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MAKING WAVES WITH 3D PLANKTON

Hull’s award-winning aquarium, The Deep, planned to create an immersive and innovative exhibition to showcase the drifting inhabitants of cool seas - such as plankton and jellyfish.

But plankton are absolutely tiny. How can The Deep show visitors what complex and beautiful organisms they are? That’s where the Aura Innovation Centre could help.

CASE STUDY: The Deep



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THE CHALLENGE

All at sea

The Deep is one of Hull's most popular attractions, where you can journey through the story of the world's oceans, from seeing a colony of penguins to learning more about marine conservation.

The Deep secured over £400k of funding from The Biffa Award to create a Cool Seas exhibition, representing a unique and high-tech approach to communicating marine science and environmental messaging to visitors.

As part of the project, they wanted to create a display on ocean drifters, such as plankton. Plankton are usually microscopic in size, but their effect on the ecosystem is huge.

Their small stature means they're often overlooked, but there are a huge range of different plankton, and under a microscope they are stunning and intricate.

The Deep wanted to bring plankton into the spotlight by creating models of specimens which could be lit by spotlights, creating a dazzling display.

However, large, anatomically correct models of plankton are - unsurprisingly - not something that can be bought off the shelf. This is where the Aura Innovation Centre's 3D printers could work their magic.

THE SOLUTION

In at the deep end

Real plankton samples were scanned in 3D, and the images scaled up to thousands of times their normal size. A CAD model was then created, turning the plankton scan into a format that could be created using fused deposition modelling - a form of 3D printing which creates physical objects by building up successive layers of material.

As conservation is at the heart of everything The Deep does, they were keen that the models were created as sustainably as possible. We sourced a recycled natural PLA material to create the plankton replicas, experimenting with different techniques to make the models as true to life as possible.

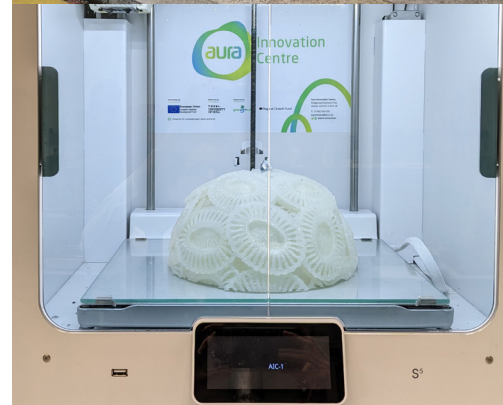
THE RESULT

Making waves

By the time the exhibition was ready to open, we had created 24 plankton models for the Cool Seas display, with 11 vastly different species - from the alarming crab zoe larvae, which looks like it's come straight out of a sci-fi film, to the dramatic orbulina universa, with its abundance of delicate spines represented by fibre optic wires. The models were constructed from a translucent material, and were created hollow, so they could be lit to mimic bioluminescence - a spectacular sight against the darkness of the space they are displayed in.

The intricate detail of each organism could be seen and marvelled at by the human eye, despite some of the original specimens being less than the width of a human hair.

The new exhibitions will connect over 400,000 people each year with nature, helping raise awareness of the diversity of marine life in our seas, and instilling new generations with a passion for ocean conservation.



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