

BLUECITY FLOATING REEF GARDEN

WEDG Certification / project proposal

03.18.22



RETI Center is excited to announce the launch of a capital campaign, an ambitious plan to realize the BlueCity Floating Reef Garden. The first of its kind, this living, floating bio-habitat will support marine life and aquaculture systems while testing a variety of closed loop amphibious engineering designs. This project presents a small-scale demonstration of the BlueCity Climate Lab and will be paired with the BlueBlocks Floating Gardens. The Floating Reef will be a vertically integrated growth system from the sea floor to the sun's rays: a self-sustaining, closed loop microcosm. It will be home to a solar-powered greenhouse for year-round growth of hyper-localized plants to supply the adjacent floating gardens and our coastal edges for long-term ecological restoration; host mussel ropes and oyster baskets for water cleansing; test seaweed spawning and production tied to fertilizing the gardens; and pilot a biophilic concrete hull in partnership with Grow Oyster Reefs.

RETI CENTER **FLOATING REEF GARDEN** CAPITAL CAMPAIGN
www.reticenter.org



THE BIG IDEA: PROOF OF CONCEPT BIOPHILIC STRUCTURES

- / TESTING OF CLOSED LOOP SYSTEMS
- / SALTWATER GREENHOUSE AGRICULTURE
- / MARINE ECOSYSTEMS

COMPONENTS:
shade structure / live trellis

solar / operable greenhouse

salt water / fresh water loops for greenhouse irrigation

cast concrete hull with biophilic surface approx 25ft x 30ft

storm water collection

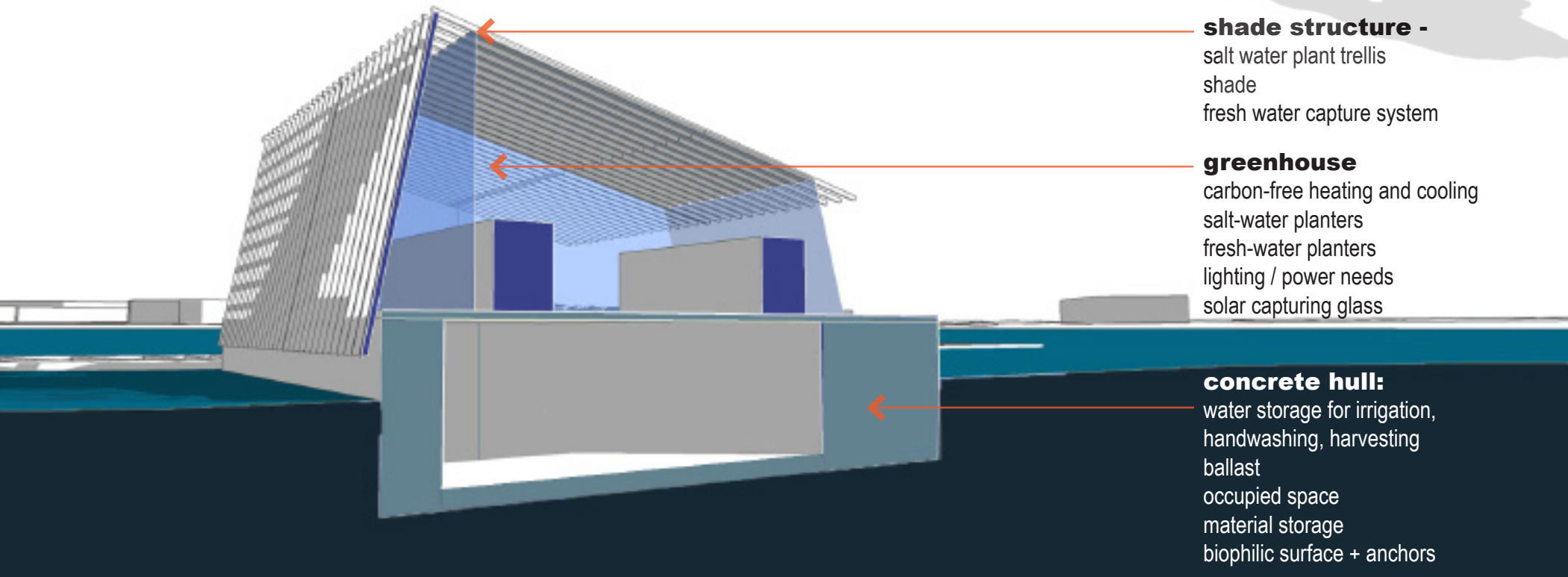
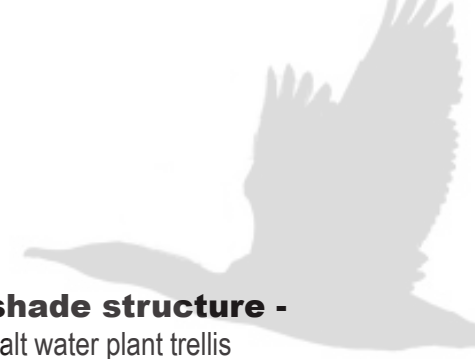
floating gardens

mussel ropes / oyster basket habitats / kelp lines

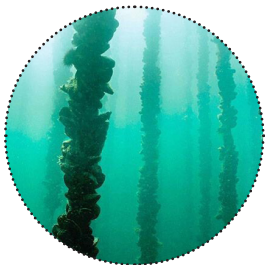
biophilic anchoring system

live dock

CLOSED LOOP SYSTEMS PILOT - CONCEPT



marine aquaculture and halophyte plant selection



MUSSEL ROPES



OYSTER BASKETS



SALICORNIA - SEA BEANS



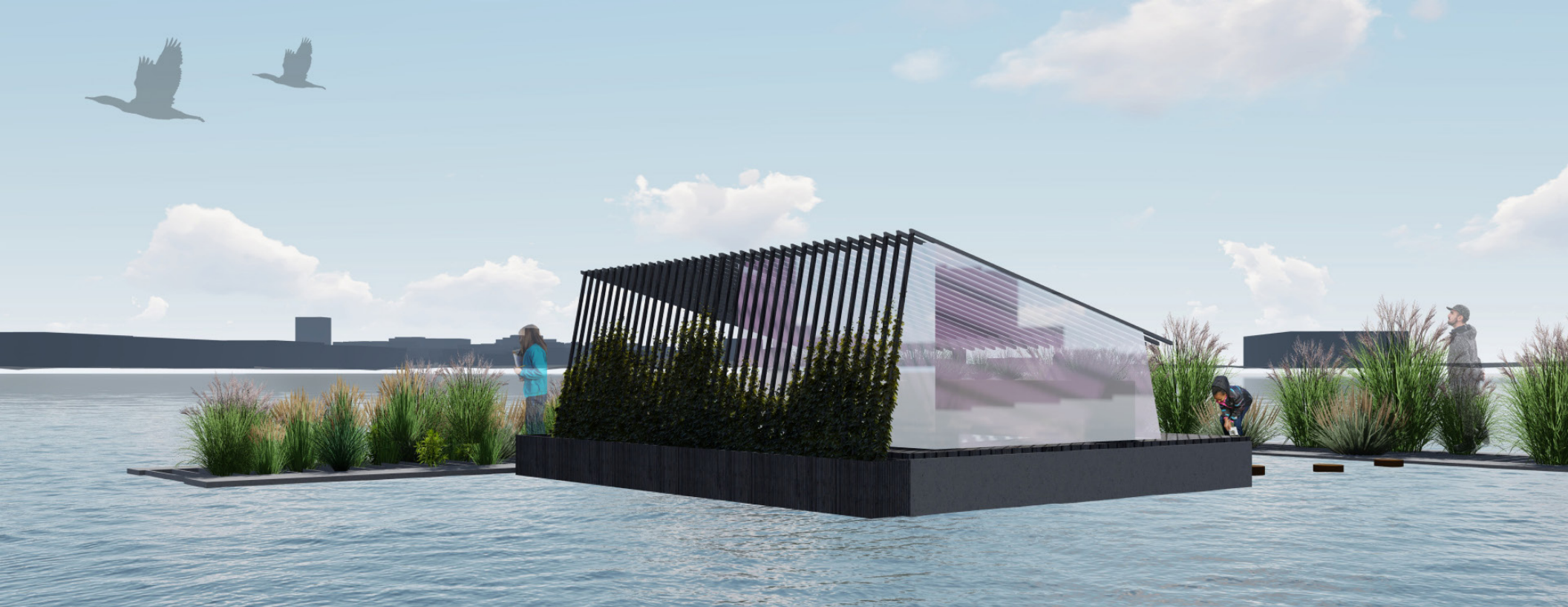
SEA KALE



SEA LAVENDAR



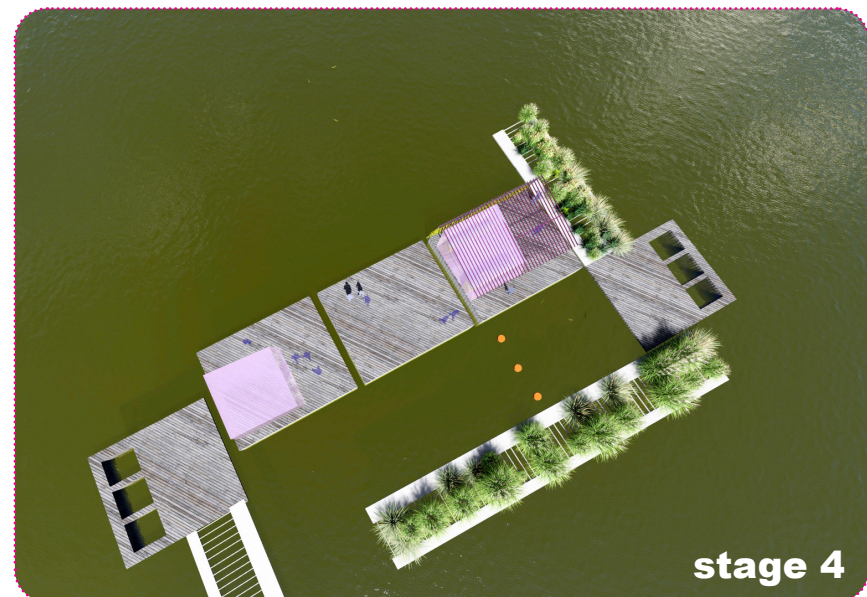
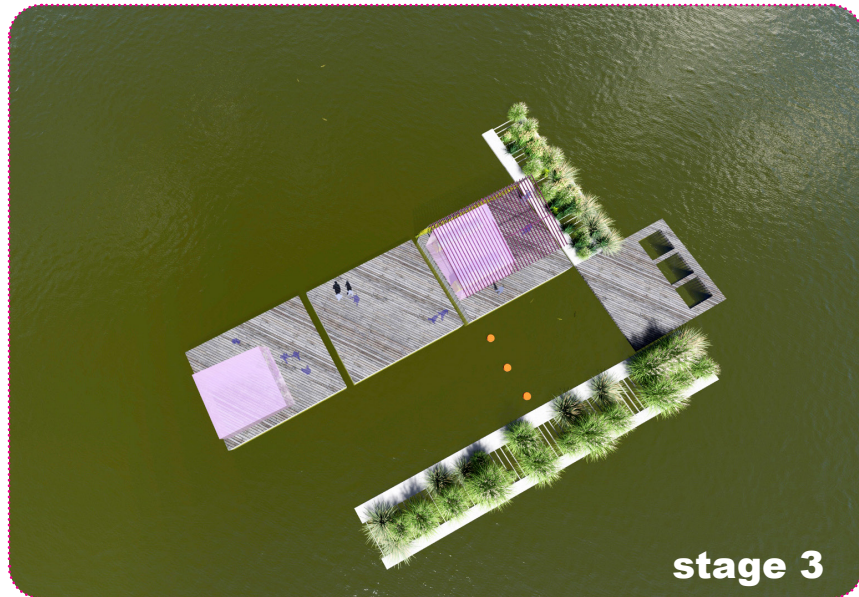
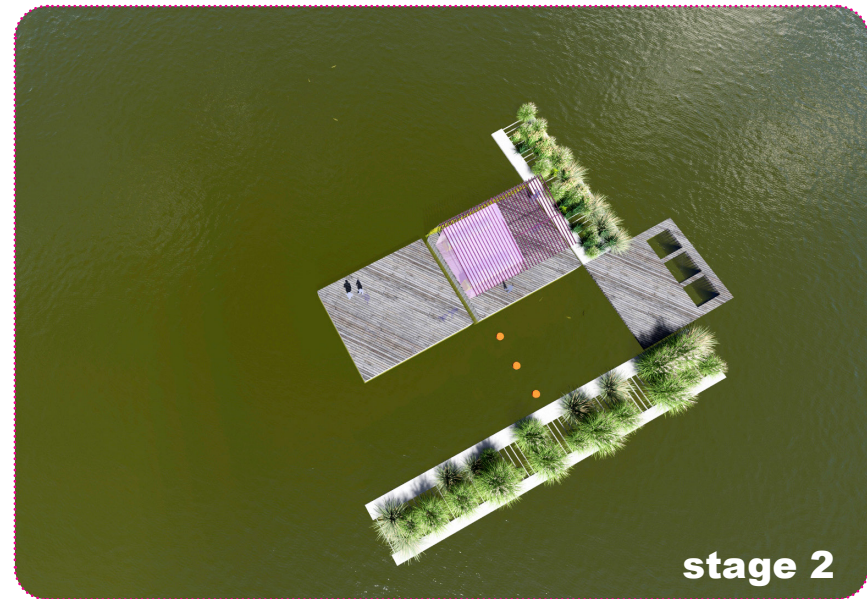
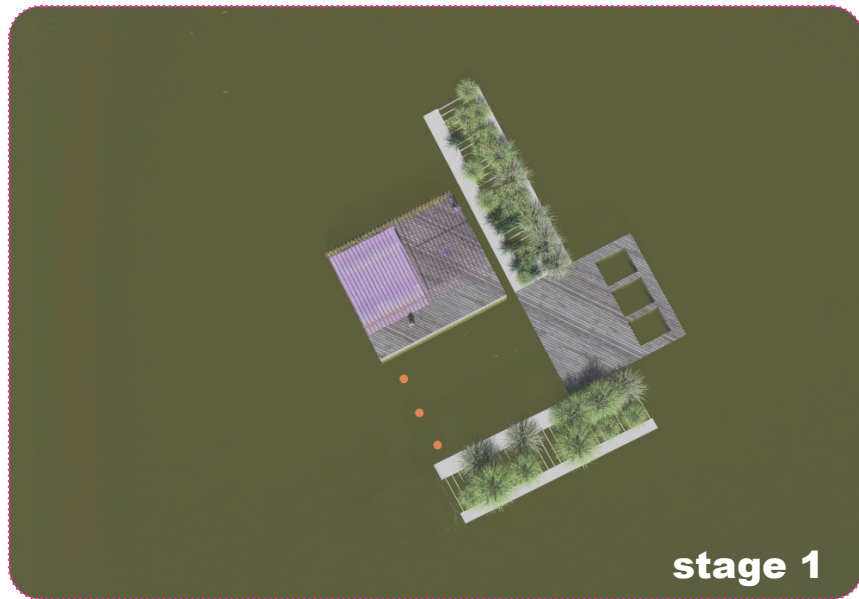
KELP



underwater marine life is equally important, where a vertical system of ocean habitat and ocean farming will be tested, with sugar kelp lines, mussel ropes, and bio-beneficial concrete units.

EXPANSION / MODULARITY

the BlueCity Floating Reef Garden will be a modular system, set to grow over time and expand the bio-habitat



BUILDING OFF BLUEBLOCK FLOATING GARDENS, TESTED IN 2021



Clockwise from upper right: RETI Science Fellow and NOAA investigator Nia Rene; Learn-to-Work intern team from South and West Brooklyn High Schools with Executive Director Tim Gilman-Sevcik and community volunteer Matt Ladd; Instructor Jae Wendell on BlueBlocks Garden pilot

TEAM + SITE

SCOPES

- . architecture / design
- . material exploration
- . mechanical engineering - heating, cooling
- . vessel engineering / buoyancy
- . solar design
- . biophilic concrete
- . plant selection
- . greenhouse interior design
- . education curriculum



thread collective
sustainable architecture + landscape + public space



HDR Foundation

PERSAK & WURMFELD

educational team



GBX™

...on the edge of industry!™

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BLUECITY: VISION OF FLOATING REEF GARDEN EXPANSION

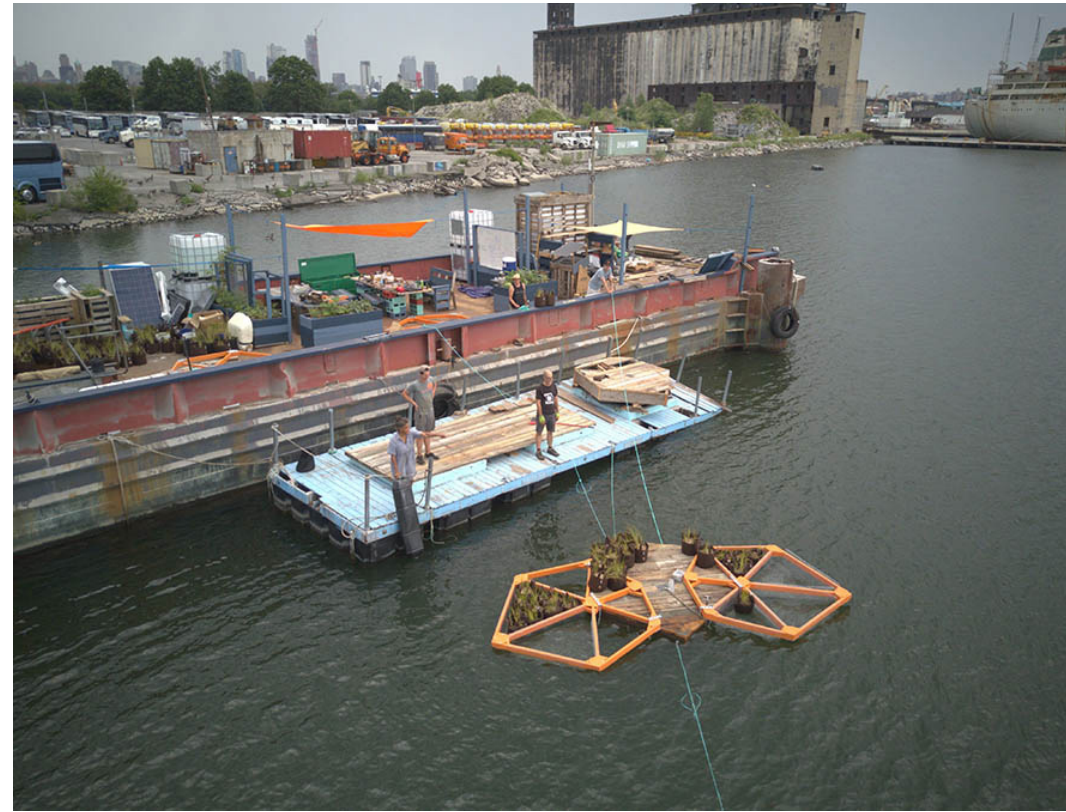
To support and enhance biodiversity, local ecology and economies, the following areas of innovation have been identified:

- + amphibious structures / biophilic concrete
- + new building materials
- + ecosystem services, marine, coastal edge and land-based
- + circular material loops
- + water / habitat
- + marine / aquaculture / food production
- + on-site power generation and waste disposal
- + commercial and industrial spaces for education and employment



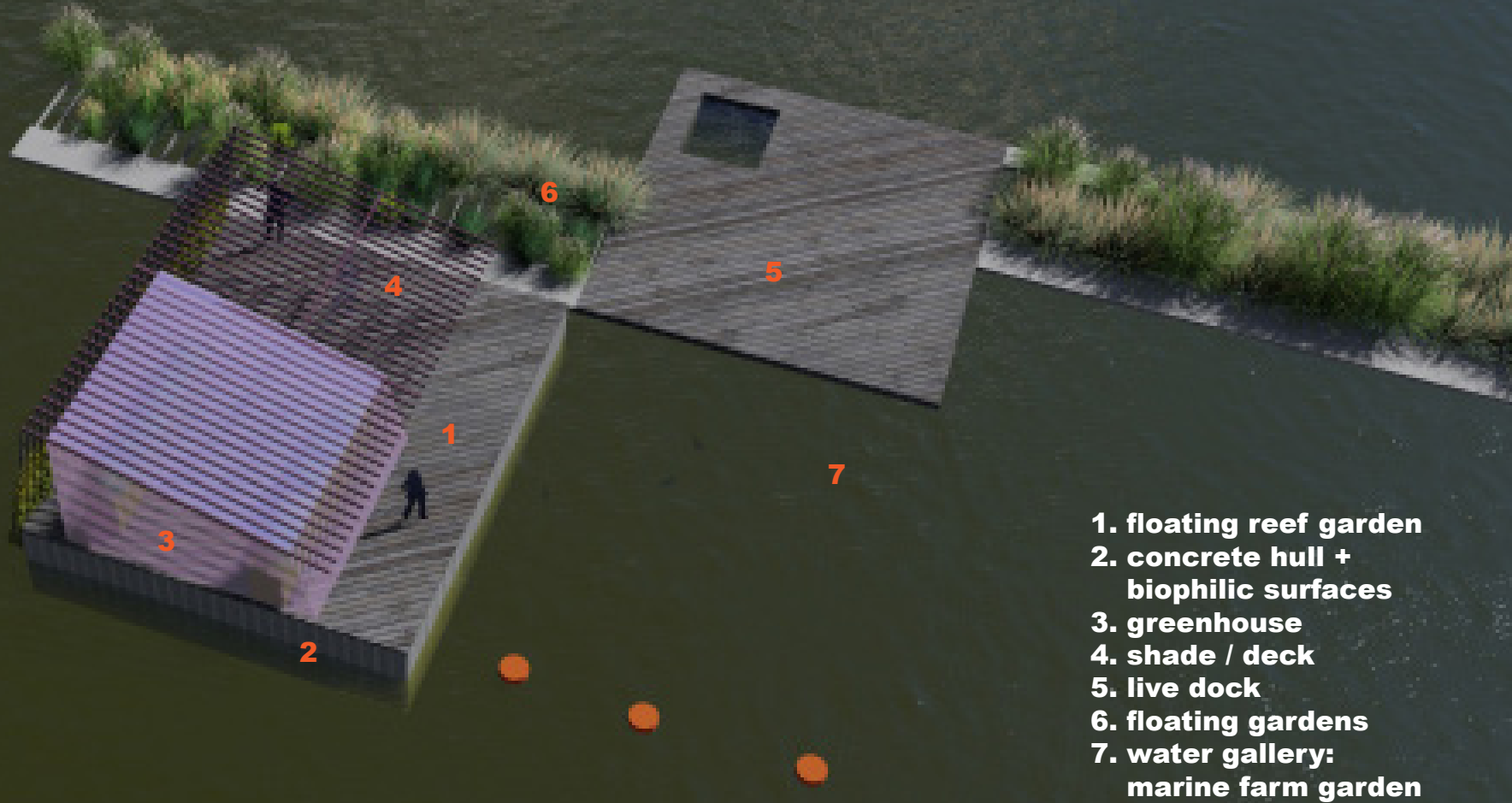
BlueCity DEVELOPMENT
150' wide x 1325' long
4.5 acres of privately-owned water

aims to increase the resilience of the neighborhood, driving a new climate-positive economy which fosters innovation and provides education, training and employment in emerging fields. Situated on GBX, a 40 acre land and water site adjacent to the foot of the Gowanus Canal, Blue City promotes social, environmental and economic justice for local communities.



A) coastal edge condition adjacent and B) BlueBlock Floating Garden / RETI Center Barge, adjacent to the Floating Reef Garden. The project will be circularly connected to this edge, with the plants grown in the greenhouse used to soften the edge in a number of pilot projects, such as the RETI BlueBlocks and RETI Floating Gardens

NEXT STEPS



1. floating reef garden
2. concrete hull + biophilic surfaces
3. greenhouse
4. shade / deck
5. live dock
6. floating gardens
7. water gallery: marine farm garden