ciria

the BIG Biodiversity Challenge
do one thing

THE FISHBOURNE VERTIPOOL ARRAY
FISHBOURNE, ISLE OF WIGHT, UK
CLIENT: WIGHTLINK ISLE OF WIGHT FERRIES, SUBMITTED BY ARTECOLOGY LTD

BIG Biodiversity Challenge Award Category: Client

Project overview

A set of 5 built intertidal habitat features installed at a major ferry terminal, providing new integrated green-grey infrastructure and ecological gains for the marine environment. The 5 Vertipools have been monitored over their first year by Bournemouth University and are producing phenomenal results!

What were the biodiversity conditions on site, prior to the enhancement?

The wildlife value of port infrastructure was not considered of high ecological value in assessments undertaken as part of Wightlink's planning application for a £42M refit at its Isle of Wight and Portsmouth facilities. The mitigation for local impacts on the intertidal environment was delivered by avoidance through good design but some small residual habitat loss remained. Crucially, the decision was made use this opportunity to deliver the remaining habitat replacement & extend the project by using ground-breaking artificial habitat creation techniques for net gain in line with A Green Future 25 Year Strategy & NERC Greening The Grey Innovation guidance.

What were the reasons behind this project ?

Wightlink, working with Arc and consulting marine ecologists ABPMer, on their application for upgraded port facilities, were looking for an opportunity to extend habitat mitigation work into net gain & long-term biological enhancement of Fishbourne terminal. Artecology Ltd proposed & designed an artificial rockpool installation which was made & installed in June 2017. The project also provided a research location for Dr. Alice Hall from Bournemouth University, helping to develop ecological design for marine infrastructures. The project demonstrated the client's willingness to go beyond compliance & look for more significant and lasting benefits for biodiversity.

One of the Fishbourne artificial rockpools (Vertipools) in the mould:

Using rope to create crease patterns in a Vertipool

What were the biodiversity measures taken?

The Vertipool system is modular and replicable on any hard infrastructure. Wightlink opted to go further than required by their planning obligations by installing an array of 5 pools, working with ABPMer, Arc, Artecology, Trant and with regulators Natural England and the Environment Agency. The project fits with conservation objectives in the Solent Natura 2000, Ramsar, MCZ and SSSI suite along the Fishbourne coast. The Vertipools were moulded in high-performance concrete and then hand-finished to provide the internal and external surface complexity and ecological design to suit the estuarine intertidal location. This innovative approach to marine IGGI delivers ecological enhancement by retrofitting groups of artificial rockpools between MHW and MLW, providing textured colonisable surfaces, retained water and refuge habitat at low tide and a halo-effect of enriched forage at high tide. Monitoring of the Fishbourne array by Bournemouth University after the first year has shown significant uplift in the biodiversity pools and the area of seawall surrounding them. The array works by building up ecological density across the sea wall and by bending up the lower limit of intertidal organisms, making available additional space for colonisation, refuge, foraging etc. This was particularly noticeable for sea squirt and sponge species at Fishbourne. The planning of the pool array was a collaboration between Wightlink management, ABPMer, Artecology and site contractors Trant who managed the final installation. The Wightlink PR team, and the staff at the Fishbourne terminal, have continued to keep the project live in information to customers and local stakeholders. The 12 month monitoring visit was also used as a project induction for Wightlink's newly appointed environment officer, Nicola Craig. The results and photographs from the June monitoring visit will be featured on-board on the Fishbourne ferries through the summer and the next survey will take place in October this year.

The Vertipool survey team at Wightlink's Fishbourne ferry terminal

Dr. Alice Hall from Bournemouth University and the sea squirt Ciona intestinalis present in all the Vertipools

Further information

The Vertipool array was planned as part of the Fishbourne terminal extension so that ecology and engineering teams could meet at an early stage and work to an agreed programme of prototyping and final installation deadline. The terminal sea wall was examined to identify the best location for the array, shielded from the most intense docking turbulence but closely within the harbour infrastructure so that the potential for ecological gains within constrained urban marine environments could be fully explored and learned from. Regular meetings through the spring 2017 led to successful installation that summer. ABPMer and Wightlink arranged an inspection of the array in October 2017 to ensure that the Vertipools were stable and secure. A first ecological monitoring survey was undertaken after 1 year, in June 2018, involving Artecology, Bournemouth University, Wightlink and the neighbouring Royal Victoria Yacht Club (who provided and skippered the survey rib). 25 species of marine organism had colonised the array and a significant enrichment of the whole wall section (the 'halo' effect) around the pools was observed.

The objectives of the project have been fully realised. Wightlink's motivation was to push beyond compliance and to make the most of an opportunity to demonstrate new thinking in ecological designs for marine infrastructure. The main lesson learned has been the power of effective collaboration, between disciplines and between organizations, when it comes together early in the life of a project. The project team continues to work together as the legacy of the Fishbourne array evolves.

The St. Clare ferry and the survey team examining the Vertipool array:

Project Team

- Wightlink
- ABPMer, Arc Consulting, Artecology
- Trant

What was the motivation for carrying out the enhancement?

The decision to advance IGGI techniques at Fishbourne, taking planning compliance work and pushing on further, was taken by Wightlink in order to directly involve the company in marine conservation efforts for the Solent. In particular, this was an opportunity to move beyond the regulatory framework and help shape positive change for the future in a way that might be replicated and extended as ecological gains become clear. The Vertipool project is also intended to become an important point of common interest, between the company, its staff and its customers, providing a catalyst for new collaborations and partnerships for biodiversity.

The Fishbourne Vertipool array