



City of
Newcastle

Stockton Beach (north) Coastal Management Program options April 2021

The current situation

Stockton Beach is a dynamic and constantly changing environment which is precious to its community and to those who visit Stockton.

The Stockton Coastal Management Program (CMP) 2020 was developed in close consultation with the Stockton Community Liaison Group, government agencies, coastal experts and members of our community. It includes actions to ensure we can help manage, maintain and preserve the coast between the northern breakwater of the Hunter River and Meredith Street, Stockton.

The Stockton CMP 2020 has mass sand nourishment as its primary coastal management action to improve beach amenity and protect coastal lands.

This involves depositing a large amount of marine sand, off Stockton from the breakwall to just past Meredith Street. The Stockton Beach Taskforce, chaired by the NSW Deputy Premier, is currently investigating suitable offshore sand sources for this mass nourishment.

We estimate that about 112,000m³ of sand naturally moves north from Stockton Beach along the Stockton Bight each year with wave movement – that's equivalent to about 45 Olympic swimming pools full of sand. The Newcastle Harbour breakwaters and navigational channel effectively blocks new sand moving from Nobbys Beach to Stockton. With no sand coming in and the waves moving sand north, it means that Stockton Beach suffers erosion.

It's like constantly spending from your bank account without any new cash deposits coming in.

Mass sand nourishment will be like a large deposit made to the bank account. However, expenditure continues and the continued expenditure means that at some point money (sand) will run out, returning to our current situation of paying the expenditure via erosion.

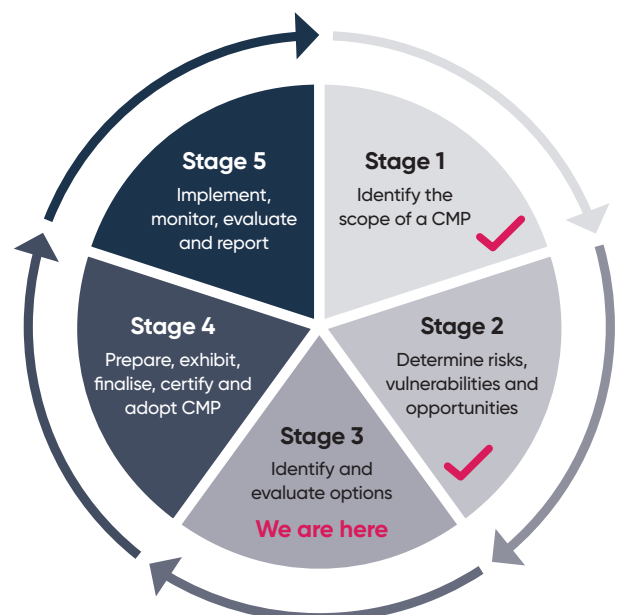
Mass sand nourishment needs to be complemented by other coastal management actions to prolong the benefits of the sand buffer and ensure the entire Stockton Bight can be enjoyed by locals and visitors for years to come.

Developing the Stockton Coastal Management Program 2021

Work is underway on the Stockton CMP 2021, with an aim of identifying additional coastal management options to extend the life of mass sand nourishment.

The Stockton CMP 2021 will update the Stockton CMP 2020 to include the northern end of Stockton Beach from Meredith Street to the Port Stephens Local Government Area boundary. The land to the north of Meredith Street is owned and managed by Defence Housing Australia, Hunter Water, Crown Land and Department of Communities and Justice, and we're working closely with these stakeholders during development of the 2021 CMP. These stakeholders must agree to the coastal management actions in the Stockton CMP 2021 to allow it to be sent for certification from the State Government. Without agreement, the CMP cannot progress.

Developing the Stockton CMP 2021 is a five-stage process directed under the Coastal Management Act 2016. We've already completed stages 1 and 2 with scoping, sand movement and hazard studies carried out since 2019. We're now in the early phases of stage 3, which involves identifying and evaluating options to preserve the Stockton coastline for future generations.



Coastal management options being considered

We have assessed a long list of coastal management options for the Stockton CMP 2021, complementing the mass sand nourishment agreed on in the Stockton CMP 2020.

We have narrowed down to the best schemes for Stockton, with the considerations including providing a buffer from erosion, social amenity and recreation, and the environment. These considerations were developed in line with the Coastal Management Act 2016.

Four schemes have progressed for further investigation. These include maintenance nourishment, an artificial reef, artificial headland and sand back passing. We're investigating the feasibility of these schemes to ensure each is possible and would provide consideration to the entire Stockton Bight, as well as complement mass sand nourishment.

Maintenance Nourishment

This involves replacing the sand that currently moves north from Stockton Beach along the Stockton Bight each year – about 112,000m³ or 45 Olympic swimming pools. The aim of this scheme is to actively 'keep the sand moving' by mimicking/reinstating the natural sand flow, something that has been limited at Stockton.

The benefit of this approach is that the northward movement of sand would provide a buffer for the coastline north of Meredith Street. For this to go ahead, we still need to identify a source for the sand and identify the long-term environmental impacts of retrieving and depositing this additional sand on a regular basis. Work on this has started.



Artificial Headland

This involves building an artificial headland that would extend into the ocean by around 150 to 200 metres. The aim of this scheme is to keep sand in the system as the headland will slow the northern movement of sand along Stockton Bight.

As part of this scheme, sand will build up on the southern side of the headland. Once it has built up, sand will bypass the headland and then feed the beach to the north. Once construction is complete the shoreline to the north of the structure will realign.

For this to go ahead, we still need to confirm exactly how the headland will work. Specific scientific modelling will determine sand volumes held by the structure and sand volumes by passing the structure. Work on this has started.



Artificial Reef

This involves building a submerged artificial reef. The artificial reef would slow the northward movement of sand along Stockton Bight by reducing wave energy reaching the beach. With the aim to 'keep sand in the system' the sand will build up on the southern side of the reef. The reef would not stop sand movement to the north as the artificial headland option initially does. Once construction is complete, the shoreline to the north of the structure will realign.

For this to go ahead, we need to find out if we have the ability/need to build more than one reef and learn exactly how it would work. Like the headland, specific modelling will determine sand volumes held by the structure and sand volumes by passing the structure. Work on this has started.



Sand Back Passing System

This involves re-circulating sand using machinery that will dredge sand that has moved north and feeding it via a pipe network to the south, to outlets placed along Stockton Beach. This scheme aims to 'keep sand in the system' by re-circulating sand, following mass nourishment.

It would be powered by a pump station, allowing wet sand to flow from the outlets onto Stockton Beach. The pumping rate will allow for the water to run into the ocean leaving the sand to fall out, building the beach up during a campaign. During operation, small sections of the beach would be closed to the public, however most of the beach would remain open.

For this to go ahead, we still need to determine the exact location for the infrastructure and run scientific modelling around the volumes of sand that will be used. We are also yet to determine how frequently the system would need to operate. Work on this has started.



Next steps

We're currently assessing the feasibility of four coastal management schemes for the Stockton CMP 2021. For schemes that are considered feasible, we will then carry out a viability assessment, which will take the cost of each scheme into account and allow us to carry out a cost-benefit analysis. There will be further opportunities for the community to have their say on the schemes being considered for Stockton CMP 2021 later in the year. For more information visit newcastle.nsw.gov.au/stockton