

blueprint lab

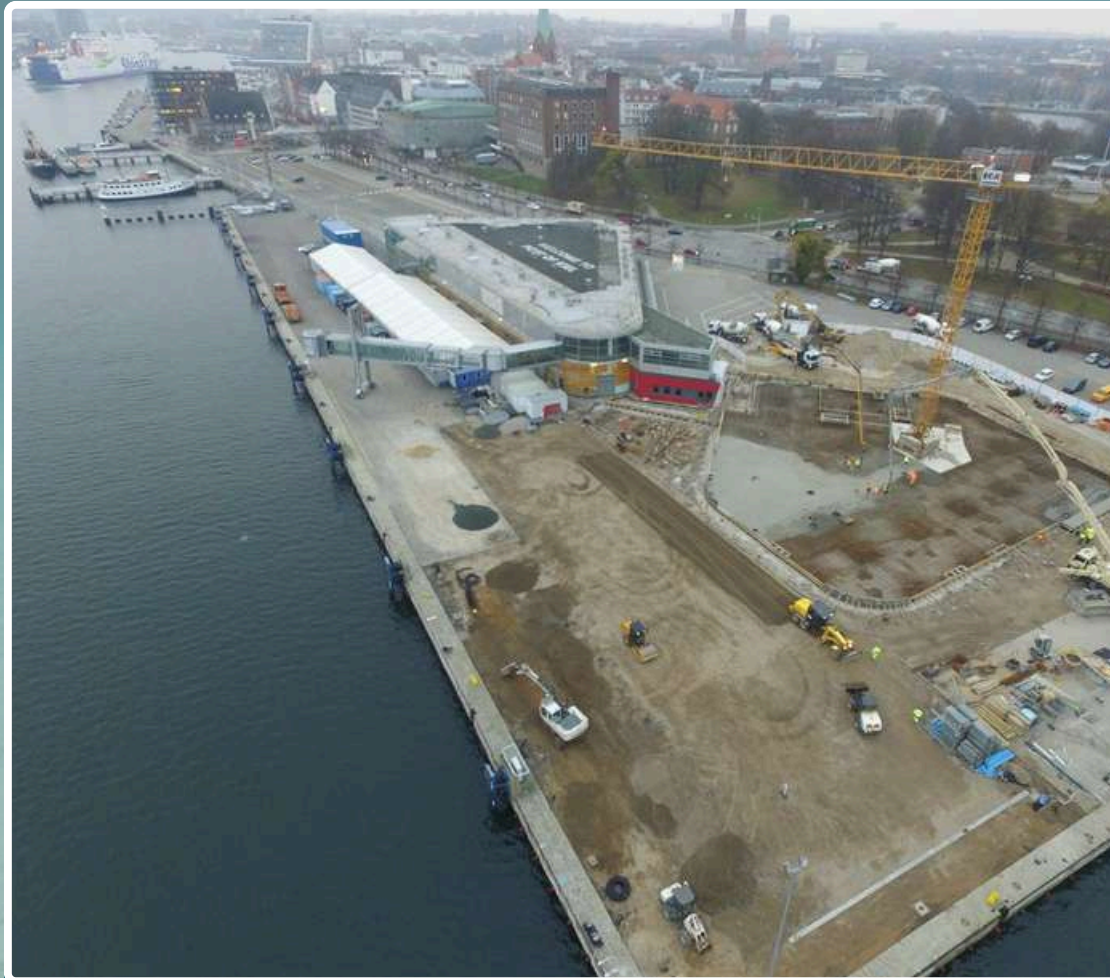
building life underwater

Biodiversity crisis

**Biodiversity decline ranks as the
second most significant global risk
over the next decade.**

— WEF, Global Risks Report 2025

habitat loss



Urban development



Commercial fishing



Historic stone fishing techniques



3.5 million tons

Legislative regulations

EU Nature Restoration Regulation (2024)

Restoration efforts are **required** to be carried out on a **minimum of 20%** of the EU's terrestrial and marine regions by the year **2030**.

- VO (EU) 2024/1991

§15 Federal Nature Conservation Act (BNatSchG)

Interventions in nature and the landscape should be avoided.
If avoidance is not feasible, **compensatory and replacement measures** must be implemented.

§ 15 BNatSchG

Corporate Sustainability Reporting Directive (CSRD)

Large corporations are required to report substantial effects on **biodiversity** and **marine ecosystems**, along with the associated measures and targets.

- ESRS E3 and E4

Economic pressure to act

Mandatory demand for marine restoration

Implementation challenges

For businesses, NGOs, and local authorities, marine restoration presents practical complexities.

Planning

Complex permitting processes

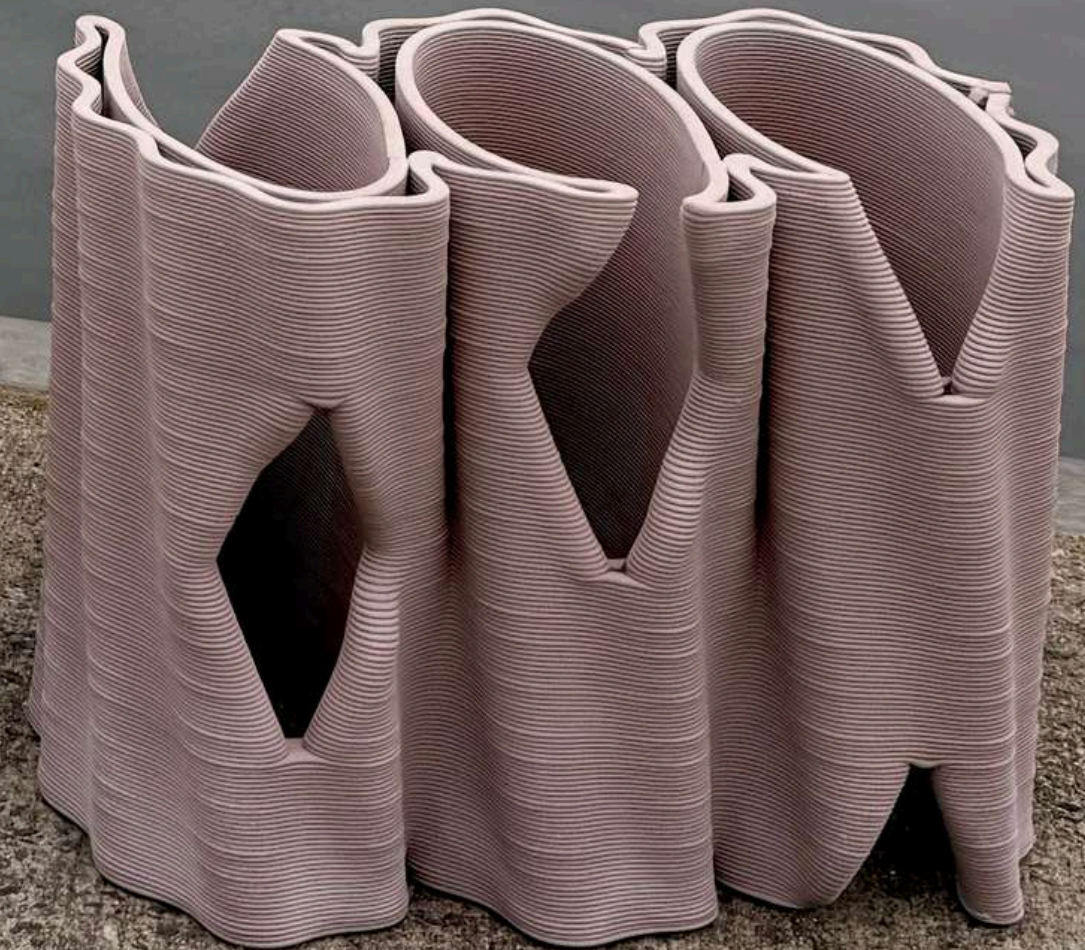
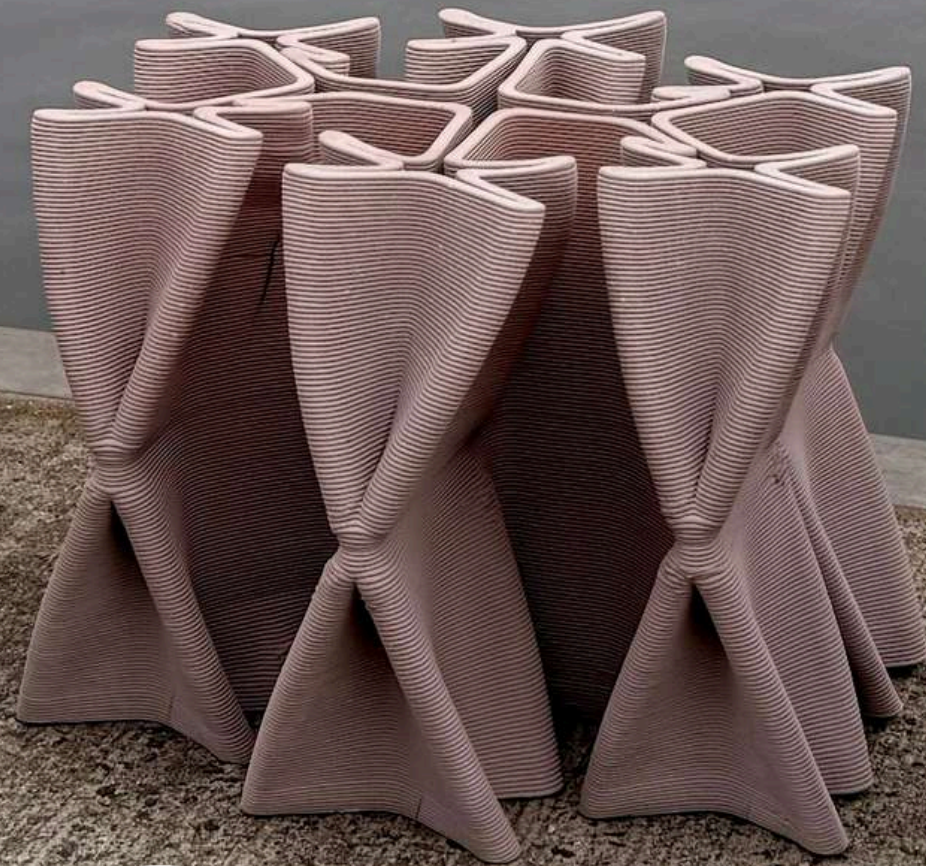
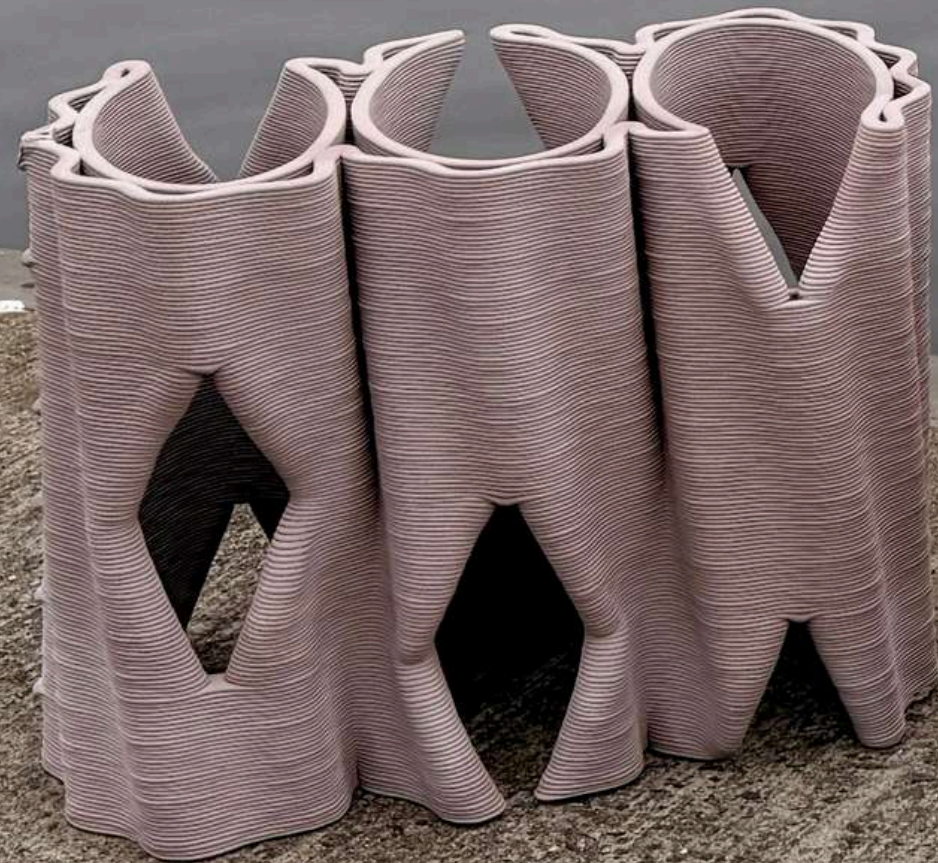
Proof

Ecological impact must be measurable

Resources

Planning, monitoring, and reporting

Solution



**Modular reef
system from
recycled
materials**

**Plug and play
compatibility
with existent
infrastructure**

Biodiversity as a Service

Maintenance



Adaptive Design



Environmental monitoring



Plug & Play



One-Stop Shop
for marine ecosystem
restoration

Business model

B2G/B2B

Target groups:

Ports, municipalities and businesses,
research & NGOs, offshore wind farms

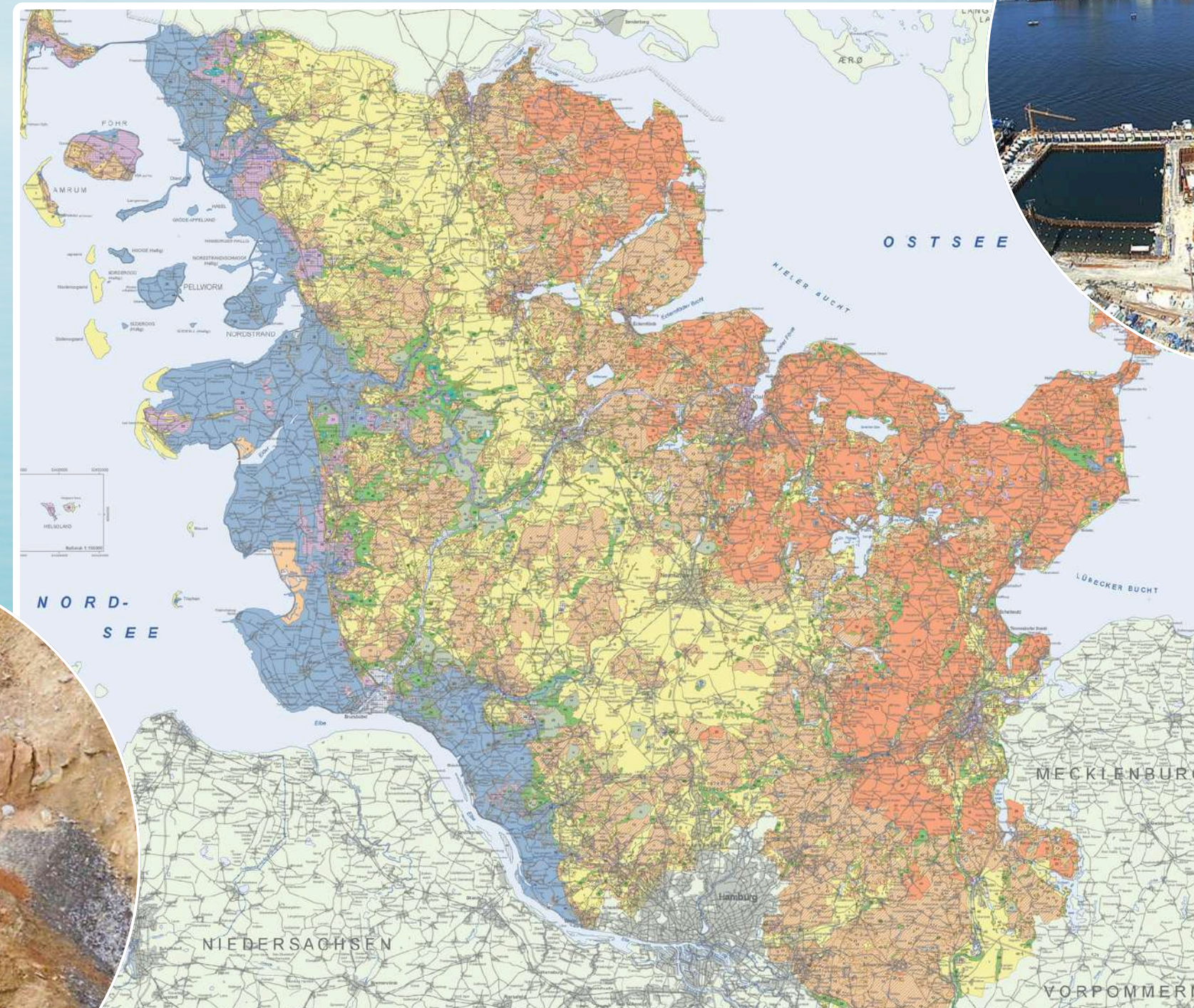
Revenue Streams:

One-time: planning, production & installation
(project volume €40–60k)

Recurring: digital monitoring for impact verification & maintenance
(approx. €5–10k p.a. per project)



Material



Orange represents clay soil in SH (LfU-SH).



Clay in
construction
excavation



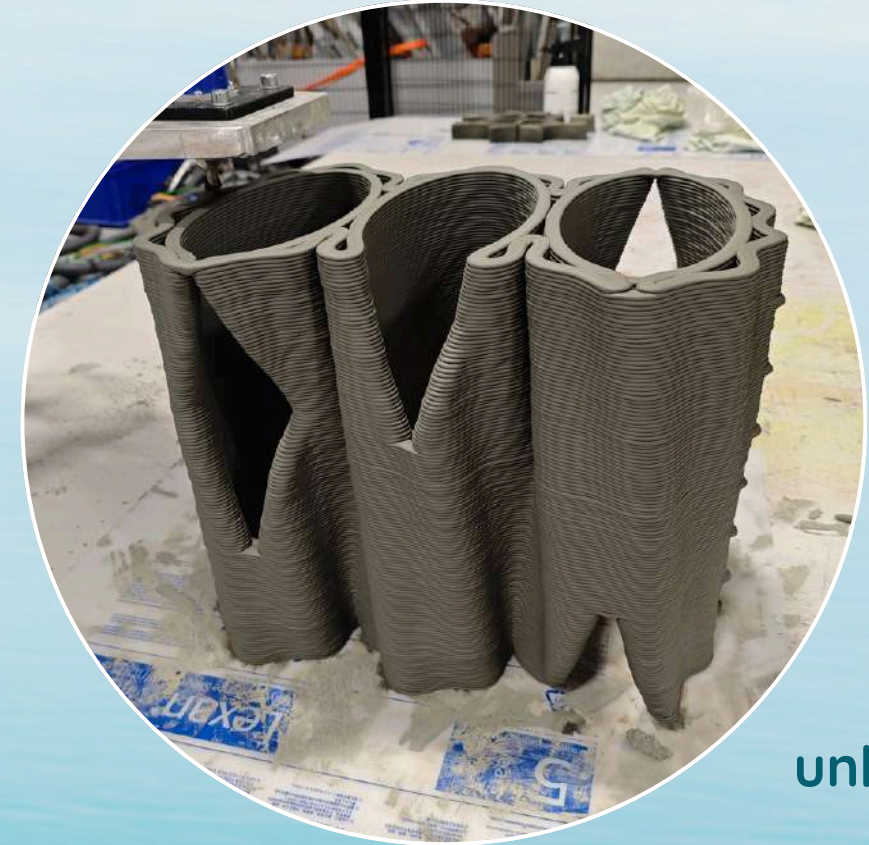
Clay “waste” from
construction
projects



2nd Generation – Clay 3D Printing



Clay 3D printing utilizing a robotic arm



unburned



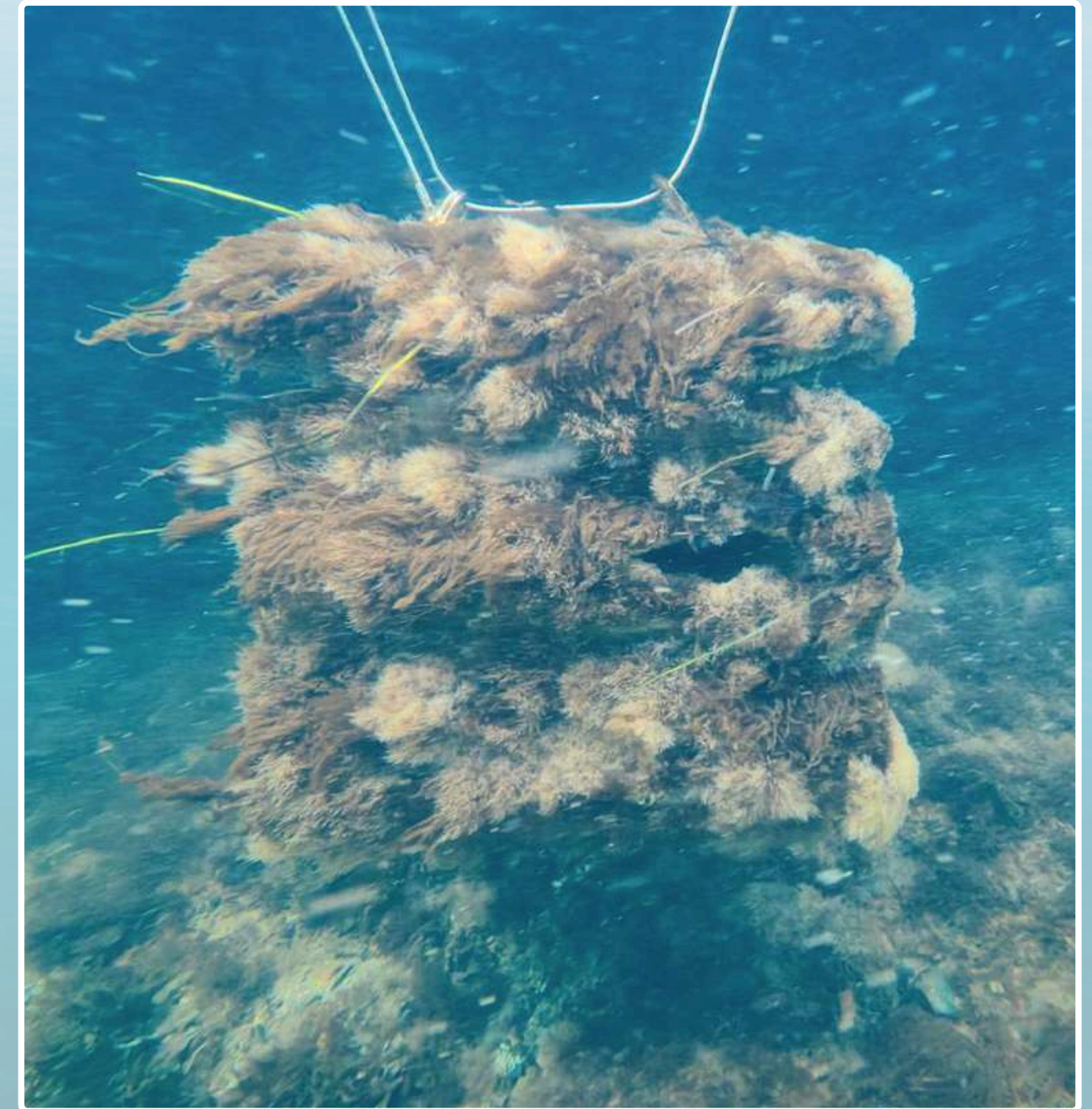
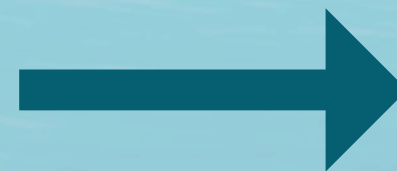
burned

First pilot in Helsingborg, Sweden



Pilot in Helsingborg (November 22, 25)

6 Months



Pilot in Helsingborg (April 9, 2026)

Pilots



- Pilots
- Inquiries
- € Paying Customer

URBAN
OCEAN

mola



Center for
Ocean and
Society



UNIVERSITY OF
GOTHENBURG

Northern Europe



Team

Jael Kahlenberg Caso

M.Sc. in Architecture and Urban Planning

DESIGN AND PRODUCT DEVELOPMENT
DISTRIBUTION

Mats Heitzmann

M. Sc. Marine Science

ECOLOGY & IMPACT ASSESSMENT
FINANCES

Partners:



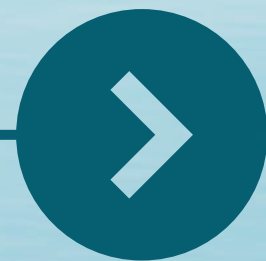
HELSINGBORG



Three-Year Perspective

Impact

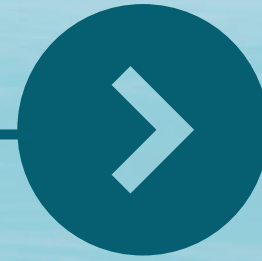
10 completed projects in Northern Europe and
1000 m² of new habitat in urban waters created
from recycled materials.



2026

Own production facility

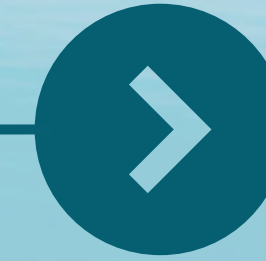
We start manufacturing locally in Kiel.



2027

Standard setzen

Acknowledged standard for ecological
compensation strategies in port and coastal
initiatives.



2028

blueprint lab

building life underwater



An underwater photograph showing a dense cluster of yellowish-green marine life, possibly seaweed or coral, with small, round, light-colored nodules. The background is a hazy, greenish-blue water.

BACKUPS

Market

Biodiversity compensation measures in Northern Europe

- Total

Building initiatives

Compensation measures related to biodiversity in Northern Europe -

Aquatic

Port facilities, hydraulic structures, and offshore installations

Biodiversity compensation initiatives in Northern Europe -

Urban & Maritime

- Port facilities, waterfront walkways, and docks

TAM

€7.5 billion/year

ALONE

€600 million annually

SEAM

€90 million
annually

Sources:

IEEP (2017), Biodiversity Offsetting in Germany, Kleinschroth
et al. (2026), Nature Ecology and Evolution

Collaborators & Development

Leuphana University & Thünen
Institute
Bachelor project - Analysis of the
market for ecological restoration in
Germany



CAU
Uniproject Business
Strategy Enhancement



City of Helsingborg
Consortium for European
Union project



Ostrea, Sweden
Collaboration in research
for oyster restoration



Market analysis of Sweden



Market and Demand

The EU Nature Restoration Regulation exerts pressure on marine restoration initiatives.

- Cities and municipalities are exploring ways to effectively use surplus construction materials.
- Scientific evidence of effectiveness safeguards against allegations of greenwashing and enhances credibility.

Payment willingness

Specific request: Helsingborg, Stockholm, Lysekil

Helsingborg: 600,000 SEK for thirty-five modules

- classified as “highly affordable”

Stockholm: 500,000 SEK allocated for a pilot project

- 4% of the budget for urban development is allocated for compensation measures.