NUS National University of Singapore | Department of Biological Sciences Faculty of Science

SEMINAR

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Hosted by A/P Peter Todd

Eco-engineering: design with nature



By **Louise Firth**

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Coastal defence structures are proliferating as a result of rising sea levels and stormier seas. With the realisation that most coastal infrastructure cannot be lost or removed, research is required into ways that coastal defence structures can be built to meet engineering requirements, whilst also providing relevant ecosystem services - ecological engineering. This approach requires an understanding of the types of assemblages and their functional roles that are desirable and feasible in these novel ecosystems. I summarise research carried out by myself and the wider team on eco-engineering and I outline guidelines and recommendations to provide multiple ecosystem services while maintaining engineering efficacy. This work demonstrated that simple enhancement methods can be cost-effective measures to manage local biodiversity. Care is required, however, in the wholesale implementation of these recommendations without full consideration of the desired effects and overall management goals.

Biodata:

Louise Firth did her PhD on rocky shore ecology at University College Dublin from 2003-2007. She did a number of postdocs in Hong Kong, Florida, Bangor and Southampton before taking up her first lecturing position at the National University of Ireland Galway. In 2015 Louise joined Plymouth University as a Lecturer in Environmental Science.

Her research encompasses community dynamics and global climate change in both natural and artificial environments. Much of her research focuses on disentangling the impacts of climate change from regional and local scale factors such as extreme weather events and urbanisation. She investigates the role of artificial coastal defence structures and biogenic habitats in habitat provision and in facilitating the spread of both native and non-native species in coastal systems. She has developed novel ecological engineering techniques for habitat enhancement and conservation of biodiversity in the built environment.



Artwork by Ann Nee, DBS, NUS