

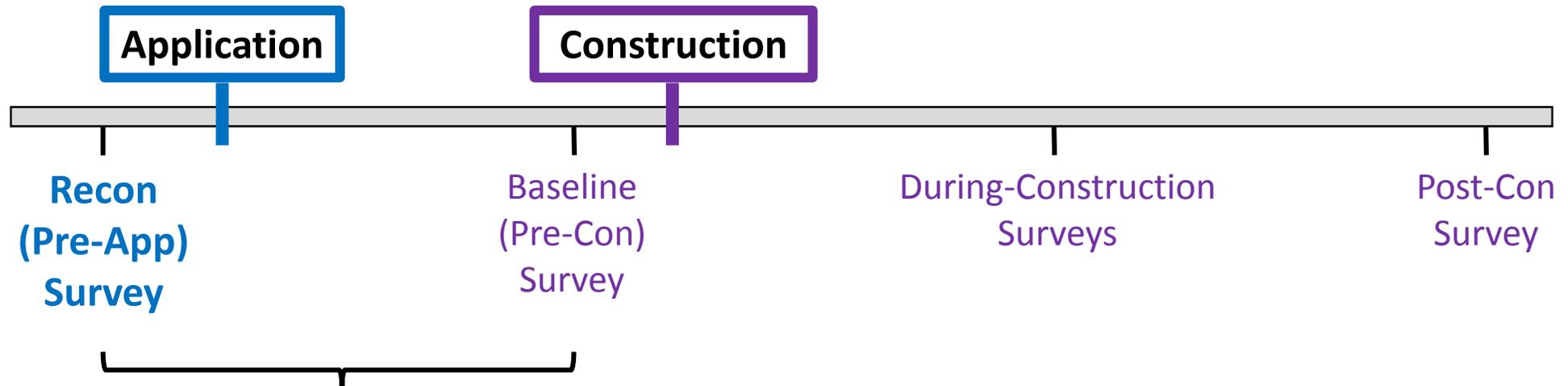
Port Everglades Reconnaissance Survey

Interagency Workgroup

October 4th 2016

Port Everglades Surveys

Time Line



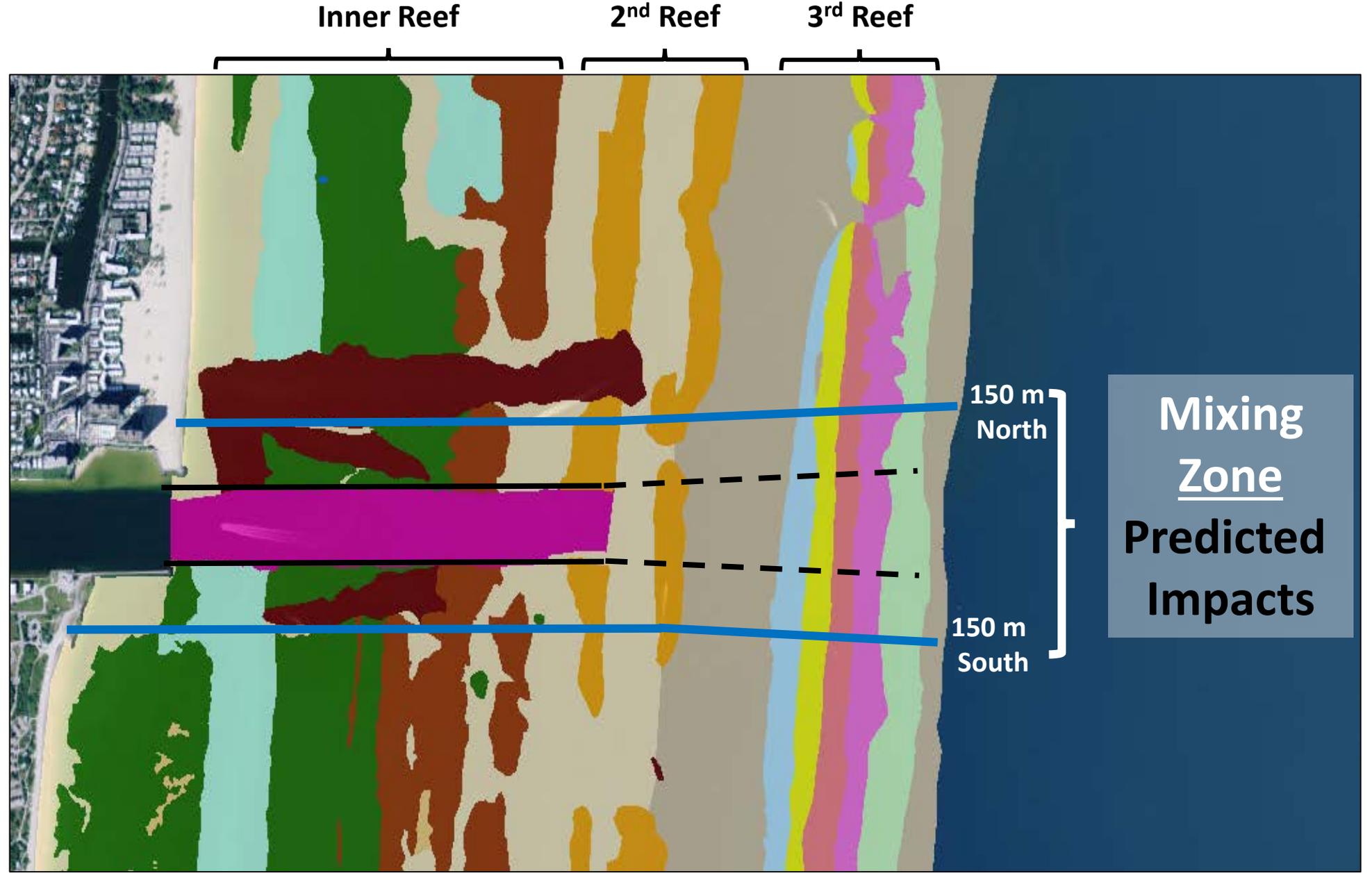
Very Different Surveys

- Different purposes
- Different areas
- Different spatial scales
- Different methods

Recon Survey Areas

Pre-Application

Spatial Extent



Monitoring Areas

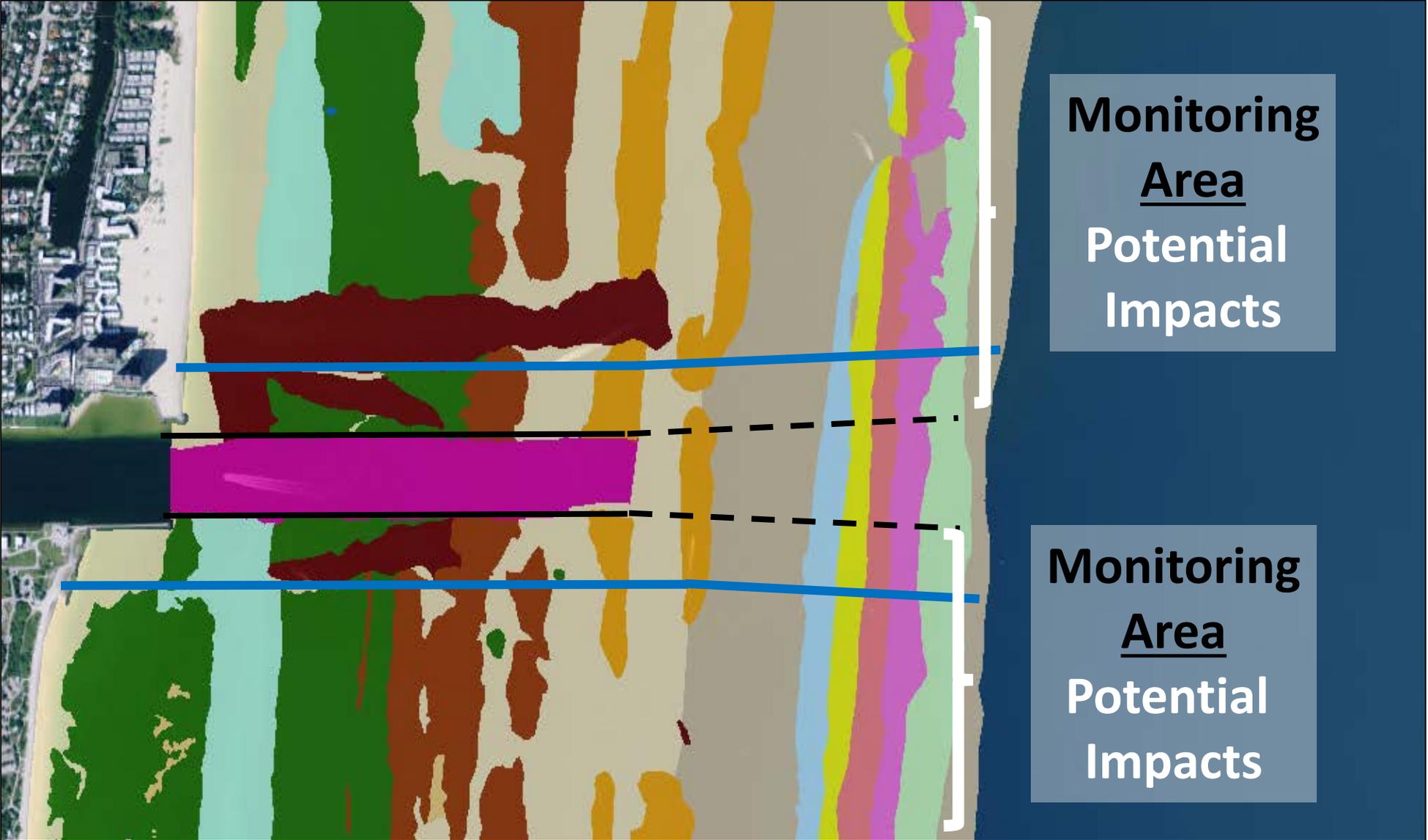
Pre-, During-,
and Post-
Construction

Spatial Extent

Inner Reef

2nd Reef

3rd Reef



Monitoring Area
Area
Potential Impacts

Monitoring Area
Area
Potential Impacts

Reconnaissance Survey Goal and Objectives

Goal: Obtain information on natural communities in the project area needed for project planning and permitting

Objectives:

1. **UMAM – Amount of compensatory mitigation required**
2. **Mitigation Plan – Appropriateness and success criteria**
3. **Impact Minimization / Transplantation from impact areas**
4. **NMFS / NEPA – Consultation, including Essential Fish Habitat**

Reconnaissance Survey Objectives

1. **UMAM:** Current condition of benthic habitats needed to determine amount of compensatory mitigation required to offset predicted impacts
2. **Mitigation Plan:**
 - A. Reference community / success criteria for mitigation reef
 - B. Enhancement activities (nursery rearing and out-planting of organisms)
3. **Impact Minimization:** Distribution and abundance of organisms to be transplanted out of predicted impact areas
4. **NEPA / NMFS:** Information needed for consultation, including but not limited to Essential Fish Habitat

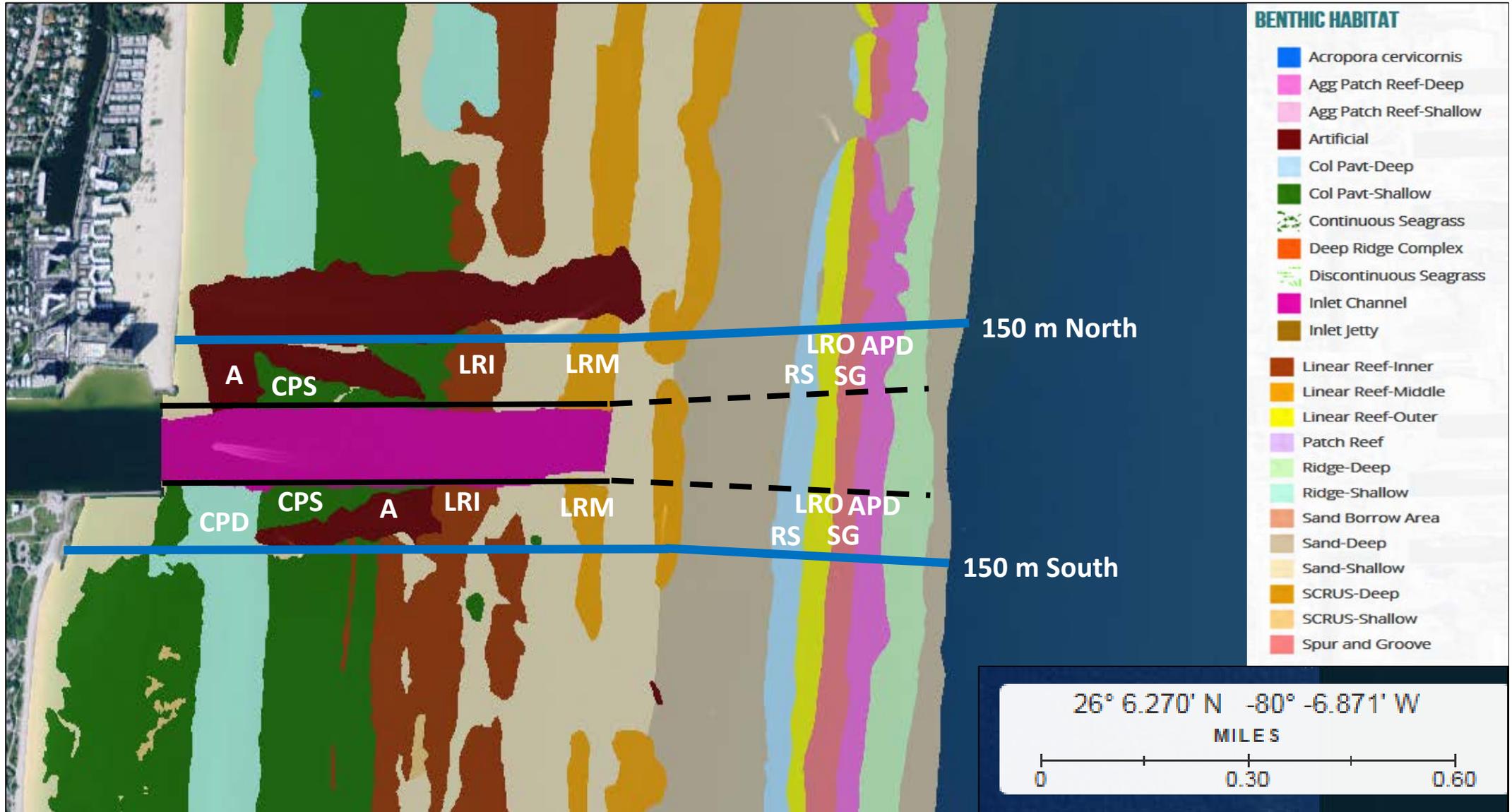
Assessment Areas: Habitats

North – 8 Types
South – 9 Types
 Total = 17 types

Inner Reef

2nd Reef

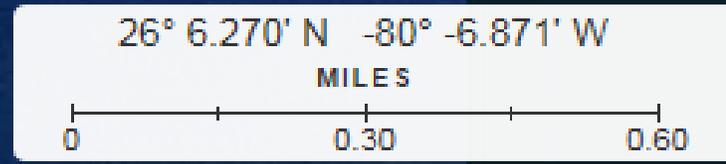
3rd Reef



- BENTHIC HABITAT**
- Acropora cervicornis
 - Agg Patch Reef-Deep
 - Agg Patch Reef-Shallow
 - Artificial
 - Col Pavt-Deep
 - Col Pavt-Shallow
 - Continuous Seagrass
 - Deep Ridge Complex
 - Discontinuous Seagrass
 - Inlet Channel
 - Inlet Jetty
 - Linear Reef-Inner
 - Linear Reef-Middle
 - Linear Reef-Outer
 - Patch Reef
 - Ridge-Deep
 - Ridge-Shallow
 - Sand Borrow Area
 - Sand-Deep
 - Sand-Shallow
 - SCRUS-Deep
 - SCRUS-Shallow
 - Spur and Groove

150 m North

150 m South



Sampling Units: Temporary Transects



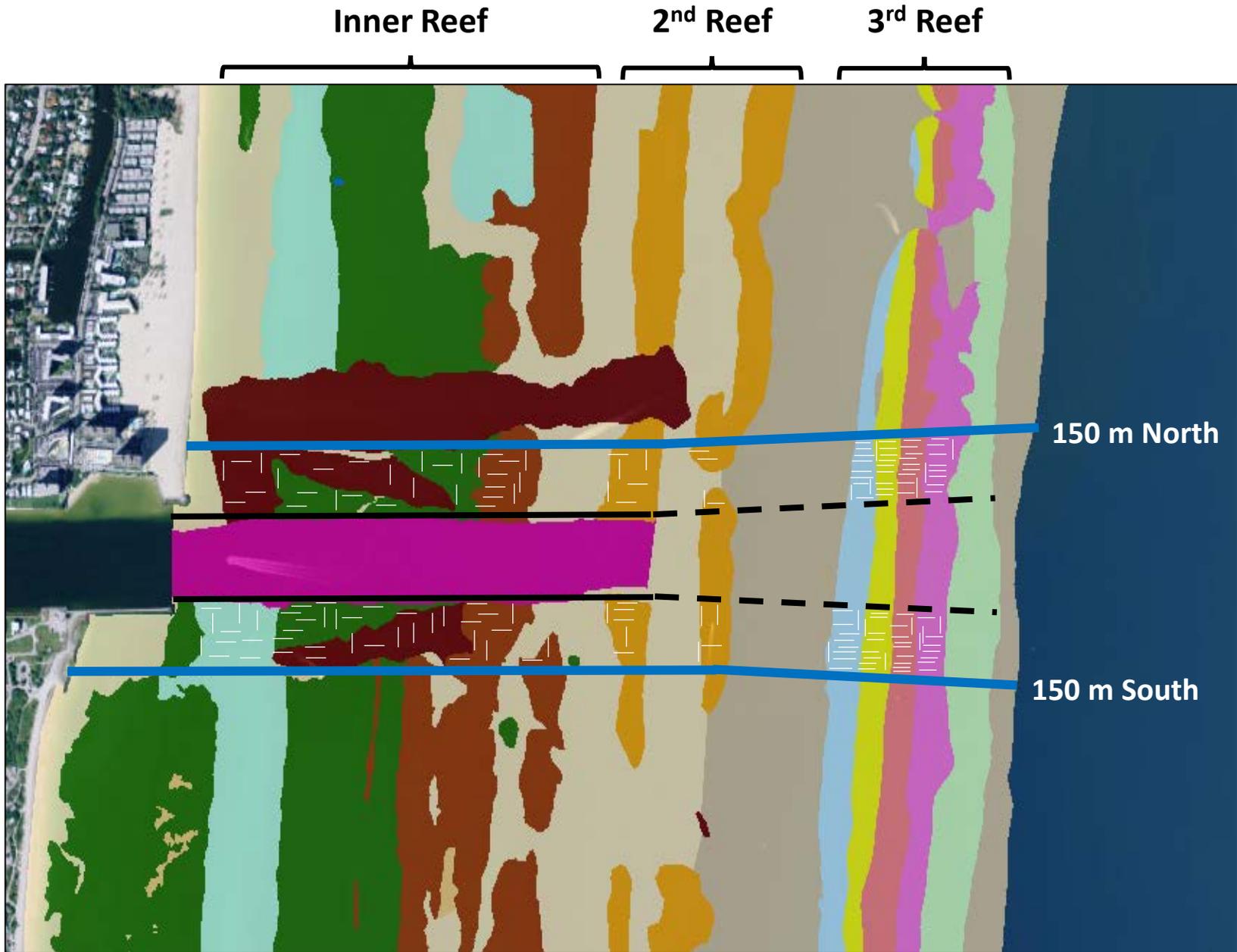
Length: 0 m

30 m

Survey Types:

1. Transect line – video and physical features
2. Quadrats – detailed community data
3. Belt transect – coral and *Xestospongia muta* data

Distribution of Transects



Sampling Locations

Transects randomly stratified throughout Habitat Types

10 transects per area:

- Habitat Type
- North / South of channel

170 total transects

Transects on northern side of 3rd Reef used to estimate function of 3rd reef direct impact area

Transect Line



Survey tasks:

- Digital video
- Visual assessment of physical features
 - Relief features
 - Large patches of sediment

Quadrats



Size: 0.5 m^2 (0.7 m x 0.7 m)

Survey Tasks:

- Percent cover of functional groups
- Octocorals and Sponges

Percent Cover of Functional Groups in Quadrats

Functional Groups to be Used (N=12):

Sediment (by type: rubble, sand, mud, etc.)

Bare substratum

Macroalgae (by Family)

Turf algae

CCA

Sponges

Corals

Octocorals

Zoanthids

Hydrocorals

Sessile worms

“Other invertebrates”

“Other Invertebrates” includes:

- Anemones
- Bivalves
- Barnacles
- Bryozoans
- Tunicates

Octocorals and Sponges in Quadrats

Identify:

Octocorals (to Genus) and Sponges (by Growth Form)

Sponges - Encrusting, Erect branching, Tube/Vase, Massive/Amorphous, Spherical

Count:

Octocorals and Sponges – Number of individuals

Measure Size:

Octocorals – Each individual (greatest dimension)

Sponges – Bin each individual within a growth form to a size class

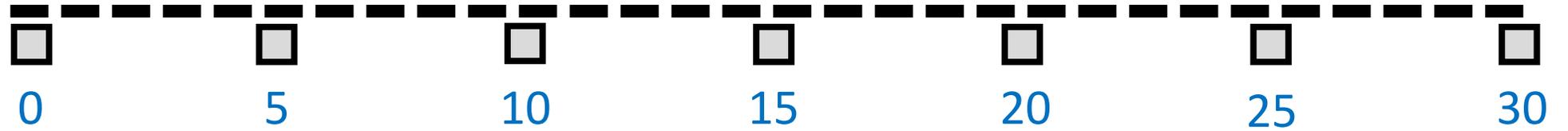
Size Classes: 0 – 10 cm, 10 – 25 cm, 25 – 50 cm, > 50 cm

Quadrat Area Sampled

Quadrat Size: 0.5 m²

Quadrats

5 m interval
(N=7, 3.5 m²)



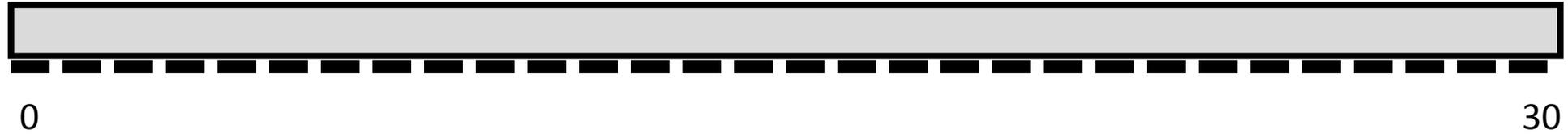
Recon Survey:

170 transects

3.5 m² / transect

595 m² total

Belt Transects



Size: 30 m x 1 m **Area:** 5,100 m²

Coral Survey (all individuals):

Identify – to species

Count – each individual

Measure – greatest dimension

***Xestospongia muta* Survey:**

Count – each individual

Measure – bin to size class (e.g., 0 – 10 cm, 10 – 25 cm, 25 – 50 cm, > 50 cm)

Reconnaissance Survey Summary

Transects Line (30 m)

Video

Physical features

Quadrats - 3.5 m² (7 x 0.5 m²):

Cover for functional groups

Octocorals and sponges (ID, count, and measure)

Transects Belt - 30 m² (30 m x 1 m)

Corals (ID, count, and measure)

X. muta (count and bin to size)

Area Sampled – Comparison of DEP vs DCA

		DEP Proposed	DCA
Number Sampled	Transects	170	152
	Quadrats per transect	7	na
	Quadrats	1,190	na
Area Sampled	Per quadrat (m ²)	0.5	na
	In quadrats per transect (m ²)	3.5	na
	In belt per transect (m ²)	30	10
Total Area Sampled	Quadrats (m ²)	595	na
	Belt Transect (m ²)	5,100	1,520
	Reef in mixing zone (acres)	109	109
	Reef in mixing zone (m ²)	441107.3	441107.3
Percent of Area Sampled	Reef in quadrats (%)	0.13	na
	Reef in belt transects (%)	1.16	0.34