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# Media Release

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## Australian first engineered wave attenuation reef trial at Cockburn's C.Y. O'Connor Beach to begin this March

In an Australian first, 135 precast concrete modules each weighing 3.5-tonnes will be craned into place at C.Y. O'Connor Beach this March as a unique engineered fringing reef purpose-designed to reduce beach erosion is installed 100m offshore.

Over the past 20 years, the shoreline near the northern end of this popular City of Cockburn beach has eroded by more than 50m.

This erosion has increased the likelihood of destruction of important built and natural assets in the reserve and resulted in dune loss and the relocation of pathways and periodic sand replenishment works totalling more than $500,000.

The $565,000 City of Cockburn project, in partnership with Henderson-based global ocean engineering company Subcon and The University of Western Australia, has been made possible with $350,000 from the City and $214,349 from the State Government's 2020-2021 Coastal Adaptation & Protection Grants program.

UWA and Perth coastal engineering consultant M P Rogers & Associates will contribute coastal engineering and scientific expertise.

The UWA research team has also received $433,540 from the Australian Government's Australian Research Council Linkage Project and an additional $150,000 in research funding from Subcon to establish a multifaceted research program to optimise the design of artificial reefs for coastal protection applications.

This will include establishing an extensive field monitoring program to assess the reef's performance over three years using the data to develop improved models to more broadly predict how artificial reefs can protect coastlines.

City of Cockburn Marine & Coastal Engineering Officer Jonathan McKay said the City was excited to embark on the partnership in a trial designed to protect C.Y. O'Connor Beach, which the community told the City was a highly valued asset that needed protecting during consultation on the subject in 2019.

"We appreciate contributions from the state and federal government that will help make this project possible, along with an in-kind contribution worth more than $220,000 from

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Subcon, building on their long partnership with the City which began with their creation of reef modules for the award-winning Coogee Maritime Trail," Mr McKay said.

"While this innovative trial will benefit one of Cockburn's beaches, it will also benefit other local and state governments around the nation, as communities deal with the increasing impacts of sea level rise and its impact on our coastline.

"While erosion will still occur to some degree, the reef will slow its rate, minimising the quantity and frequency of sand nourishment, and allowing for a greater, more stable sand dune buffer to establish along the shoreline.

"Regular monitoring of the reef and surrounding shoreline in the years following installation will demonstrate the trial's effectiveness, and whether it can be rolled out on a larger scale."

The modules, similar to those constructed and installed by Subcon for the Coogee dive trail, will be colonised by marine flora and fauna. From its position offshore, the 100m long reef will reduce the wave energy that reaches the beach while being far less obtrusive than conventional groynes and seawalls.

Subcon Founder and Business Development Manager Matthew Allen said engineered reefs provided an opportunity to work with nature to address coastal erosion, ocean health and fisheries decline.

"This collaboration is bringing to life Australia's first engineered modular concrete wave-attenuating fringing reef, and this technology promises to provide a national solution to coastal erosion that also provide new dive sites and habitat for marine life," Mr Allen said.

"Accelerating coastal erosion is an increasing challenge faced by coastal communities all around Australia and globally. Subcon engineers and marine scientists are passionate about finding solutions that enable ocean communities to thrive above and below the waterline."

Professor Ryan Lowe from UWA's Oceans Graduate School said the project would contribute to the development of a framework for predicting how artificial reef structures could be optimally designed to protect coastlines from erosion and flooding.

"The research will develop new theory and models to quantify how waves interact with complex reef structures to reduce wave heights and extreme water levels at the shoreline.

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“Expected outcomes include new practical tools and design guidelines that can be adopted by coastal engineers and managers to maximise coastal protection by reefs,” Professor Lowe said.

Mr McKay said the project was an example of the City’s ongoing support for Cockburn’s valuable Blue Economy and ocean and coastal industry sector, which continues to grow in strength and prominence in a local, WA and nationwide context.

“It’s also another example of how partnerships across local, state and federal government, tertiary education and the commercial sector can benefit the local and wider community,” Mr McKay said.

The beach and its nearby roads will remain open during the reef’s installation over two to three weeks in March weather permitting, as modules are delivered to the offshore location via barge. The offshore operational area will be closed to swimmers and marine vessels while the modules are installed.

For more information about the City’s coastal adaptation projects, visit the City’s website.

For more information about the State Government’s Coastal Adaptation & Protection Grants program, visit the Department of Transport website.

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For more information contact:
Media and Communications Officer
City of Cockburn
T: 08 9411 3551
E: media@cockburn.wa.gov.au