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14 July 2021

C.Y. O'Connor Beach erosion projects receive boost from State Government coastal grants

The City of Cockburn has welcomed State Government coastal grants totalling nearly $274,000 to help fund projects to address persistent and costly erosion at C. Y. O'Connor Beach in North Coogee, including an engineered reef.

A grant of $214,349 from the Coastal Adaptation & Protection Grants program 2021-22 will help install nearshore engineered reef modules up to 100m in length about 50m offshore from an eroding area of beach adjacent to the C.Y. O'Connor Reserve at the end of Rollinson Road, as part of a coastal management trial.

Another sum of $59,630 will be used to bury a Geotextile Sand Container (GSC) wall in the onshore dunes adjacent to the reef, to act as an erosion 'backstop' to protect park assets in rare super-storm events.

The reef modules will be constructed from a low carbon concrete, similar to those in use at the Coogee Maritime Trail. The City is in discussions with Henderson-based company Subcon to deliver the project in collaboration with The University of WA, however a formal agreement is yet to be signed.

Installation is proposed for early 2022, while the GSC wall will likely be installed in spring 2021 or autumn 2022 to coincide with routine sand nourishment at the popular beach.

City of Cockburn Marine & Coastal Engineering Officer Jonathan McKay said although physical and computational modelling had been undertaken, it would be the first full-scale trial for an engineered reef designed to reduce beach erosion in WA.

"The reef has the potential to control erosion while having minimal impact on the

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beach, as opposed to more obtrusive conventional groynes and seawalls," Mr McKay said.

"The reef's design will help break down wave energy reaching the shore, slowing down coastal erosion.

"The information we gain about the reef's performance will inform the understanding and design of similar "engineering with nature" erosion protection initiatives in WA and around the world.

"The benefit of fringed reefs is that they have less impact on beach amenity because they are off-shore.

"The City completed initial community consultation in 2019 to gain insight into how the community uses C. Y. O'Connor Beach, what it values and what it believes requires protection.

"Feedback indicated C.Y. O'Connor Beach is highly valued and efforts to protect it from erosion damage were welcomed.

"Options that minimise impact on the appearance and function of the beach were seen as more desirable. Erosion control will allow future generations to enjoy the benefits of a pristine beach environment for years to come."

The project forms part of the broader erosion protection initiatives that the City is investigating and pursuing for the broader C. Y. O'Connor Beach coastline. The design of erosion protection for other sections of C. Y. O'Connor Beach is ongoing, and information gained via this engineered fringing reef trial will help inform the design process.

Erosion has been a persistent issue at C. Y. O'Connor Beach for over 20 years with the foreshore and coastal assets at risk of damage and loss if no protection works are completed.

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Extensive works such as the relocation of dual use paths, dune revegetation and sand nourishment have been required in recent years to manage the erosion problem and while these help mitigate the symptoms of coastal erosion, they do not fully address the issue.

The trial will be the first step towards considering permanent installation of erosion control measures for the C. Y. O'Connor Beach coastline.

Mr McKay said while erosion would still occur to some degree, it would happen at a reduced rate, minimising the quantity and frequency of sand nourishment, and allowing for a greater, more stable sand dune buffer to establish along the shoreline.

"The reef will be monitored for many years after installation to gain data about how it performs in erosion control and how it impacts the surrounding coastline," Mr McKay said.

"The modular reef can be reconfigured, reduced or extended if required. Over time, the reef modules will be colonised by marine flora and fauna as has occurred at the underwater Coogee Maritime Trail, creating another marine habitat that will also be accessible to divers and snorkelers."

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