

# Florida Nearshore Hardbottom & Associated Monitoring for Beach Restoration Projects

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# WHAT IS NEARSHORE HARDBOTTOM?

- Rocky substrate in marine waters 0 to 4 m, within ~400 m from shore
- Shore-parallel bands of exposed limestone
- North of Deerfield Beach – lithified sand and coquina clam shells
- South of Deerfield Beach – carbonate limestone

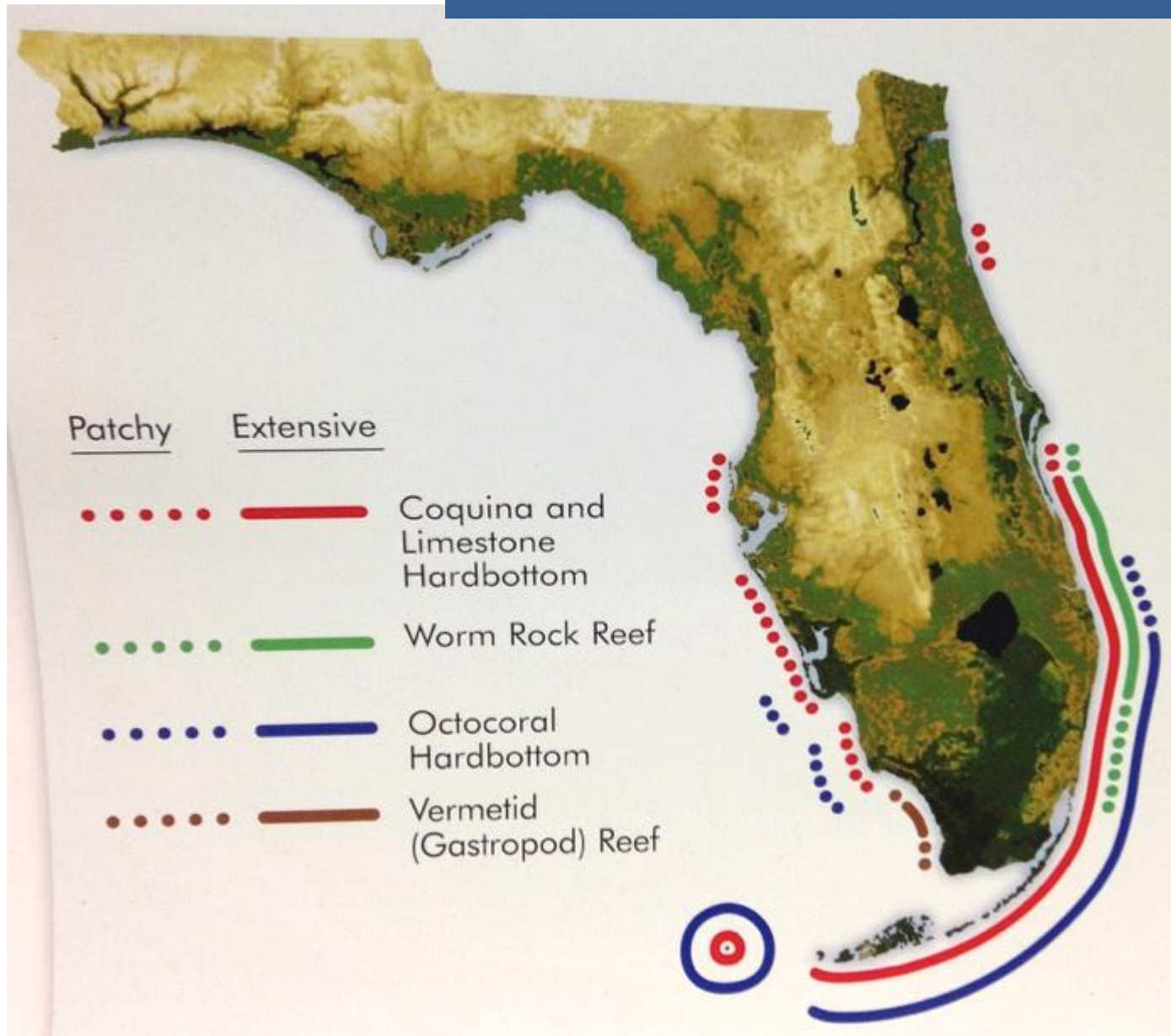


# WHAT IS NEARSHORE HARDBOTTOM?

- Supports diverse reef assemblage of algae, invertebrates, fishes, and sea turtles
- Ecological functions include settlement and nursery areas, spawning sites, and feeding and shelter areas



# WHERE IS HARDBOTTOM?



Map copy write 2012 by Dawn Witherington



# EXAMPLES OF FLORIDA NEARSHORE HARDBOTTOM



**BREVARD**

**INDIAN RIVER**



# EXAMPLES OF FLORIDA NEARSHORE HARDBOTTOM

**ST. LUCIE**



**MARTIN**





# EXAMPLES OF FLORIDA NEARSHORE HARDBOTTOM

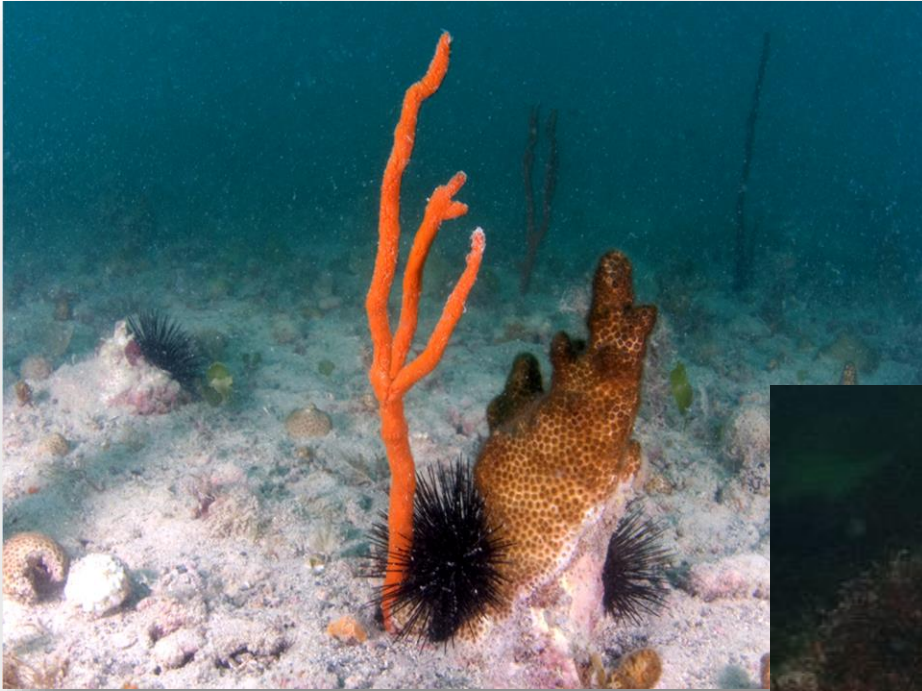


**PALM BEACH**

**BROWARD**



# EXAMPLES OF FLORIDA NEARSHORE HARDBOTTOM



**SARASOTA**

**SARASOTA**



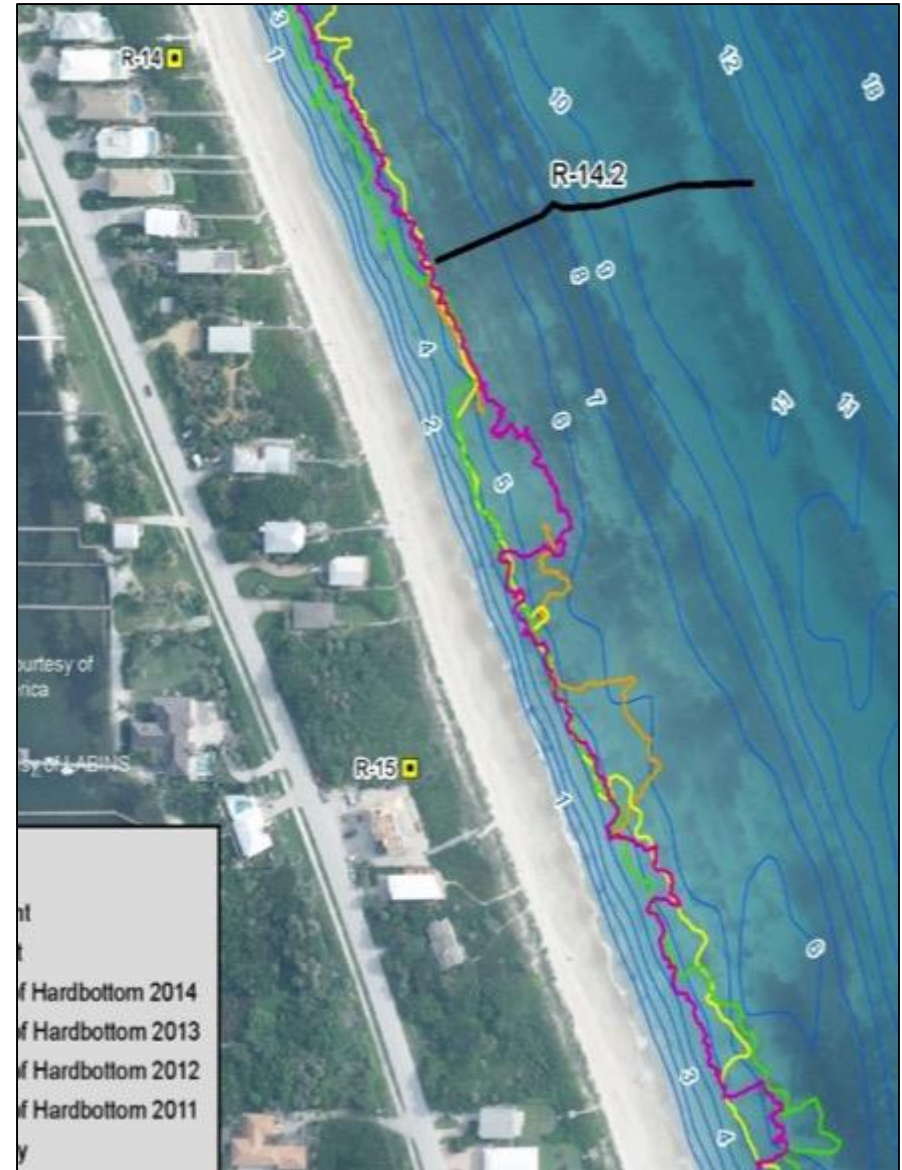


## BMPs include:

- BACI Design
- Baseline, immediate post-construction, and annual post-construction surveys for up to 3 years

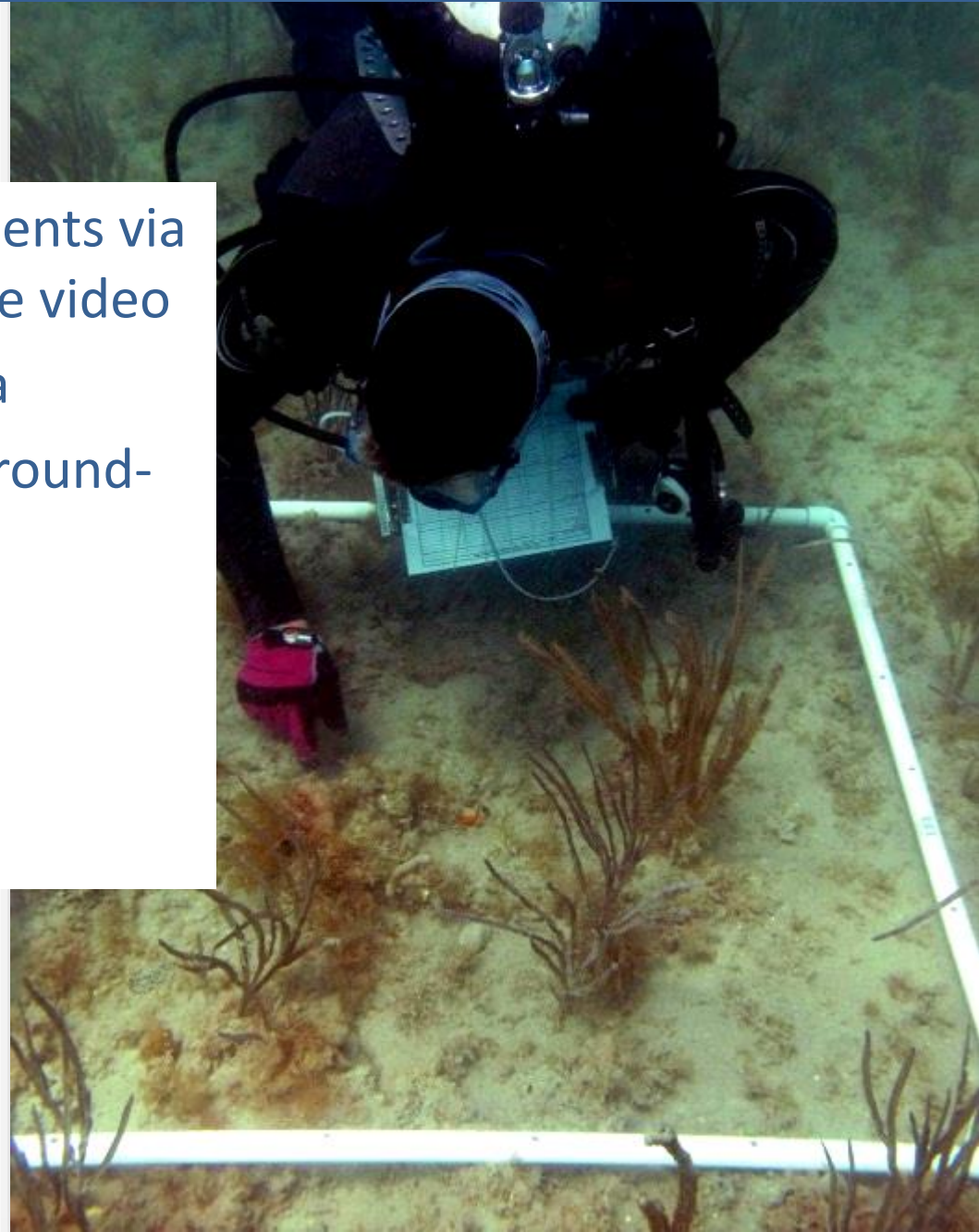
## Monitoring Methods

1. Mapping of the landward edge of hardbottom.



## Monitoring Methods (Cont)

2. Benthic community assessments via quadrats and/or quantitative video
3. Sediment accumulation data
4. Aerial extent of HB (GIS & Ground-thruthing).





# HARDBOTTOM BEFORE & AFTER NOURISHMENT

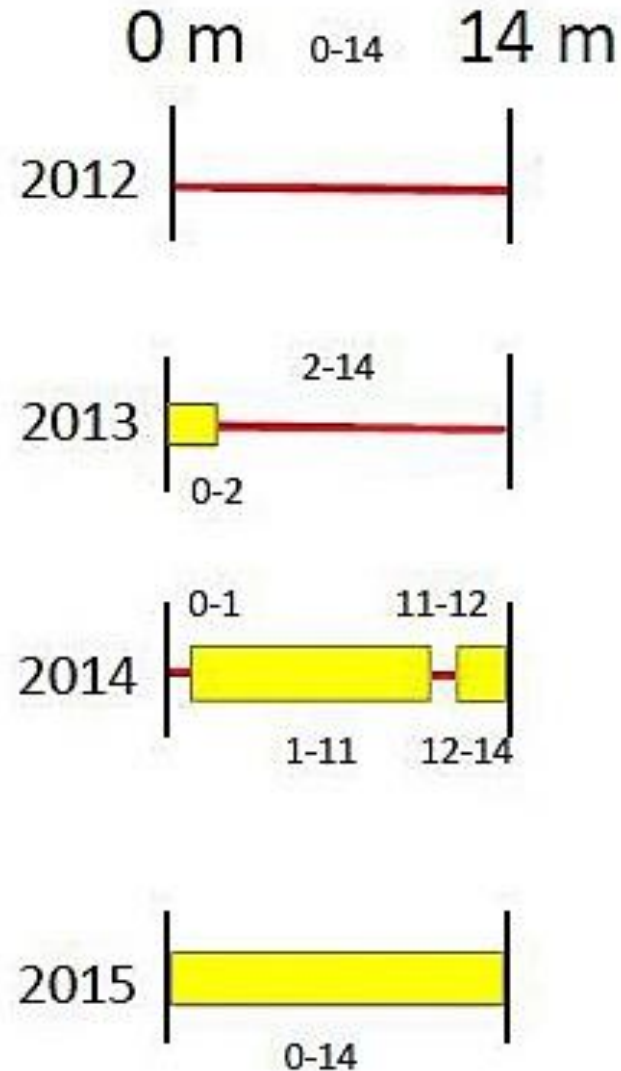
Pre-Construction

**Construction – Winter 2013**

Immediate Post-Construction

Year 1 Post-Construction

Year 2 Post-Construction



— = Hardbottom

■ = Sand



UNDERWATER  
**VIDEO**

NEARSHORE HARDBOTTOM  
BEFORE & AFTER NOURISHEMENT

