



**Florida Department of Environmental Protection**

# **Lessons Learned from PortMiami: Implications for Development of Port Everglades Monitoring Plan**

**Port Everglades Interagency Working Group Meeting  
July 26, 2016**





- Permit conditions / contract requirements
- Baseline survey(s) spatial coverage and timing
- Position of monitoring stations (proximate to channel)
- Predictions and measurements of sedimentation
- Impact delineation protocols and timing after triggered
- Monitoring of permanently marked corals
- Artificial reef survey (towed-video)
- Communication, notification, reporting and deliverables



## Tighten-up Language

- Define key terms e.g., “post-construction”
- Clear language to ensure that the intent of each condition is understood e.g., “*pre-construction* baseline”

## Clear Requirements

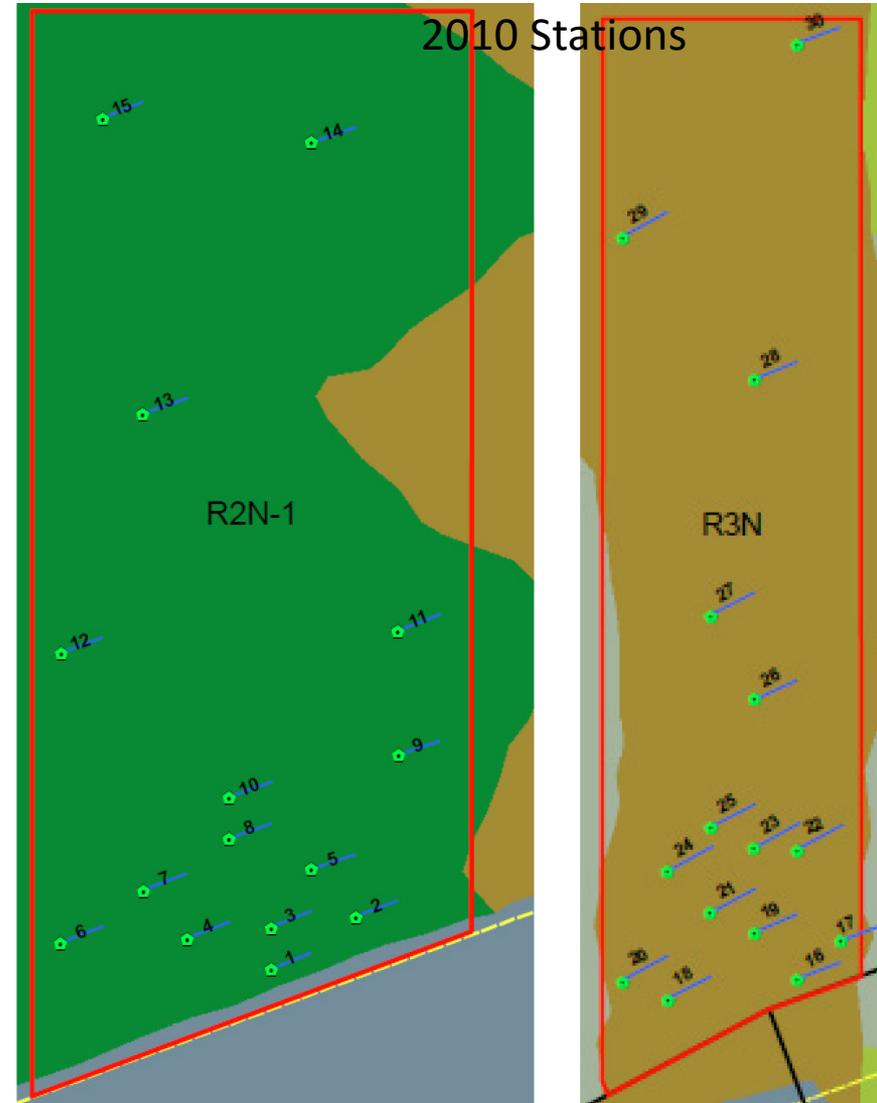
- Detailed monitoring protocols in permit and contract with specifications for each survey type / event
- Specifically request submittal of all data deliverables, including media files for each survey event



Survey throughout entire area that may be impacted

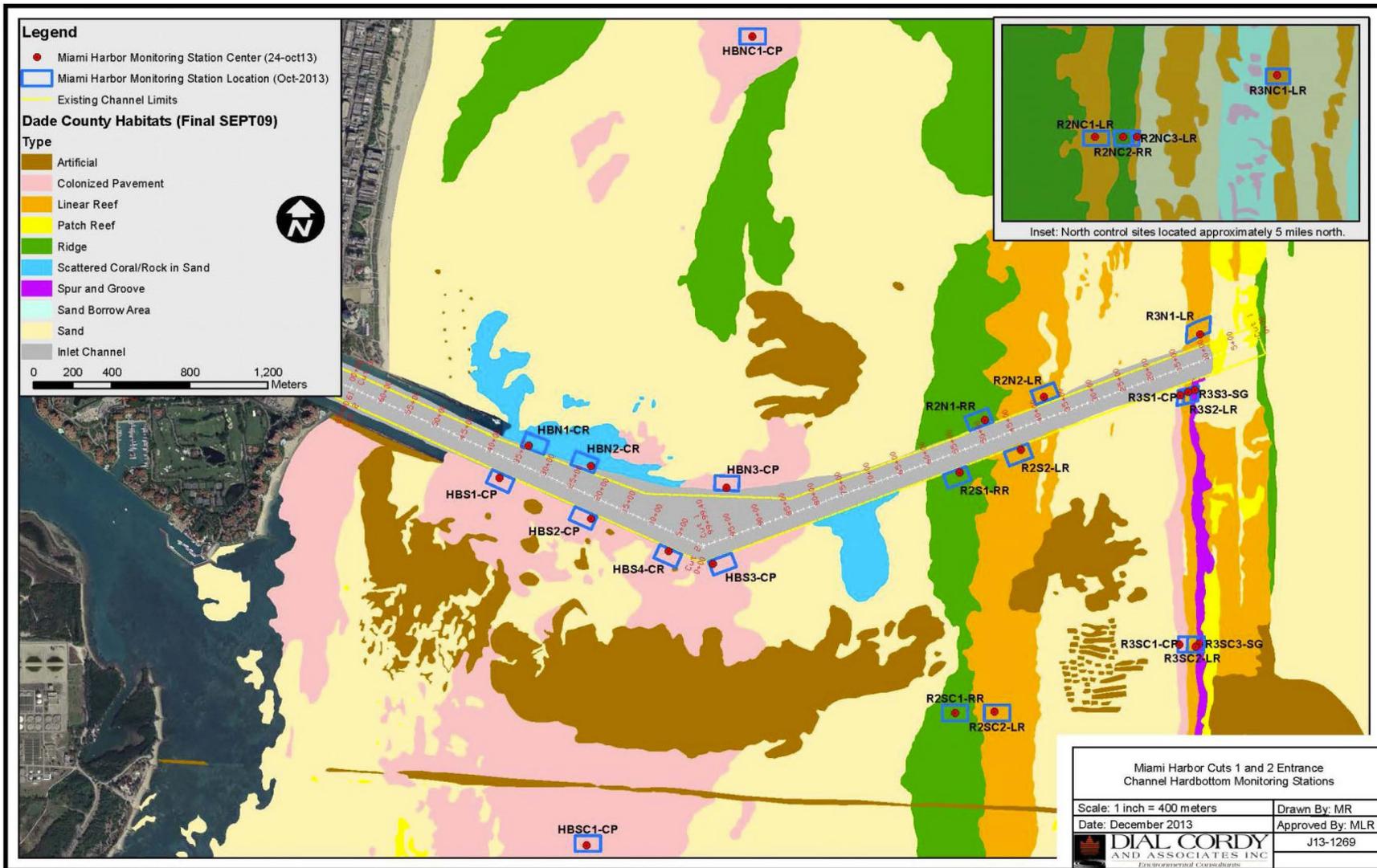
Complete baseline survey prior to any construction

Accurate survey of all listed species for transplantation



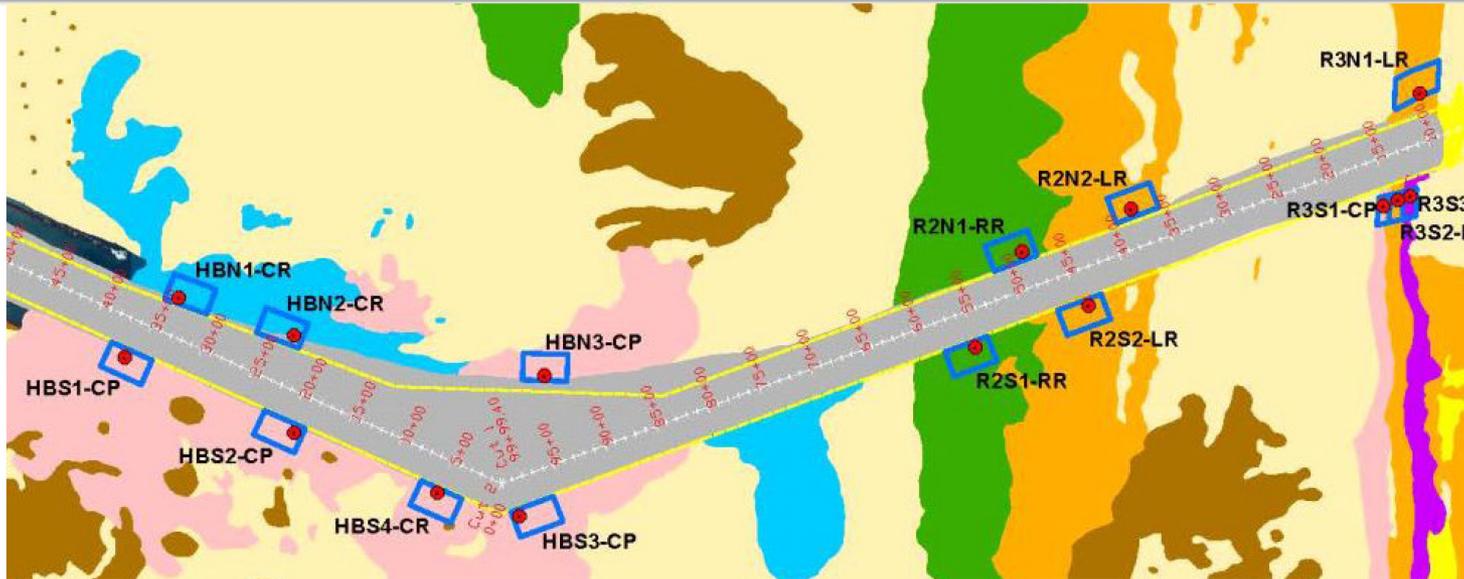


# Monitoring Stations PortMiami





# Sedimentation was predicted to be localized

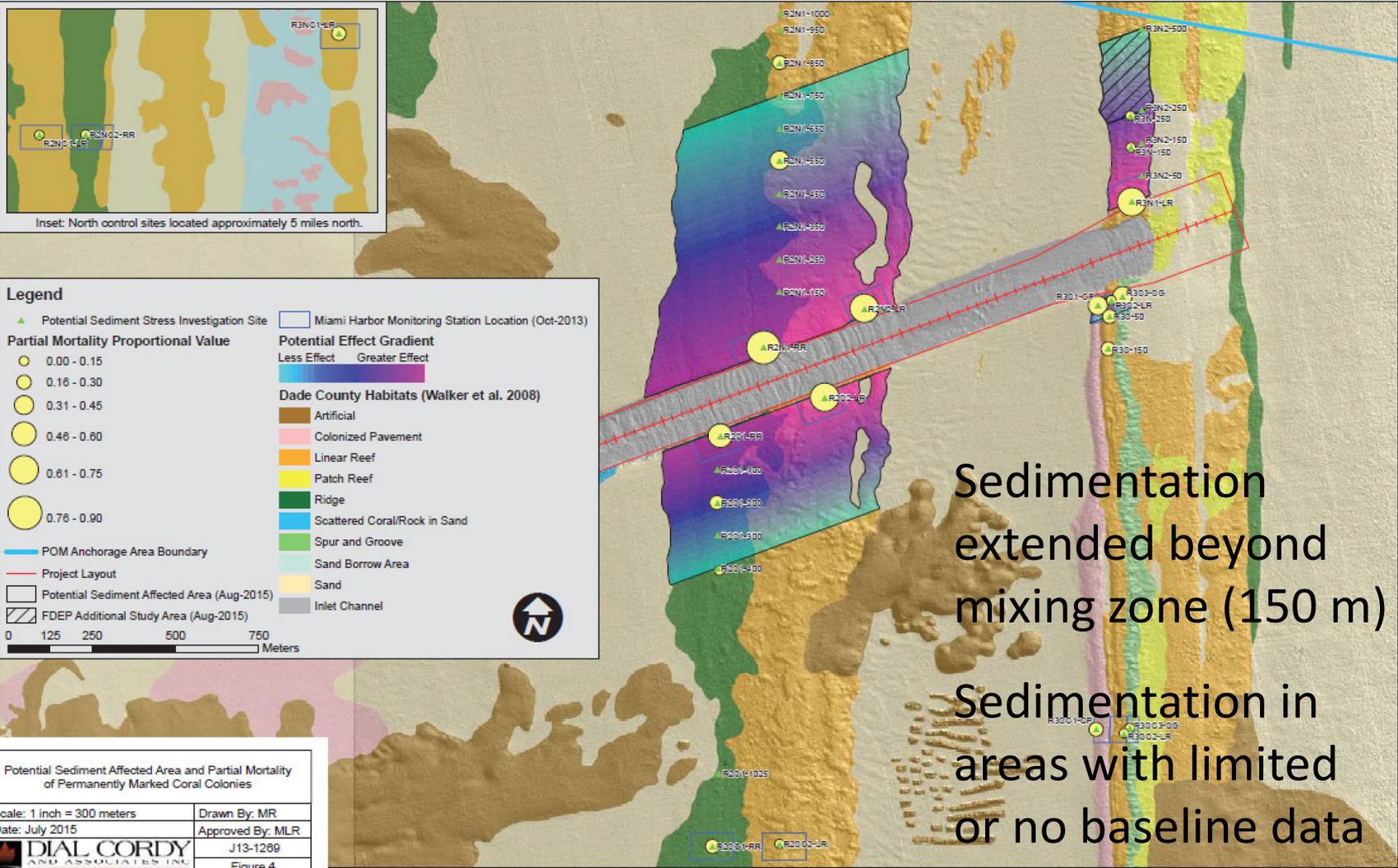


## NMFS Biological Opinion September 2011:

“The project will also impact up to 158.1 acres of critical habitat through sedimentation and anchor and cable drag, however, these impacts will be insignificant. Sedimentation impacts will be **temporary and localized**. Sediments will return to background levels upon project completion.”

## Miami Harbor GRR Final EIS January 2004:

“Environmental impacts from cutterhead dredges include **localized** suspended sediment along the bottom around the cutterhead and fine-grained sediment turbidity plumes from barge overflow or pipeline leaks.”



Sedimentation extended beyond mixing zone (150 m)

Sedimentation in areas with limited or no baseline data



Inset: North control sites located approximately 5 miles north.

**Legend**

- ▲ Potential Sediment Stress Investigation Site
- Miami Harbor Monitoring Station Location (Oct-2013)

**Partial Mortality Proportional Value**

- 0.00 - 0.15
- 0.16 - 0.30
- 0.31 - 0.45
- 0.46 - 0.60
- 0.61 - 0.75
- 0.76 - 0.90

**Potential Effect Gradient**

Less Effect Greater Effect

**Dade County Habitats (Walker et al. 2008)**

- Artificial
- Colonized Pavement
- Linear Reef
- Patch Reef
- Ridge
- Scattered Coral/Rock in Sand
- Spur and Groove
- Sand Borrow Area
- Sand
- Inlet Channel

— POM Anchorage Area Boundary

— Project Layout

□ Potential Sediment Affected Area (Aug-2015)

▨ FDEP Additional Study Area (Aug-2015)

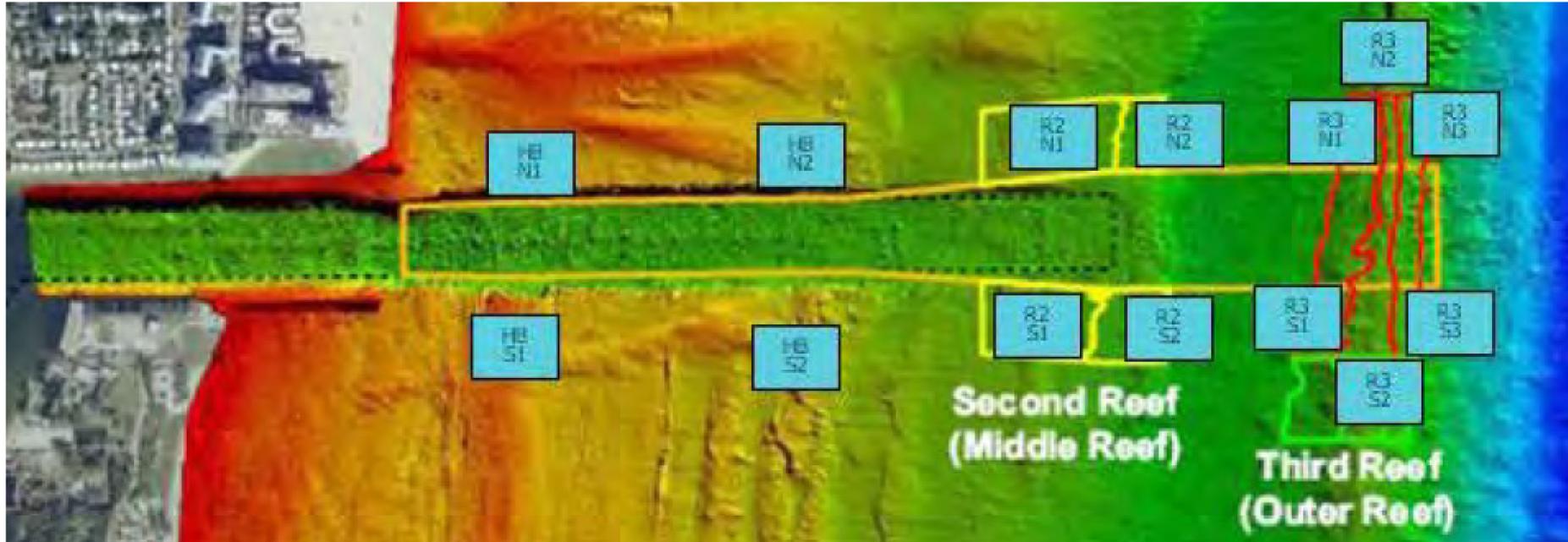
0 125 250 500 750 Meters

Potential Sediment Affected Area and Partial Mortality of Permanently Marked Coral Colonies

Scale: 1 inch = 300 meters	Drawn By: MR
Date: July 2015	Approved By: MLR
<b>DIAL CORDY AND ASSOCIATES, INC.</b> Environmental Consultants	J13-1288
	Figure 4



# Monitoring Stations for Port Everglades in EIS

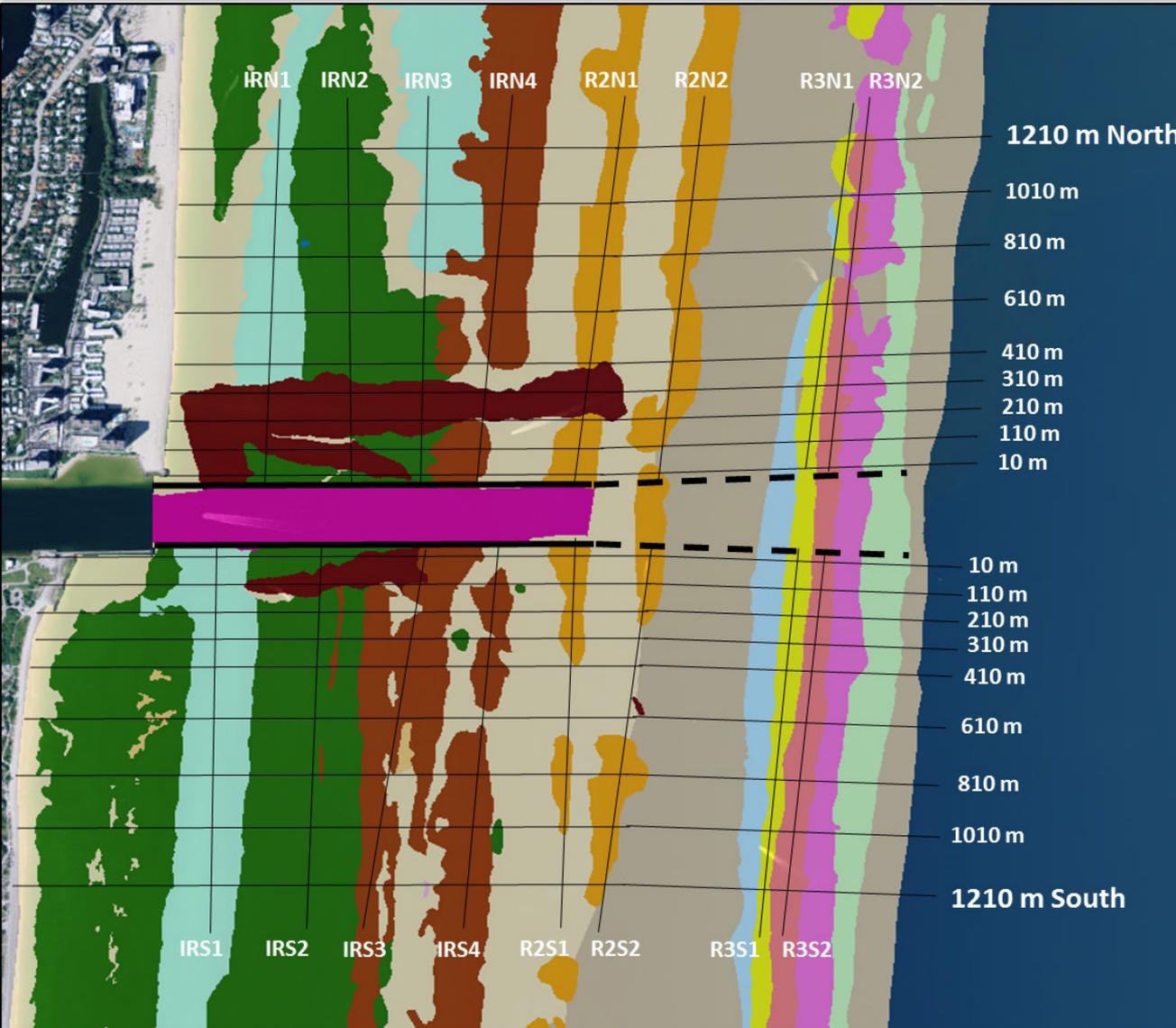


## Port Everglades Harbor Navigation Study EIS March 2015

“USACE expects turbidity and sedimentation effects associated with the Port Everglades Navigation Project Recommended Plan to be similar to those seen at the ongoing Miami Harbor expansion project.”

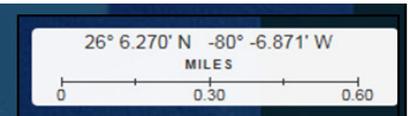


# Potential Monitoring Grid for Port Everglades



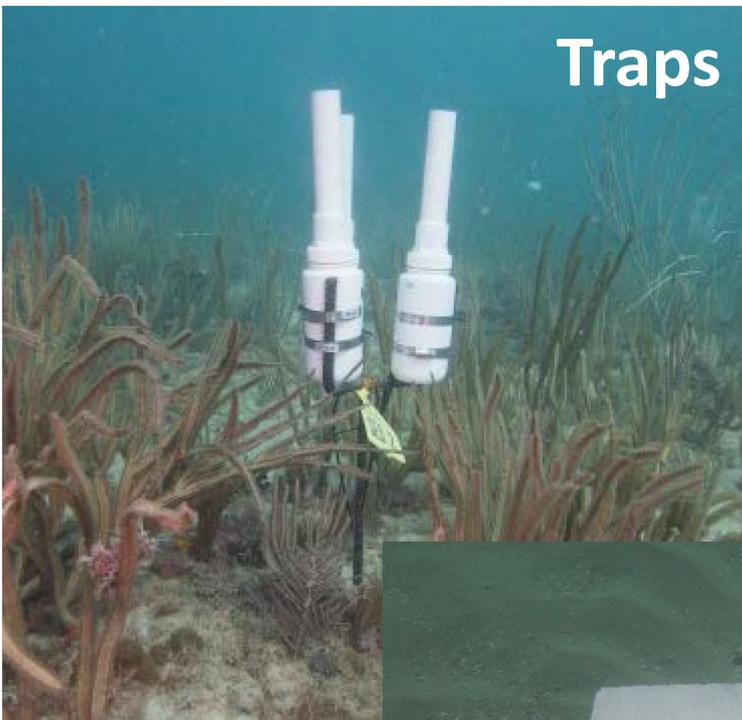
Permanent stations at set intervals from channel will provide information needed to assess impacts:

- Condition and function(s) of resources
- Heterogeneity of benthic habitats
- Spatial extent of sedimentation

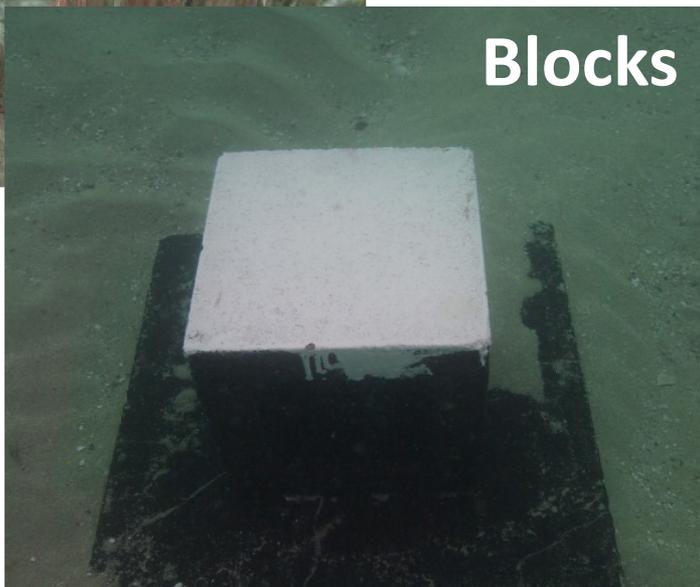




**Traps**



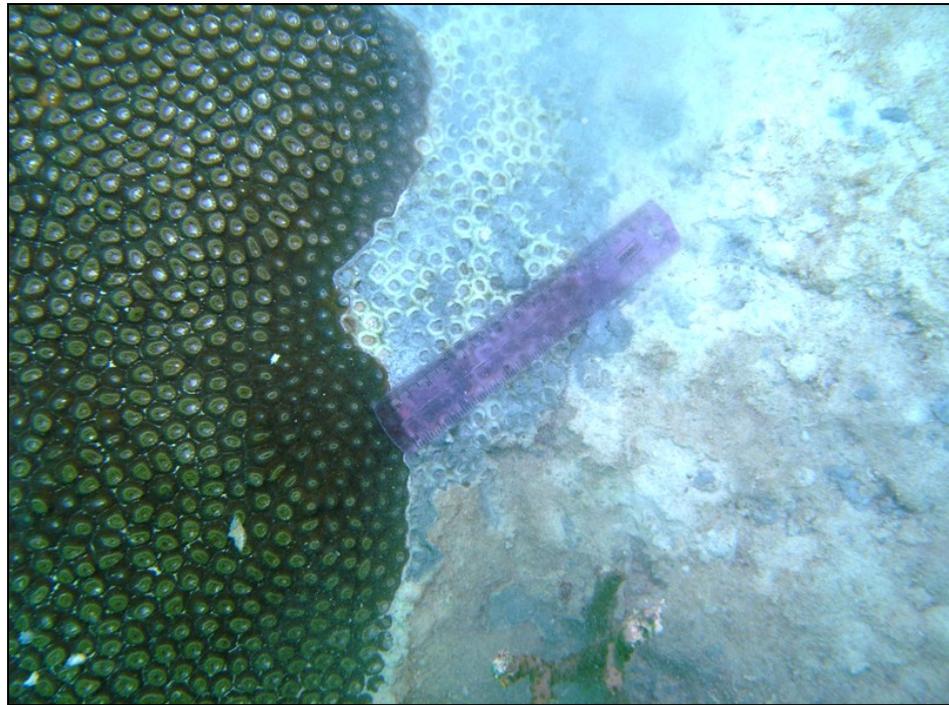
**Blocks**



**Direct measurements**



**Depth and  
characterization**



Disease outbreak during construction complicated interpretation of results

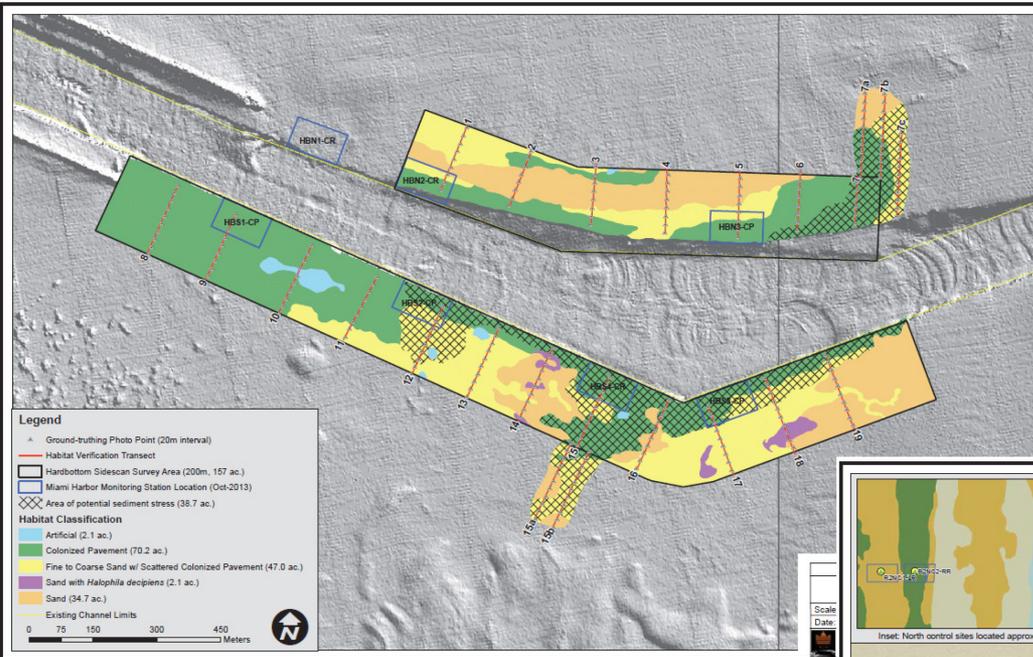
Need to monitor other types of organisms: octocorals & sponges

Partial mortality (% surface area) due to burial by sediments was not quantified but such information is important for assessing impacts

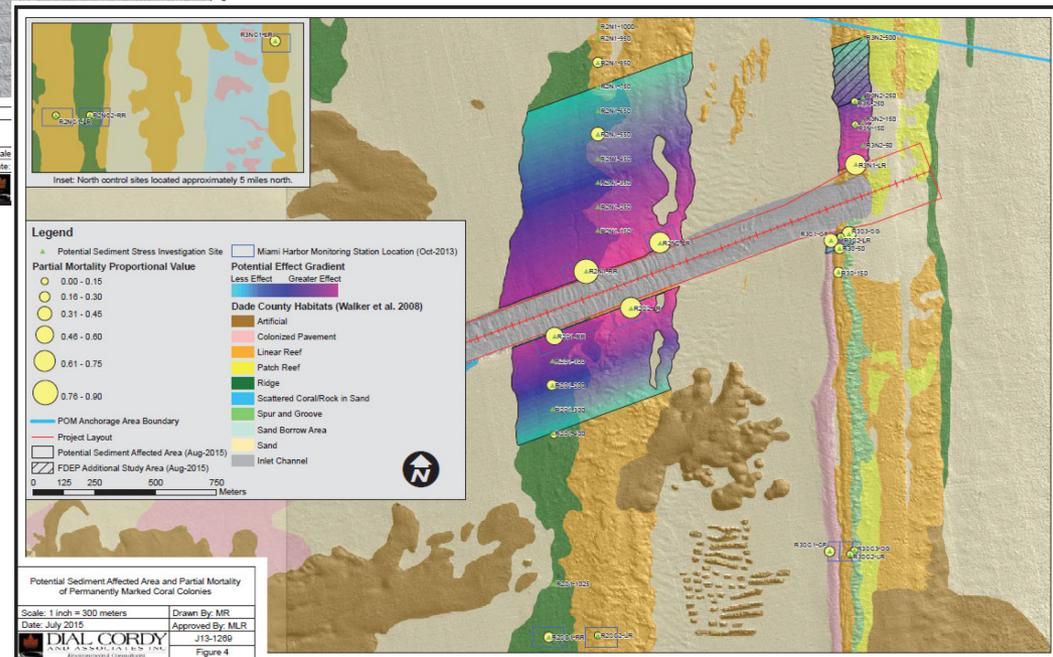




- Compliance with permit conditions
- Triggers and timing of adaptive management



- Habitat mapping
- Survey protocols
  - Not approved by DEP
  - Visual survey / photos only
  - Spatial replication

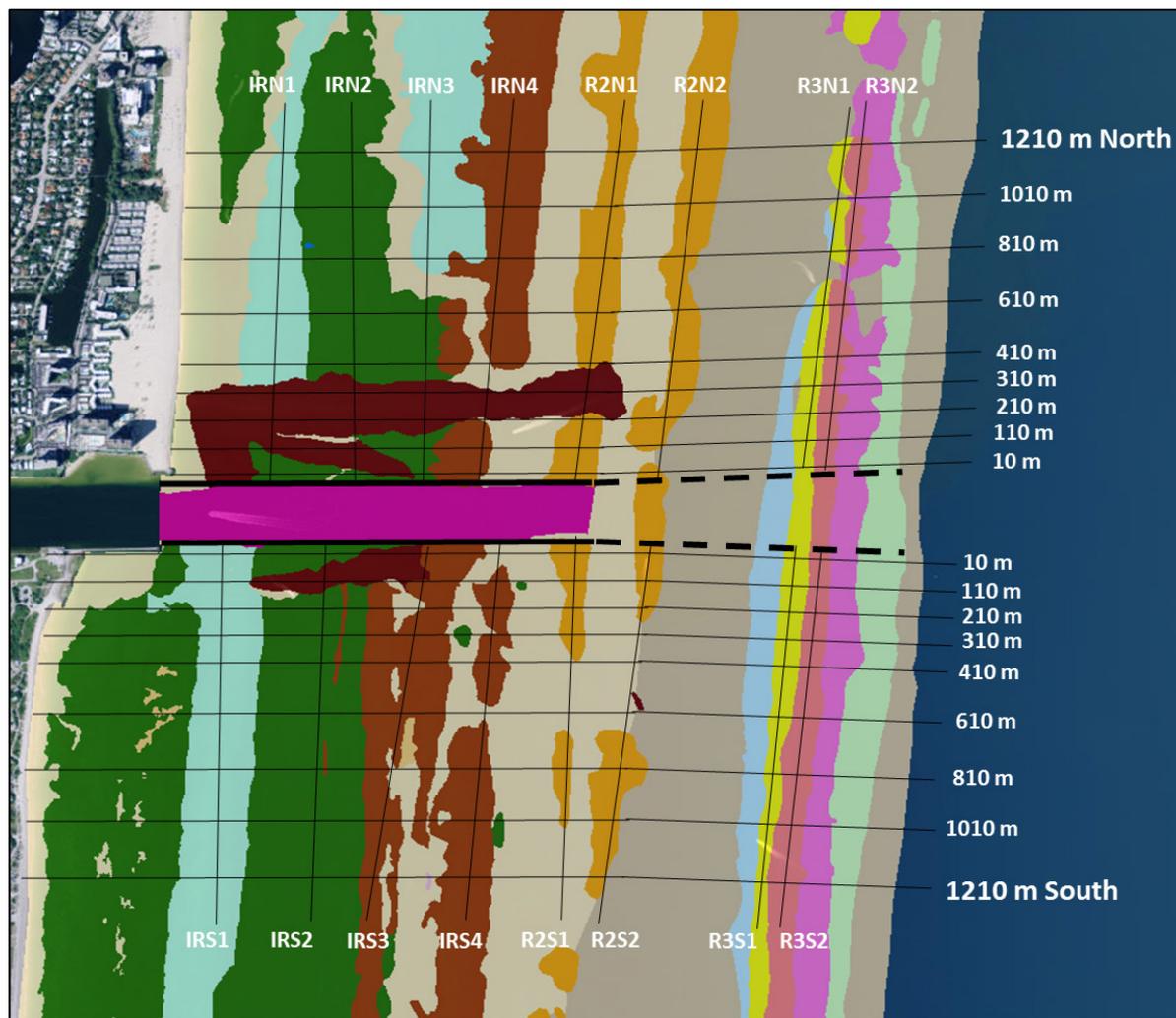




## Habitat map:

Finalized prior to permit application completeness

**Grid of permanent monitoring stations:**  
no need for separate impact delineation survey methods



# Artificial Reef Survey

- Measure (jet probe / core boring) and map sand depth at proposed site(s).
- Thorough diver-survey to confirm the absence of resources at site(s).

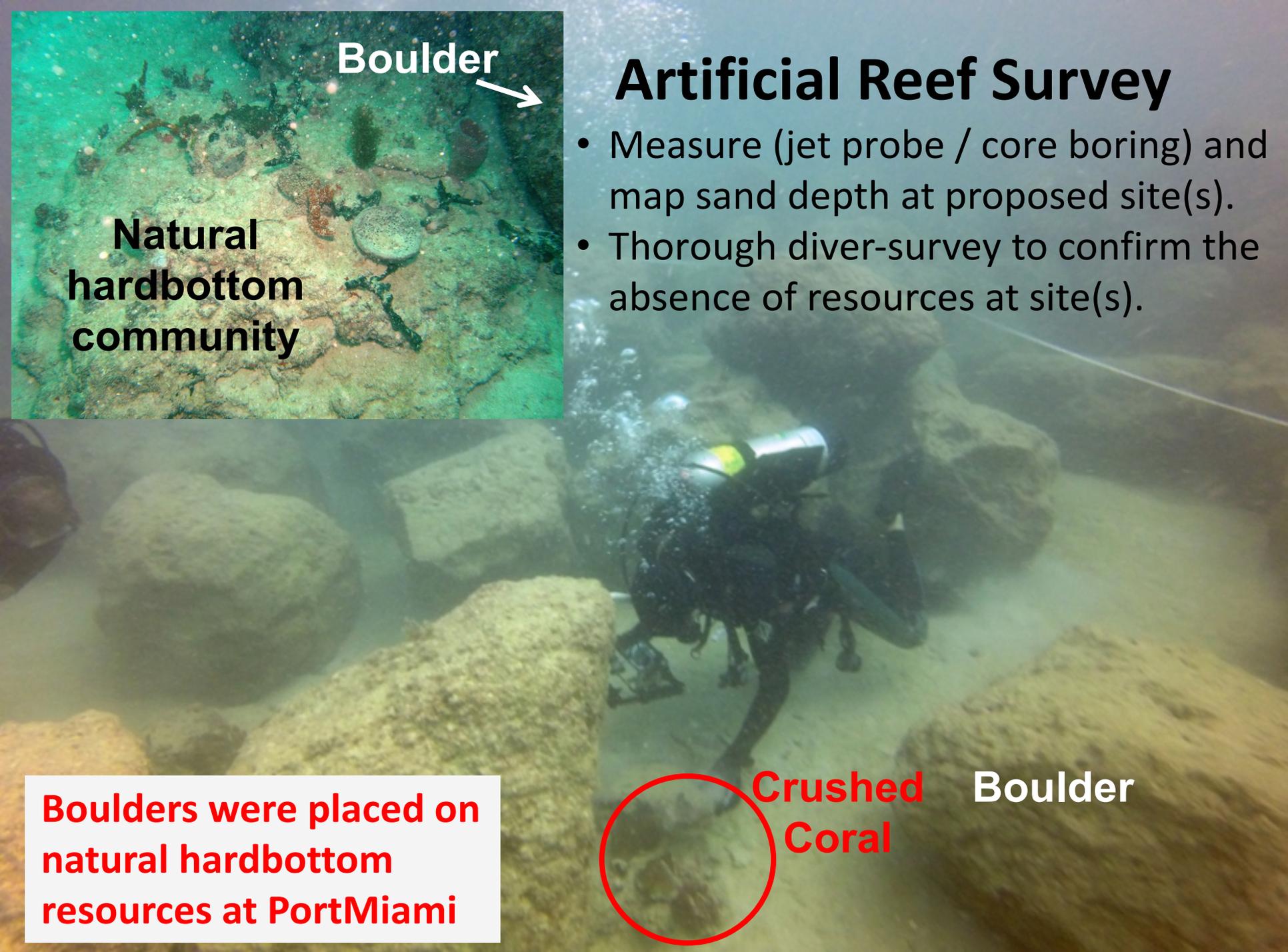
**Boulder** →

**Natural  
hardbottom  
community**

**Boulders were placed on  
natural hardbottom  
resources at PortMiami**

**Crushed  
Coral**

**Boulder**





## **Effective:**

- Weekly construction teleconference
- Monthly environmental teleconferences

## **Not effective:**

- Submittal of data requested by DEP delayed / denied because not required by permit or contract
- Format of data deliverables - results within pdfs

## **Not timely:**

- Baseline report - submitted after permitted-deadline
- Weekly reports - submitted weeks after data collected
- Notification of sediment stress on coral



## **Communication:**

- Establish communication strategy / plan
- Direct communication: DEP staff and monitoring firm

## **Data deliverables /reports:**

- Raw data submitted in transparent / timely (realtime) manner
- Any data collected for project should be submitted, if requested
- Concurrent submittal of data to DEP, USACE and contractor
- Raw data and summary statistics; no during-construction reports
- Independent third party QA / QC

## **Notifications:**

- Immediate email if any evidence of potential impacts documented

## **Compliance:**

- Strategy (route / actions) for resolution of issues
- Interagency dive-team (NOAA, DEP, EPA) for site inspections



## **Monitoring:**

### Baseline survey:

- Not completed prior to construction
- Did not cover entire area of 2° impacts
- Did not quantify / characterize sediment on HB (traps / blocks)

### Impact delineation:

- Not completed in a timely manner
- Methods not specified in permit / contract

### Frequency during-construction

- Twice per week not consistently met
- Weather / crew limitations

### Station impacted by dredge

in “side-slope” area

## **Mitigation:**

- Construction of boulder reef on natural HB
- Seagrass donor sites in Aquatic Preserve were not monitored for recovery
- Funding for impacts due to sedimentation

## **Communication:**

- Notification of impacts not timely
- Delayed reporting
- Denied access to data
- Disease in the media

## **Construction:**

- Adaptive management to minimize impacts
- Turbidity exceedances due to adjacent project
- Vessels displaced from Fisherman’s Channel
- Vessel grounding - Mr. Chester
- Oil spill - coordination and communication