Best Practices:

Using Reef Balls on Living Shorelines

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Living Shorelines with Reef Balls

- Why
- Aesthetic
- Research summary
- Planning
- Oyster Breakwater
- Not Just Oysters… EFH …
- Existing Bulkheads
- Homeowners contributions
- Deployment
- Video

Why with a REEF BALL ™

Reef Balls were designed to look like they belongs in the ocean.

The Reef Ball

Complexity of a reef structure

- Surface Area
- Surface Texture
- Curved Design
- Concave openings
- Inert
- Low Center of Gravity
- Wave Attenuation
- Water flows
- Relief
- Stays put

Natural Looking Shoreline

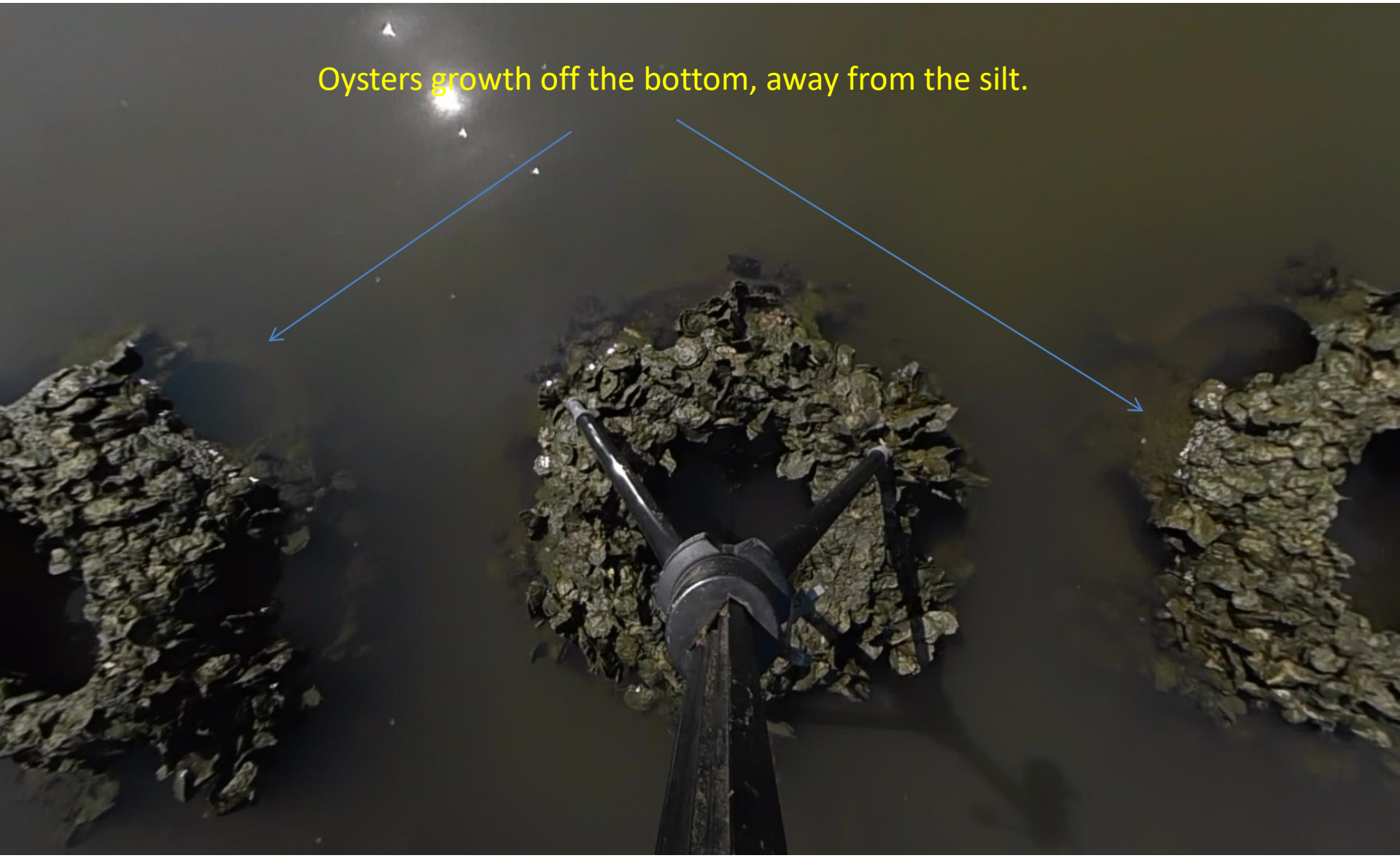
Morris Landing

Aesthetics - Shoreline with Reef Balls (2016) Audubon Bird Isl.

Oyster Research

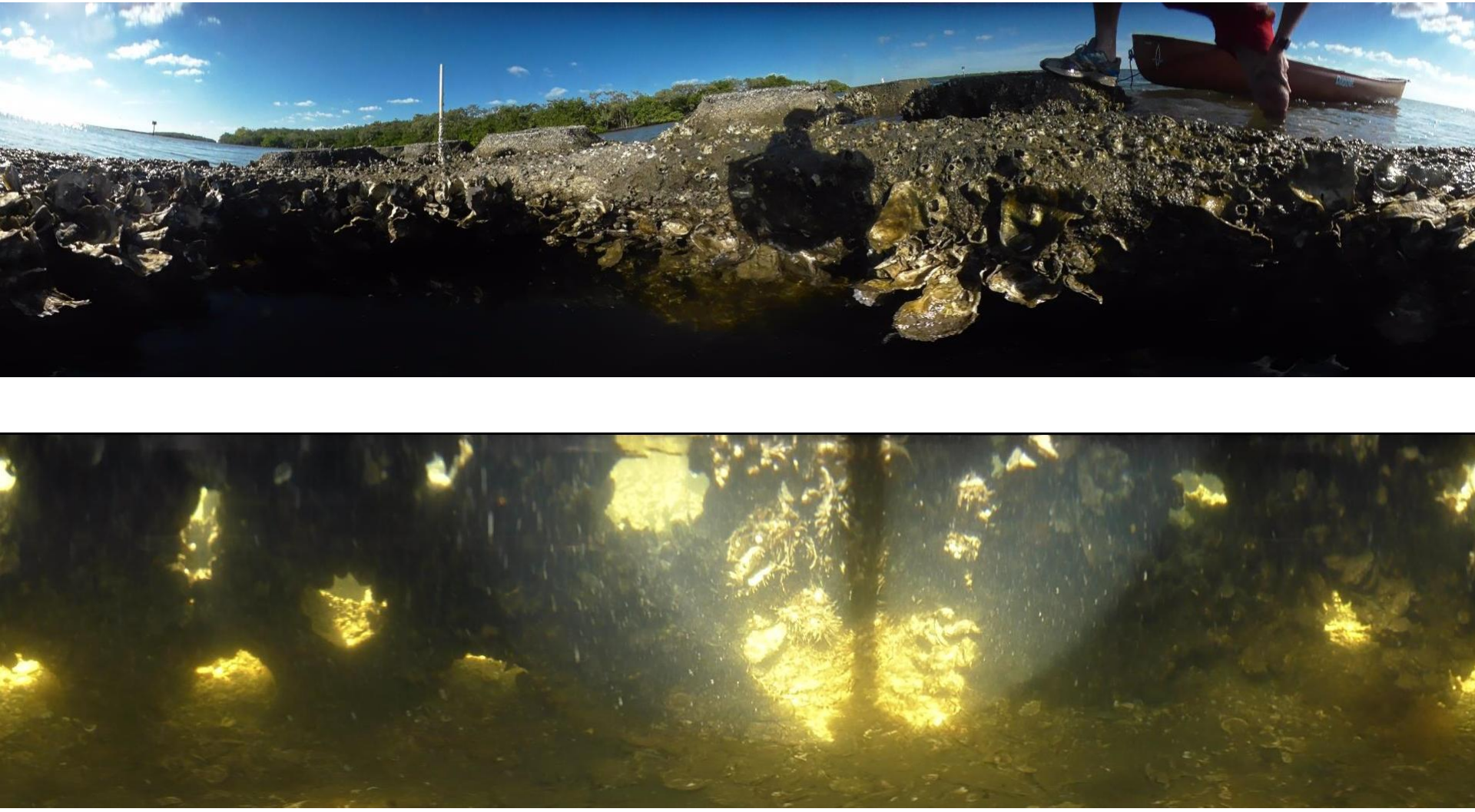
- Comparisons to other structures since 1990 research has show more oysters on Reef Balls…
- Historic Surveys show tremendous success on Reef Balls

Relief Morris Landing, NC (2016)

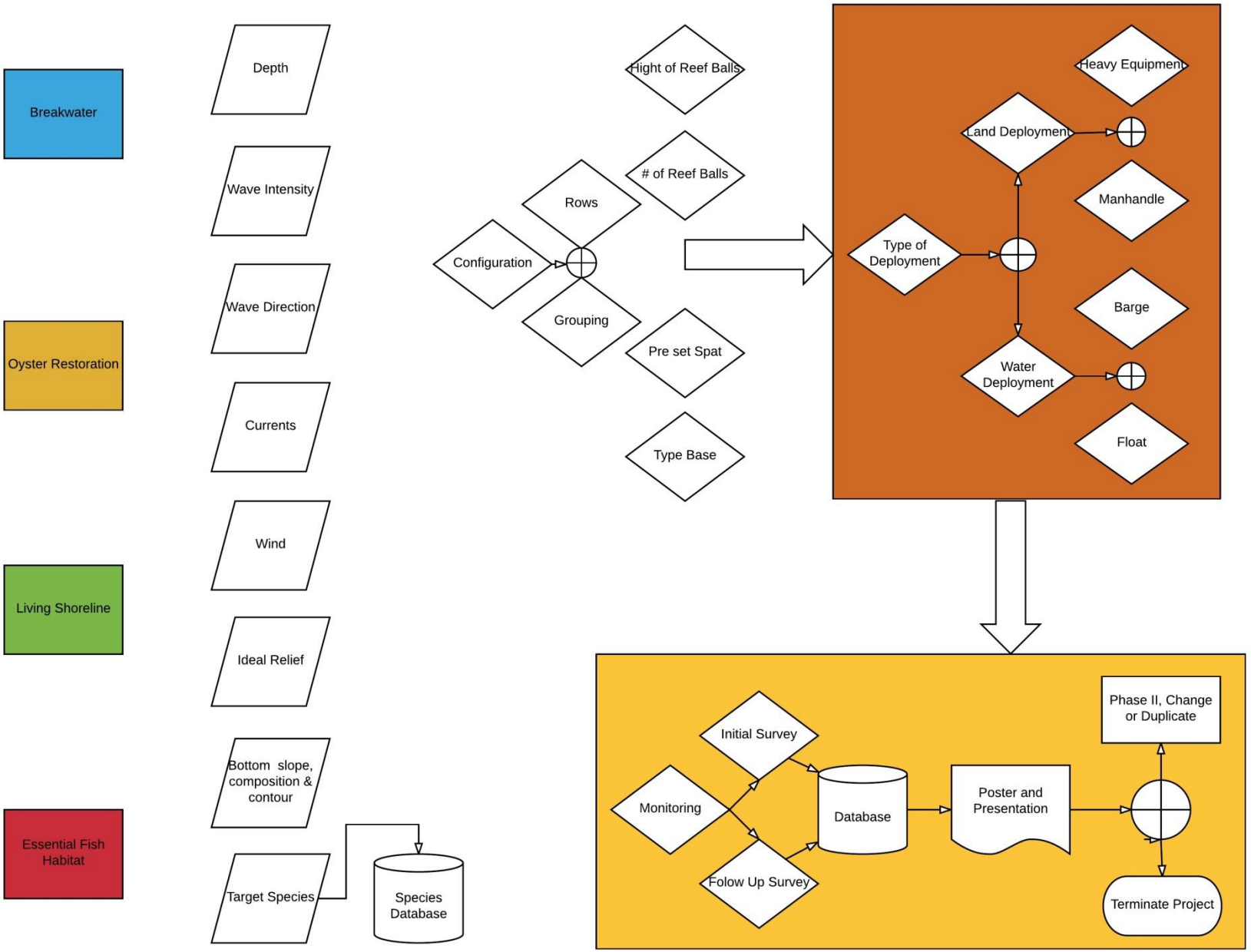


Water is clear, prior to ICW boat traffic. Add Breakwater closer to the source of waves.

Bird Island Phase I (year 4) 2016

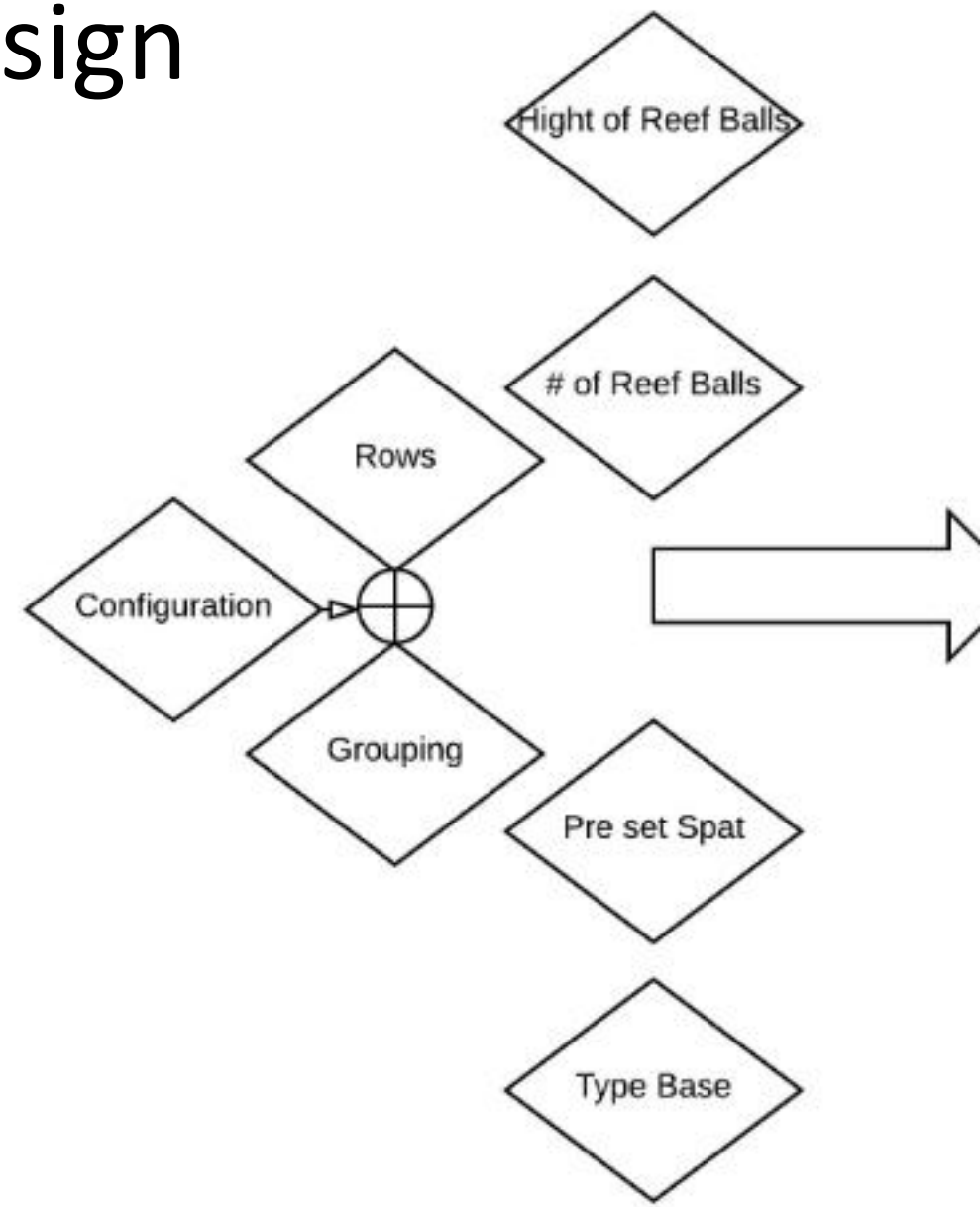


Stick with the Flow



Design

- Concave = ends further from shoreline
- Convex = center further from shoreline
- Straight
- Groupings arcs, ovals, staggered
- Micro habitat 1 Reef Ball to multiples
- Depth 1 – 5 rows
- Sizes vary, highest in center or toward shore.

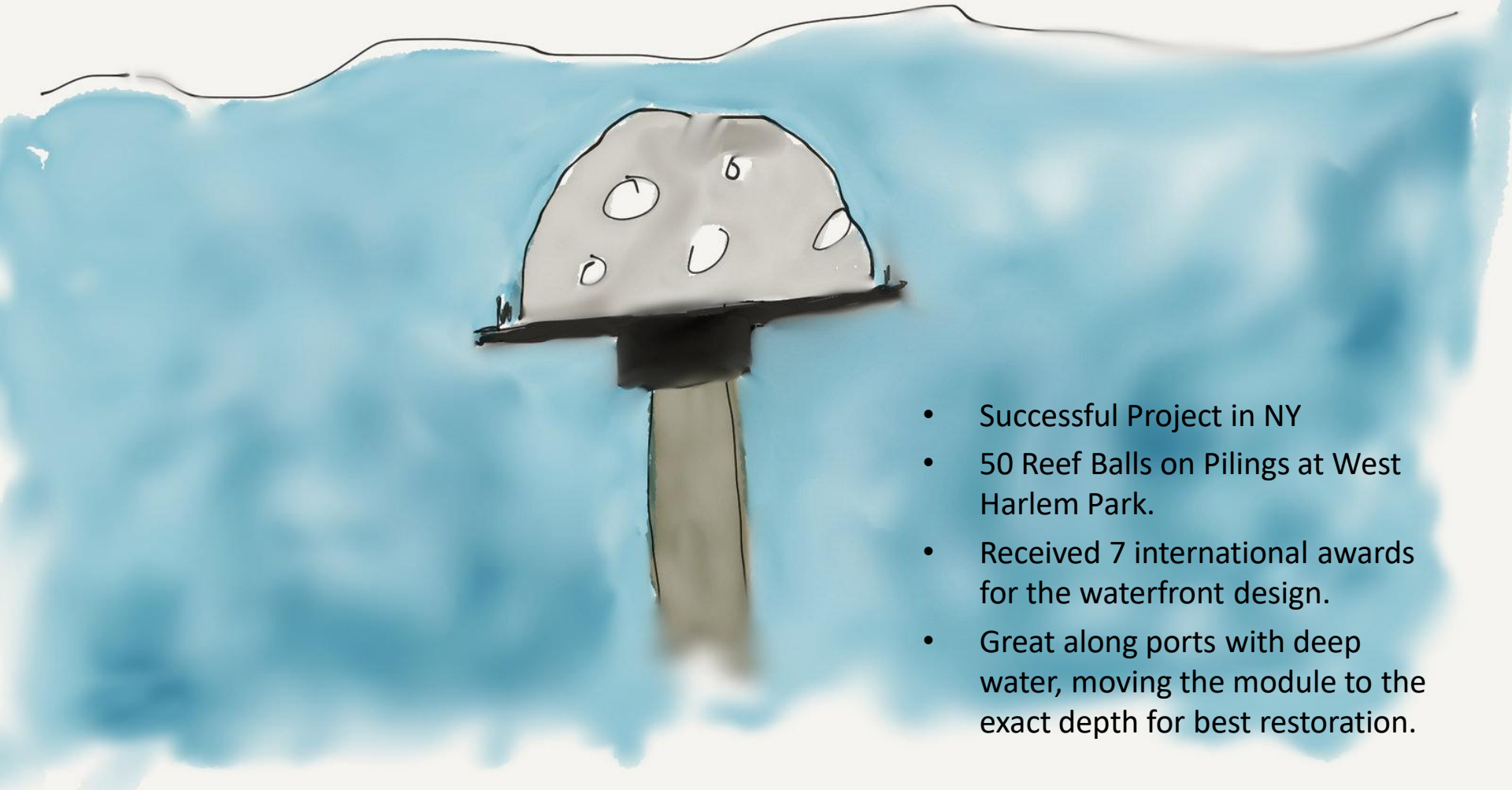


Ideal Oyster Dome

- Add loose shell with spat to the inside and around the Reef Balls
- Place Reef Balls in a tank till they collect spat , then deploy.
- Jamaica Bay New York, excited about natural spat year two.

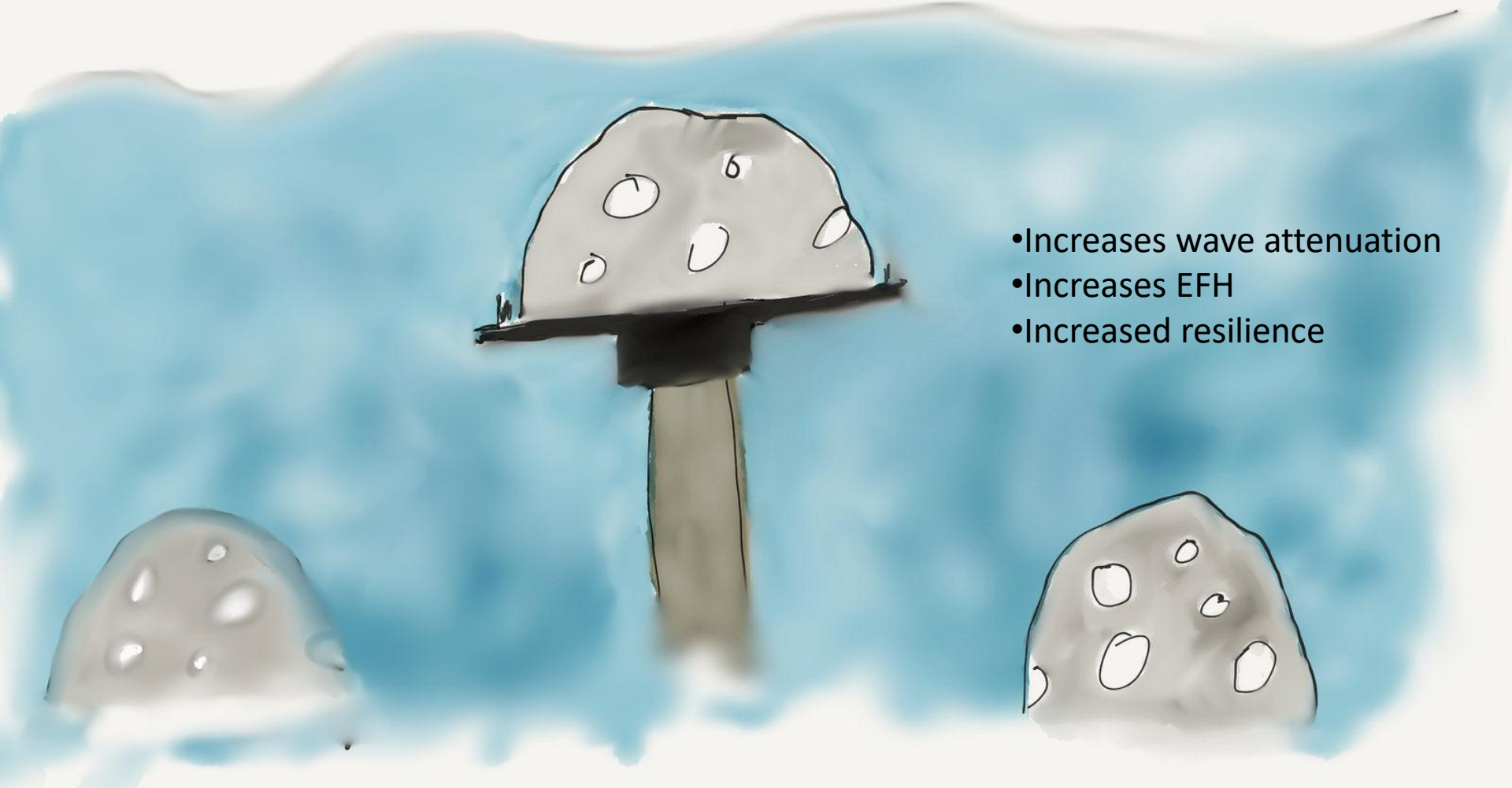

West Harlem Pier Park
Kayaking around the Reef Balls can be a blast!

Reef Ball on Piling



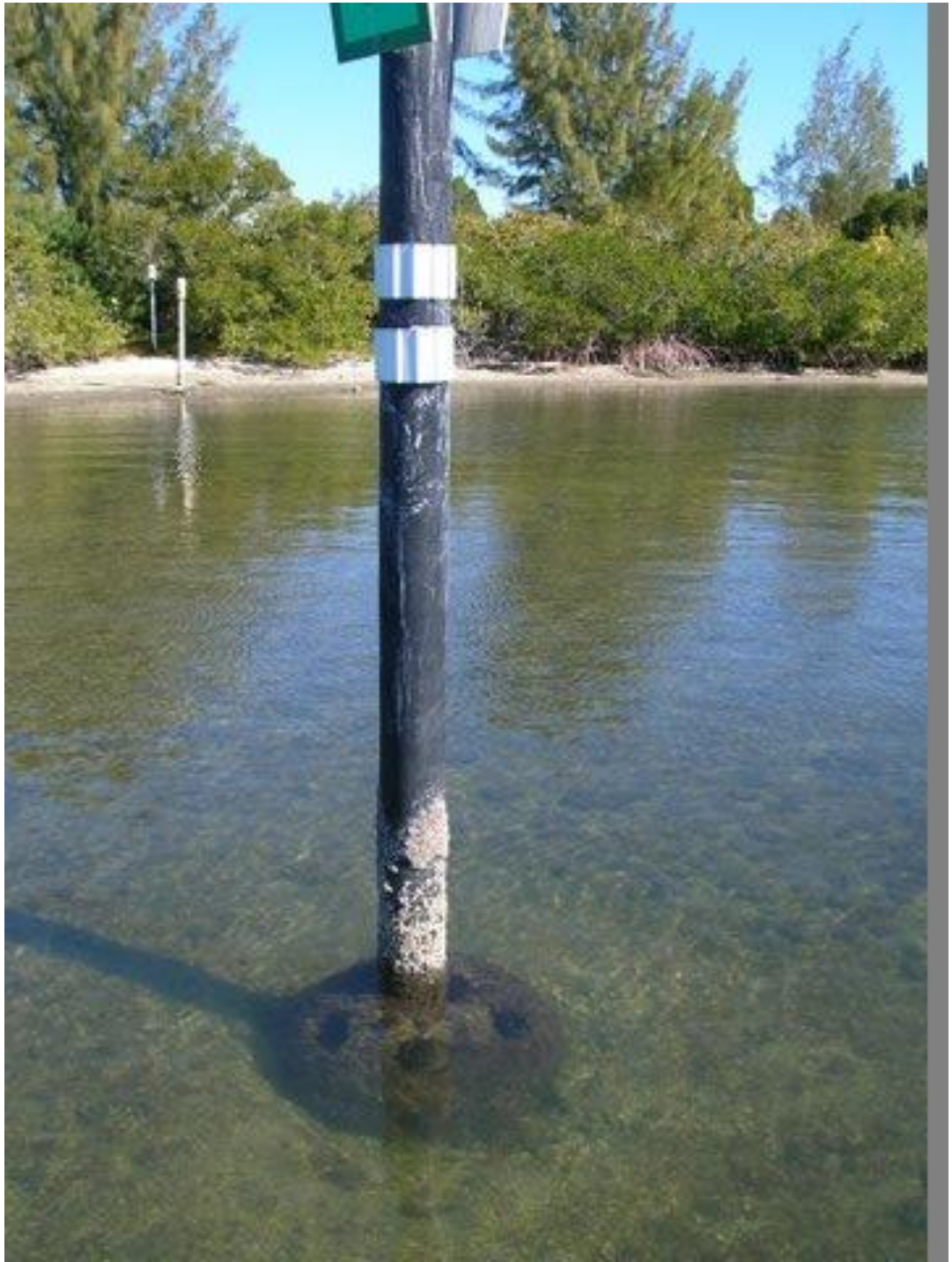
- Successful Project in NY
- 50 Reef Balls on Pilings at West Harlem Park.
- Received 7 international awards for the waterfront design.
- Great along ports with deep water, moving the module to the exact depth for best restoration.

Reef Balls on and around Pilings



- Increases wave attenuation
- Increases EFH
- Increased resilience

Piling Micro-Habitat

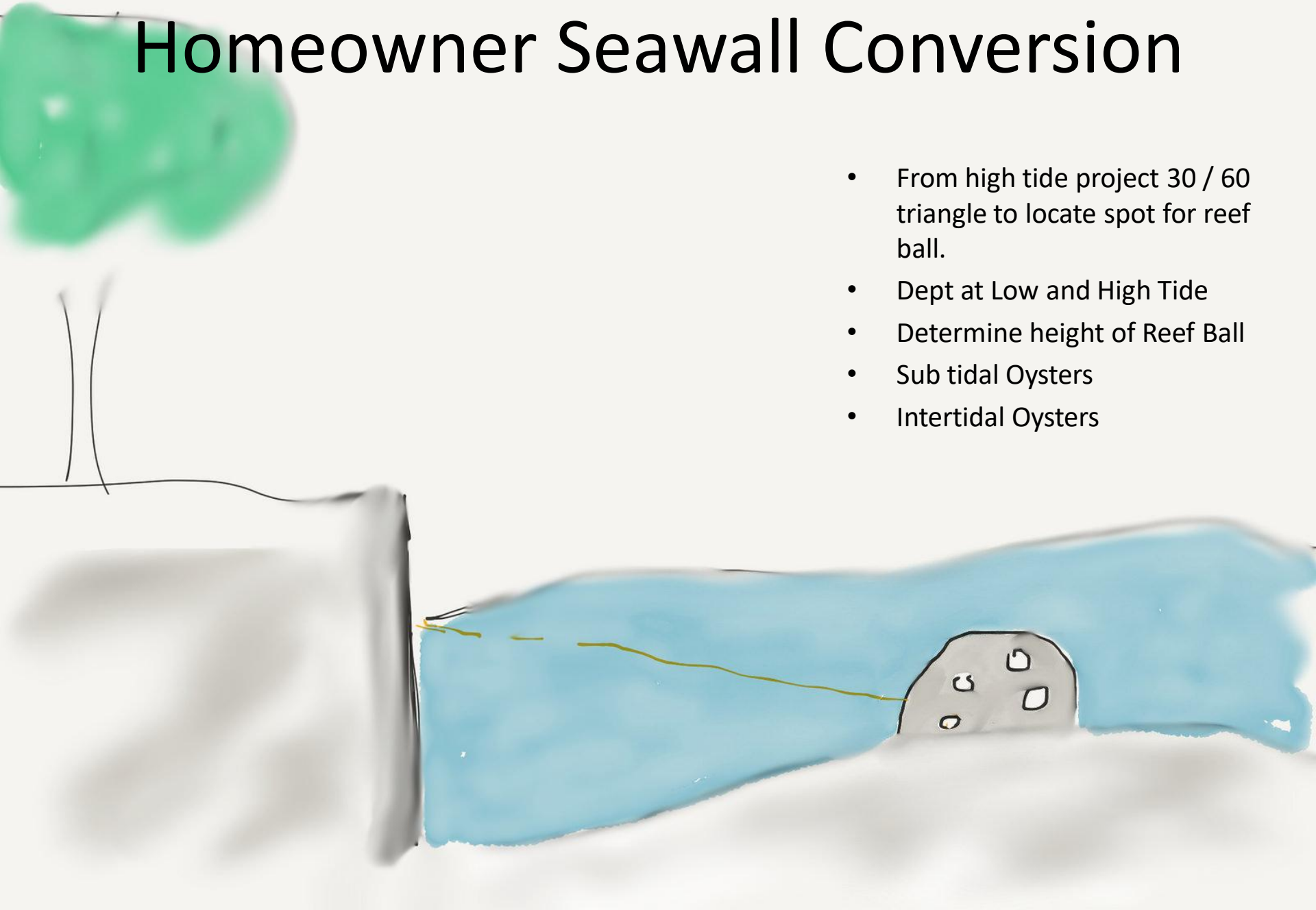


Bayshore Blvd. Tampa, FL (2016 survey)


Bayshore Blvd. Tampa, FL
Low Tide

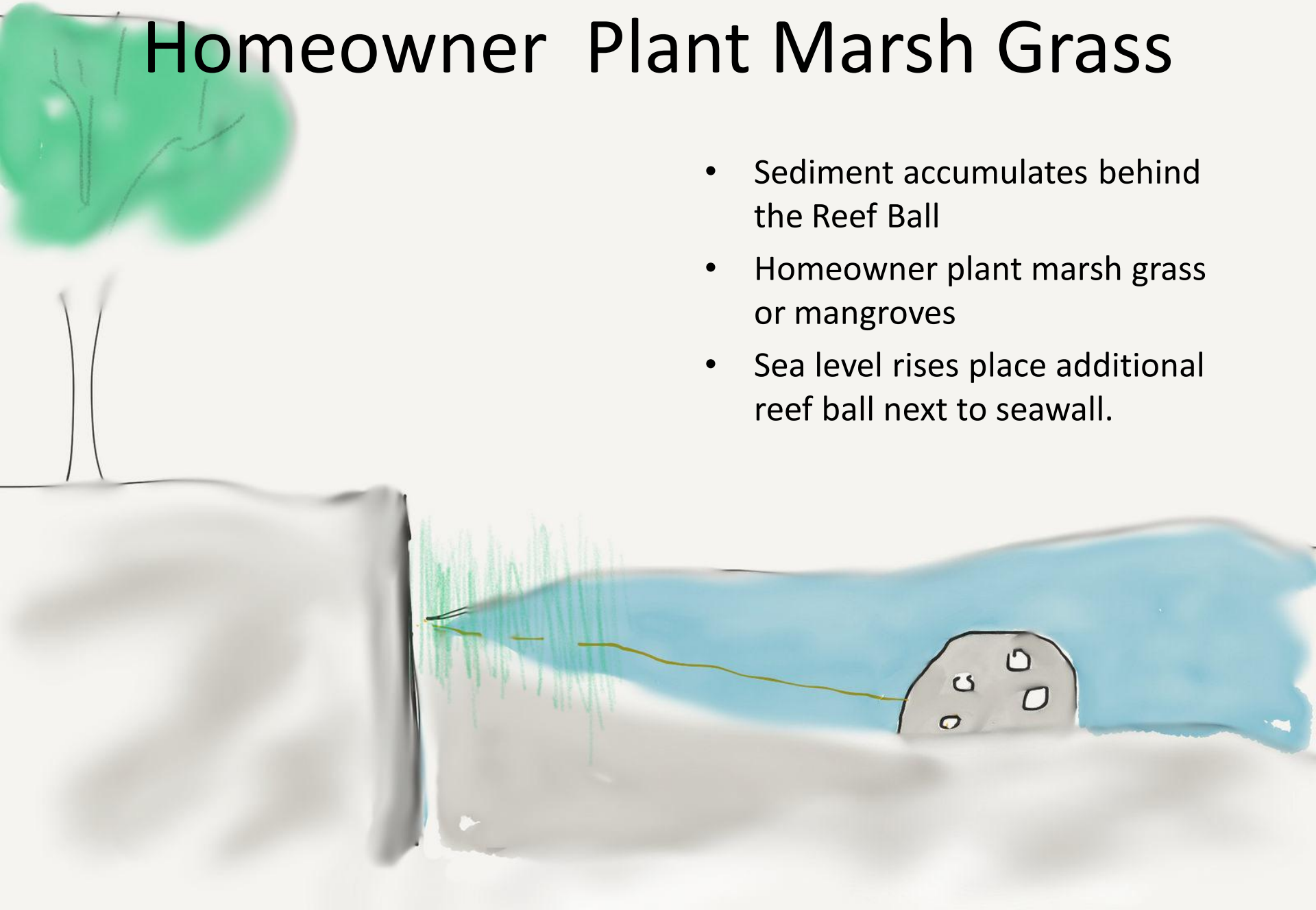
Homeowner Seawall Conversion

- From high tide project 30 / 60 triangle to locate spot for reef ball.
- Dept at Low and High Tide
- Determine height of Reef Ball
- Sub tidal Oysters
- Intertidal Oysters



Homeowner Plant Marsh Grass

- Sediment accumulates behind the Reef Ball
- Homeowner plant marsh grass or mangroves
- Sea level rises place additional reef ball next to seawall.




Eco Rap Palmetto, FL (2016)

Deployment Drop and Roll

Deployment two man carry.

Deployment with Flotation Ball

Fantasy Isl. Tampa Bay (2016)

Tampa Baywatch Fantasy Island 2016

Bird Island / Blue Crab

ASK LARRY

- VP Reef Ball Foundation
- President of Reef Innovations
- 0ver, 23 years building and deploying in all kinds of ecosystems around the world.