

An underwater photograph showing a sea turtle swimming over a sandy bottom with patches of seagrass. The water is clear, and the sunlight filters through from above, creating a bright, dappled effect on the seabed.

HARD BOTTOM HABITATS: AN OVERVIEW OF MAPPING AND MONITORING NEEDS ON EPIBENTHIC COMMUNITIES IN TAMPA BAY, FLORIDA

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Tampa Bay Aquatic Buffer Preserves**

Benthic Communities in Tampa Bay

- Limestone Outcroppings
- Oyster Bars
- Mangrove Prop Roots
- Natural Bay Bottom
- Artificial Reefs
- Bridges
- Rip-Rap
- Pilings
- Gulfstream Pipeline



Artificial Reefs

- Built in Tampa Bay since 1959
- Manatee County / 6 Offshore – 7 Nearshore
- Pinellas County / 12 Offshore
- EPC of Hillsborough Co. / 8 Nearshore
- FWC Database on Materials Placement



Oyster Reefs

- Oyster Shell - 100-150 tons
- Seawall Reefs / Reef Balls - Approx. 650
- Habitat Restoration
 - Cockroach Bay Shell Pits
 - Williams Park Pier
 - Alafia River

Bridges & Other Objects

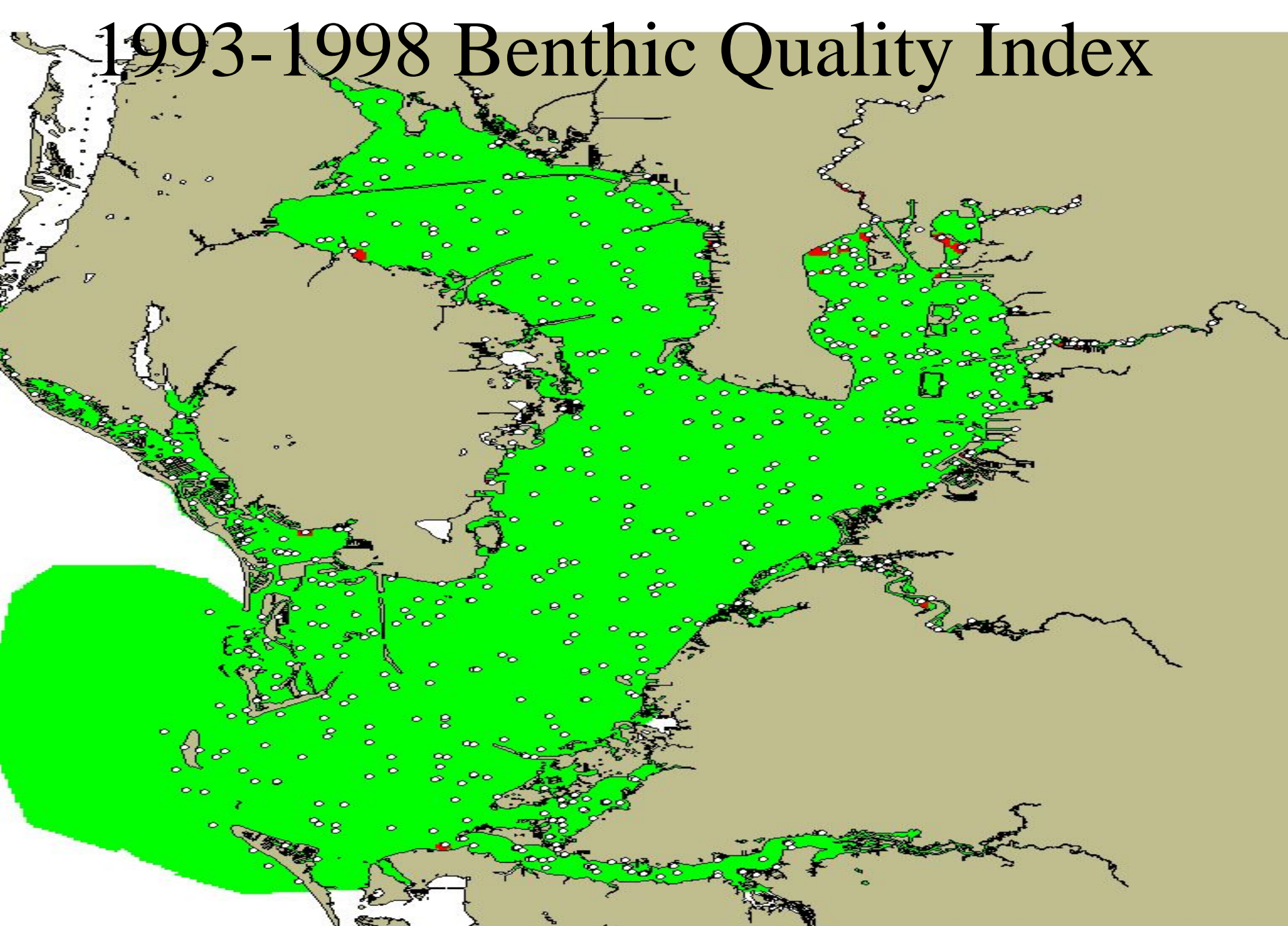
- 11 Major Spans over Tampa Bay
- 30+ Small to Moderate Size Spans
- Tens of Thousands of Pilings
- Millions of Sq. Ft. in Surface Area
- Aids to Navigation / Buoys, Daymarks, Range Towers
- Seawalls and Rip-rap



Typical Tampa Bay Substrate

- Sand
 - Silty Sand
 - Shelly Sand
 - Mucky Sand
 - Sandy Muck...
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- Often Overlooked or Undervalued Habitat

1993-1998 Benthic Quality Index





Water Quality Monitoring



Sediment Quality Monitoring



**Hard Bottom
Monitoring**

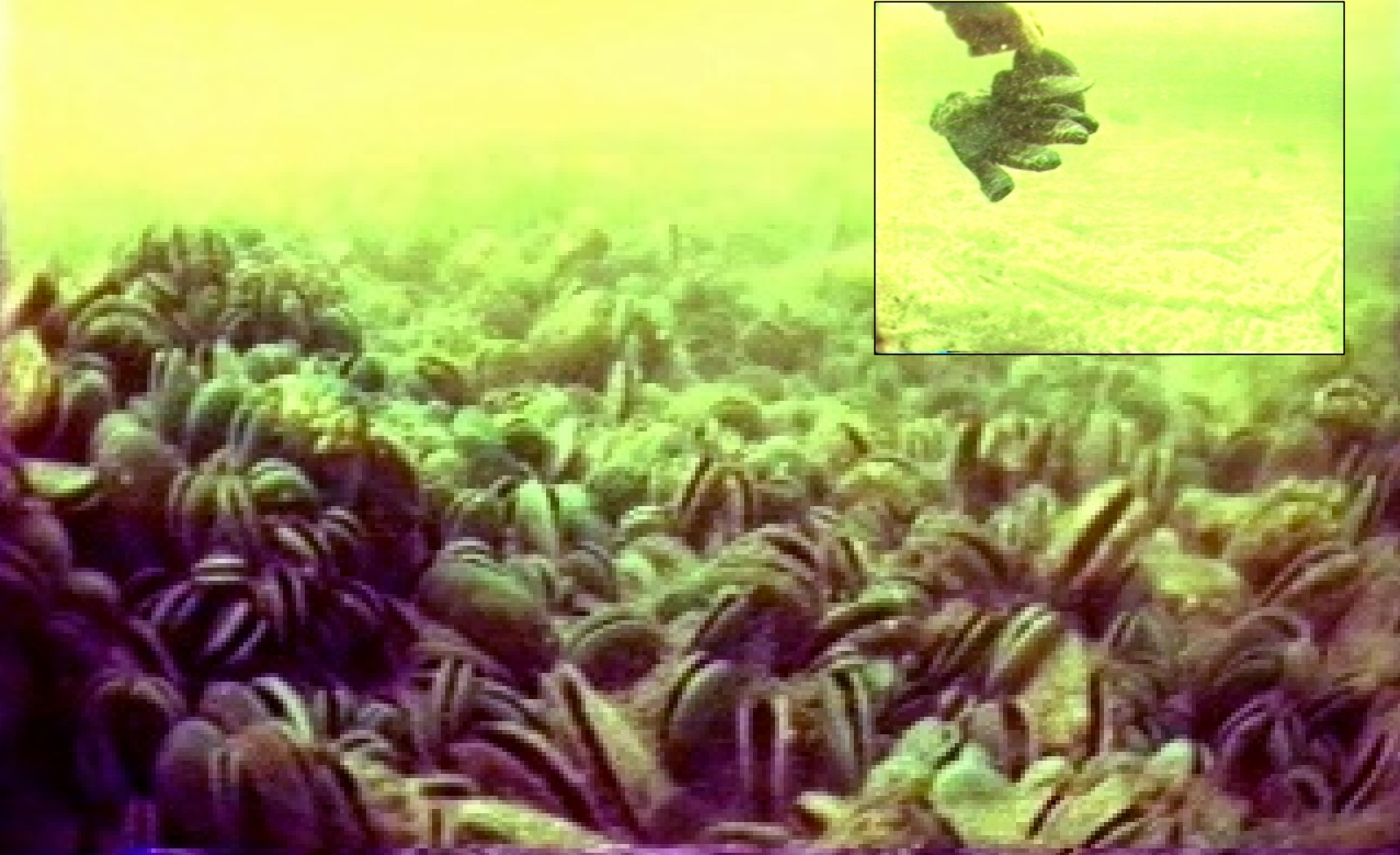


Seagrass Monitoring



Fisheries Monitoring

Courtney Campbell Reef

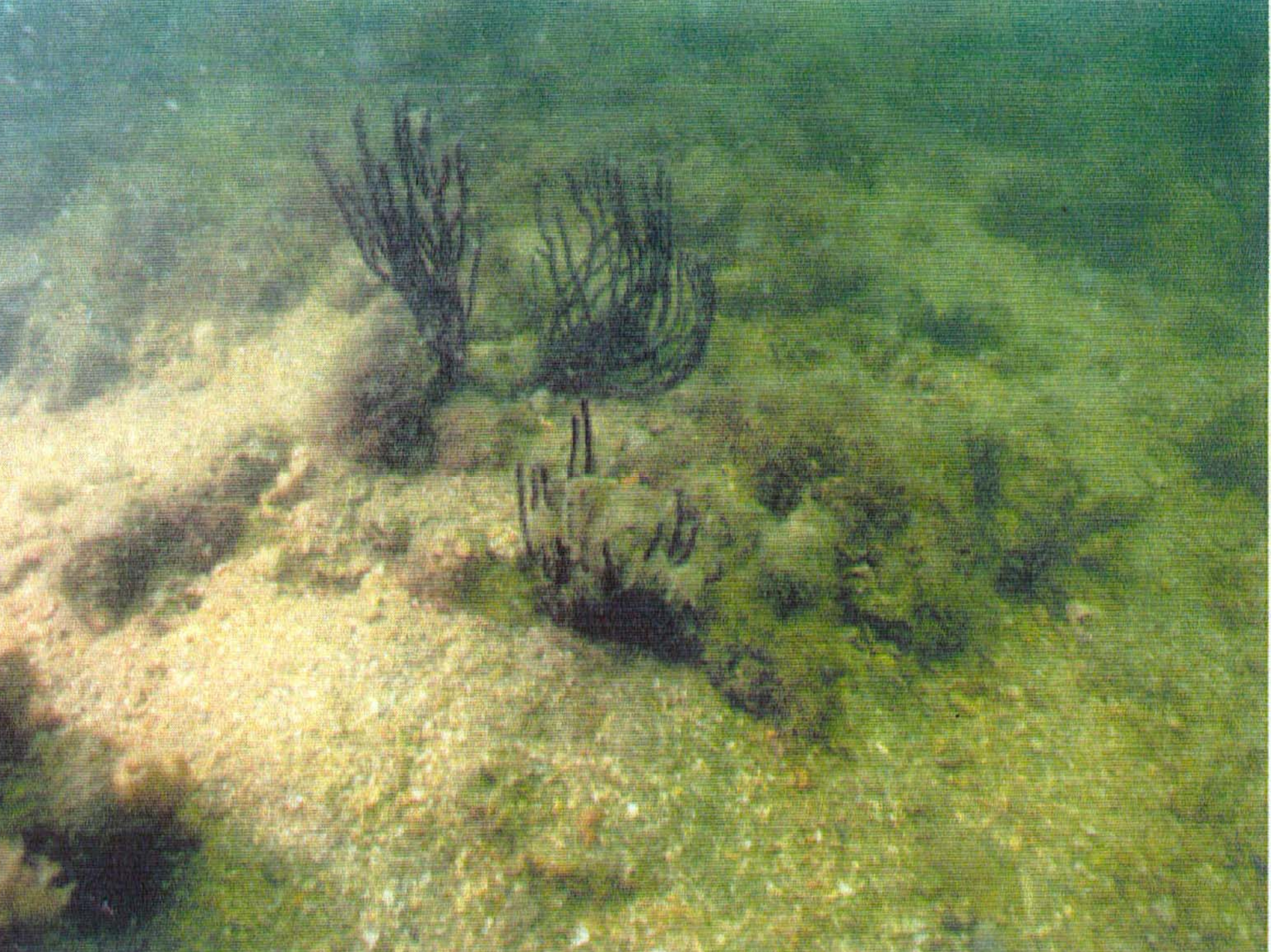


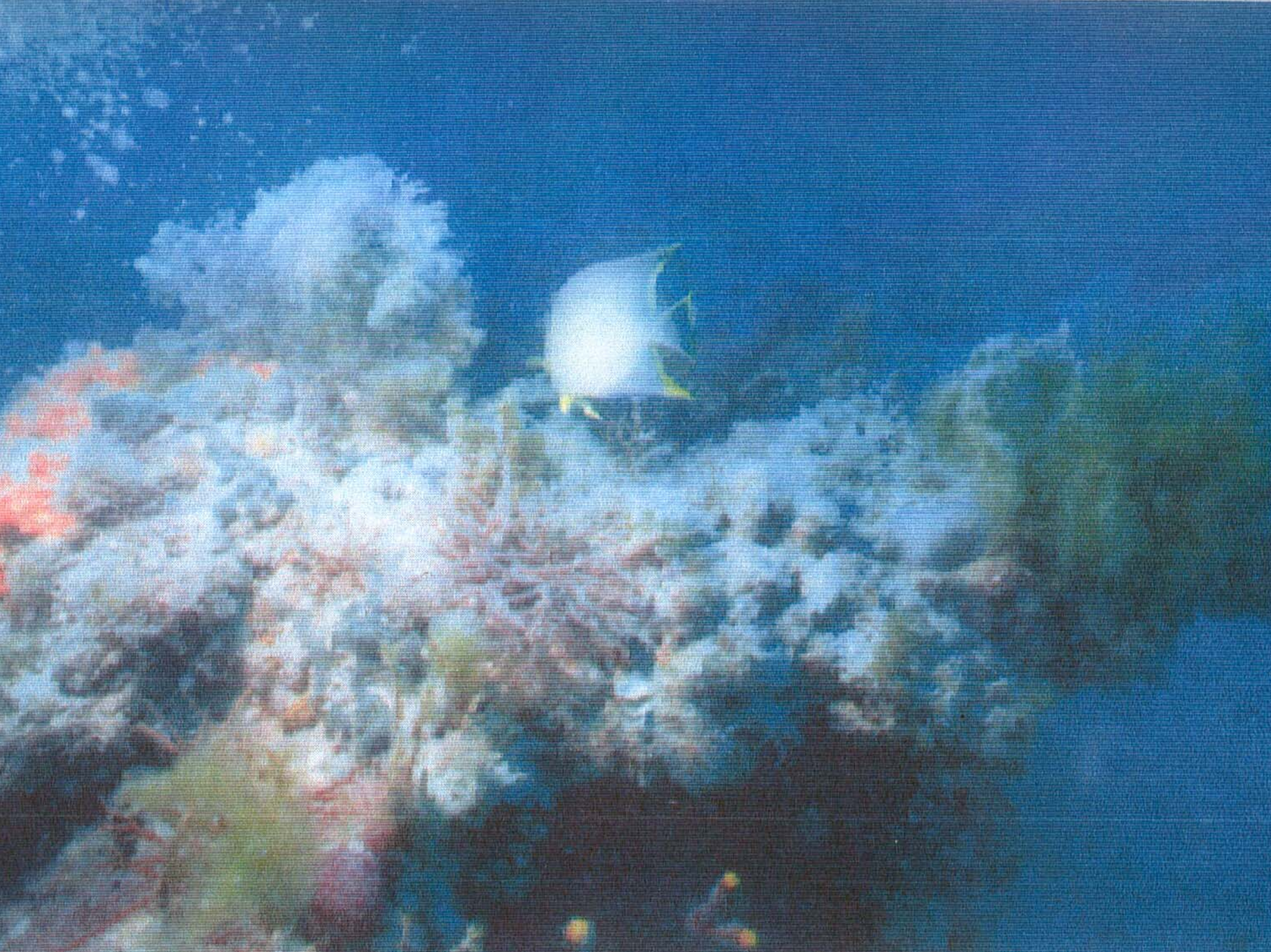
Natural Hard Substrates In Tampa Bay

- Oyster Reefs
- Prop Roots
- “Arcadia Limestone” Outcrops

What We Know

- Patches of hardbottom scattered throughout Tampa Bay
- Distinct assemblages of plants and animals
- Diversity appears to increase with proximity to open Gulf





(Some of) What We Don't Know

- Distribution and extent of Tampa Bay Hardbottom Communities
- Biotic community composition
- Changes through space and time
- Role of disturbance in community composition

Possible Approaches to Hardbottom Resource Inventories

- Snorkel and diving surveys
- Interpretation of aerial images
- Vessel-based sensing
 - High-resolution side-scan
 - Multiple-frequency acoustic sounders
 - Towed video
 - Other towed devices

Framework for Resource Inventories and Monitoring

- GIS-Based database
- Standards for measures like relief, substrate and community type
- Standards for assessing/predicting impacts
- Standards for mitigation requirements

Coming Attractions

- USGS / Substrate Classification - Acoustics
- SWIM / Cockroach Bay & Port Redwing
- Alafia River / Mulberry Spill Restoration
- EPC / Artificial Reef Epifaunal Survey
- Epifaunal and Infaunal species identification
- Workshops
 - Hard bottom Mapping and Monitoring
 - Growing Attention toward Green Mussels