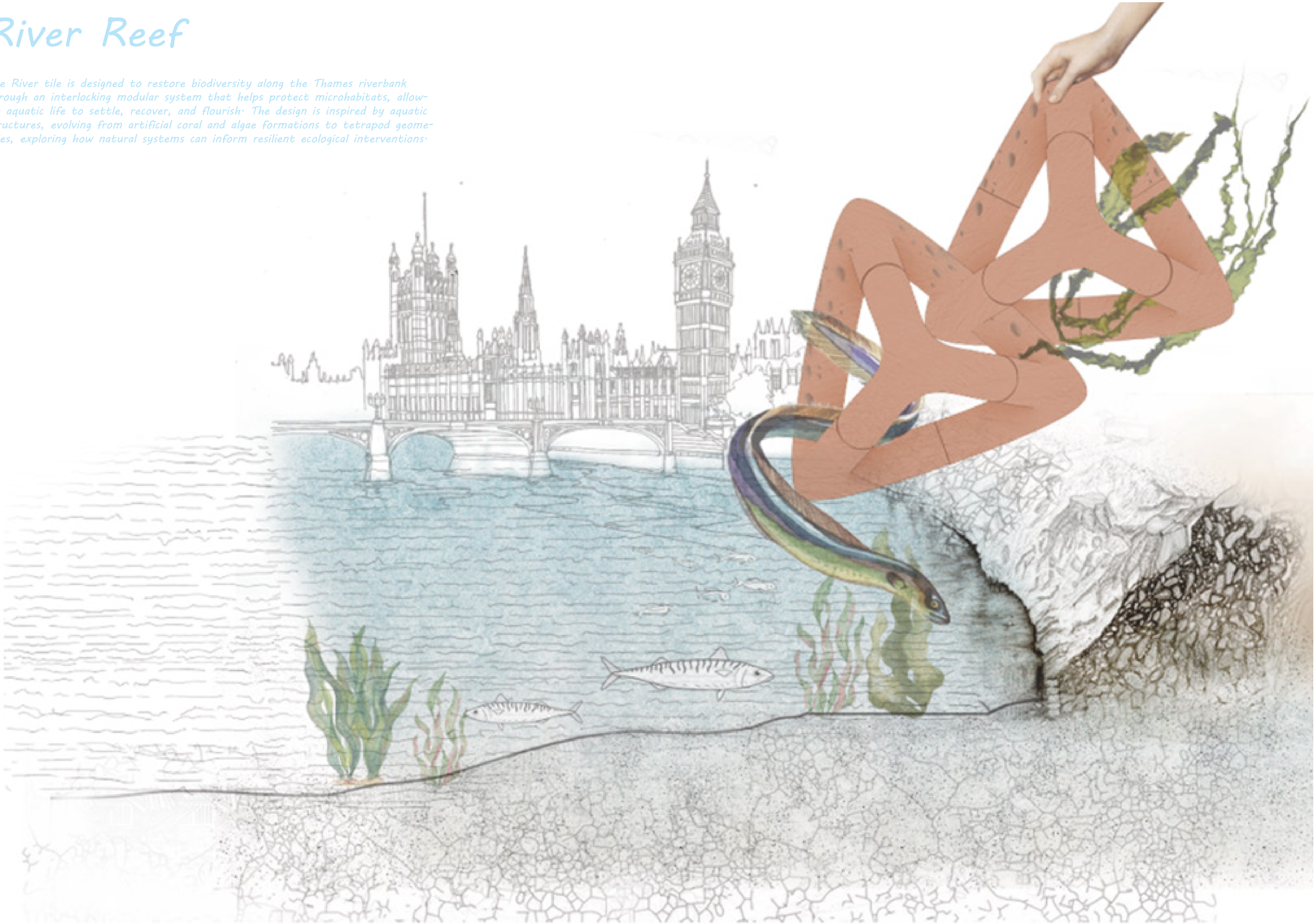
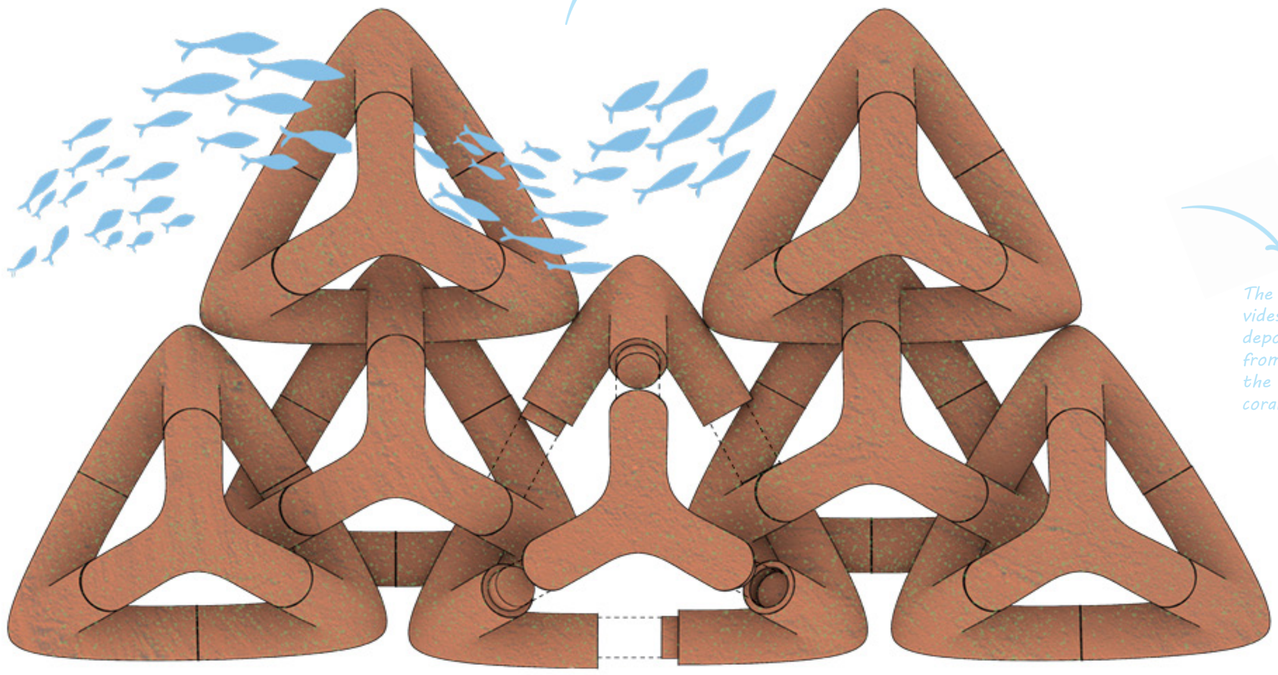
River Reef

The River tile is designed to restore biodiversity along the Thames riverbank through an interlocking modular system that helps protect microhabitats, allowing aquatic life to settle, recover, and flourish. The design is inspired by aquatic structures, evolving from artificial coral and algae formations to tetrapod geometries, exploring how natural systems can inform resilient ecological interventions.

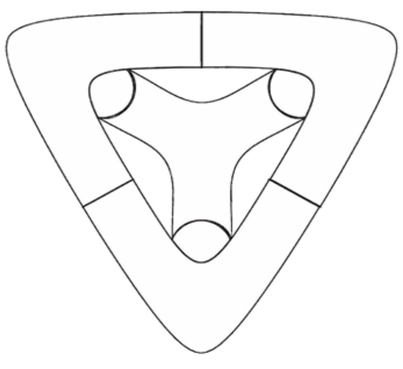


Final Tile @ 1:1

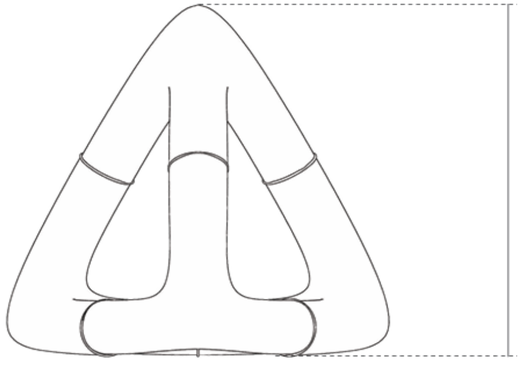
The form serves as an artificial reef habitat, providing navigable passage-ways for fish to swim through and nest within. Its modular geometry creates enclosed pockets that shelter smaller fish



The porous surface texture provides secure cavities for fish to deposit their eggs, protecting them from larger predators — much like the structural function of natural coral reefs.



Bottom Elevation @ 1:5



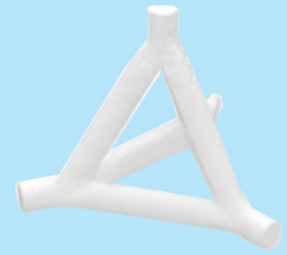
Front Elevation @ 1:5

River reef

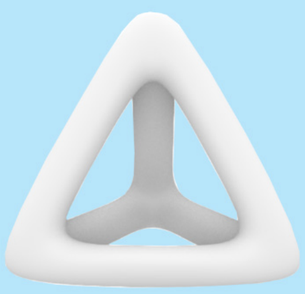
The design development began with sketches and precedent studies, followed by material and fabrication experiments through physical models. As the form evolved, considerations of repeatability, ease of production, and connection became central, leading to the adoption of a tetrapod-based geometry that informed the final tile system.



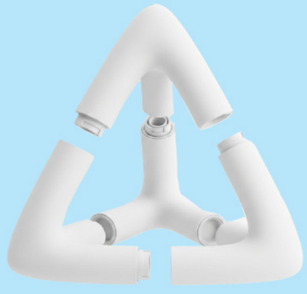
Inspiration



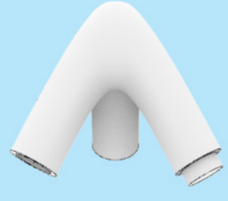
Initial Idea



Final Design



Exploded Design



Piece 1



Piece 2, 3 & 4

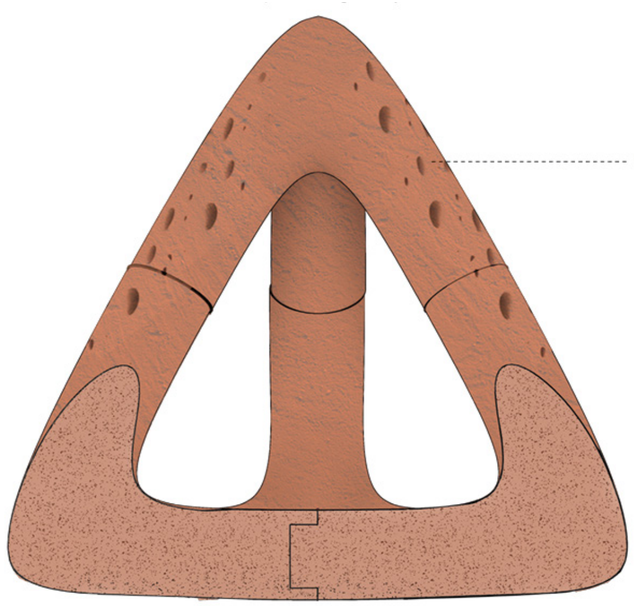
River reef



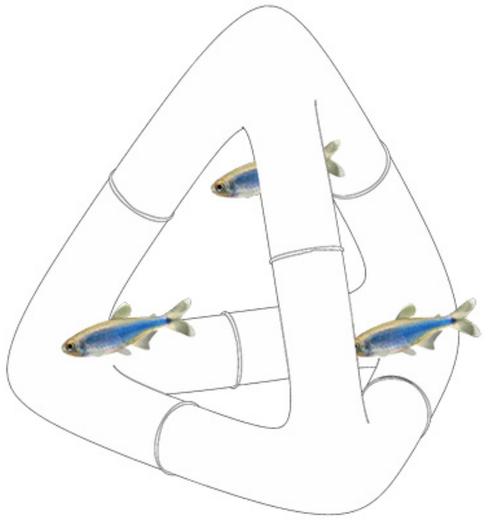
Front elevation with texture @ 1:2

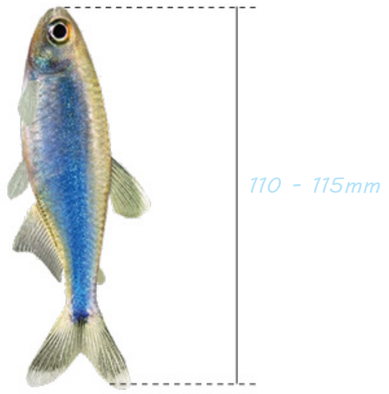


Exploded with texture @ 1:2



Section with texture @ 1:2

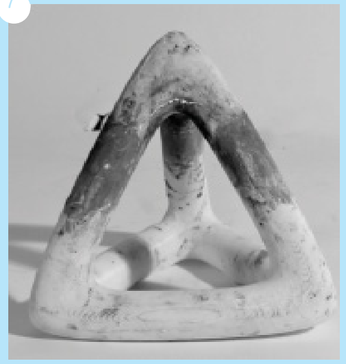




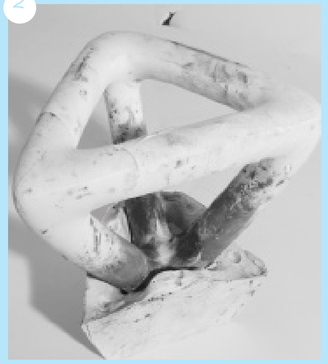
Scale reference: juvenile fish

This is our final visualisation of the tile deployed at scale, illustrated as a modular reef structure assembled from interlocking units. The fish demonstrate the tile's intended function — providing navigable passageways, nesting spaces and protected cavities that mimic the behaviour of natural coral reefs. The tiles are designed to stack and interlock in multiple orientations, encouraging coral and algae growth over time to support the restoration of degraded marine ecosystems.

1



2

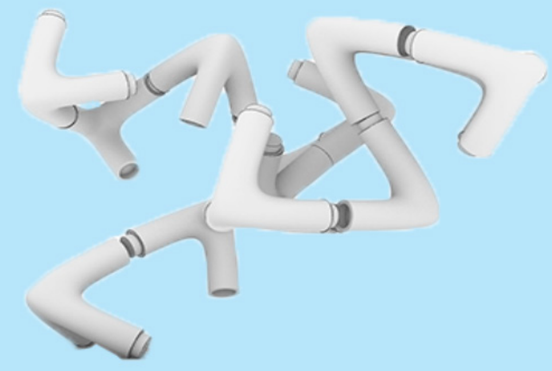


3

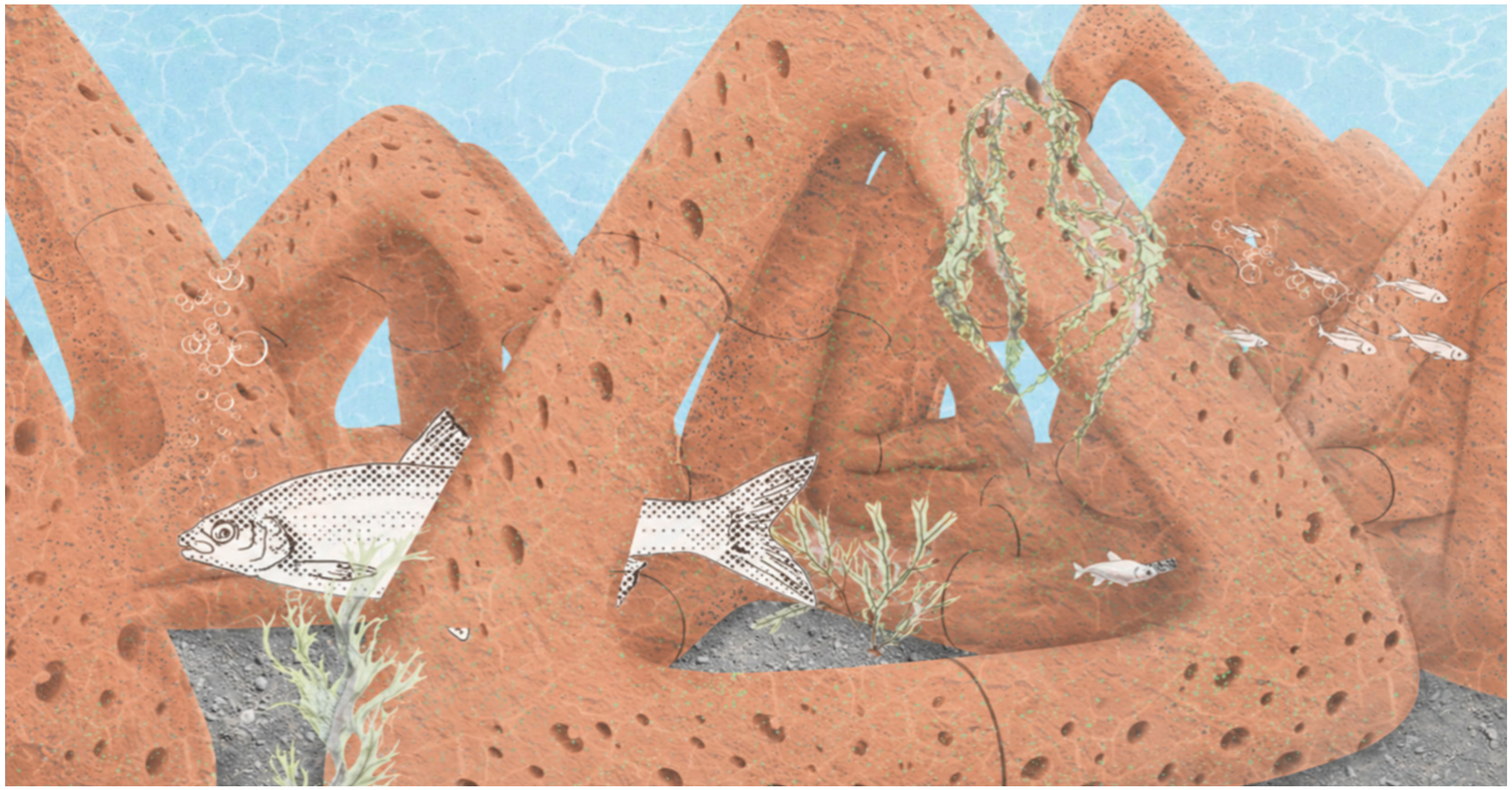


4





River reef



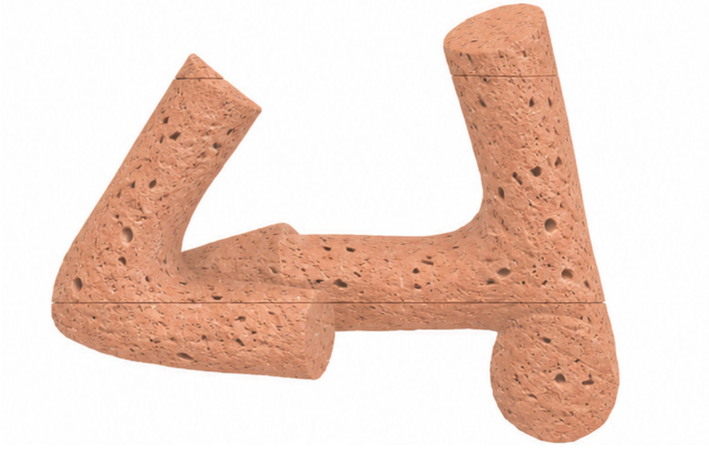




Side Piece- 3 total



Top Piece - 1



Top and Side piece