dam and Mangrove Creek Dam, constructing a new pumping station, upgrading weirs, and building the Lower Wyong River Pump Station.

While building a new dam may seem like a straightforward solution, it would be extremely costly, leave a large environmental footprint, and take many years to deliver. Desalination offers a more flexible and rainfall-independent option that can be activated when needed.

Why can't you just subsidise water tanks?

Water tanks were considered as part of the Water Security Plan. While Council supports the use of water tanks and encourages their installation, especially in residential settings, they are not a large-scale solution for regional water security. Adding water tanks to new homes is a gradual process and does not provide the volume of water needed to meet the growing demand across the region. In areas planned for increased medium-density housing, the amount of water that tanks can supply would fall well short of what is required, and the water quality may still not meet drinking water standards.

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During a drought, both the availability and quality of water from tanks can decline significantly, so while water tanks play a helpful role in water conservation, they cannot replace the need for reliable, large-scale sources like desalination to ensure a secure supply of drinking water for the entire community.

Why can't we get it from the pipeline connecting to Hunter Water?

Both Hunter Water and Central Coast Council are separate water utilities which ensure security of water supply to both regions. The interregional pipeline helps both regions to supplement each other during short to medium term droughts. For example, the Hunter Water link provided much needed water during the millennium drought and then Central Coast supplied water to Hunter region during recent 2017-2020 drought. During severe long-term droughts in future, both regions need to build their own rainfall independent sources (desalination) to secure the water supply for both the growing regions.

Hunter Water is currently constructing a desalination plant at Belmont which will provide a reliable, climate-resilient water source, helping to safeguard the region's future water supply in the face of increasing climate variability and population growth.

Why is it planned for Toukley?

The proposed location for the desalination plant is adjacent to the existing Toukley Sewage Treatment Plant. This site was chosen as it already has supporting infrastructure, making it a practical and cost-effective option for future development. These consider proximity to the ocean, ability to discharge brine to the existing ocean outfall tunnel for the regional sewerage scheme and proximity to existing large diameter distribution pipelines to transport drinking water to the right number of customers, and access to high Voltage power infrastructure. There is also land available that adjoins to the existing plant.

The suitability of the proposed site is being supported by physical studies and investigations, including geotechnical work and seawater sampling.

Why is it staying at Toukley and are the intake pipe and pump station locations being reviewed?

The Toukley Sewage Treatment Plant area is the chosen location as multiple studies show it to be an optimum location with planning approval. Council has recently gone through an Options Analysis which has addressed some of the previously highlighted public concerns about seawater intake and pump-station location (Lakes Beach underground well design which was proposed underneath Budgewoi Beach).

The Final Preferred Option has moved the pump station to the desalination plant site (at the Toukley Sewage Treatment Plant location) and uses a tunnel that starts at the desalination plant and is direct bored (approx. 25 metres underground) to the sea water intake location of the shore from Jenny Dixon Reserve (approx.1 km).

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Why isn't the ocean water inlet being constructed at the closest possible location to the desalination plant to reduce construction costs?

A detailed options analysis was undertaken, with Jenny Dixon reserve selected as the preferred intake site. The distance from Toukley Sewage Treatment Plant to Jenny Dixon Reserve is shorter than both Soldiers Beach and the previously proposed Budgewoi Beach site. The Budgewoi Beach option was assessed as having constructability and operability risks and attracted negative community feedback due to potential impacts on the beachfront.

Why not somewhere else (like Terrigal)?

Council has previously explored various options for the potential placement of a water desalination plant and has an existing approval for a smaller scale facility at the Toukley site.

The Toukley site's main benefits over the southern end of the Central Coast relate to proximity to the Norah Head outfall tunnel, availability of large diameter water distribution pipes and availability of suitable zoned land.

Will the plant operate continuously or only when drought conditions apply?

In an emergency drought scenario the plant would run consistently for an extended period. In the longer term, it would only operate when storage levels dropped during future periods of drought.

Will the plant run day and night when in operation?

Yes, the plant and pump station would operate continuously (24/7) when in use. Desalination plants operate most efficiently when running continuously for extended periods (typically weeks), rather than intermittently for short durations or parts of the day.

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COMMUNITY ENGAGEMENT

When does the 'community consultation' start?

Broader community consultation started with the development of the Water Security Plan back in 2021.Community consultation for the current Environmental Impact Statement (EIS) commenced with a drop-in session held on 28 August 2025 at the Toukley Community Hall. Additional opportunities for engagement will be outlined on the project webpage, with future activities to promote further participation announced in due course.

Will there be any opportunities for community involvement?

Yes. As well as the previous engagement that informed the Central Coast Water Security Plan, we will be seeking community input on:

- The mandatory environmental investigations required for the EIS for the wider project
- Once developed the EIS will be publicly exhibited for community feedback.

Are we talking to Aboriginal parties about this desalination project?

Yes, we began conversations with Aboriginal parties about the Toukley desalination project in May 2021. During a meeting on May 31, 2021, with the Darkinjung LALC, potential cultural heritage concerns around Norah Head were discussed. In addition, there have been more recent on-site engagements with DLALC, as well as ongoing meetings to discuss the proposed land use.

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ENVIRONMENTAL AND OTHER IMPACTS

What are the potential environmental impacts of the desalination plant, and how will they be managed?

A Statement of Environmental Effects for a 20ML/day desalination plant at Toukley has previously been prepared, with the assessment that suitable controls could manage its impact to the surrounding environment.

A comprehensive Environmental Impact Statement (EIS) is now being developed for up to a 40ML/day plant, which will assess potential impacts on marine life, water quality, and local ecosystems. The EIS will also outline mitigation measures to minimise any negative effects.

What measures will be taken to ensure the desalination plant operates sustainably and uses energy efficiently?

The concept design will consider energy efficiency and sustainability. The Environmental Impact Statement will also address energy consumption and explore options to minimise the plants carbon footprint.

How noisy would it be?

The environmental impact study will include a range of environmental investigations, including the modelling of any noise expected from the desalination plant and the separate pumping infrastructure.

If noise levels are predicted to be above noise guideline levels, noise attenuation or other noise mitigation measures will be included in the design. This could include the installation of the main transfer pumps underground, covers and other sound insulation materials within key process areas.

Will the desalination plant affect local marine life or the quality of seawater in the area?

Extensive environmental investigations, including seawater sampling, ocean current studies and marine ecology are being undertaken to understand and protect the marine environment. The treated brine will be returned to the ocean via the existing Norah Head outfall and dispersion modelling will be undertaken to demonstrate that it mixes rapidly and safely with seawater at natural salinity levels.

Will there be impacts to the beach?

No. The pipeline tunnel would be drilled from onshore, away from the beach. It would be installed below ground, via trenchless construction methods and end around one kilometre offshore in approximately 15-20m depth of water.

What is the expected construction timeline for the project if it proceeds?

The project is currently in the early planning stage and does not include construction. By completing planning and approvals now, Council will be "plan ready" to move into detailed design and construction if water storage levels fall to critical levels during a future drought. Confirming the timeline to complete detail design and construction is part of the current investigations to better understand future triggers during drought. At this stage, construction is understood to take 3-4 years which would include both the sea water intake and treatment plant.

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How can I stay informed about the project's progress?

We will provide regular updates through our website, social media channels, and community newsletters. Residents surrounding the area of work will receive notifications by mail as the plan becomes better formed. For more information about the project search 'Toukley Desalination Plant' at www.centralcoast.nsw.gov.au.

We encourage the community to make enquiries or share feedback. For more information on the project or to provide feedback, you can contact GHD in the following ways:
By phone: 1800 066 243
By email:
wsp.enquiries@centralcoast.nsw.gov.au

Alternatively, you can contact the Council's Officer:
Name: Neil Dignam
By email: Neil.Dignam@centralcoast.nsw.gov.au

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