



# Vessel Groundings in the Florida Keys National Marine Sanctuary

*Presented to the Shallow Water Wildlife and Habitat Protection  
Working Group*

April 2, 2013

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<http://floridakeys.noaa.gov>

<http://facebook.com/floridakeysnoaagov>

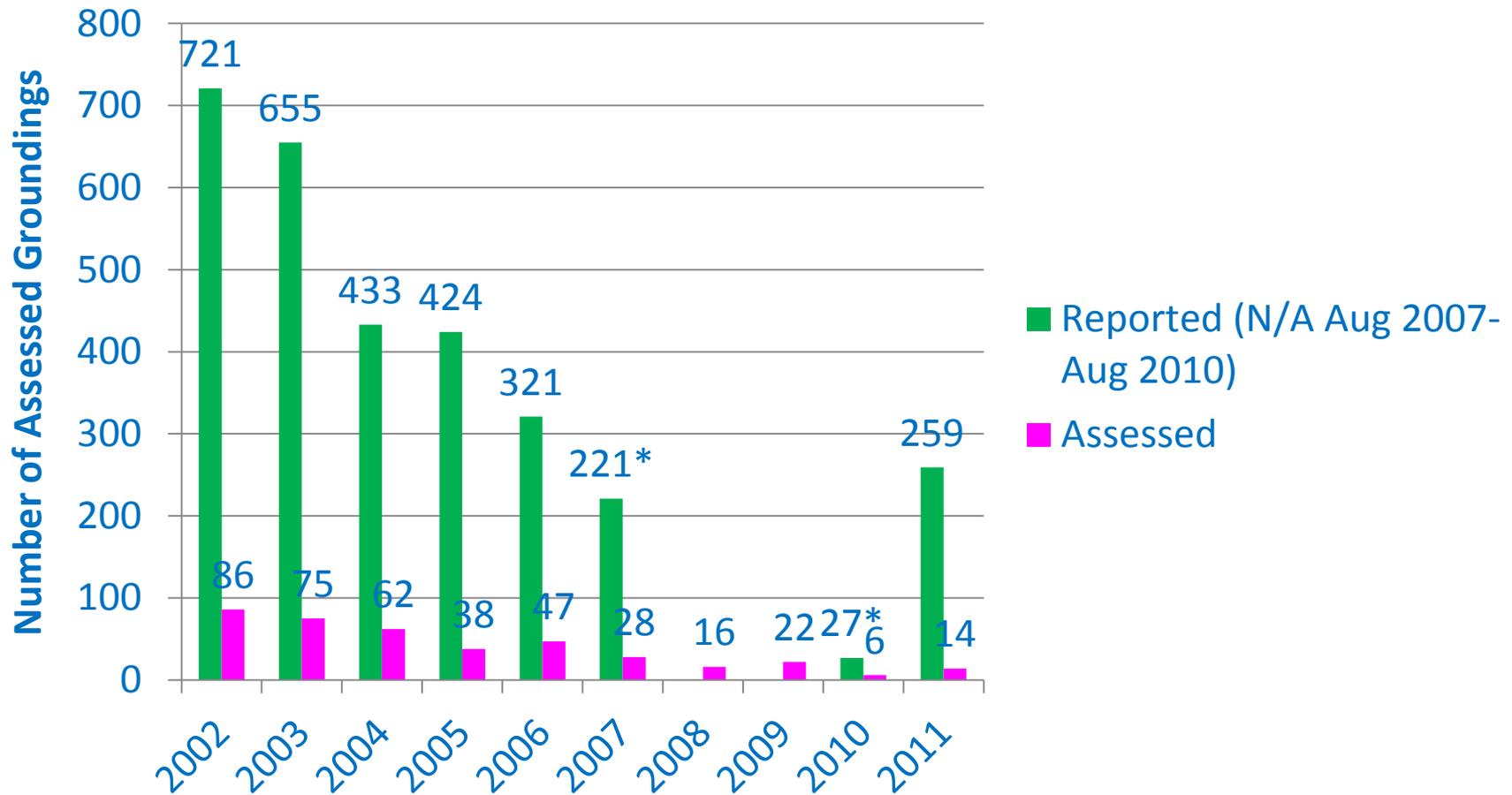
# The National Marine Sanctuaries Act

Title 16, Chapter 32, United States Code

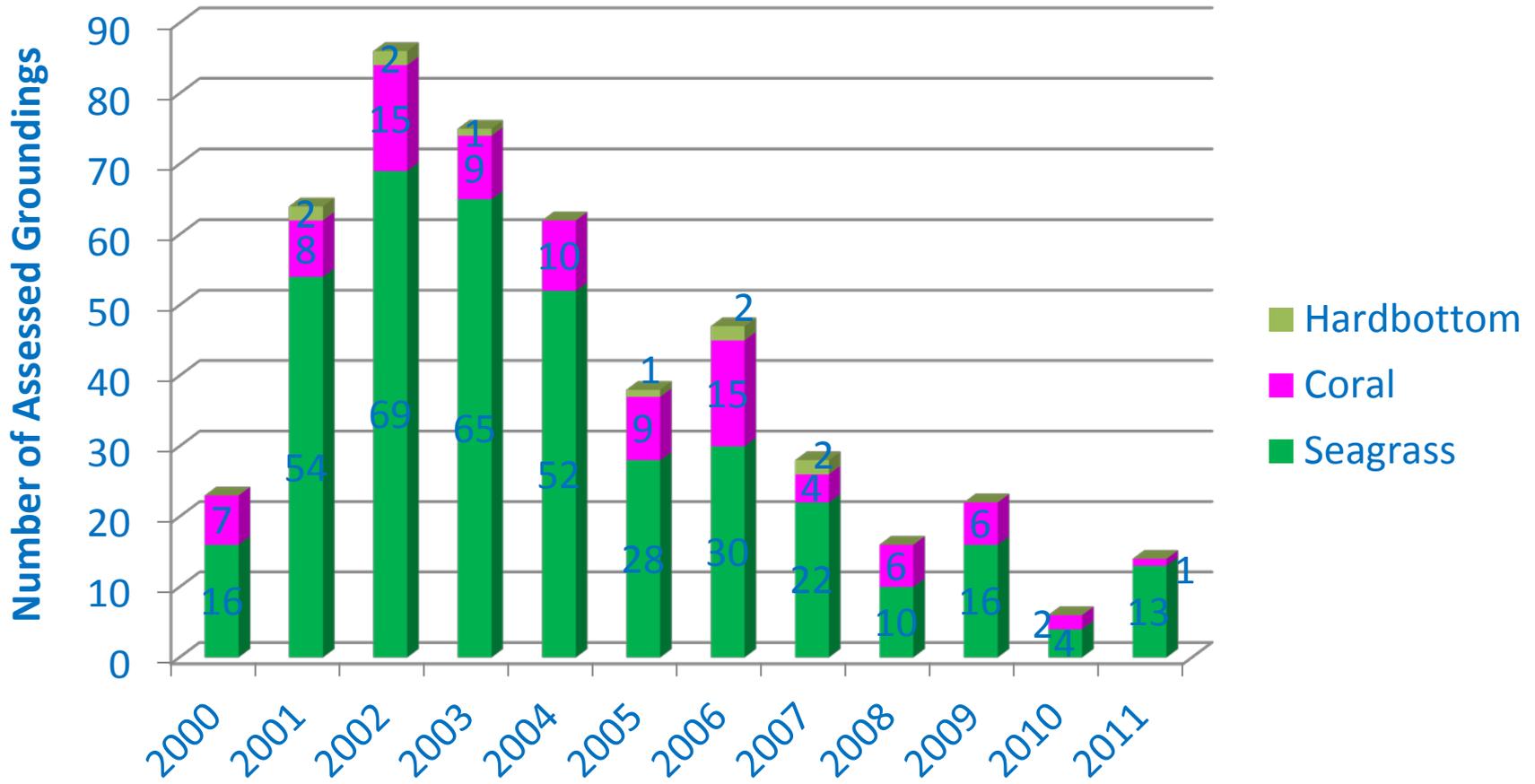
Sections 307 and 312 of the National Marine Sanctuaries Act, give the Sanctuaries the authority to assess fines (civil penalties) and recover the cost of response, assessment and restoration (damages) from the individuals (responsible parties) who damage sanctuary resources.



# Average of 300-400 Reported Groundings Annually in FKNMS

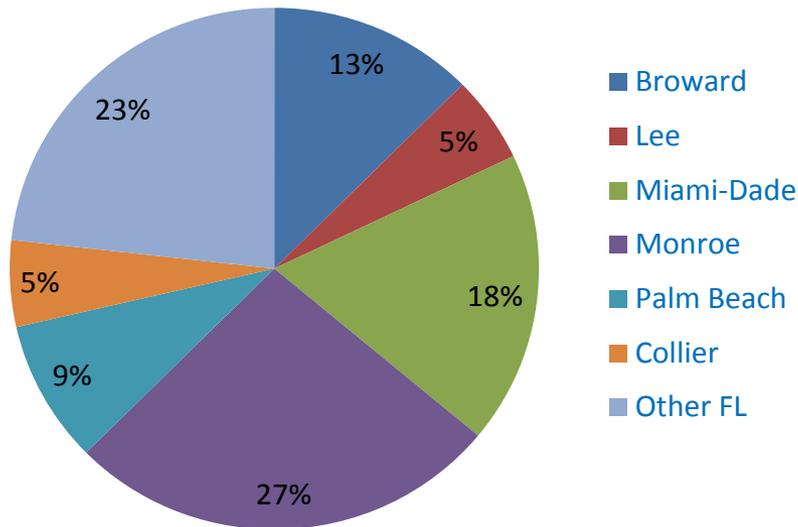


# 80% Seagrass & 20% Coral

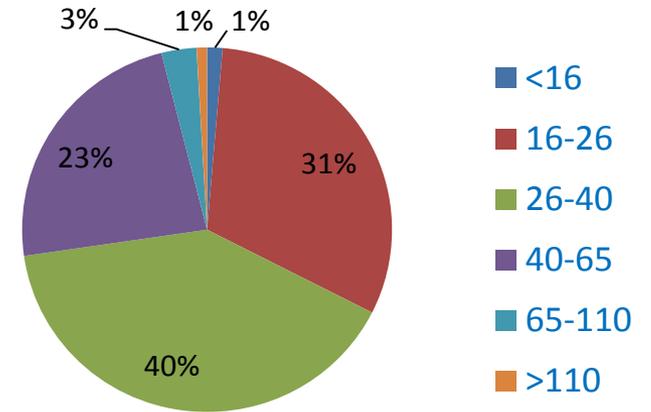


# Who Runs Aground?

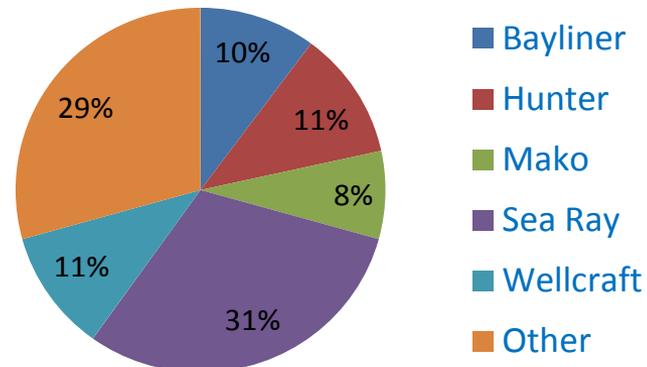
## County

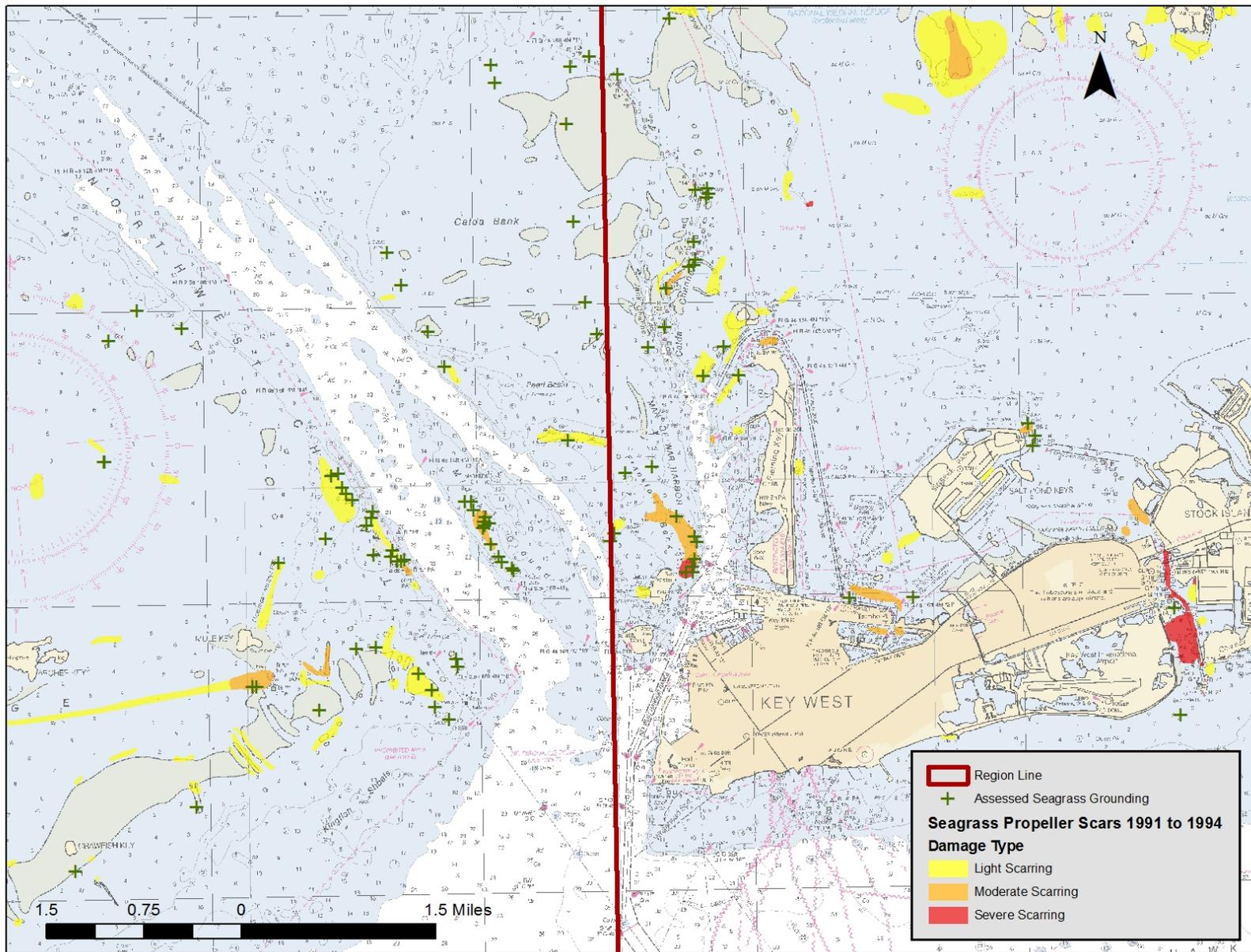


## Vessel Length (ft)

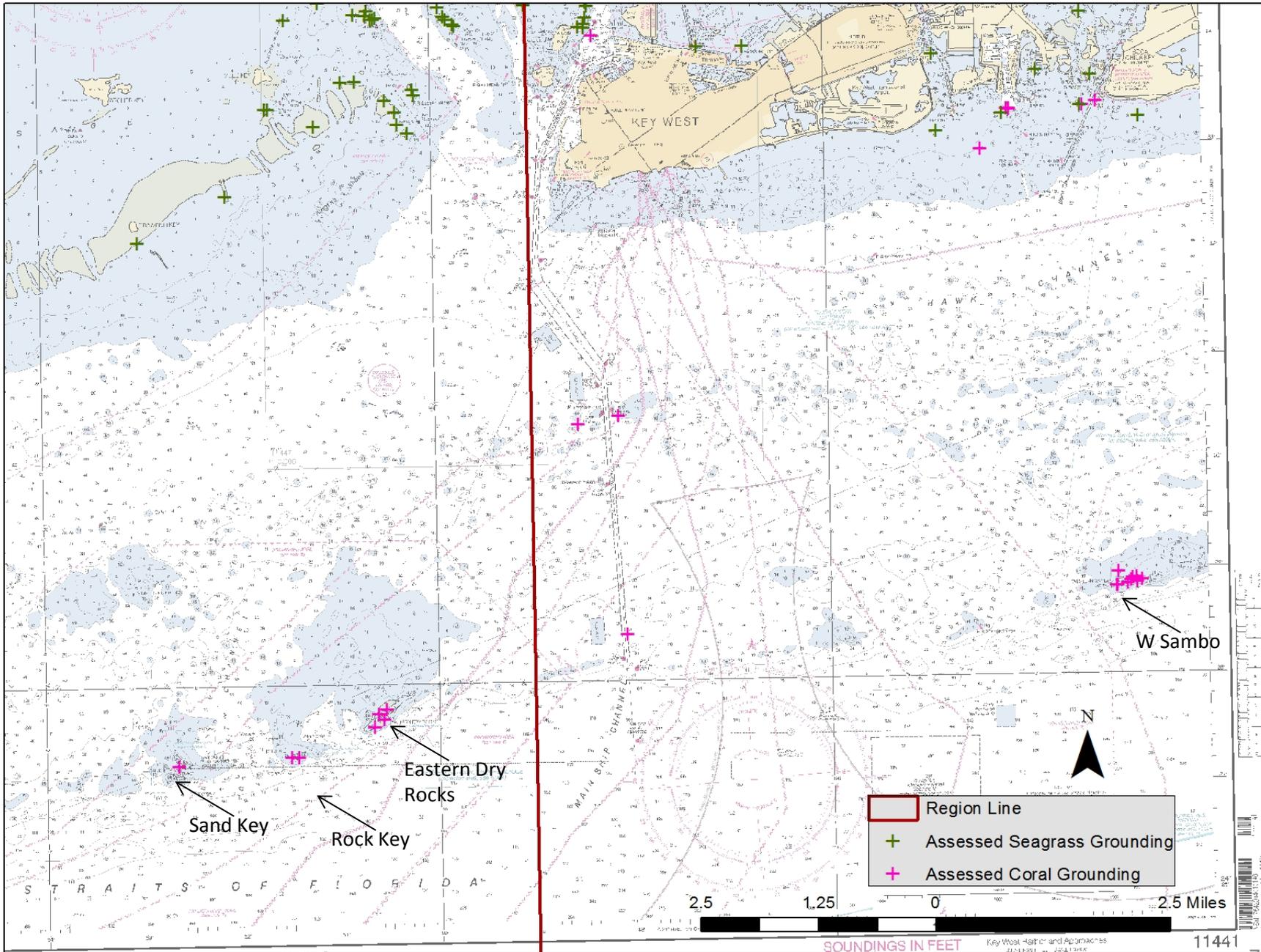


## Vessel Type



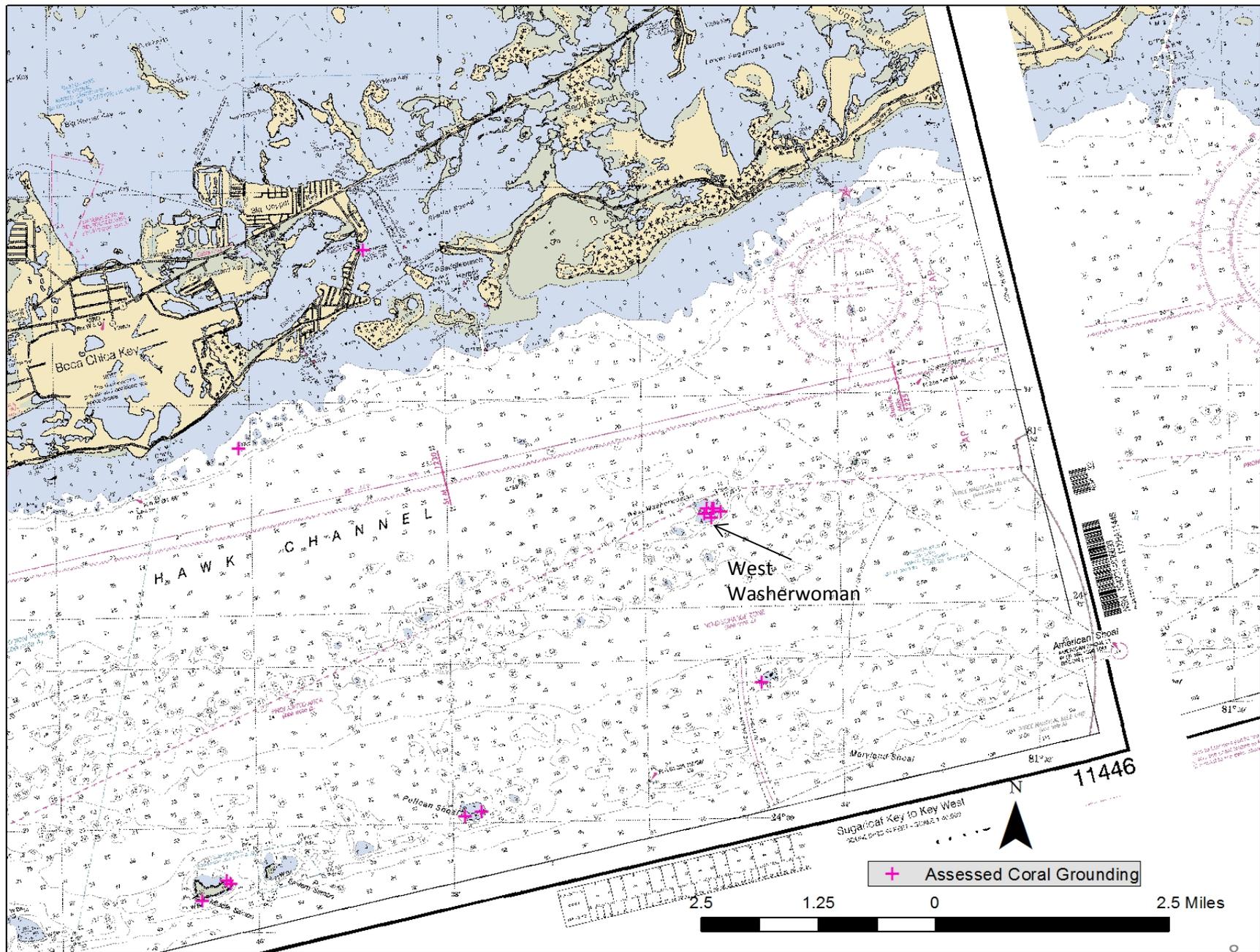


Sargent et al. 1995. Scarring of Florida's seagrasses: assessment and management. Florida Marine Research Institute Technical Report TR-1



- Region Line
- + Assessed Seagrass Grounding
- + Assessed Coral Grounding

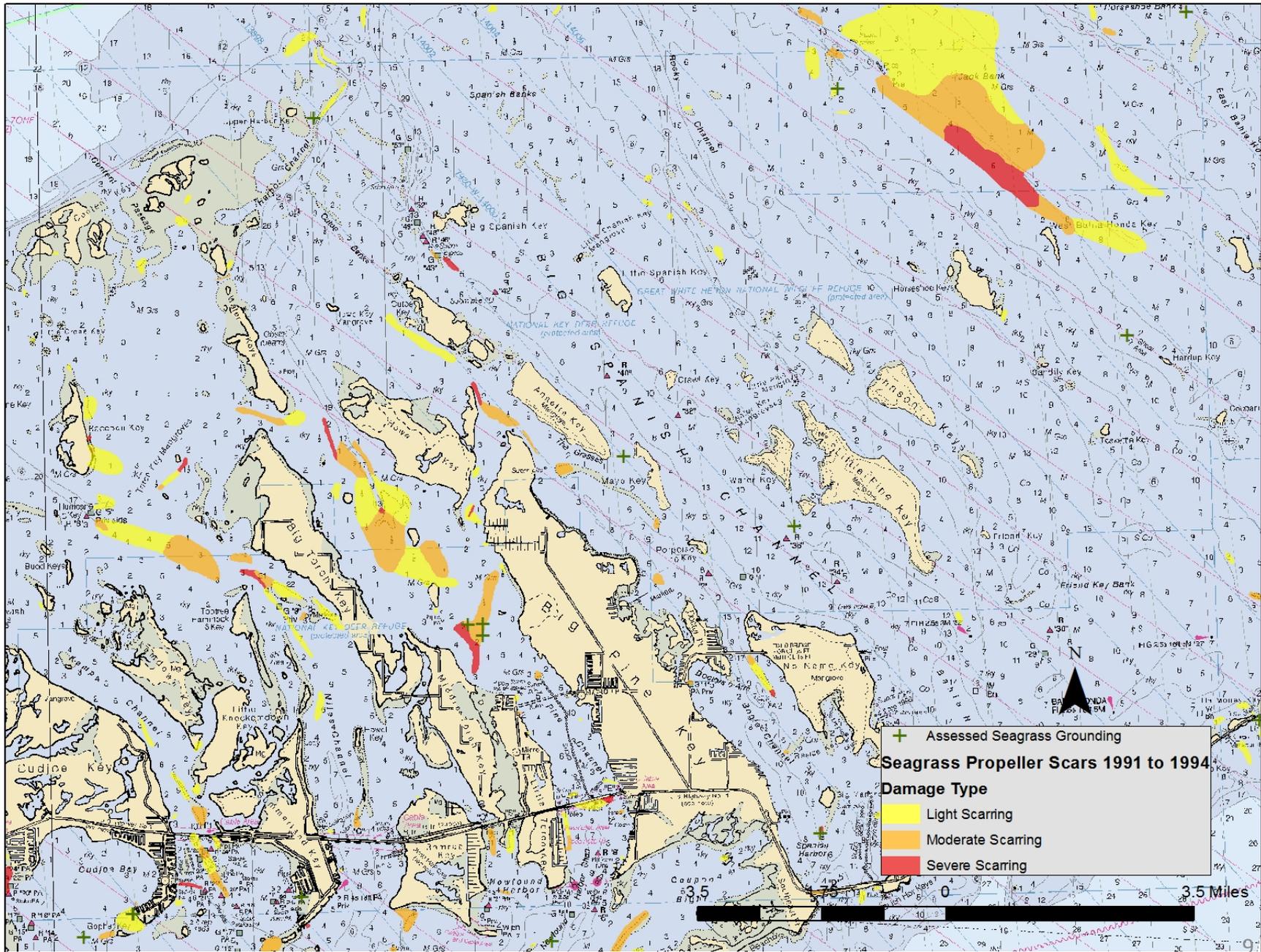
2.5      1.25      0      2.5 Miles

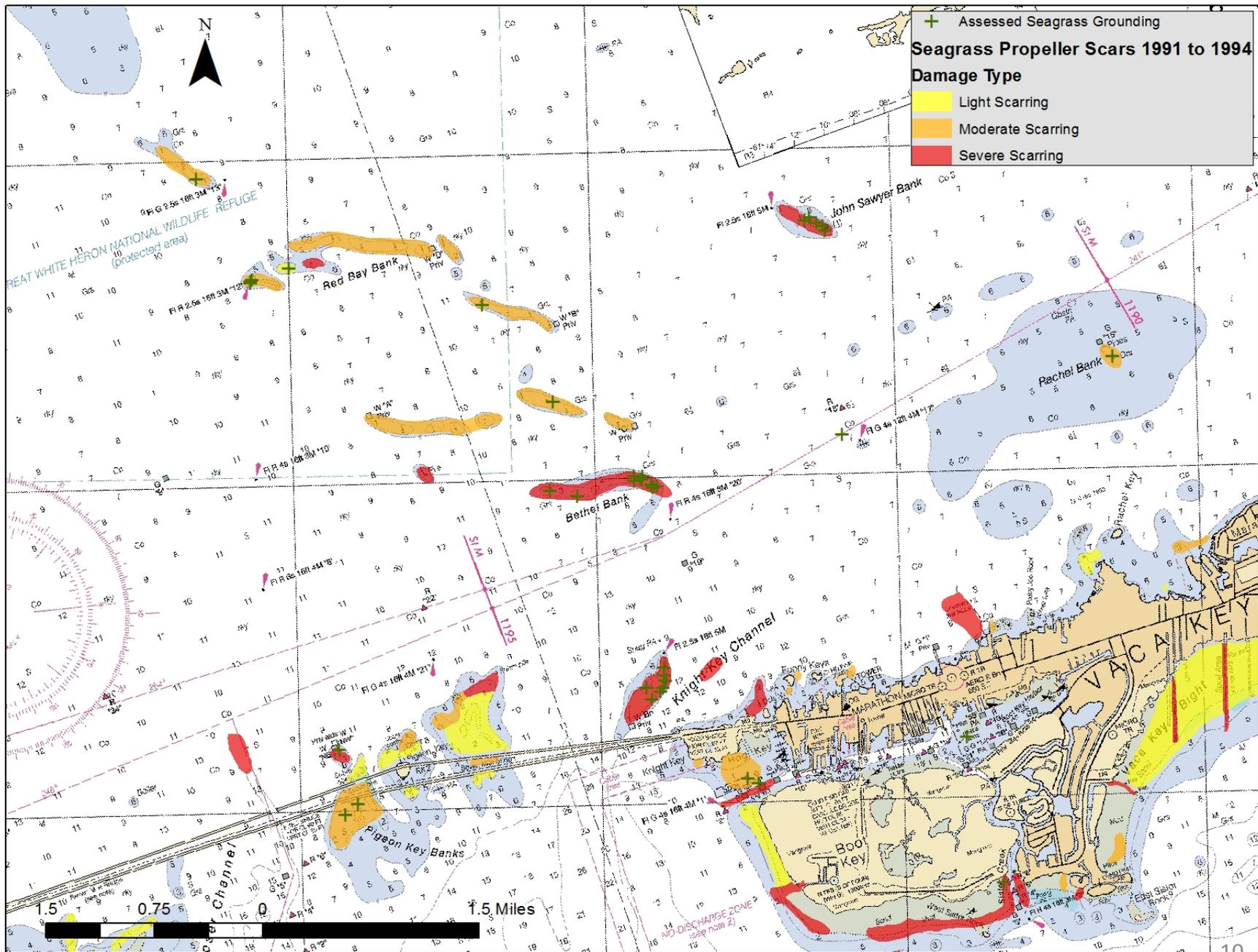


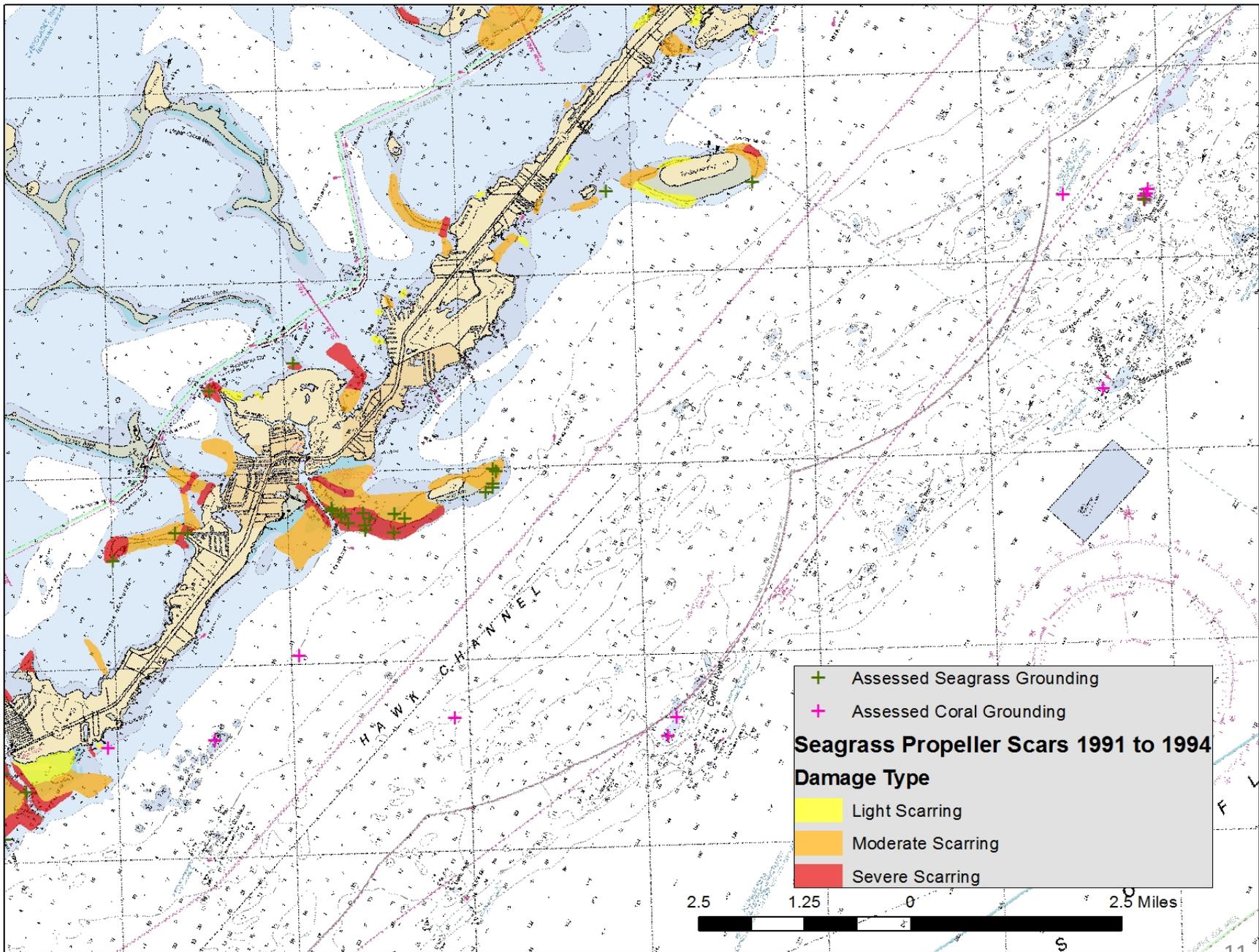
+ Assessed Coral Grounding

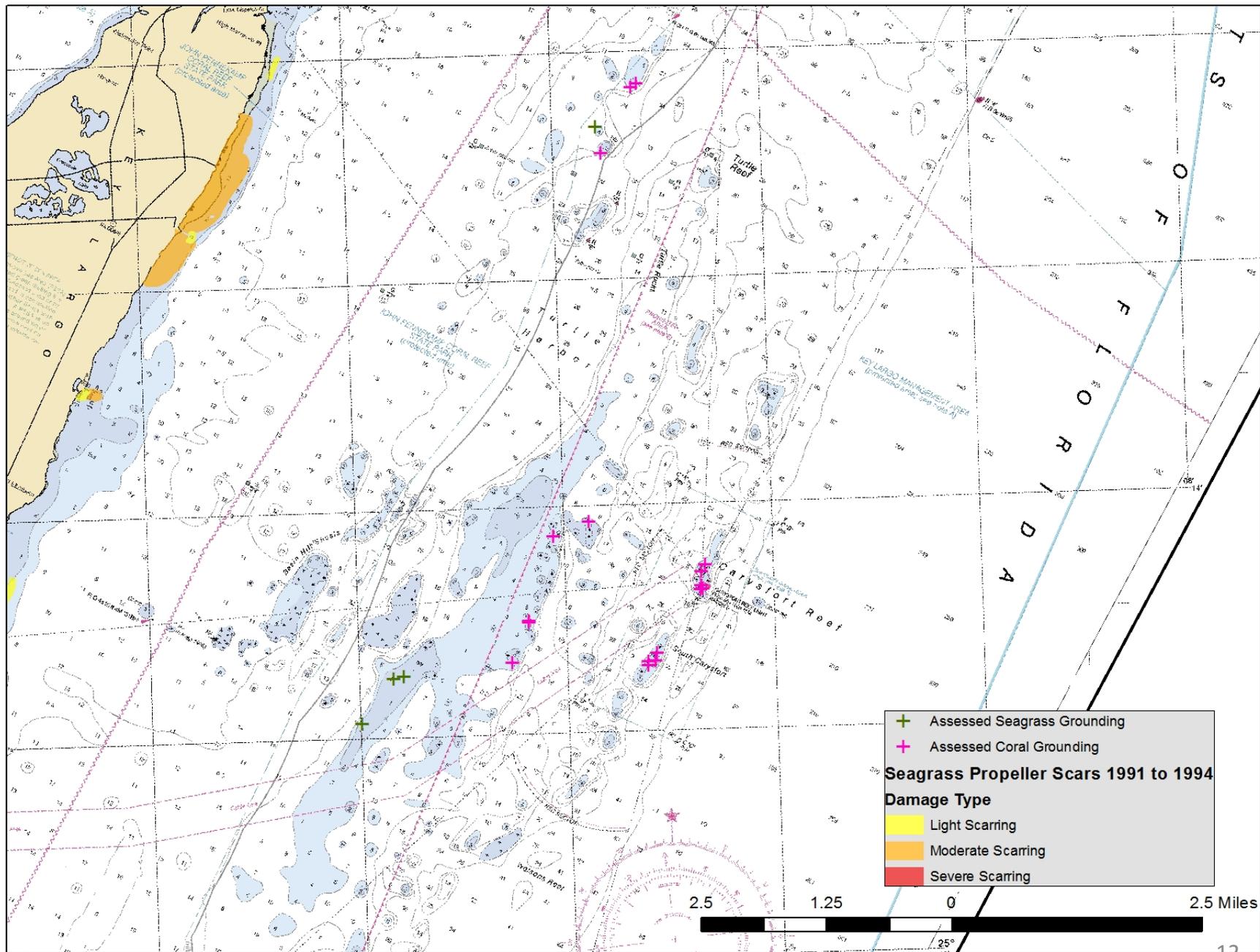
2.5 1.25 0 2.5 Miles

11446







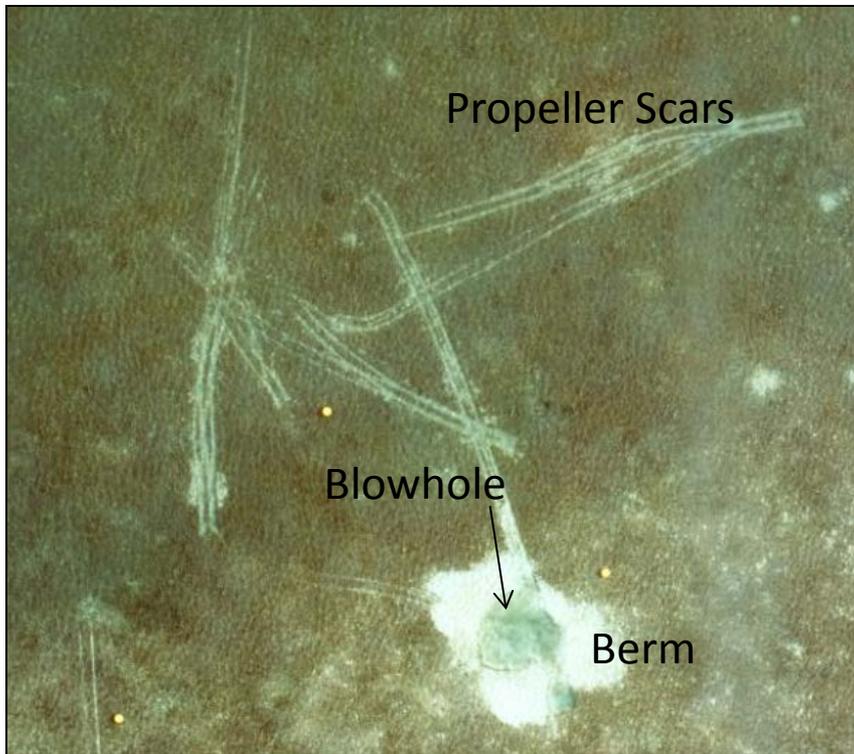


	Assessed Seagrass Grounding
	Assessed Coral Grounding
<b>Seagrass Propeller Scars 1991 to 1994</b>	
<b>Damage Type</b>	
	Light Scarring
	Moderate Scarring
	Severe Scarring

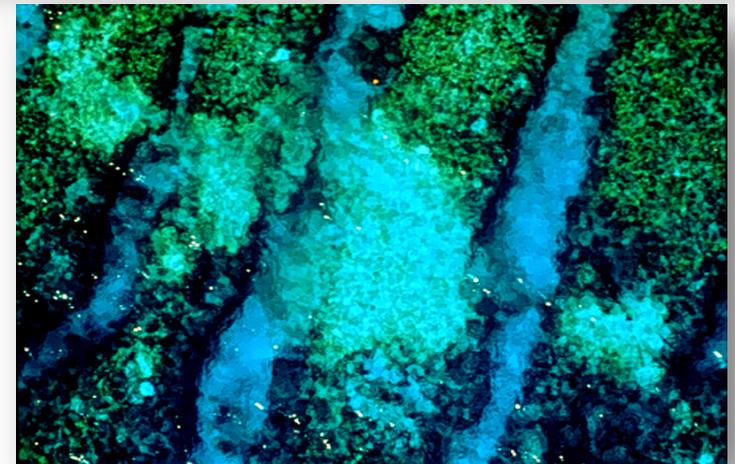
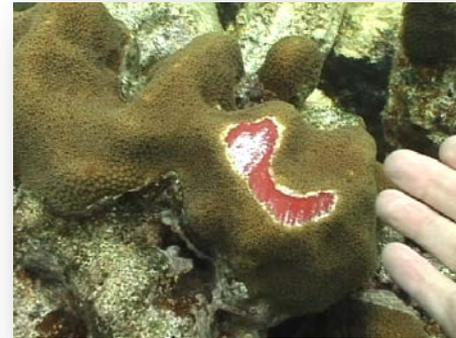


# Common Injury Types

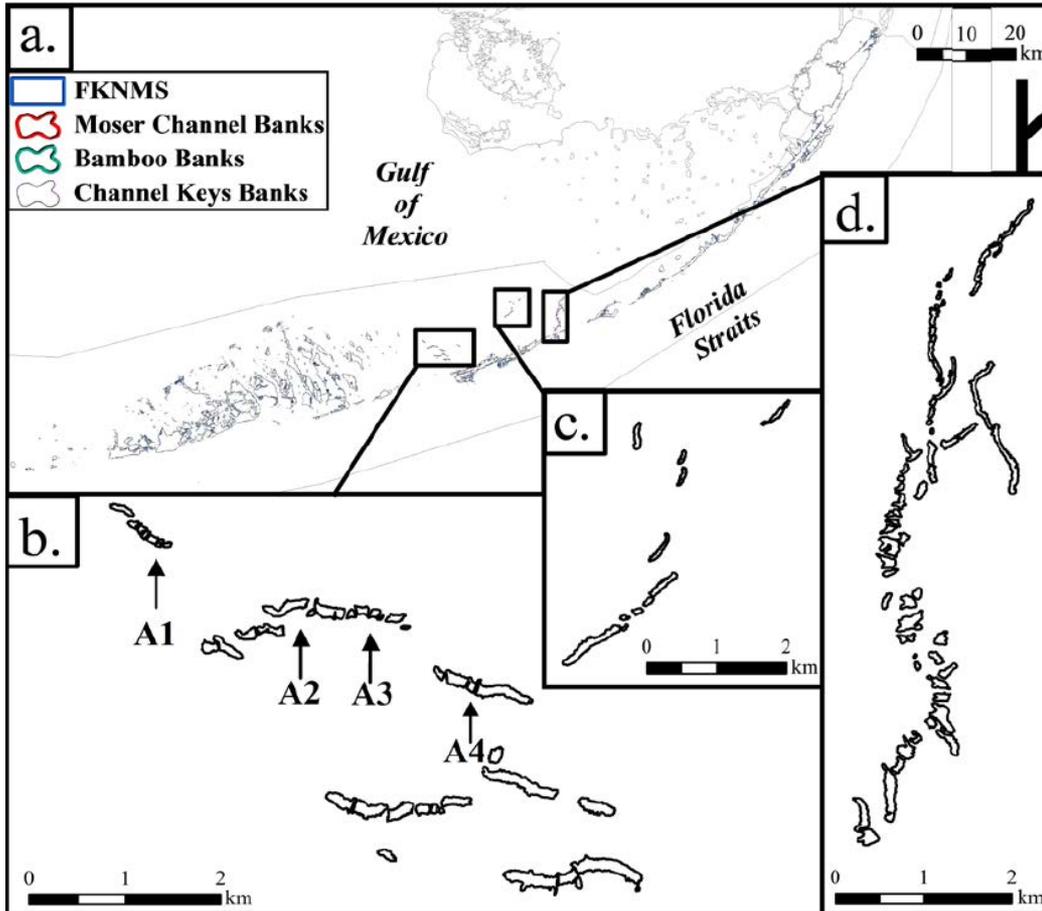
Seagrass



Coral



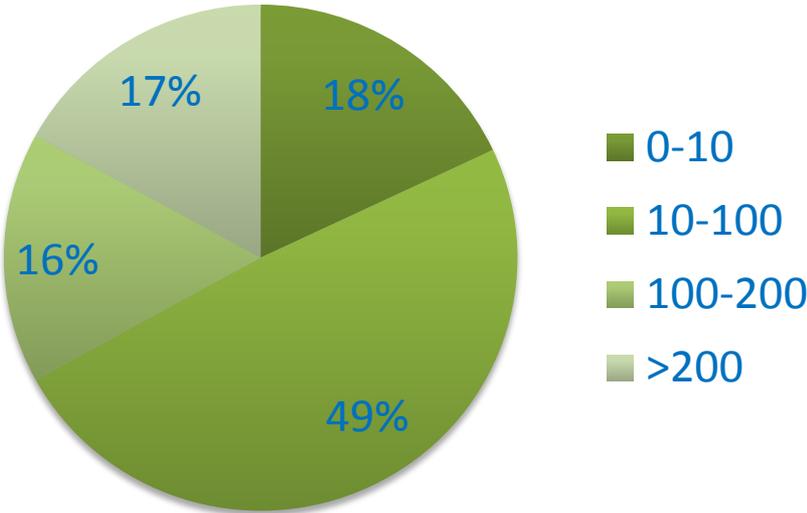
# NOAA Study of bank systems created by aggregations of *Porites* (finger coral) rubble



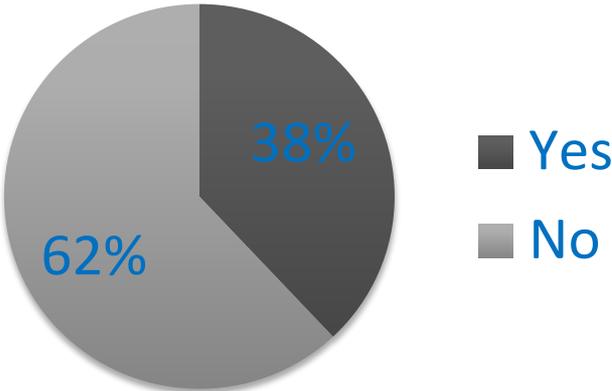
Burke et al. 2011. Biodiversity and Ecosystem function of Shallow Bank Systems within FKNMS  
[http://sanctuaries.noaa.gov/science/conservation/bank\\_series.html](http://sanctuaries.noaa.gov/science/conservation/bank_series.html)

# Seagrass Injury Data

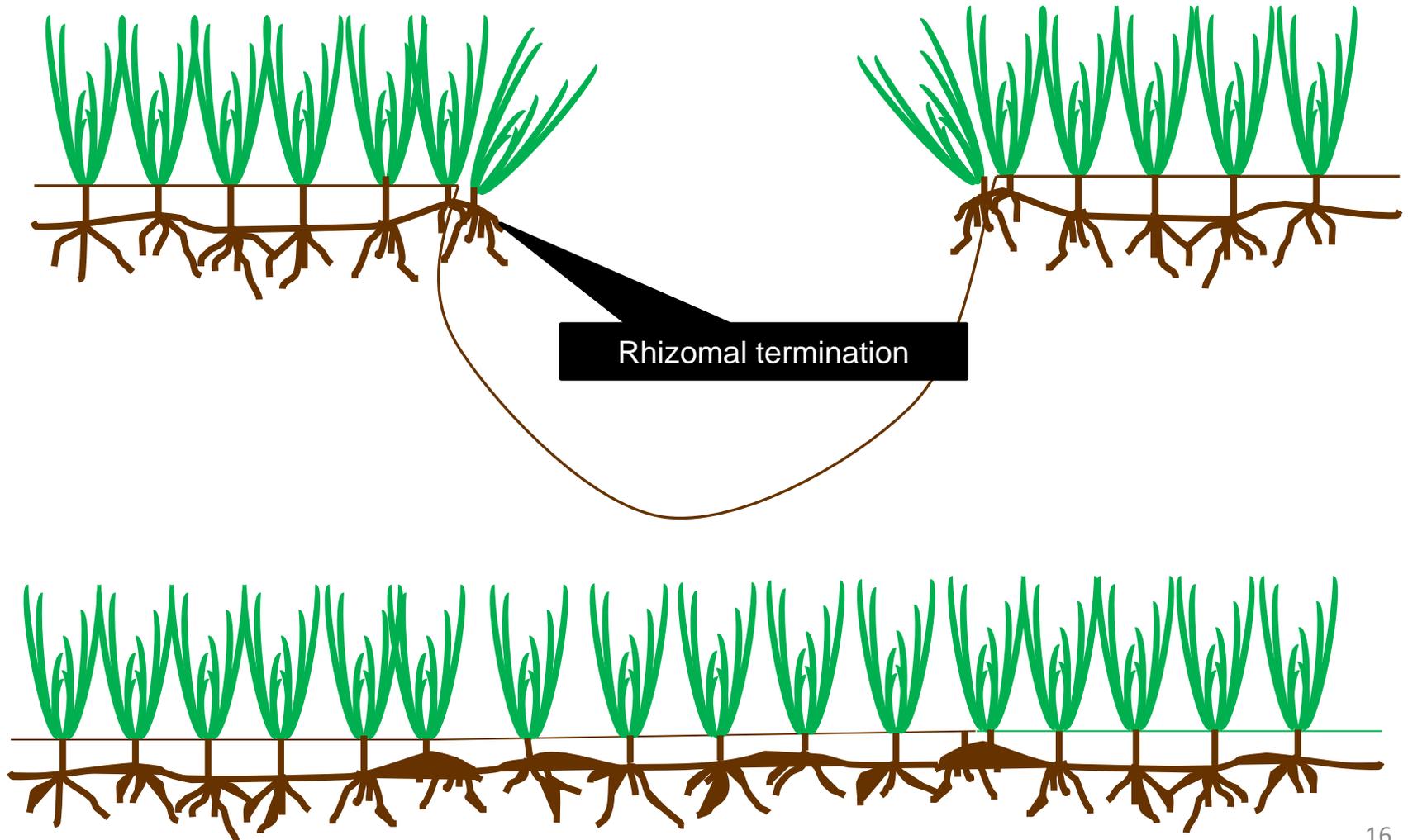
Size (sq. meters)



Restoration Recommended



# Seagrass Scarring



# Seagrass Injury Recovery (Turtle Grass)

Naturally

*Propscars*~ 11-17 years for a 1 meter wide scar

*Blowholes*~Decades or never depending on site dynamics

*Berms*~ Similar to propscars but also depends on the sediment type/depth

*With Restoration, Recovery Time can potentially be cut in half*



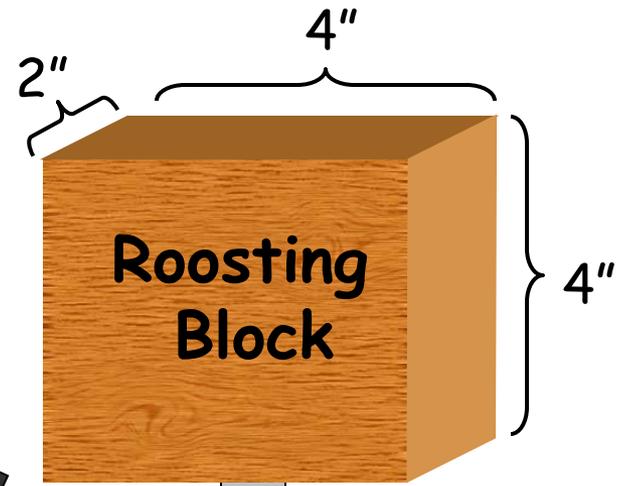
# Seagrass Restoration Efforts

- Fill blowhole to level the seafloor
- Transplant seagrass to aid recovery
- Install bird roosting stakes or fertilizer spikes to fertilize the area



# Bird Stakes

## The Power of Poop



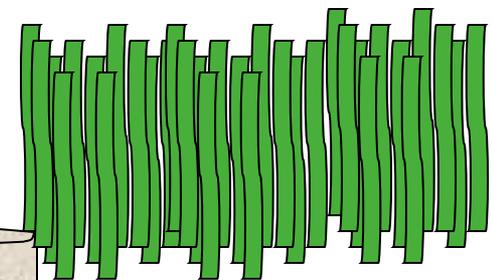
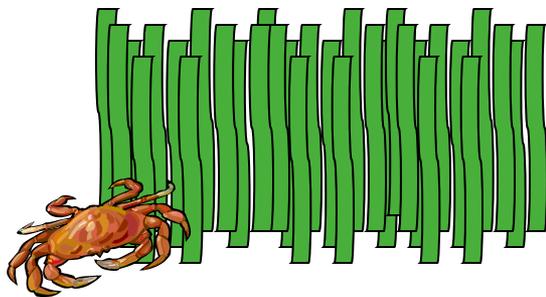
Mean High Water

10" {

← 1/2" PVC



<5'



Filled Blowhole

# Cost of Doing Restoration

## *Example Site*

- Marathon, FL bayside
- Blowhole, 4 Propscars, 1 Berm = 95 sq meters, Volume of 13 cubic meters
- 74 Birdstakes, 83 Planting Units, 13 cubic meters of fill

**Restoration Cost = \$16,403**

2004 dollars: Does not include monitoring, oversight or assessment and litigation costs

# Restoration Success

- Sites that have been filled to grade and remained to grade have been successful for vegetative growth
- ~30% Average planting unit survivability over all sites



# Management Options

- Education
- Zoning (WMAs)
- Enforcement
- Channel Marking (ATONs)





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