Monitoring Benthic Communities to Fulfill Regulatory Requirements

Beaches Inlets and Ports Program
Jenny Hinton and Brendan Biggs

Presentation Overview

Monitoring for Joint Coastal Permits (JCP) and Environmental Resource Permits (ERP):

- Background / program overview
- Submerged aquatic vegetation
- Hardbottom

Background

Regulation of Benthic Resources

Environmental Resource Permits (ERP) and Joint Coastal Permits (JCP):

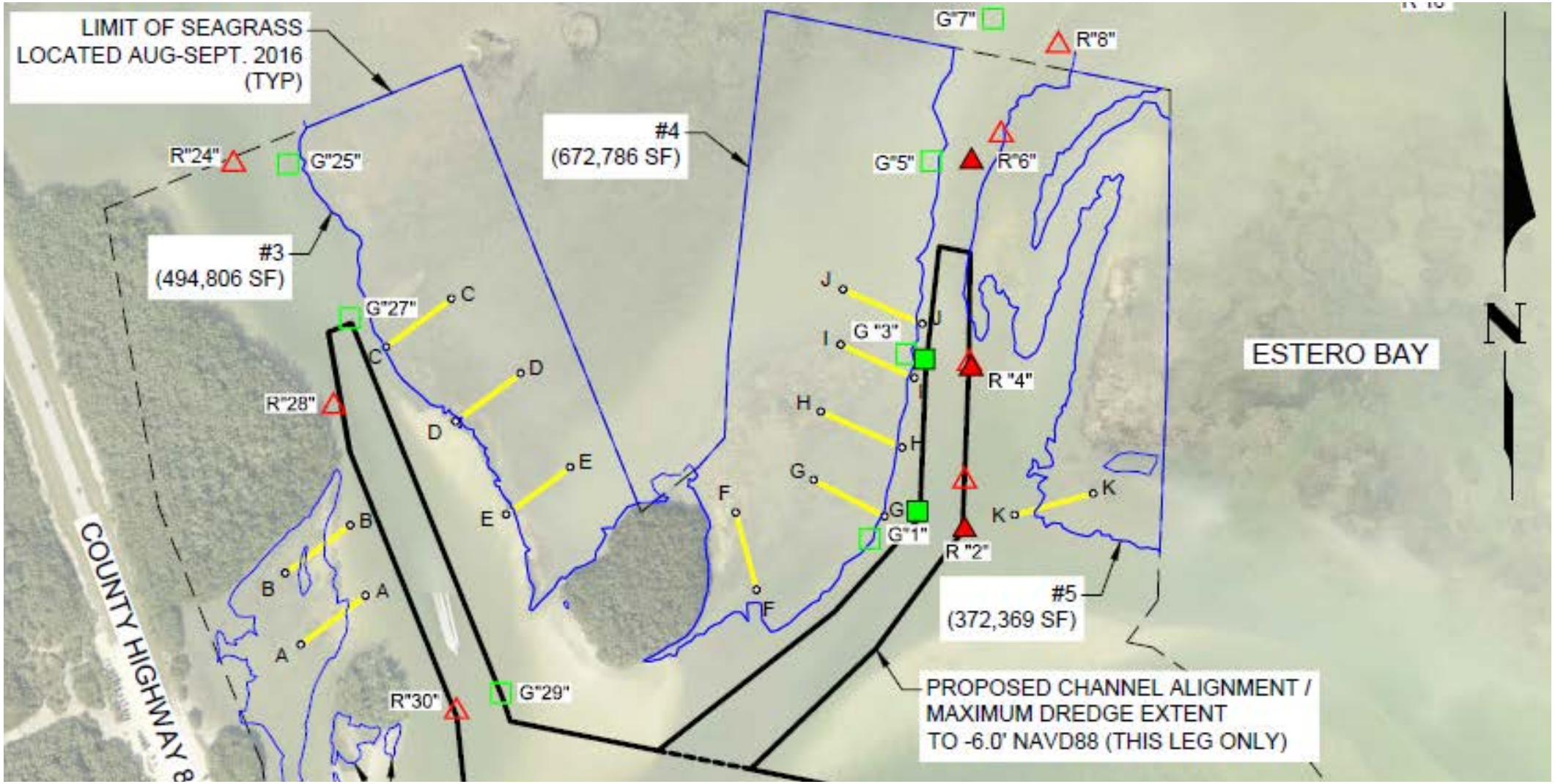
- DEP considers potential impacts to fish, wildlife, and their habitats and evaluates if the project is in the public interest pursuant to section 373.414(1)(a)(2), Florida Statutes.

- Adverse impacts must be minimized to the greatest extent practicable and any unavoidable impacts must be offset by compensatory mitigation (ERP Applicants' Handbook Volume 1, Section 10.2.1).

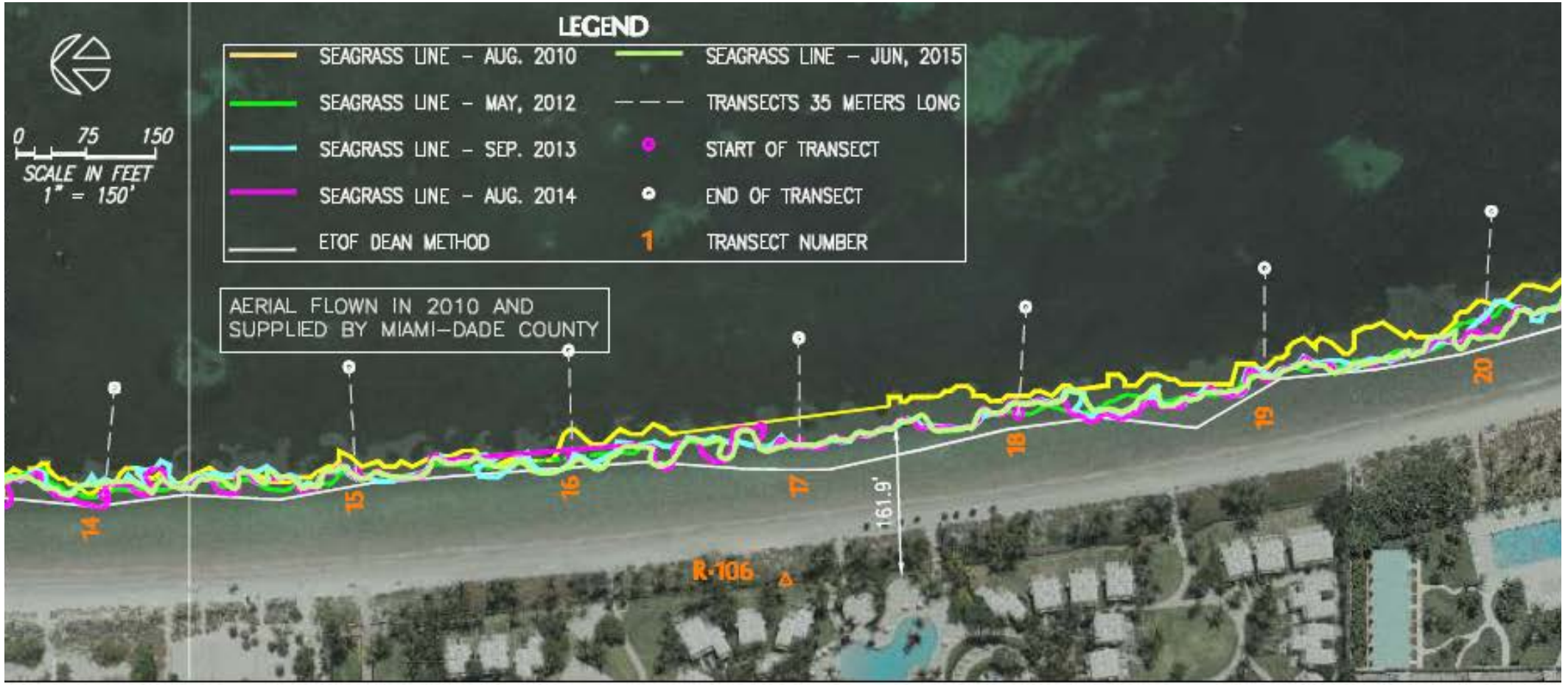
Submerged Aquatic Vegetation

Dr. Jenny Hinton

SAV Near Dredging Project



SAV Near Beach Nourishment Project



Goal of SAV Consistency Initiative

Improve Regulatory Process for SAV

- Consistent processes & protocols for projects with SAV
- A “toolkit” of guidance documents to make permitting more efficient and predictable

SAV Toolkit

- Regulatory approaches
- Template permit conditions
- Standard monitoring protocols
- Guidance on mitigation activities
- Recommendations for remediation of impacts

Regulatory Approaches

Minimization vs. Monitoring

- Thorough monitoring is needed if a project may impact SAV
- Measures taken to avoid impacts can reduce SAV survey requirements

For either approach, the Department may require remediation and/or compensatory mitigation for project-related impacts to SAV.

Template Permit Conditions

- Pre-construction deliverables
- Monitoring requirements
- Mitigation requirements

Template Permit Conditions

More Avoidance/ Less Monitoring

- Rapid pre-construction survey to delineate and characterize SAV
- Mixing zone ends at the edge of nearest SAV bed
- Evidence required to document avoidance measures

More Monitoring/ Less Avoidance

- Quantitative SAV surveys pre- and post-construction to document potential impacts
- Mixing zone can extend over SAV beds

Monitoring Protocols

- Methods to identify and quantify potential impacts
- Methods to measure success of mitigation activities

Monitoring Protocols

Map SAV boundaries

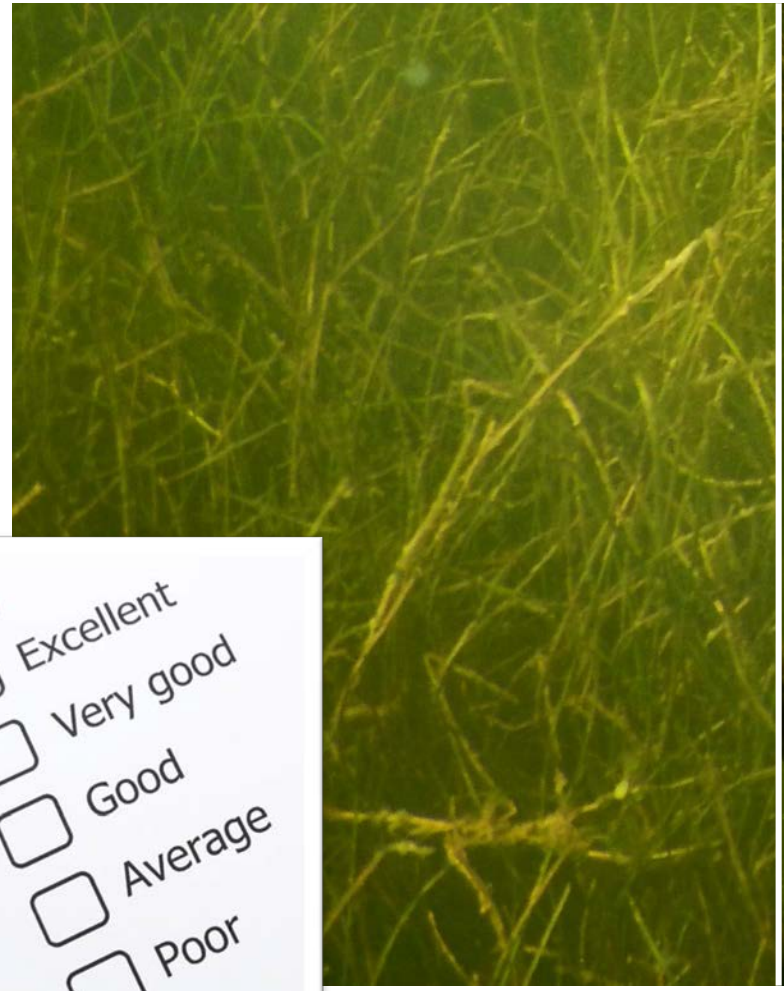
- Delineate edges using DGPS
- Produce georeferenced map

Qualitative observations

- Rapid visual assessment
- General condition

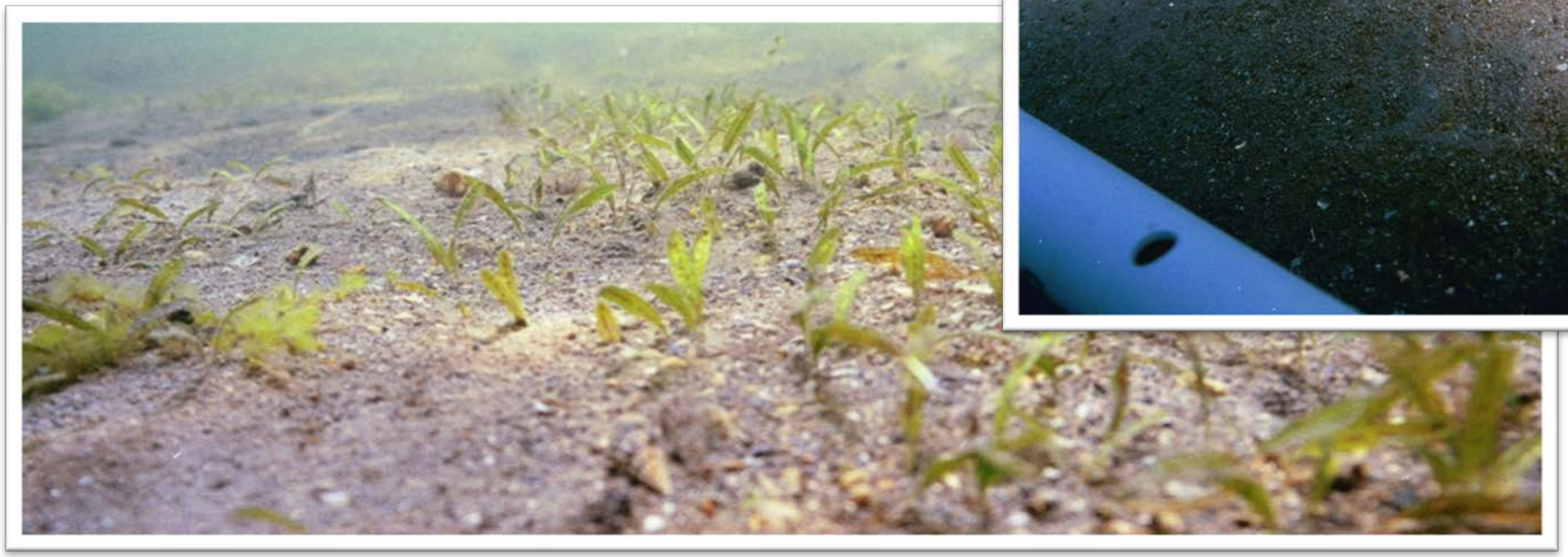
Quantitative surveys

- Percent cover in quadrats
- Shoot counts



Monitoring Protocols

- Timing of surveys
- Methods for data collection
- Reporting requirements



Mitigation Activities

Considerations for UMAM

- Location/Landscape
- Water Environment
- Community Structure
- Time lag
- Risk

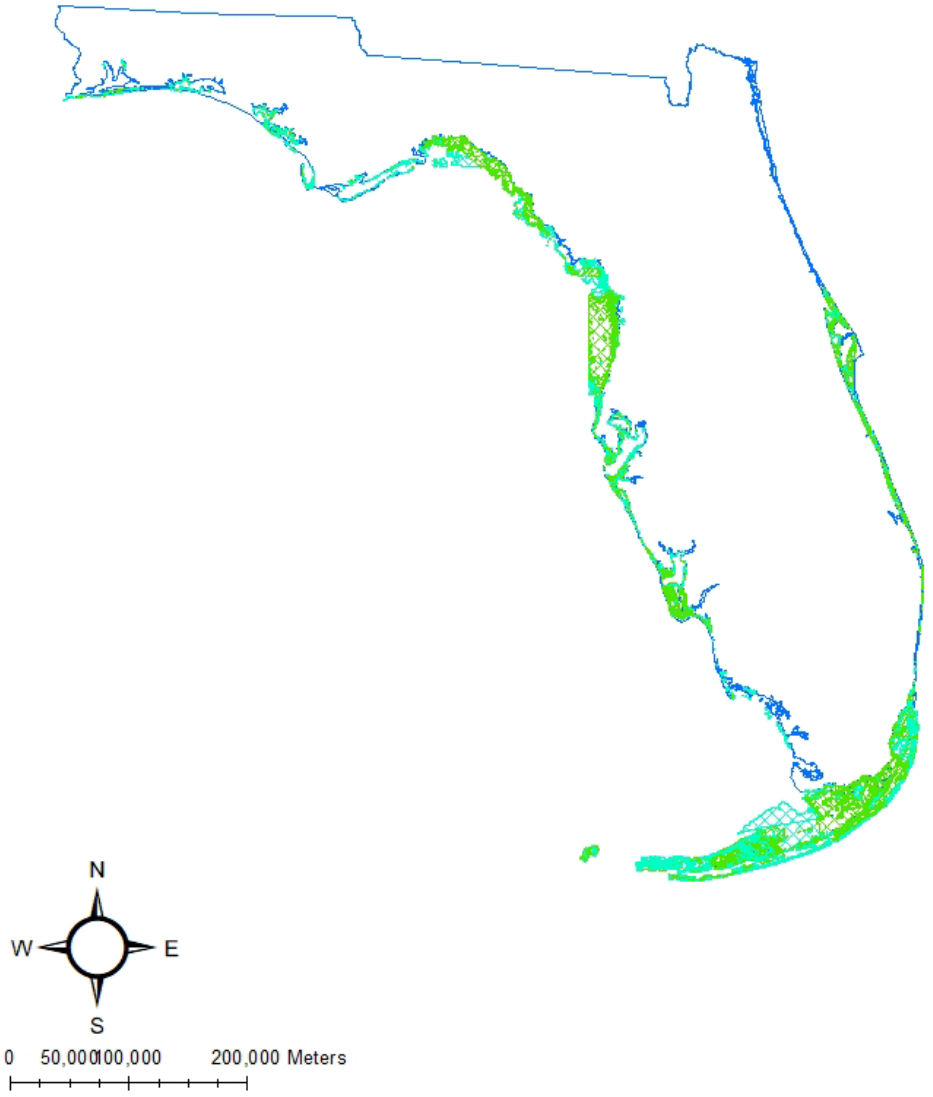
Mitigation Activities

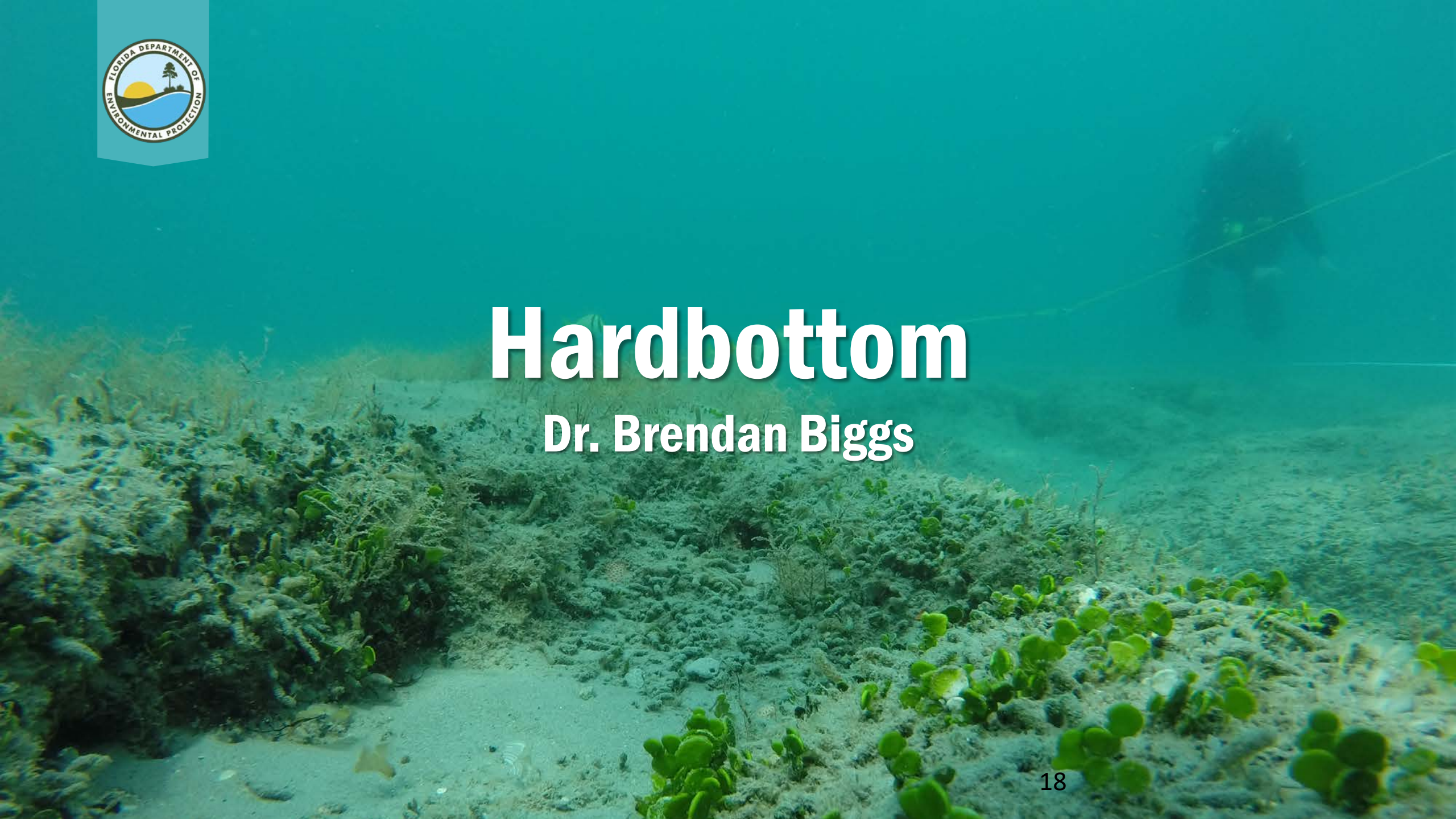
Lessons Learned

- Site Selection
- Species to plant
- Bird stakes

Additional Resources

- Remediation of impacts
- Maps of SAV
- Points-of-contact
- Peer-reviewed literature





Hardbottom

Dr. Brendan Biggs

Standard Operation Procedures

Nearshore Hardbottom Monitoring

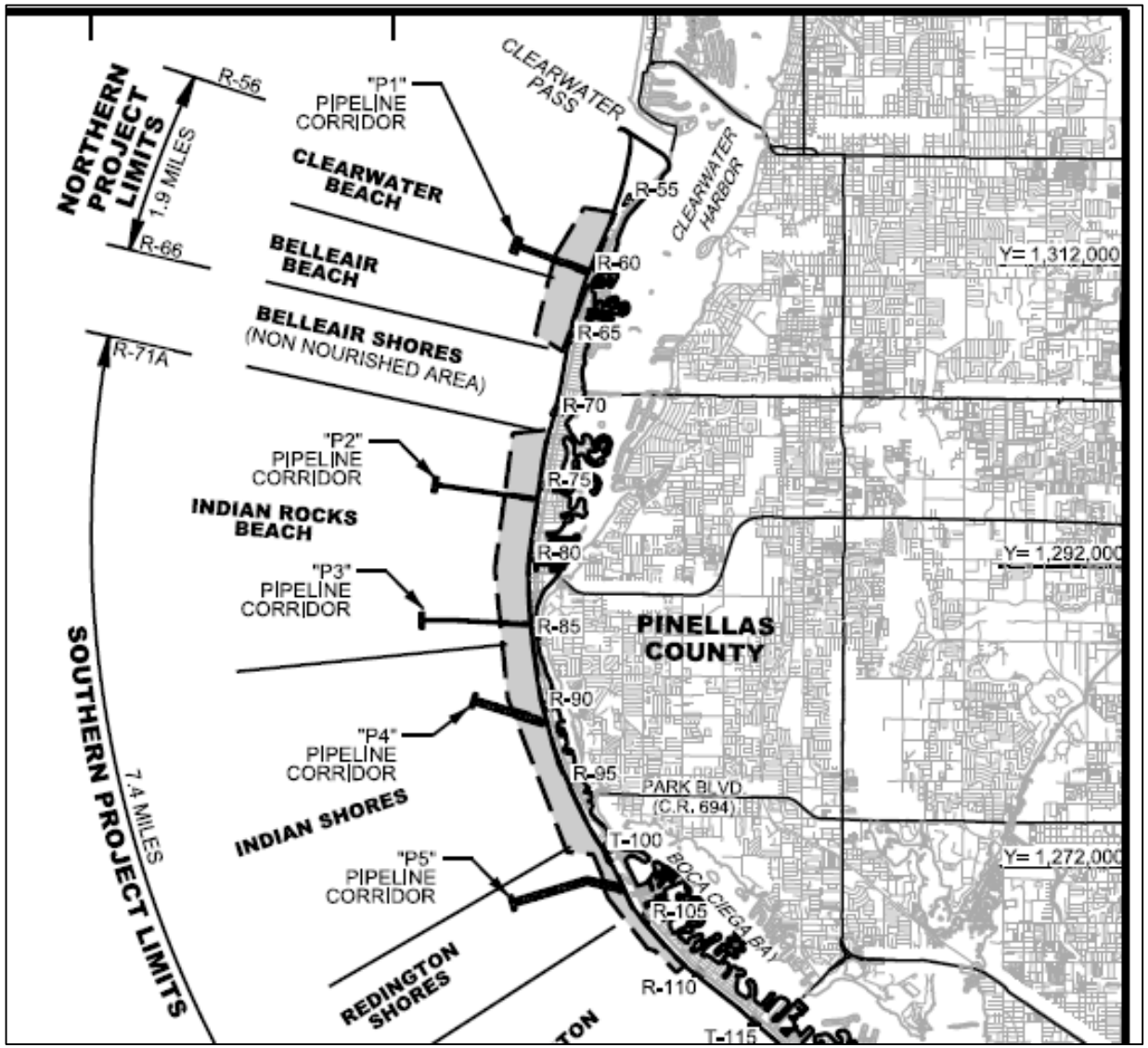
- Available online since February 2016
- Outlines methods for nearshore hardbottom monitoring

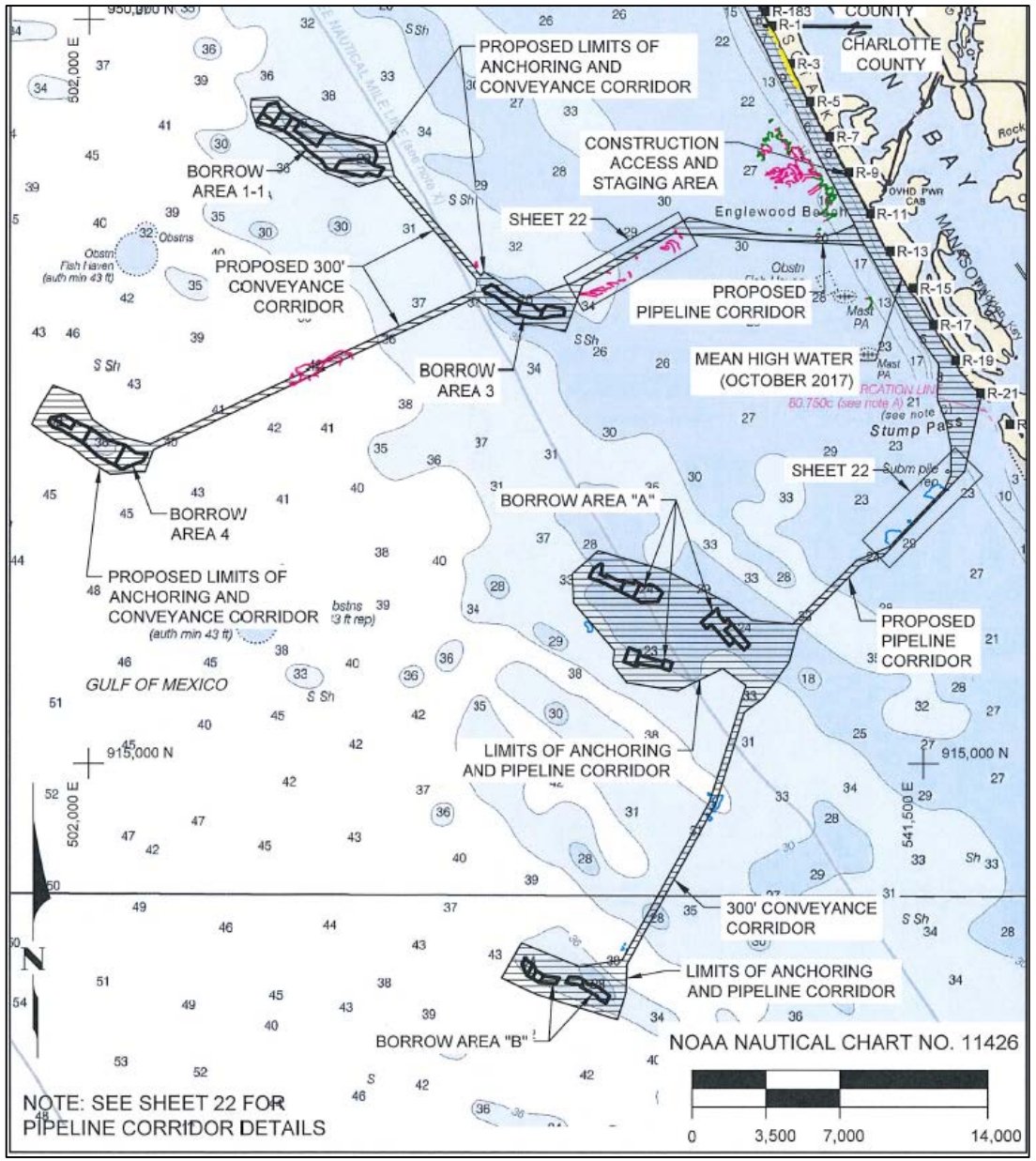
https://floridadep.gov/sites/default/files/SOP-NearshoreHardbottomBioMonitoring.pdf

Appendices in Progress

- Pipeline Corridors
- Mitigative Artificial Reefs

Pipeline Corridors





Pipeline Corridors

Identify Hardbottom Resources

- Application, prior to construction

Avoid or Minimize Impacts

- Application, prior to construction

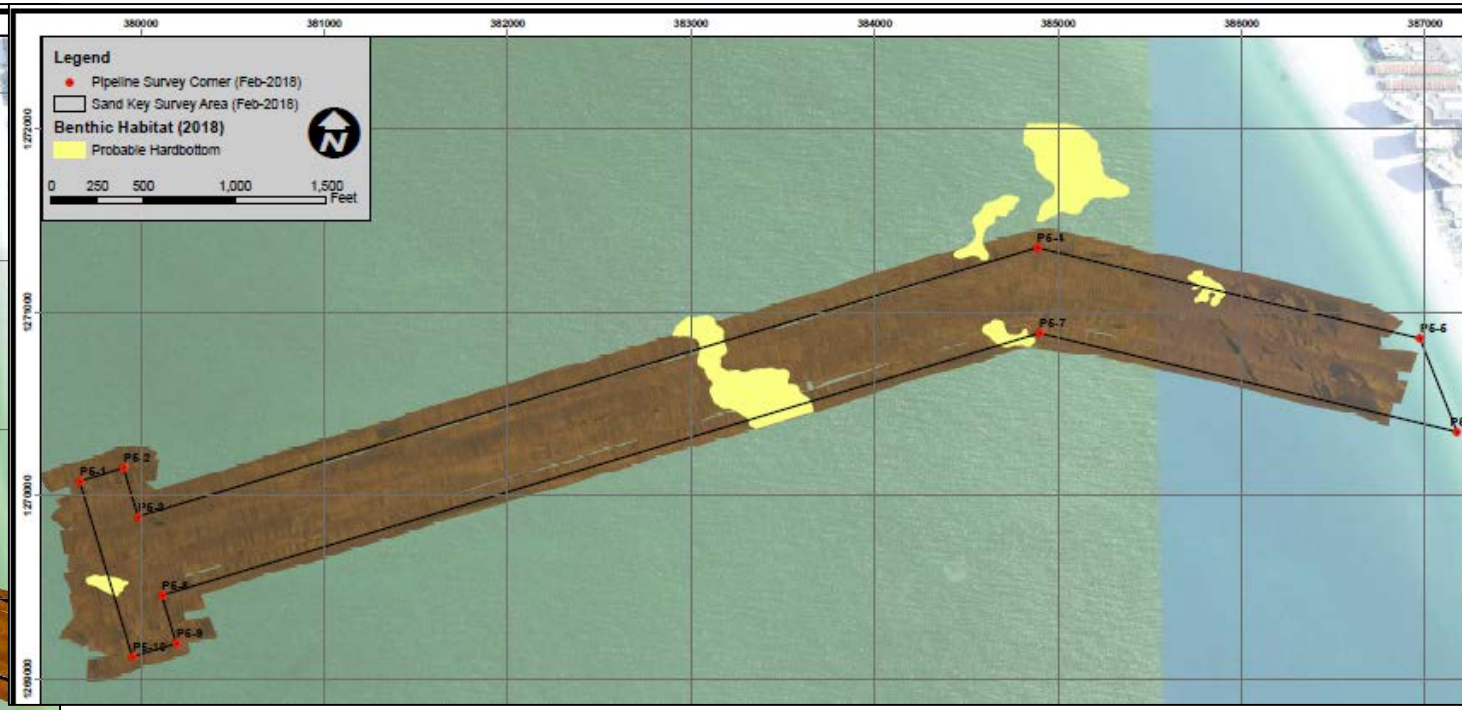
Monitor Resources

- Prior to, during, and immediately following construction

Pipeline Corridors

Identify Hardbottom Resources

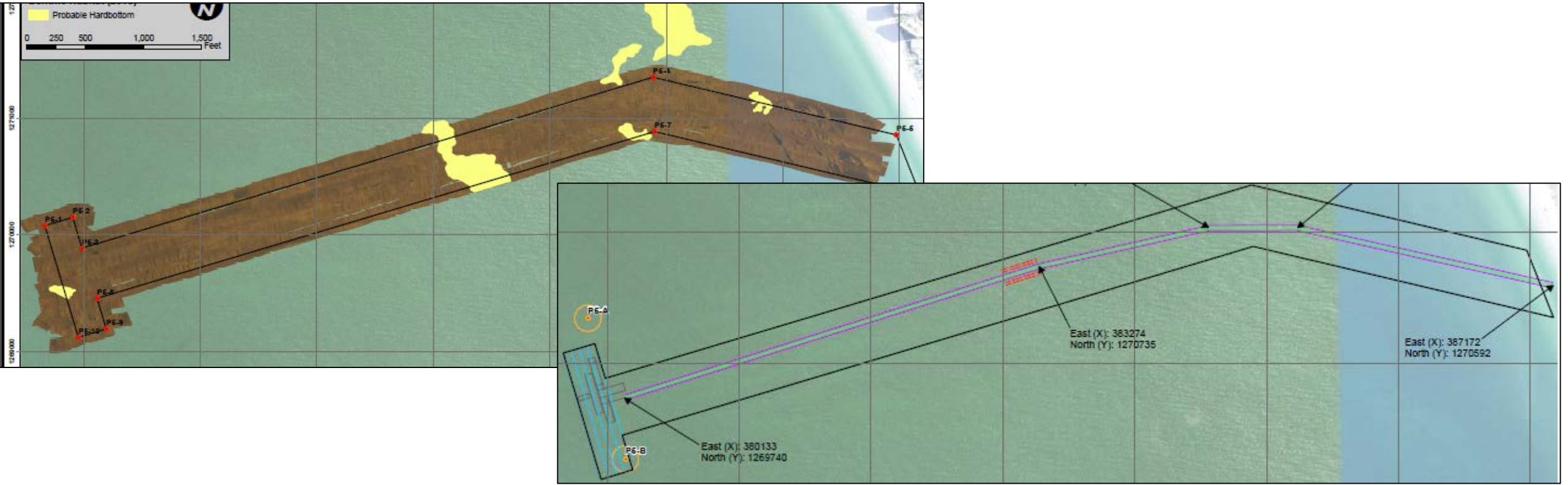
- Sonar survey
- In-situ hardbottom verification and mapping



Pipeline Corridors

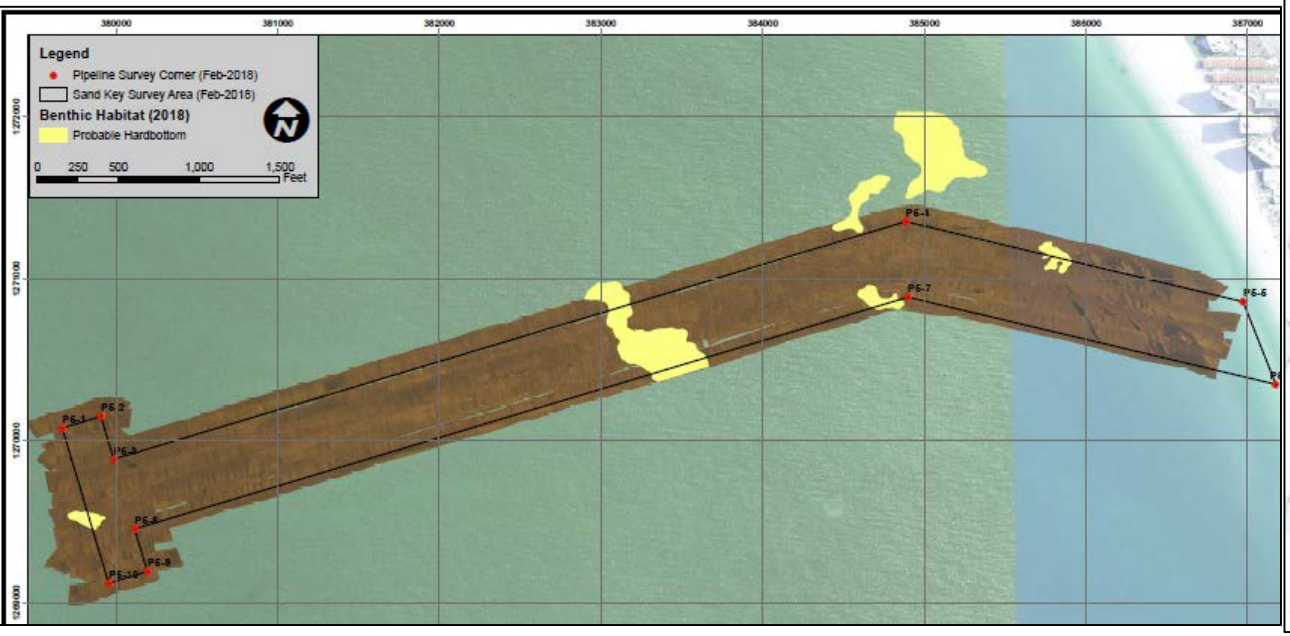
Avoid or Minimize Impacts

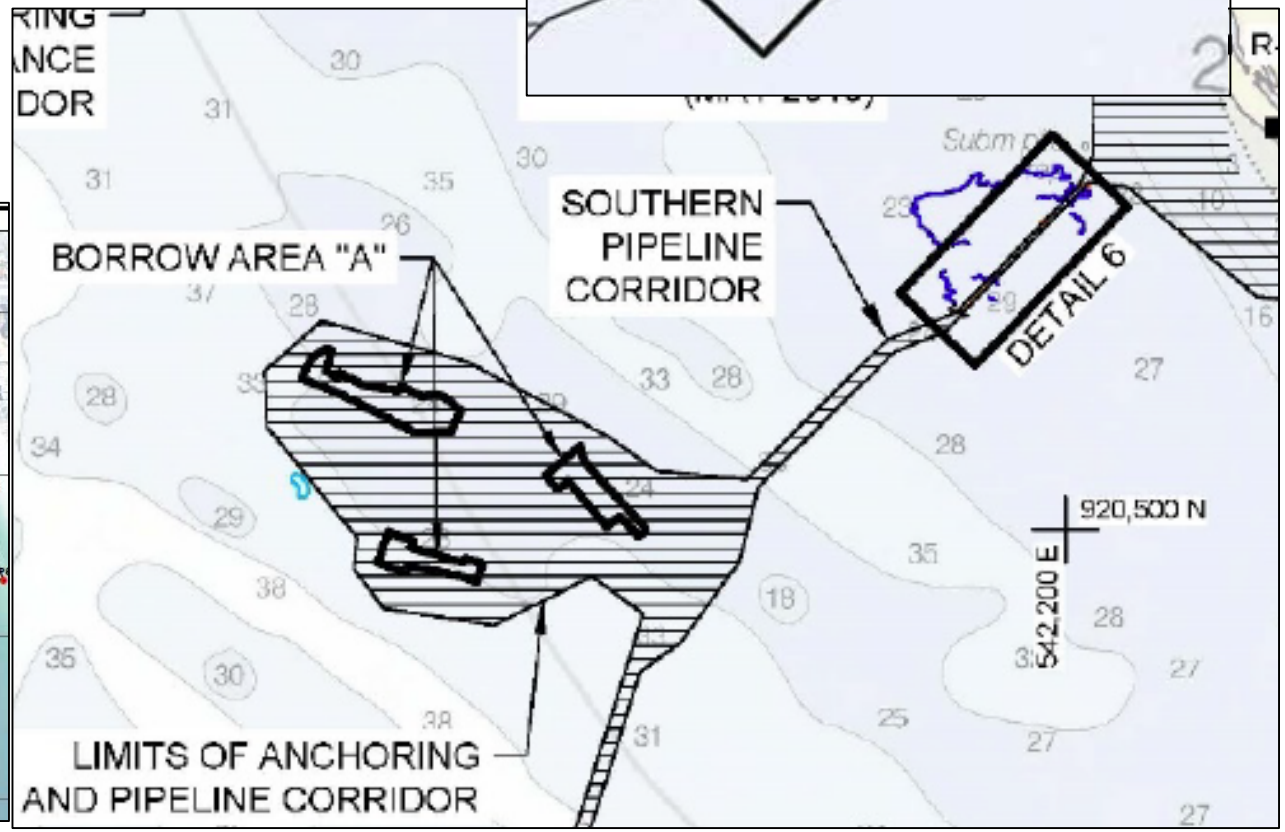
- Plan and then place pipeline
- Conduct pre-pumping pipeline survey



Pipeline Corridors

Monitor Resources





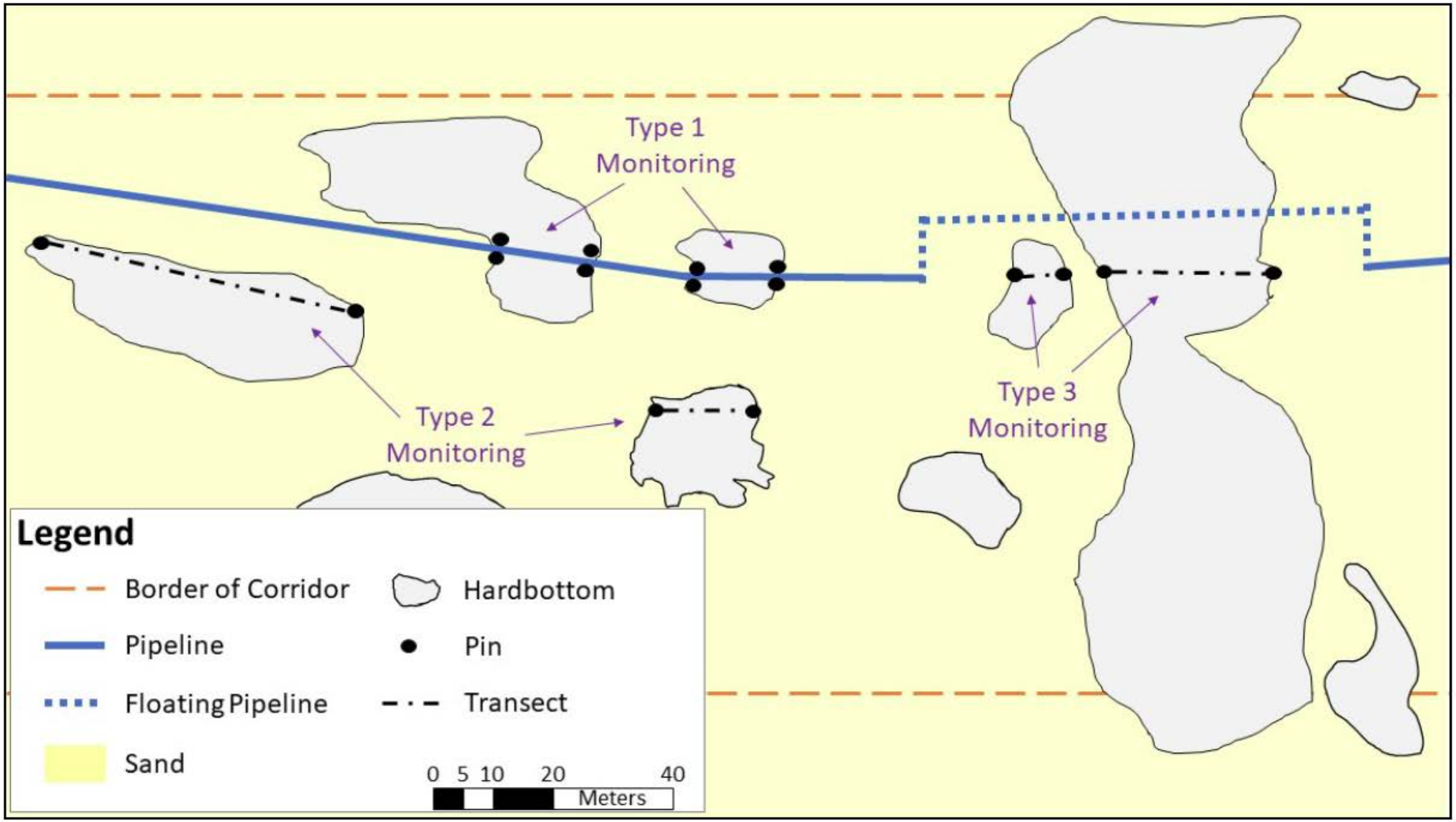
Pipeline Corridors

Monitor Resources

- Visual assessments documented by video
- Types of monitoring

Monitoring Type	Required For
1	Areas where the pipeline runs across/through hardbottom resources
2	Areas where the pipeline runs adjacent to hardbottom resources that are within 25 m of the placed pipeline
3	Areas where a floating pipeline is used (pipeline is above hardbottom resources)

Pipeline Corridors



Pipeline Corridors

Reporting

Pre-Construction:

- Hardbottom survey/mapping data and report

Pre-Pumping:

- Post-placement pipeline survey data

Post-Construction:

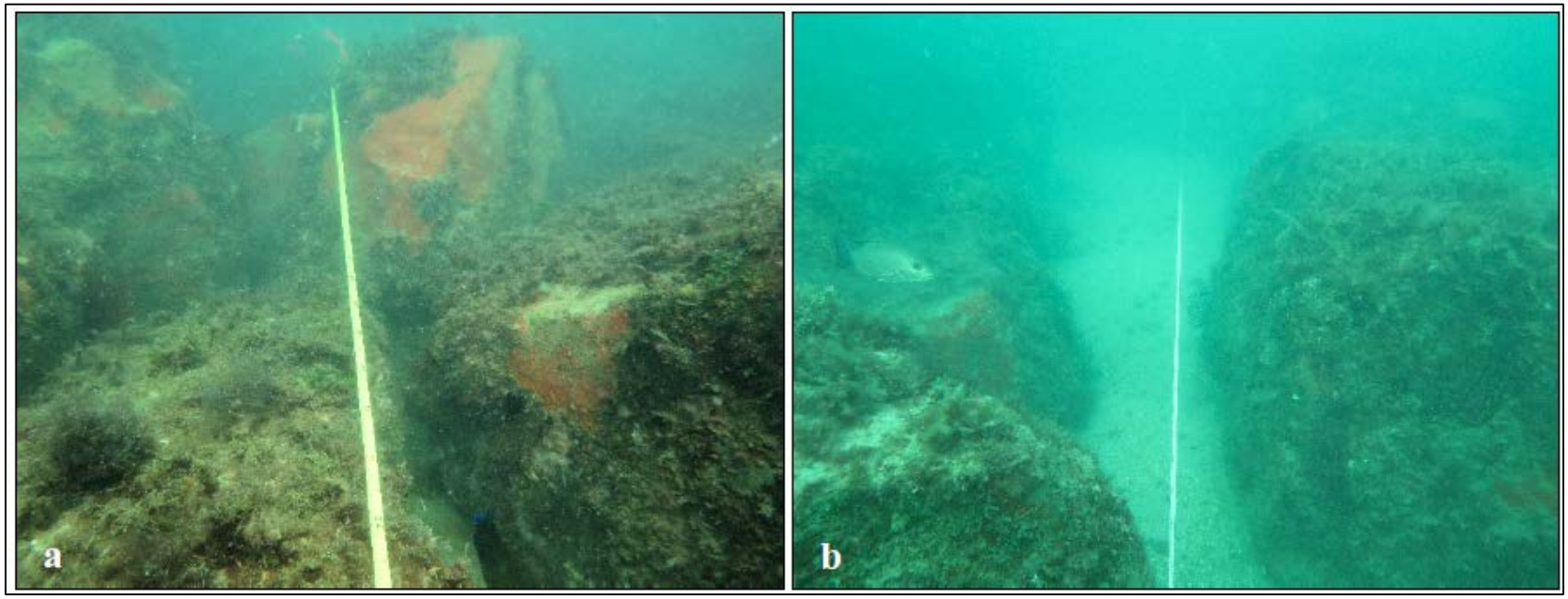
- Corridor monitoring data and report

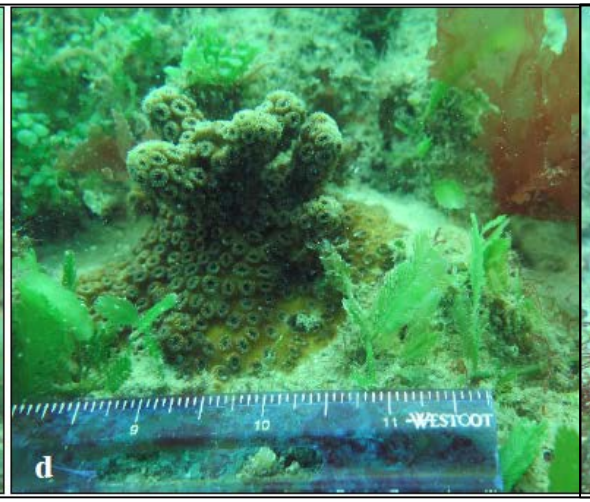
During and/or Post–Construction (If Impacts):

- Impact assessment data and report

Mitigative Artificial Reefs

- Siting
- Success Criteria
- Monitoring
- Reporting

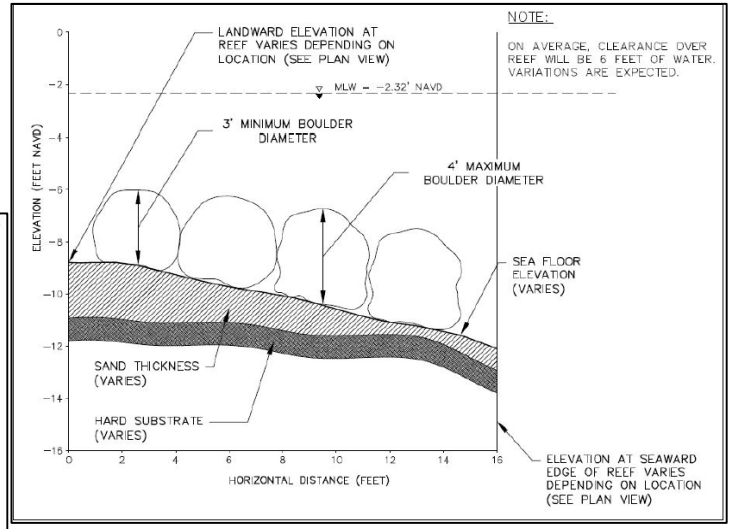


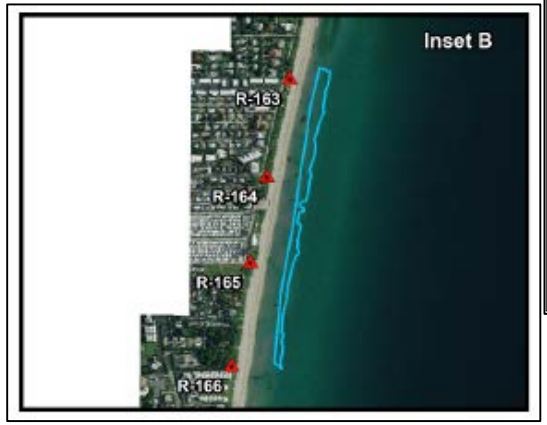


Mitigative Artificial Reefs

Siting

- Outside of direct impact area (e.g., beyond permitted ETOF)
- Similar water depth as impacted hardbottom
- Minimum 6-foot clearance (water depth) above top of reef
- Hardbottom *absent* (based on current and historical surveys)
- Minimum 100-foot buffer from hardbottom
- Sediment thickness between 1 and 3 feet





Mitigative Artificial Reefs

Success Criteria

- Mitigation must provide viable and sustainable ecological and hydrological functions

  Section 10.3.3 of the ERP Applicant's Handbook Volume I

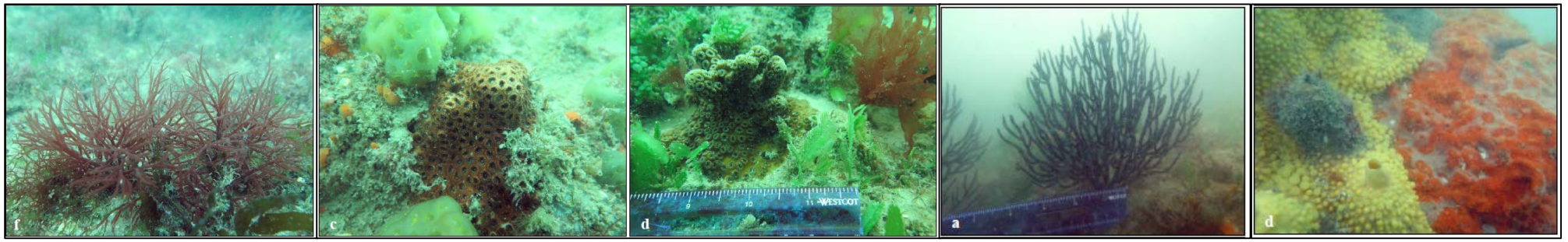
- Established during the permitting process

- Aimed at ensuring the mitigative reef:
  - Provides the net acreage of hardbottom required to offset impacts, and
  - Develops a hardbottom community similar (structure, composition and function) to that of the impact area/reference community

Mitigative Artificial Reefs

Monitoring

- Required to document the success of mitigative artificial reef in meeting its permit specified success criteria.
- Includes:
  - Physical mitigative reef surveys (gross and net acreage)
  - Impact area/Reference area biological survey (AR reference community)
  - Annual post-construction mitigative reef biological surveys (AR community development)



Mitigative Artificial Reefs

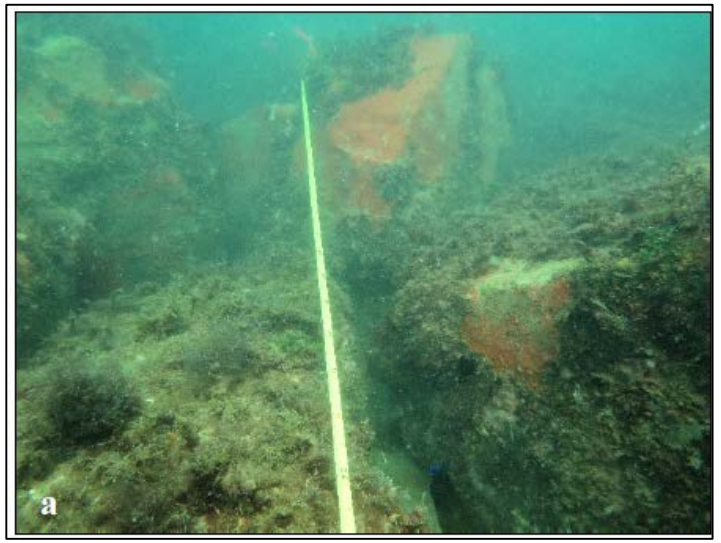
Reporting

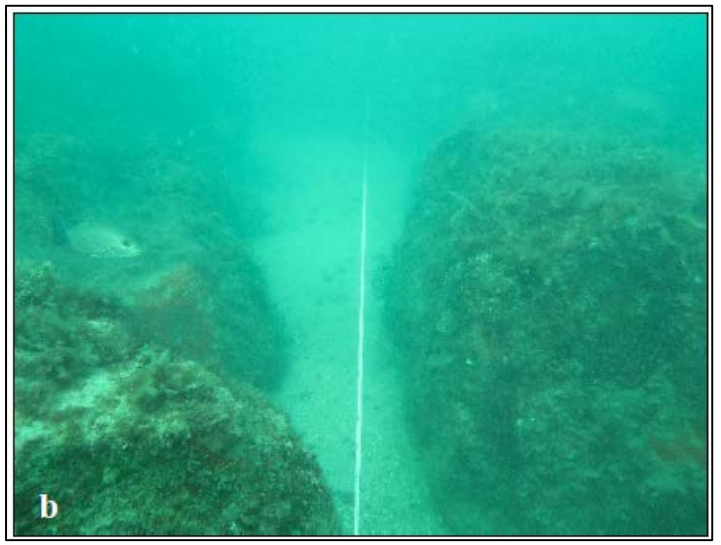
Pre-construction – initial project:

- Impact area/Reference community survey data

Post-construction – mitigative reef:

- Physical mitigative reef monitoring data and reports
- Biological monitoring data and reports





Future Updates to Hardbottom SOP

- **Revise current SOP to increase clarity**
- **Include Appendices for:**
  - Pipeline Corridors
  - Mitigative Reefs
- **Develop Appendix for:**
  - Borrow Area Monitoring

Next Steps

- Add and refine resources for SAV toolkit and Hardbottom SOP

Thank you!

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