



Florida Department of Environmental Protection Division of Water Resource Management

Beach Nourishment & Nearshore Hardbottom

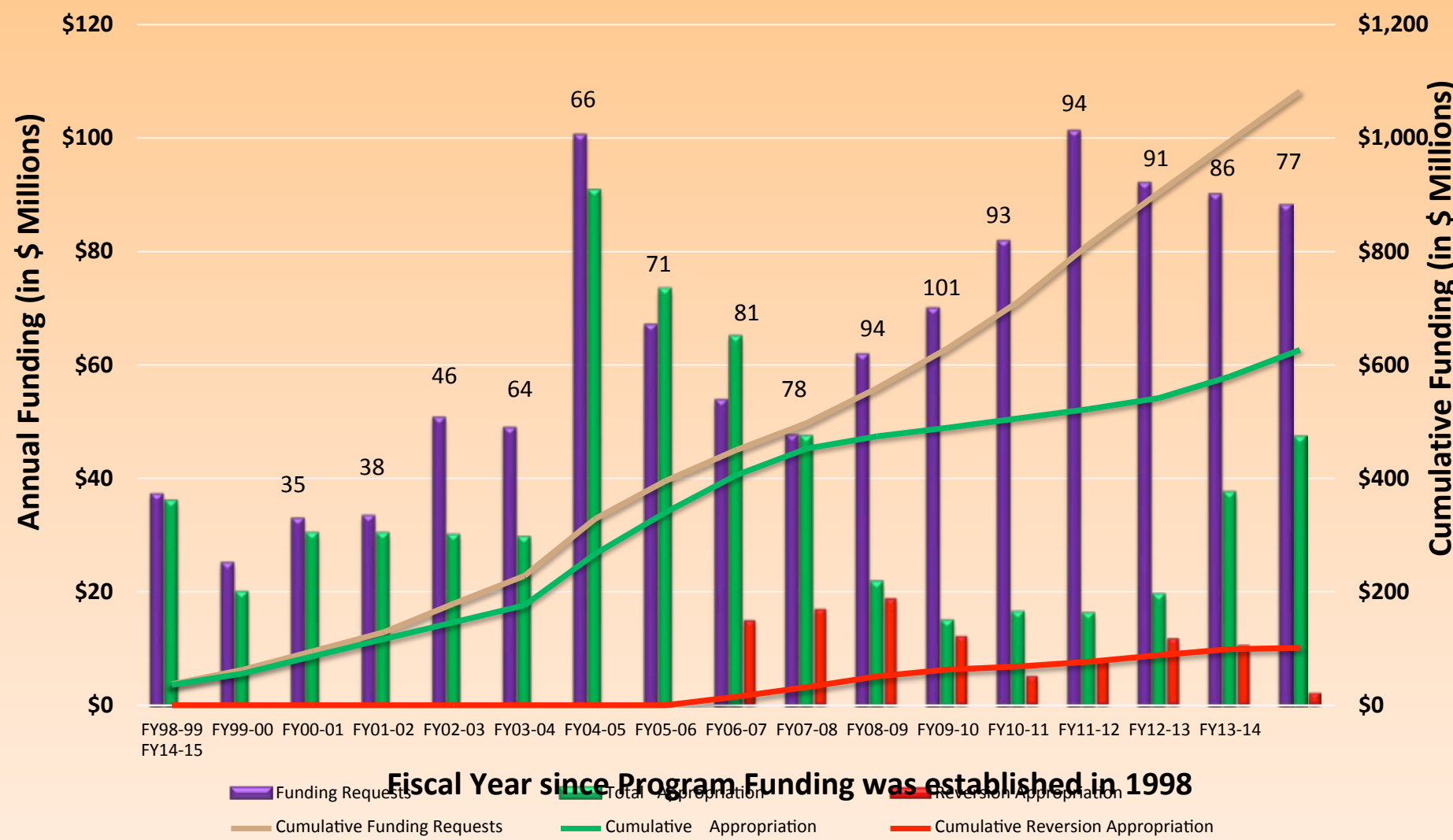
July XXX

***Danielle H. Irwin, Deputy Director
Marco Island Summer School***



Beach Funding

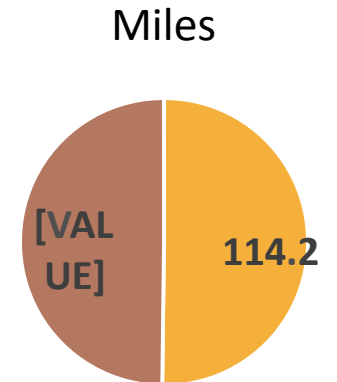
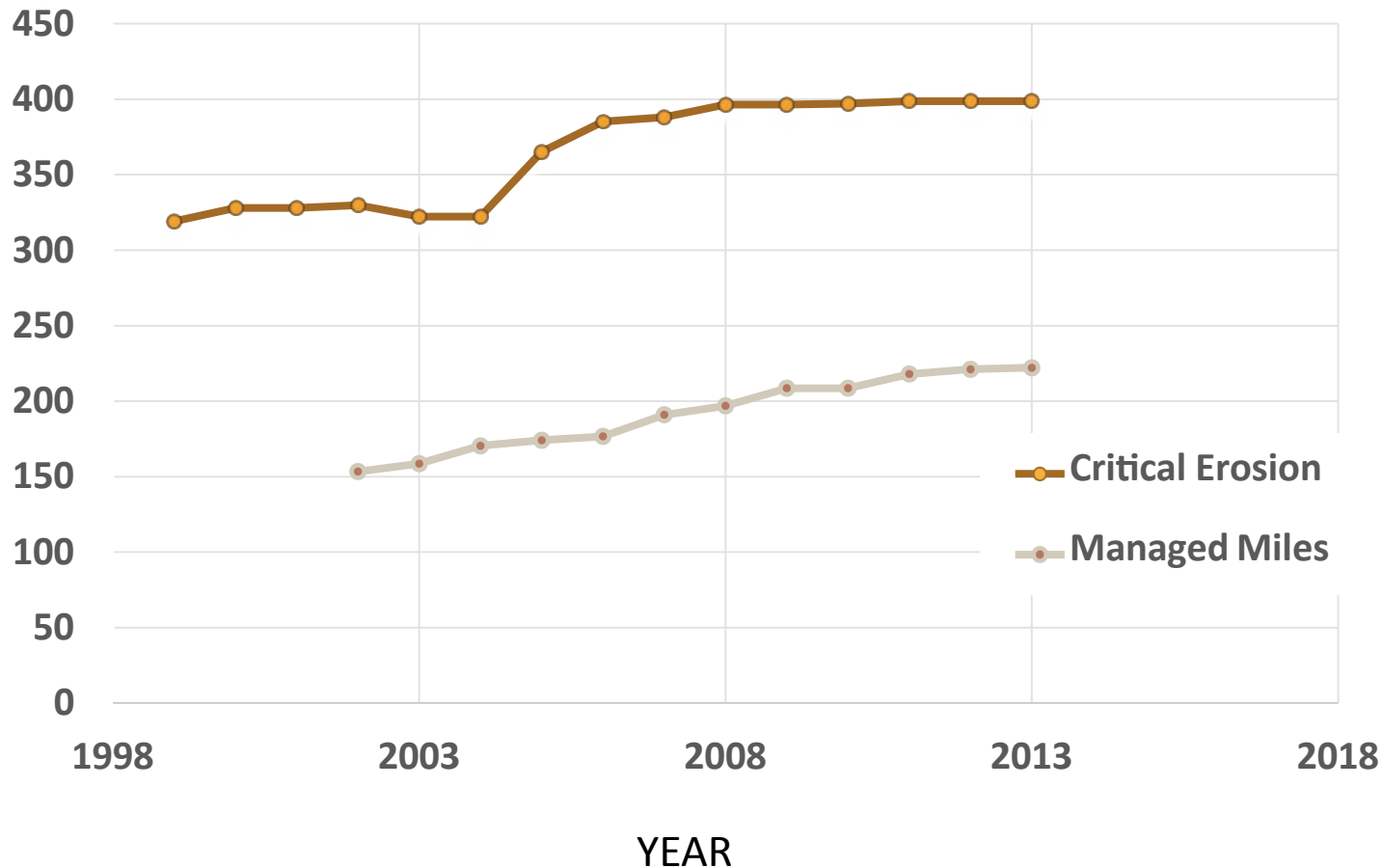
Annual and Cumulative Funding Requests Vs. Appropriations



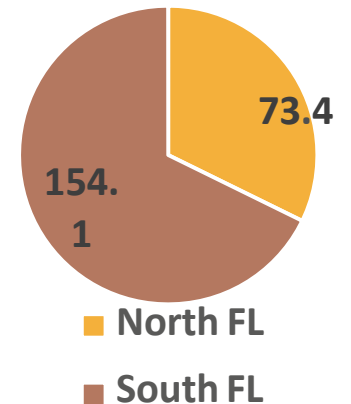


Beach Nourishment

Critically Eroded Shoreline and Managed Miles of Shoreline



■ Gulf Coast
■ Atlantic Coast



■ North FL
■ South FL



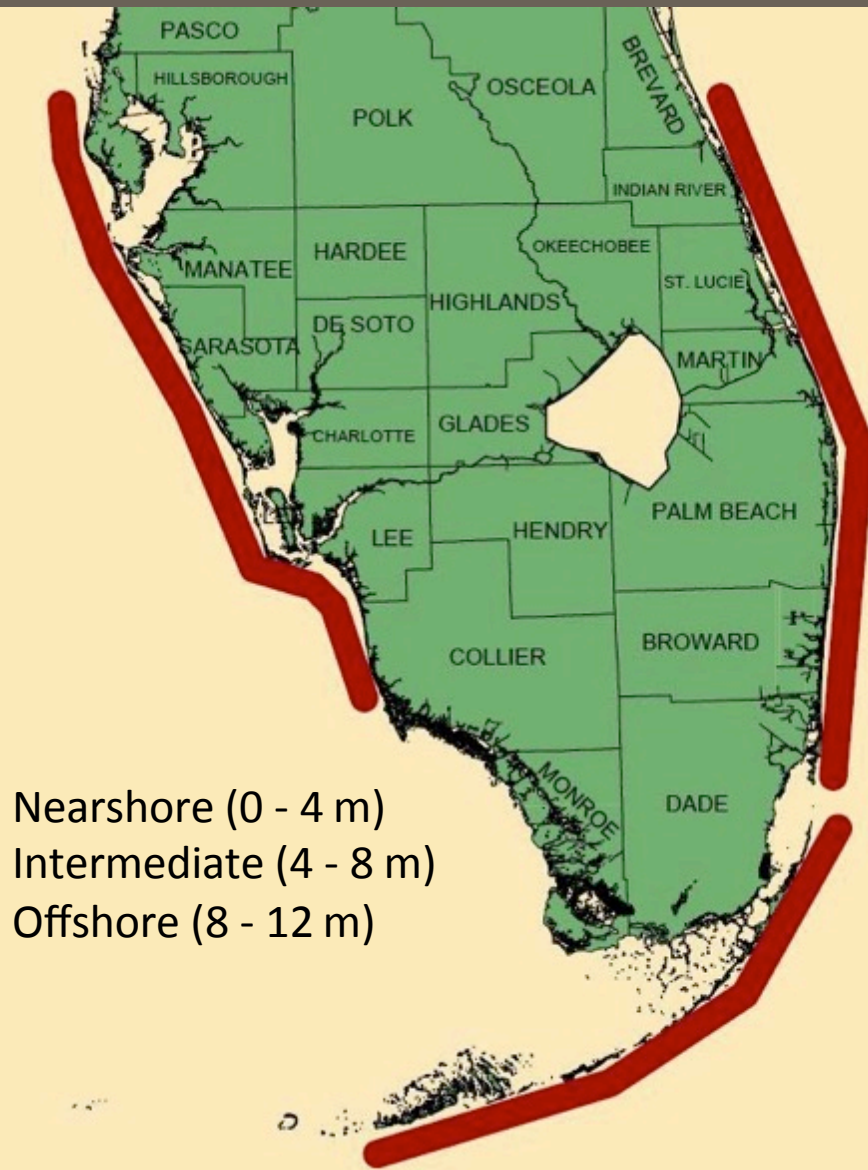
Beach Nourishment

Statewide Beach Nourishment Monitoring





Where is the Hardbottom?



Nearshore (0 - 4 m)
Intermediate (4 - 8 m)
Offshore (8 - 12 m)

**Reach 8 nearshore
September 2007 (c)**



**Intermediate HB
(R-98 – BMA)**



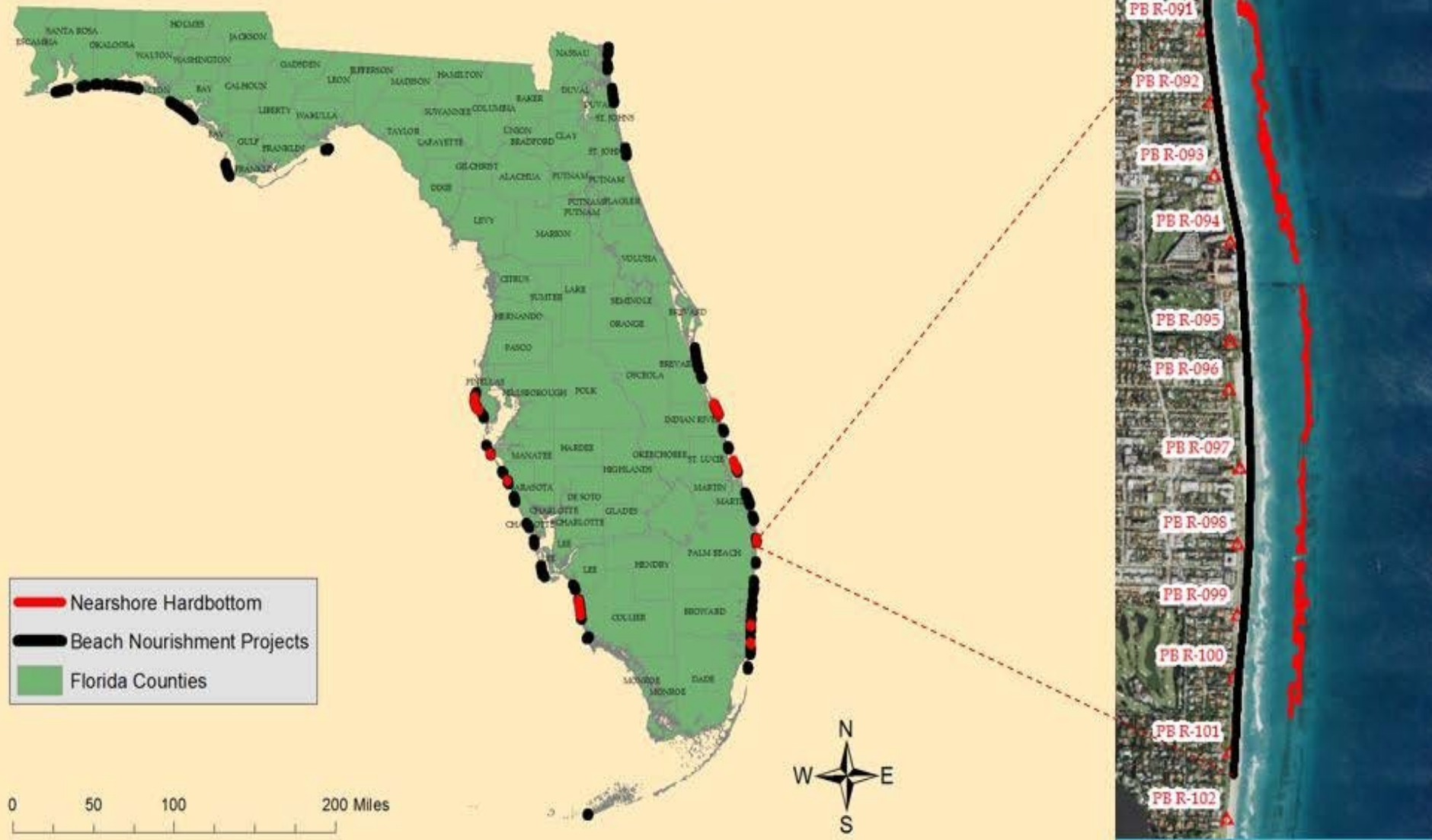
**Offshore HB
Phipps Ocean Park**





Projects with Hardbottom

Beach Nourishment and Nearshore Hardbottom Monitoring

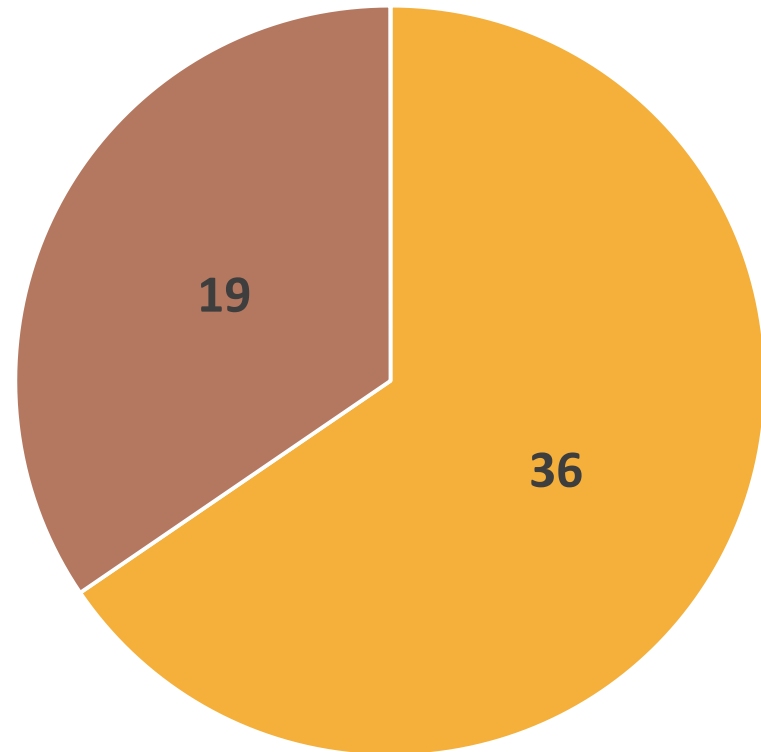




Nourishment Projects with HB

- 68 beach nourishment projects
- 41 projects constructed that have HB monitoring requirements (excl. ports)

2014 – 55 Active Projects

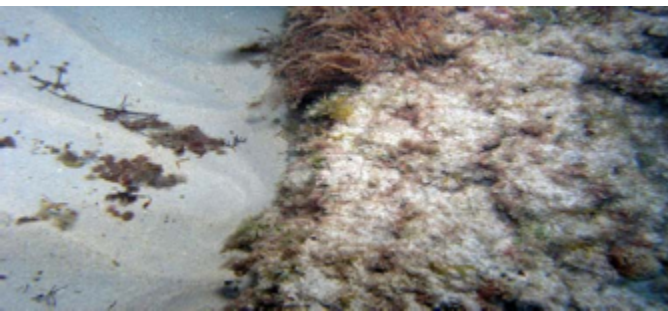


- Projects without HB monitoring
- Projects with HB monitoring



Managing Hardbottom

- Pre-project Assessment
- Estimate Resource Impact
 - Direct
 - Secondary
- Mitigation to offset predicted impacts
- Monitor adjacent resources
- Mitigate if necessary for unanticipated impacts





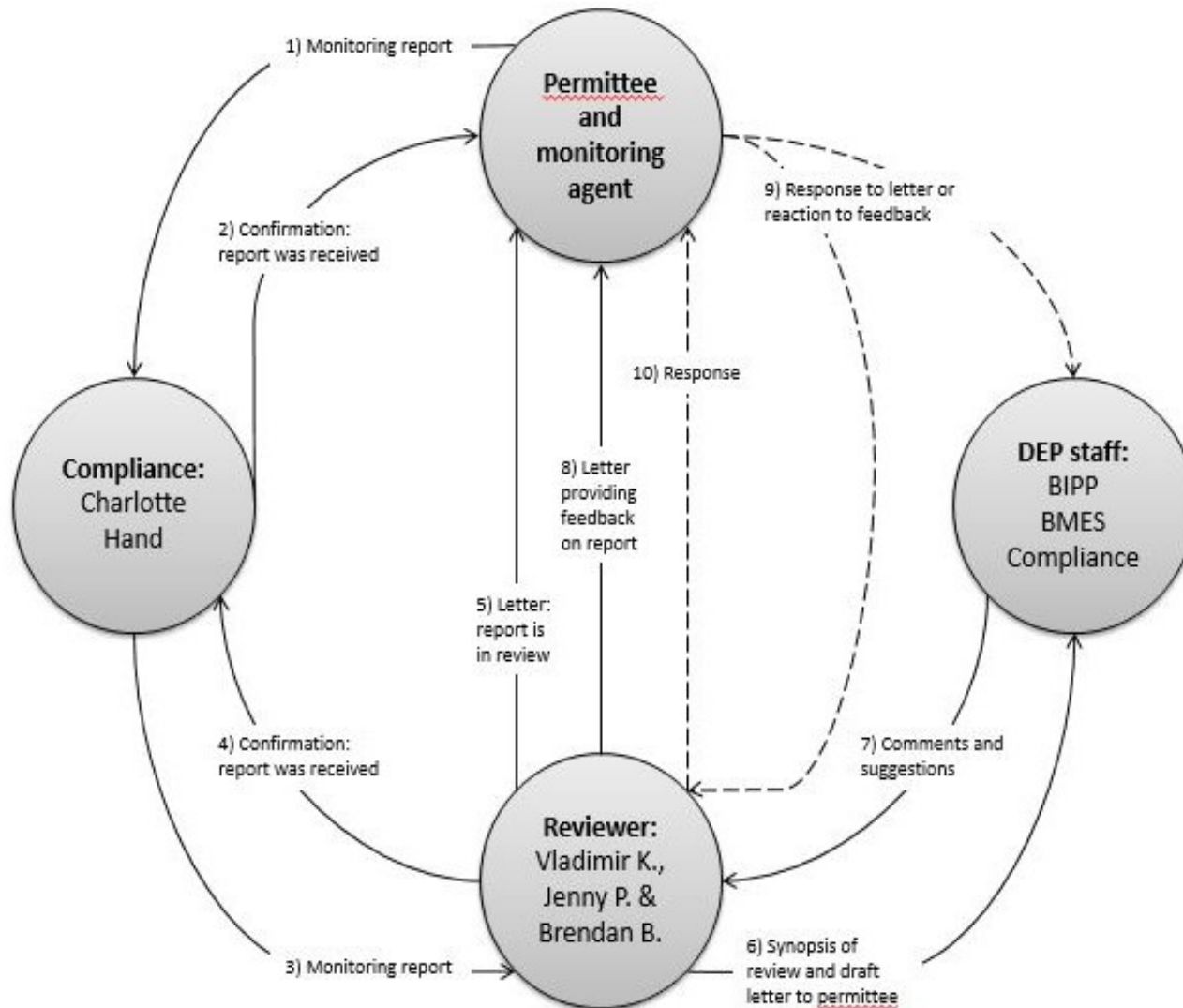
Resource Review

- New Review Team
 - 3 Ph.D.s
 - Variety of expertise
- Better review tracking
 - More feedback
 - Faster review / responses
- Consistent analysis procedure
 - GIS / Analysis tools





Resource Review – Feedback Loop



Target Timeframe

Step 1 – Receive report

30 Days

Step 3 – Letter to Permittee and Monitoring Agent

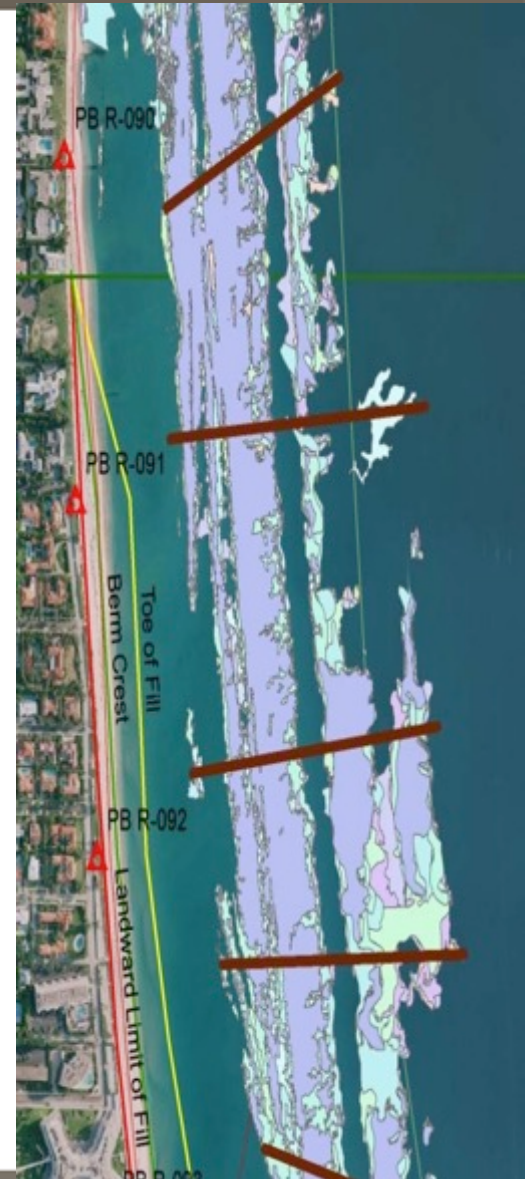
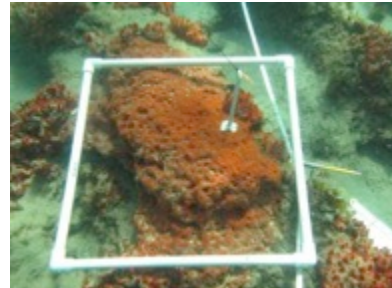
90 Days

Step 8 – Report Review and Feedback to Permittee / Monitoring Agent



Hardbottom SOP

- Details of field protocol methodology
- Standardized monitoring techniques
 - Map and classify hardbottom
 - Conduct HB edge surveys
 - Establish and sample transects
 - Conduct video surveys
 - Conduct sediment monitoring
 - Sample quadrats
- More consistent data from all firms

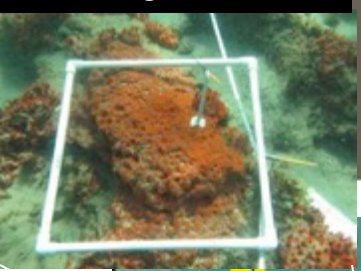




Standardization of Data Submittals

- Consistent naming formats for files
- Easy insertion into GIS
- Easy to compare project to project
- Example formats:
 - Transect <County>transect<year>
 - Ex: Indian RiverTransect2013.shp
 - Ex: IR_Sect2_R001
 - HB Edge <County>Year<Sector>
 - Ex: IndianRover2013Sector2and3HardbottomEdge.shp

Still Image Quadrat #2



GIS Resource Database

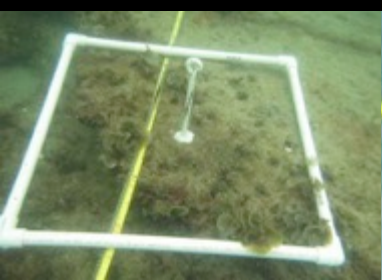
Quadrat Location Attribute Table

Transect	Quadrat	Location_M	Bryopsis plumosa	Bryopsis sp.
109.70	1	0	8.0	0.0
109.70	2	4	1.0	0.0
109.70	3	6.5	0.0	0.0
109.70	4	35	0.0	0.0
109.70	5	37.6	0.0	0.0
109.70	6	40	0.0	0.0
110.00	1	0	0.0	0.0
110.00	2	1	2.0	0.0
110.00	3	3.8	0.0	0.0
110.00	4	8.8	0.0	0.0
110.00	5	10	0.0	0.0
110.00	6	17	0.0	0.0
110.00	7	28	0.0	0.0
110.00	8	30	0.0	0.0
110.00	9	34.5	0.0	0.0
110.00	10	42	0.0	0.0

Video Segment Hardbottom Edge Survey



Still Image Quadrat #7



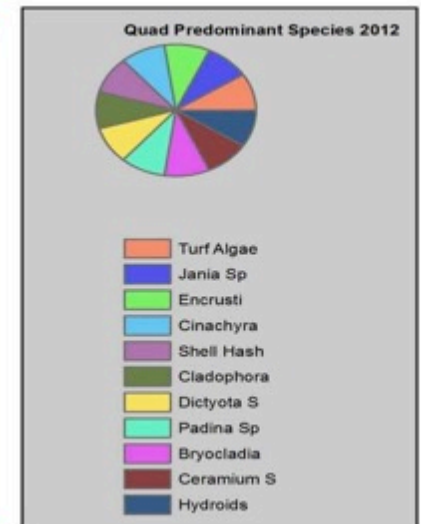
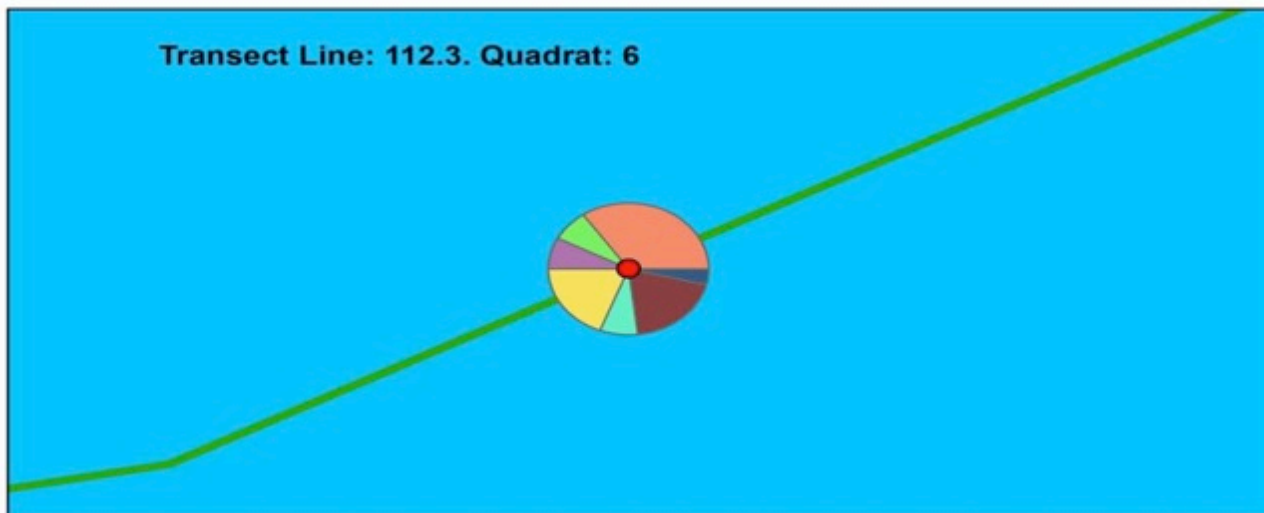
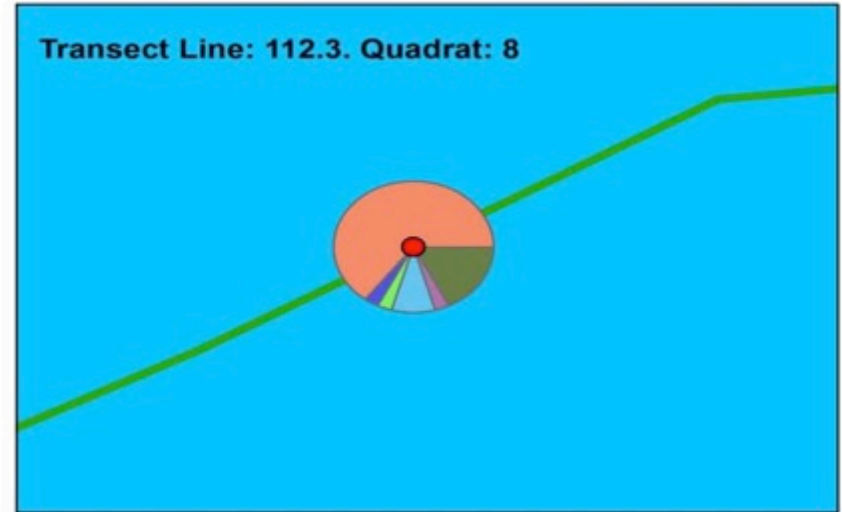
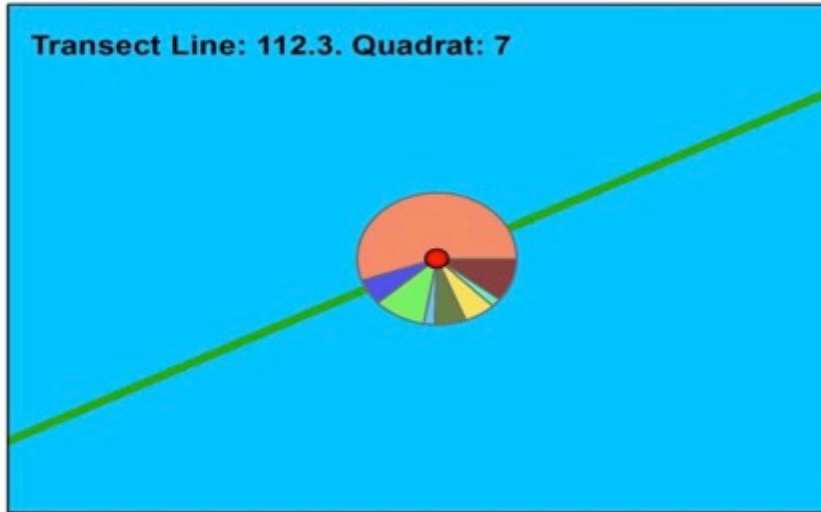
Sediment Depth Attribute Table

Transect	Position (m)	Depth (cm)
109.70	0	0.10
109.70	1	0.50
109.70	2	0.10
109.70	3	0.50
109.70	4	0.50
109.70	5	0.50
110.00	0	0.00
110.00	1	0.00
110.00	2	0.00
110.00	3	1.00
110.00	4	1.00
110.00	5	1.00

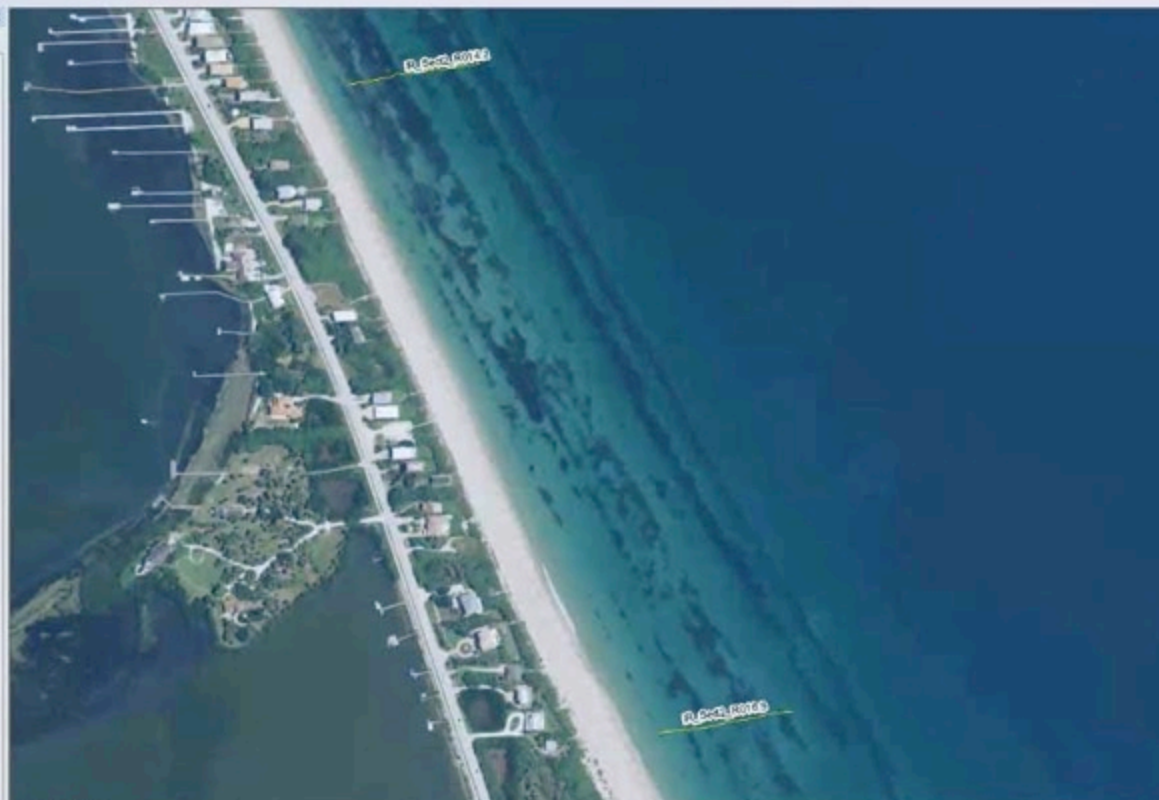
- Sediment Depths
- Quadrats
- Hardbottom Edge
- Hardbottom Classification



Visualizing Species Composition



- IndianRiverTransect2008
- 2010 NAIP Imagery And Flight Dates



- ArcToolbox
 - 3D Analyst Tools
 - Analysis Tools
 - BMES Tools
 - Beaches
 - HardBottom
 - 00 Create HardBottom Route Model
 - 01 Create HardBottom Event Layers
 - MakeRouteEventLayer
 - Sediment Supply Change**
 - Mean Height Water Level
 - Hydrology
 - Mining
 - BMES Tools BETA
 - Cartography Tools
 - Conversion Tools
 - Data Interoperability Tools
 - Data Management Tools
 - Editing Tools
 - Geocoding Tools
 - Geostatistical Analyst Tools
 - Linear Referencing Tools
 - Multidimension Tools
 - Network Analyst Tools
 - Parcel Fabric Tools
 - Schematics Tools
 - Server Tools
 - Spatial Analyst Tools
 - Spatial Statistics Tools
 - Tracking Analyst Tools



Questions?

Danielle H. Irwin, PWS

Deputy Director, DWRM

Florida Department of Environmental Protection

(850) 488-7843

Danielle.Irwin@dep.state.fl.us