



# *-Round Hill Reef Garden-*

*A bold "House-Reef" improvement initiative  
by the Round Hill Hotel & Villas, Jamaica*



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**seascape**  
C A R I B B E A N  
coastal ecosystem services



Caribbean context, as restoration baseline:

Prior to ~1980,  
Caribbean reefscapes were dominated by the bright golden branching corals of the  
elkhorn-staghorn complex, genus *Acropora*.





*Broadly speaking...*

- the Caribbean has only ~50 species of hard coral
- (Pre)Historically >50% of the reef was covered by at least one of two related endemic species:

1. Course, irregular frond-branching ***Elkhorn coral*** in shallow, wave-exposed and cleaner conditions, and
2. Fine, cylindrically branching ***Staghorn coral*** in more wave-protected or turbid conditions.

**Staghorn** branch thicket provided abundant nursery habitat, while

**Elkhorn's** structural lattice held and attenuated waves, and accumulated sediments to produce/protect back-reef habitats including seagrasses, beaches,... and staghorn thickets.





*... but define “dominated”?*

- Filled the water-column with ticketing branches towards & to the surface, from as deep as 3m.
- Elkhorn’s colloquial name is “*Pond-Tile*” as children walked about on the pretty fronds.
- **Golden** is the natural background reefscape hue/colour,  
*as reflected from the clouds*

This reef-crest condition  
is/was endemic to the  
NW Atlantic





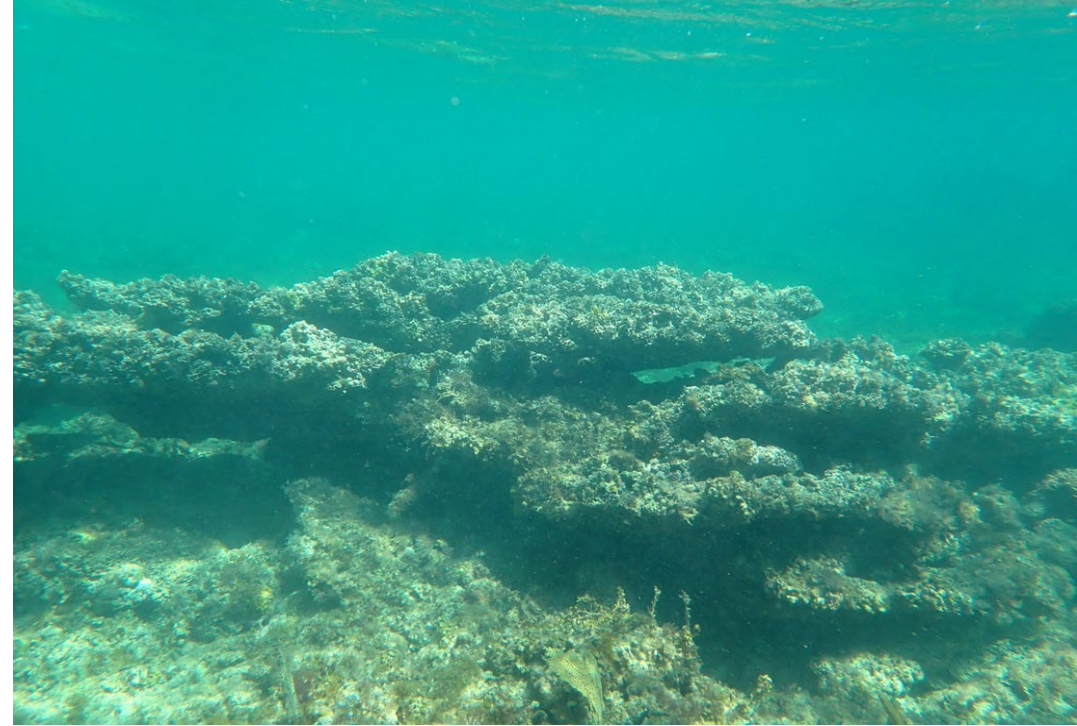


FRAGMENTS  
of HOPE



# 1980-1983...

- Regional disease event killed 90~97% of these corals,
    - Rapid change in reefscape colour
    - Rapid change in nursery habitat quality
  - Branches eroded and fell in storms:
    - Rapid increase in depth
    - Rapid reduction in rugosity
    - Rapid reduction in nursery productivity
- toward
- Coastal erosion, beach area/sand loss, seagrass loss to beach, beach quality reduction
  - fishery degradation, fisher-community poverty







Jamaica's north coast with its still, clean waters, "mixer" winter-norther storms and relatively few hurricanes was a particular example.

Reading Reef to the East of Round Hill was reported to be one of Jacques Cousteau's favourite spots on earth in 1972



... and his greatest heartbreak on his return in the late 1980s.

**Round Hill's long-time, multi-generational visitors & owners knew the house-reef prior to 1980, describing it as "*more colourful*" in support of a restoration project.**



**In 2016, Round Hill Resort and Villas** in Hopewell, Hanover, Jamaica contracted **Seascape Caribbean** to design, permit and develop a high-coral guest-recreational snorkeling area of the hotel's "House Reef" including but not limited to:

- **>4000 cultured hard and soft corals** nursery-reared, planted & maintained on-reef within the intended snorkeling/reef garden area;
- **~3.5ha *de facto* no-fishing area** under Jamaica's Beach Control Act, buoy-demarcated with only soft interpretive & community enforcement only;
- Training and **employment of local spear-fishers** to project & post-project roles.

Seascape Caribbean is a technical specialist contractor in the culture and enhancement of corals and coral reef ecosystem services under landscaping & soft-engineering themes. Managing Director Dr. Andrew Ross has been nursery culturing Jamaican corals/reefs since 2004, receiving his Ph.D. in 2013 and three US patents from 2017 to 2024.















- **Jan 2017:** 200 locally-sourced “nubbin” propagules of staghorn coral set to BDL (buoyant drop-line line) coral nursery immediately offshore of the resort. Further BDL nurseries followed through 2017 through 2019.
- First nursery corals were planted that summer, commencing maintenance, particularly picking of coral-eating worms & snails.
- High-temperature (bleaching) event of late 2017 told us what corals were likely to perish with temperature increases, and which would persist, IE: which to continue investing in. Surveys of the House Reef and surrounding corals were performed through the heat/bleaching event to find these stronger corals. *Nimble*.





Mr. Weston Bingham, a Hopewell spear-fisher, was employed to the project in **2018**, initially to collect unsightly green hair-algae from the beach-facing reef crest. Mr. Bingham also performed direct coral maintenance.





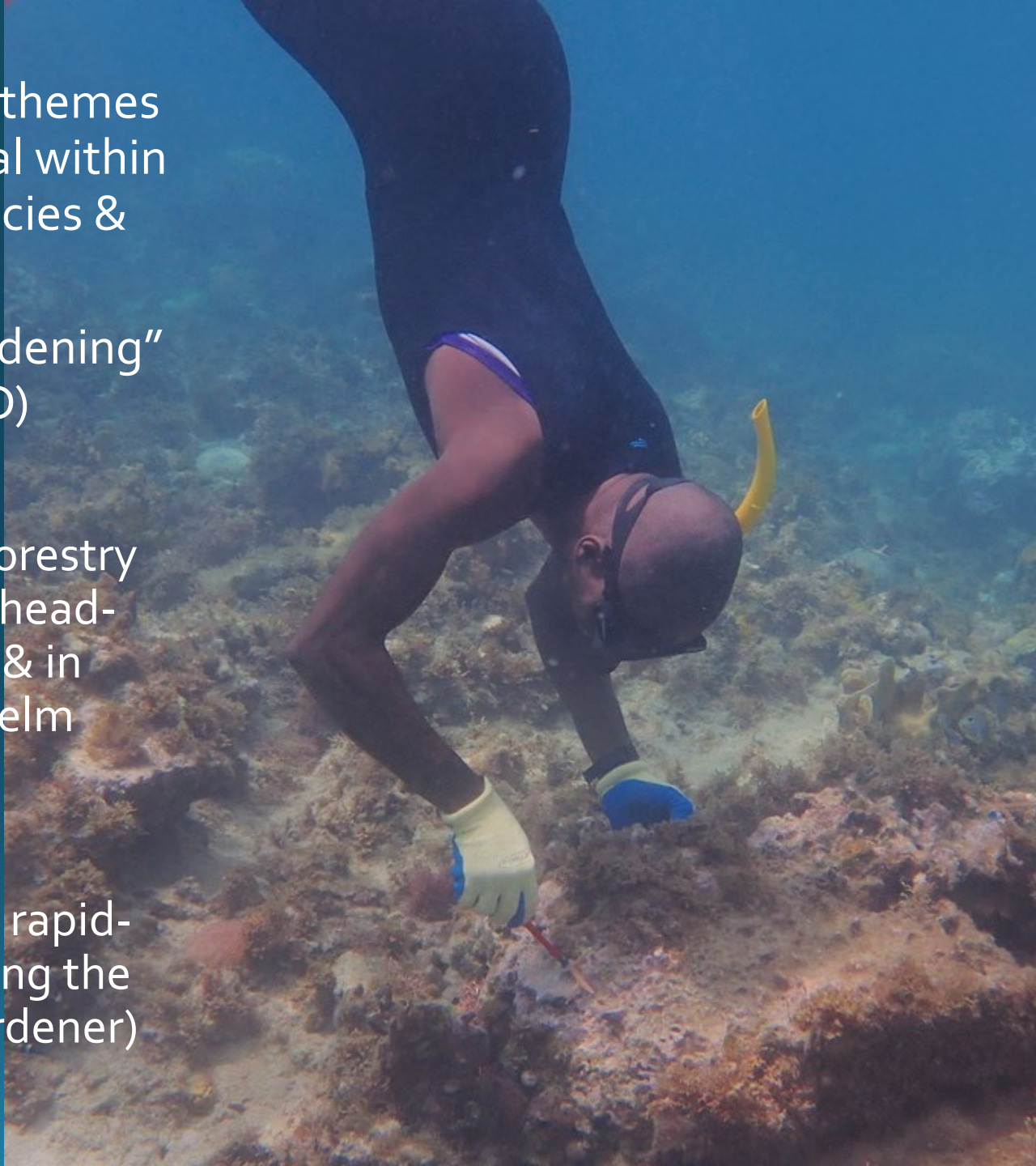
By late 2017: productivity under horticultural themes may be insufficient to achieve the project goal within its timeline, particularly through multiple species & morphologies.

Time was also being gobbled-up in “Reef Gardening” for predators, algae and diseases (incl. SCTLD)

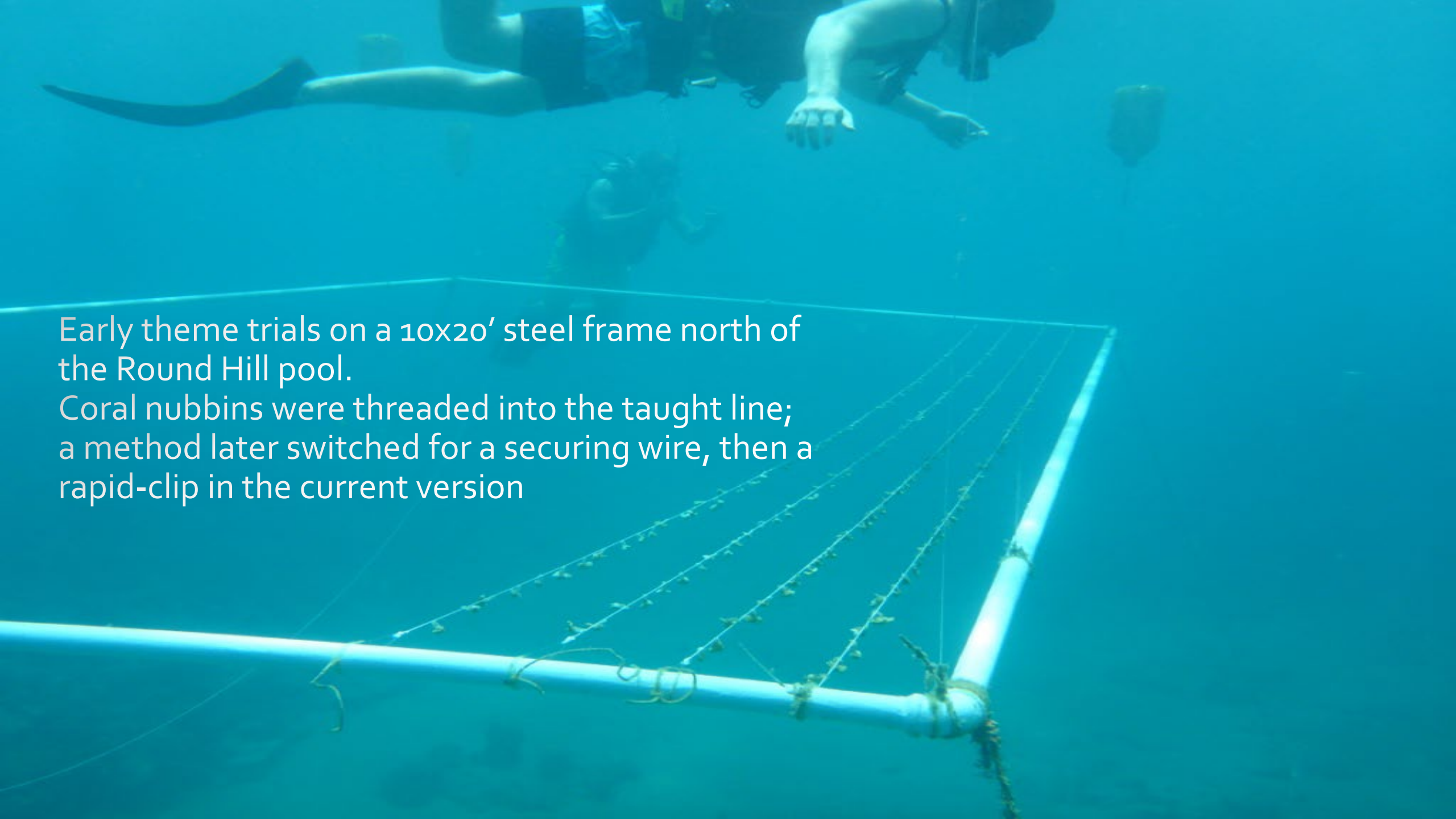
So...

For the first time we applied *silvicultural* agro-forestry themes to coral, wherein the propagule is only head-started on the nursery, planted relatively small & in numbers to grown “where intended” & overwhelm predation.

In this we invented the SRM & HRM devices for rapid-planting of nursery coral (2018 onwards) reducing the need for SCUBA and furthering fisher (Reef Gardener) integration.



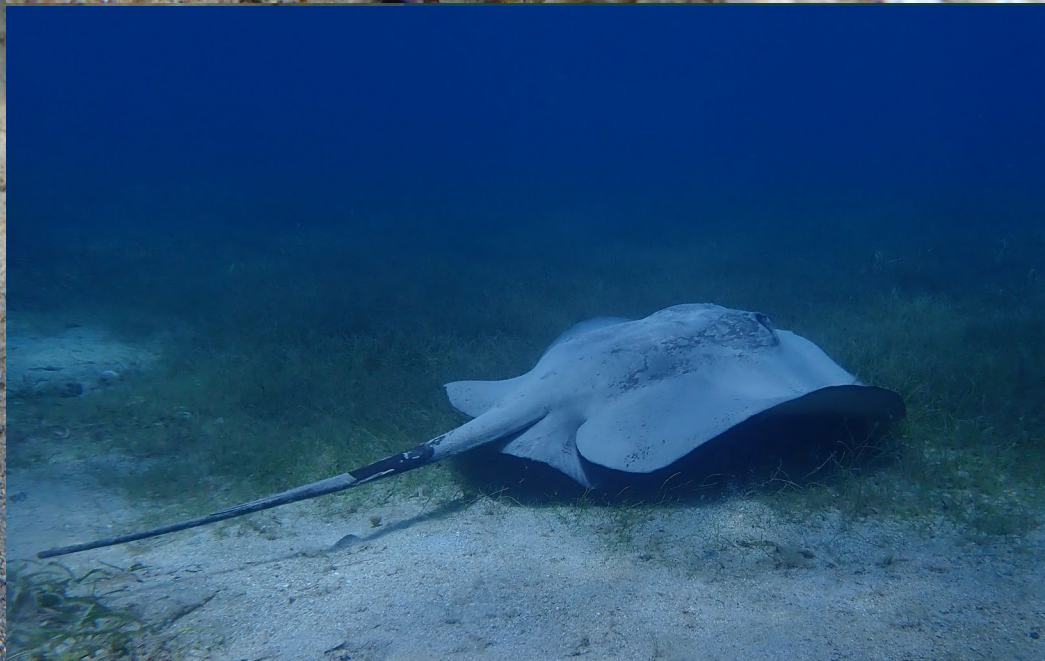


An underwater photograph showing a diver in the upper center, wearing a blue swimsuit and a black BCD, swimming horizontally. Below the diver is a large, rectangular frame made of white PVC pipes. The frame is oriented horizontally, with one long side in the foreground and the other receding into the background. Several thin, yellowish lines are stretched across the frame, and small, light-colored objects (likely coral nubbins) are attached to these lines. The water is a clear, deep blue, and the lighting is bright, suggesting a shallow depth. The diver's legs are extended back, and their arms are slightly out to the sides. The frame structure appears to be part of a scientific experiment or a large-scale art installation.

Early theme trials on a 10x20' steel frame north of  
the Round Hill pool.  
Coral nubbins were threaded into the taught line;  
a method later switched for a securing wire, then a  
rapid-clip in the current version

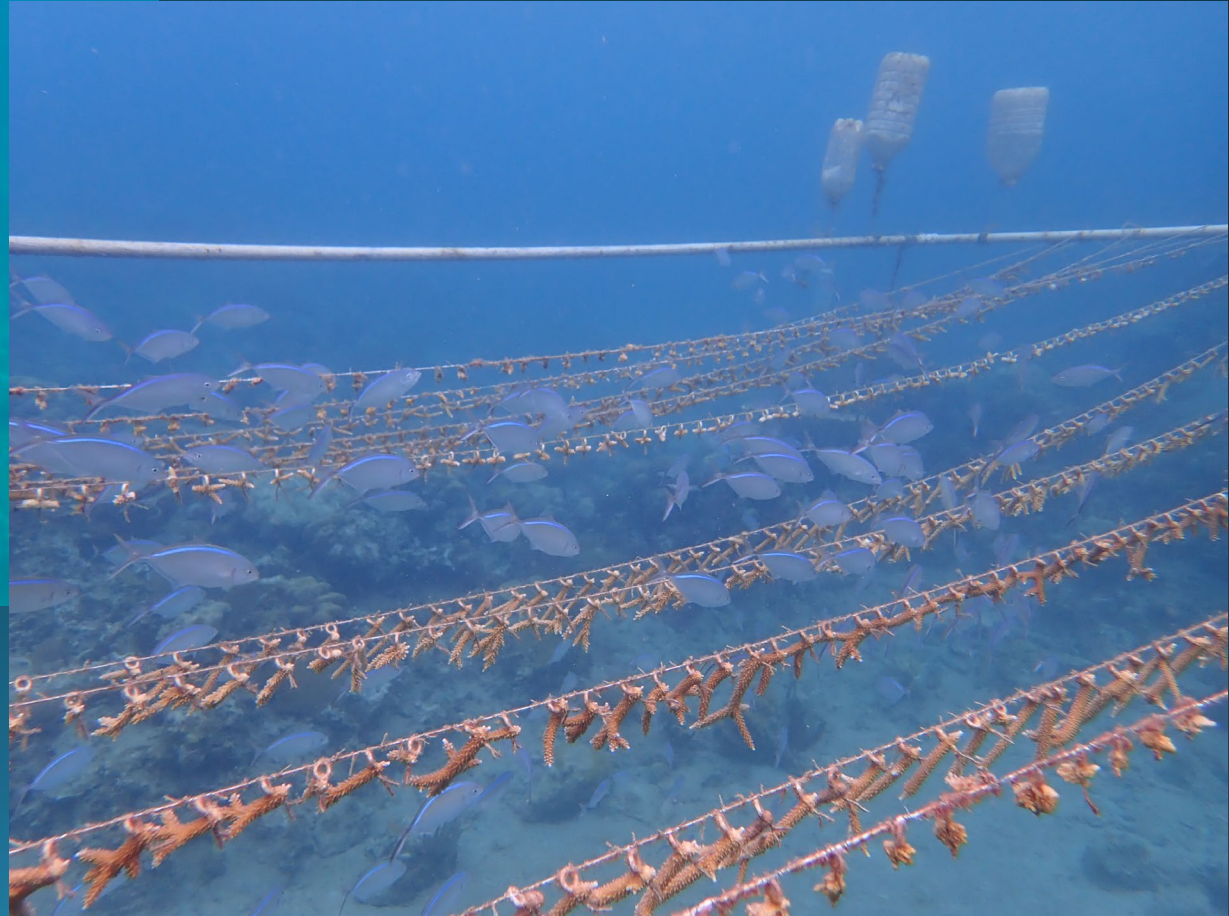


Work-watchers...

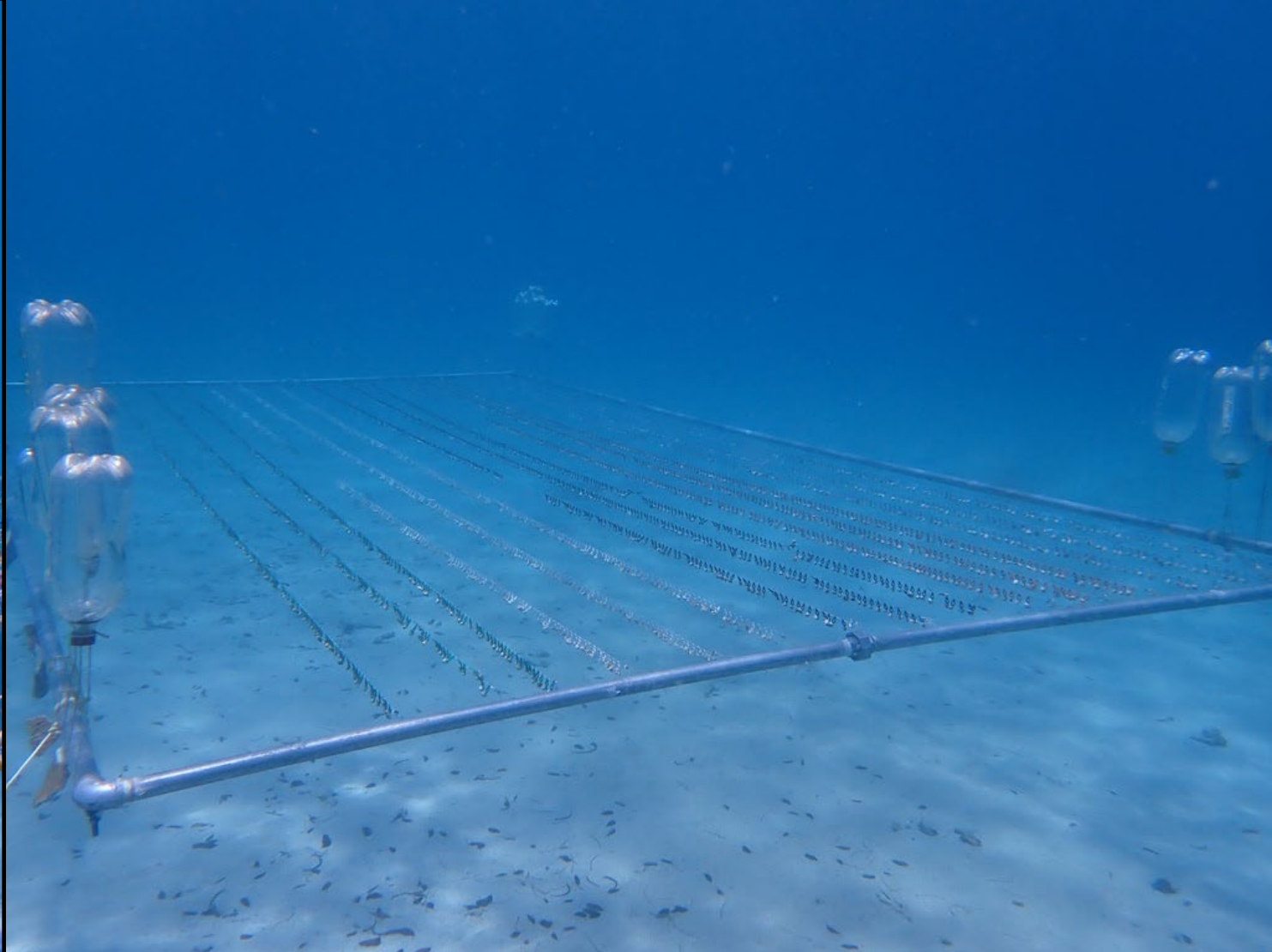
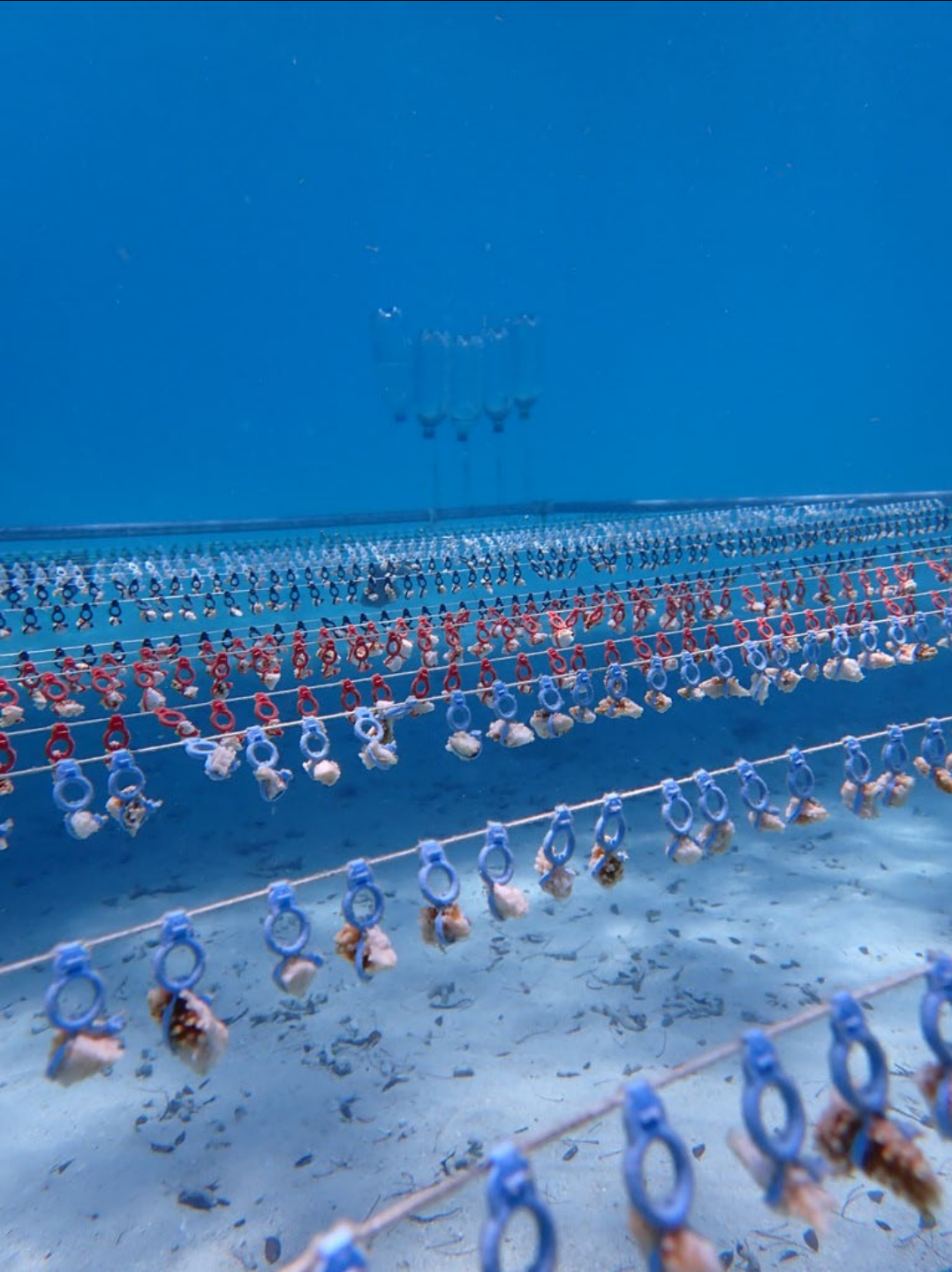




Further adaptations, trials & nursery throughputs:  
up-to 3000 corals at a time.

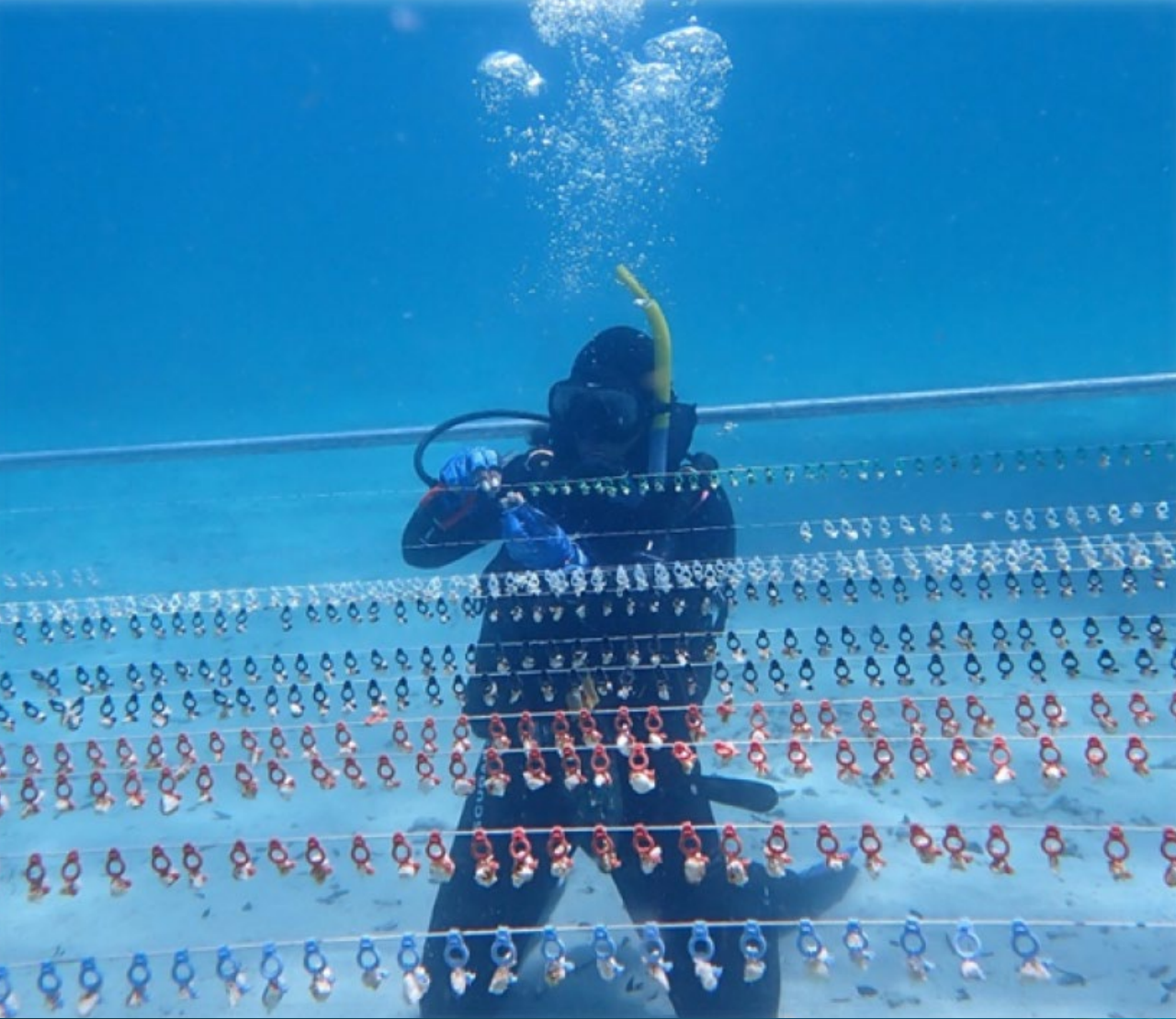






**Modern SRM system at Barbados (UWI Cave Hill)**  
*300 nubbins in 5x lineages of *Acropora palmata**  
No losses in Hurricane Beryl (relocated to 10m sand-depth)







April 2018



Aug 2019

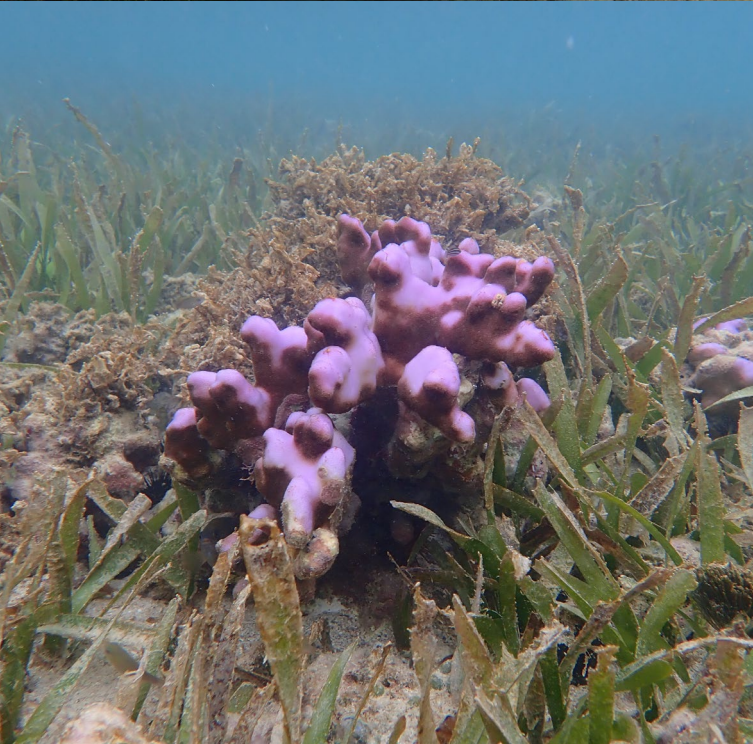
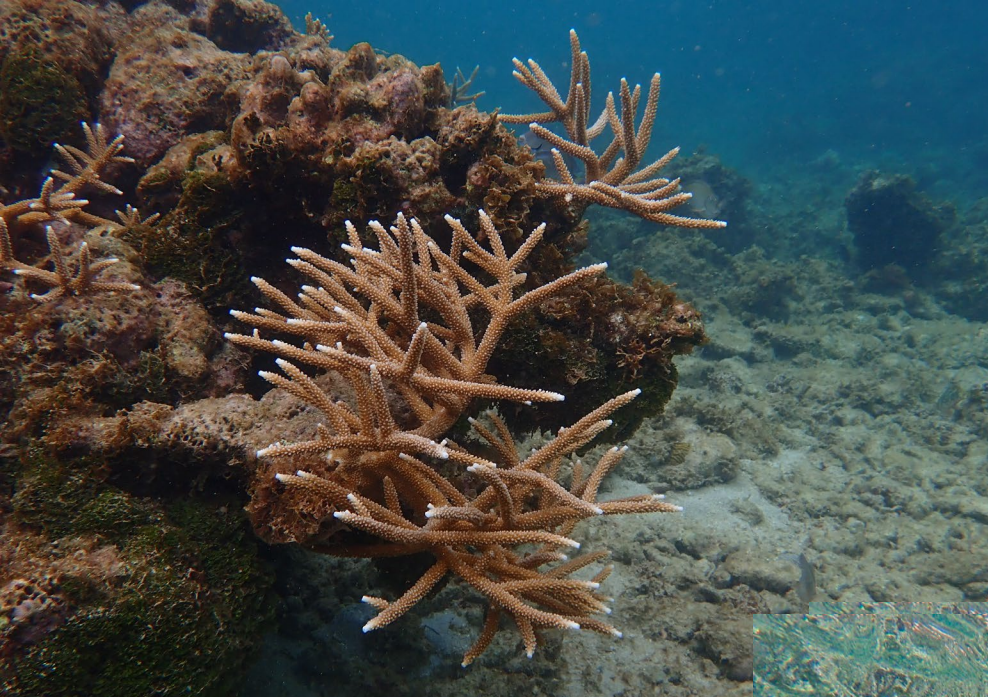


Aug 2020





Multiple species, colours, shapes & sizes  
according to ecological & aesthetic need







2022

Thank you



seascape  
CARIBBEAN  
coastal ecosystem services