

Dover Park East Environmentally Friendly Seawall

COUNCIL NAME

Kogarah City Council

WEB ADDRESS

kogarah.nsw.gov.au

SIZE

19.51 square kilometres

POPULATION

55,806

Overview

Dover Park East foreshore, Kogarah Bay, was a major Council habitat enhancement project involving the removal of an existing low habitat concrete seawall, and the construction of an environmentally friendly seawall focused on emulating the habitat variation present on a natural rocky foreshore. This innovative seawall includes constructed rockpools at varying intertidal levels and lower foreshore gradients to develop a habitat range for intertidal organisms present on natural foreshores in which 25% of aquatic flora and fauna have progressively established themselves.



Background

The progressive urbanisation and transformation of marine and estuarine shorelines in response to commercial, residential and infrastructure demands, has resulted in extensive modification of natural foreshores. Seawalls support fewer taxa than natural rocky shorelines. They lack the complexity of slope, rugosity, crevices, overhangs and pooling. This consequently alters natural processes including recruitment, colonization, survival, and population densities, which result in fewer native intertidal animals and plants.

Approximately 87% of the foreshore within the Kogarah City Council LGA is developed and armoured, with only a small proportion of this foreshore area owned and maintained by Council. Due to demands for private seawalls and no regulations promoting the enhancement of existing seawalls to increase foreshore heterogeneity; increasing intertidal habitat and promoting ecological improvements along the Georges River can only effectively occur in those sites owned by Council.

Dover Park East presented an opportunity to design and construct a 'first of its kind' seawall to re-introduce intertidal habitat removed during previous armouring processes. By removing the low habitat seawall and replacing with an environmentally friendly seawall focused on emulating the habitat variation present on a natural rocky foreshore, this project was expected to yield benefits to intertidal organisms and promote the construction of environmentally friendly seawalls instead of low habitat vertical structures.

Implementation

Funding assistance was provided by the NSW Office of Environment and Heritage under their Estuary Management program. Design inspiration came from Council's habitat enhancement program, previous Kogarah seawalls and the Environmentally Friendly Seawall Guide. Construction took two months to complete and the migration of aquatic organisms into the rockpool and seawall habitats was swift following completion.

This foreshore includes constructed rockpools at varying intertidal levels and lower foreshore grades to develop a habitat range for all intertidal organisms present on natural foreshores. Kogarah City Council had the capacity to incorporate both slope and water retention in a seawall construction project undertaken at Dover Park East. Research is ongoing to examine the benefits of numerous habitat enhancements in one seawall structure. Since its completion, over 25 species of marine organism have utilised the provided habitats.

Outcomes

All objectives of this project were met; however the rapid increase in biodiversity was not expected. Although ecological analysis of the new intertidal seawall is ongoing, and consequently results and conclusions cannot be developed, observable improvements in biodiversity have been identified. The retention of water during low tide has provided suitable habitat for Ascidians, Porifera, juvenile fish, algal and invertebrate species previously not present on the Dover Park rip rap foreshore. The height differences between the mid-shore and high-shore rockpools also developed different assemblages. Sediment migration into the lower pools created a low tide aquatic habitat for crabs, worms and gudgeon fish species; while the sandstone base of the upper rockpool provided habitat for numerous juvenile fish species and other intertidal species. In total 25 species of flora and fauna were qualitatively sampled within the new seawall.

Opportunities

Council is already in the process of designing its next environmentally friendly seawall which will use components and research developed from the Dover Park East project. This project will reintroduce protected ecological communities of saltmarsh and mangrove, while also continuing the incorporation of rockpool designs introduced by Council at Dover Park East.

Through the promotion of such projects, Council hopes to influence seawall design by private land owners and other councils throughout NSW to increase the habitat range within the intertidal zone.

Contact

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This project was the 2014 winner (Division C) of the Natural Environment Protection & Enhancement: On-Ground Works Award at the LGNSW Excellence in the Environment Awards.