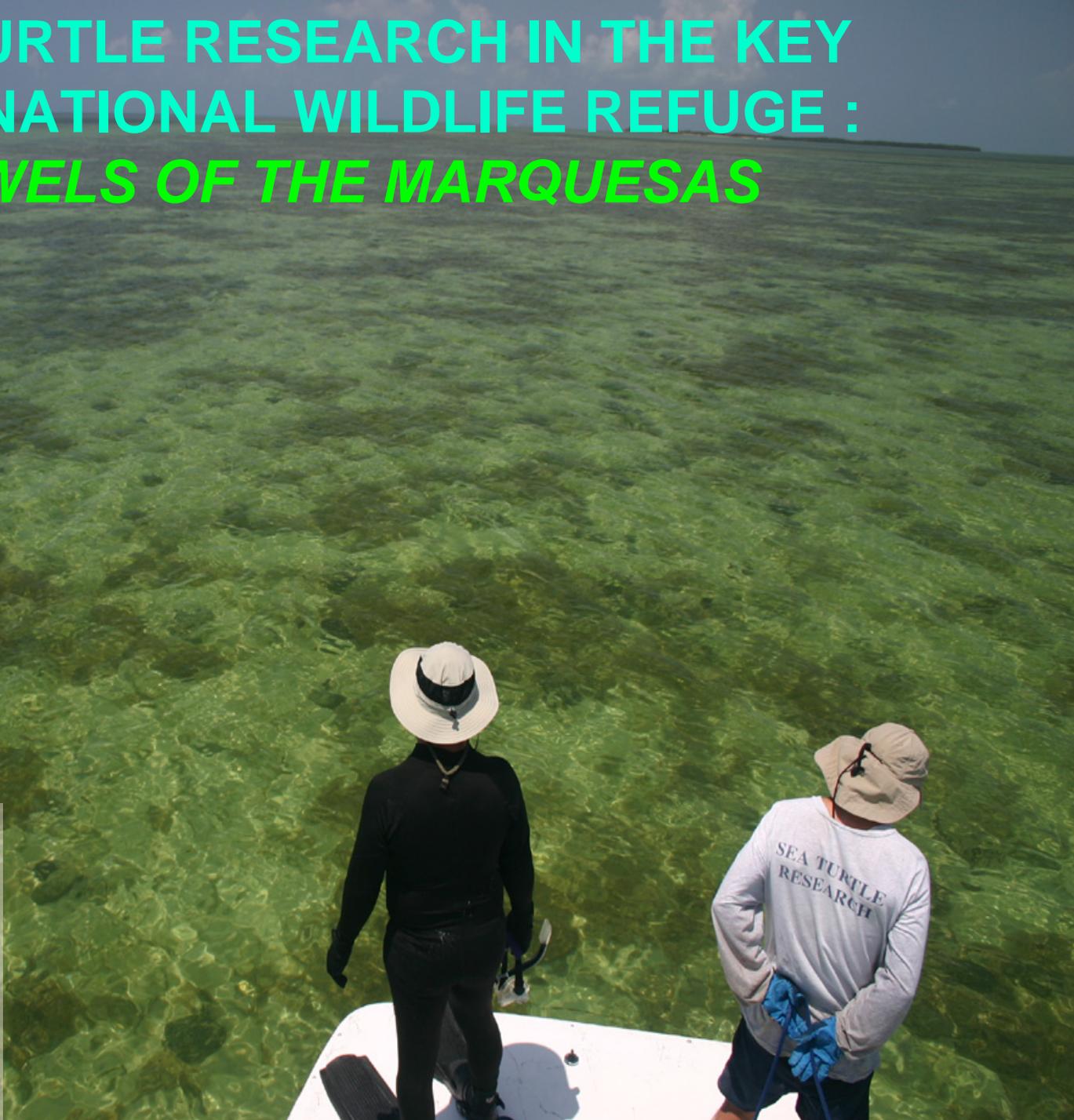


SEA TURTLE RESEARCH IN THE KEY WEST NATIONAL WILDLIFE REFUGE : *JEWELS OF THE MARQUESAS*

Michael Bresette
Jonathan Gorham
Bruce Peery
Dean Bagley
Blair Witherington
Rick Herren





In May 1986 a preliminary assessment of marine turtles in the Marquesas was coordinated by USFWS.

The group consisted of:

Earl Possardt

Lew Ehrhart

Larry Ogren

Barbara Schroeder

Ken Dodd

Tom Wilmers

Kip Watson

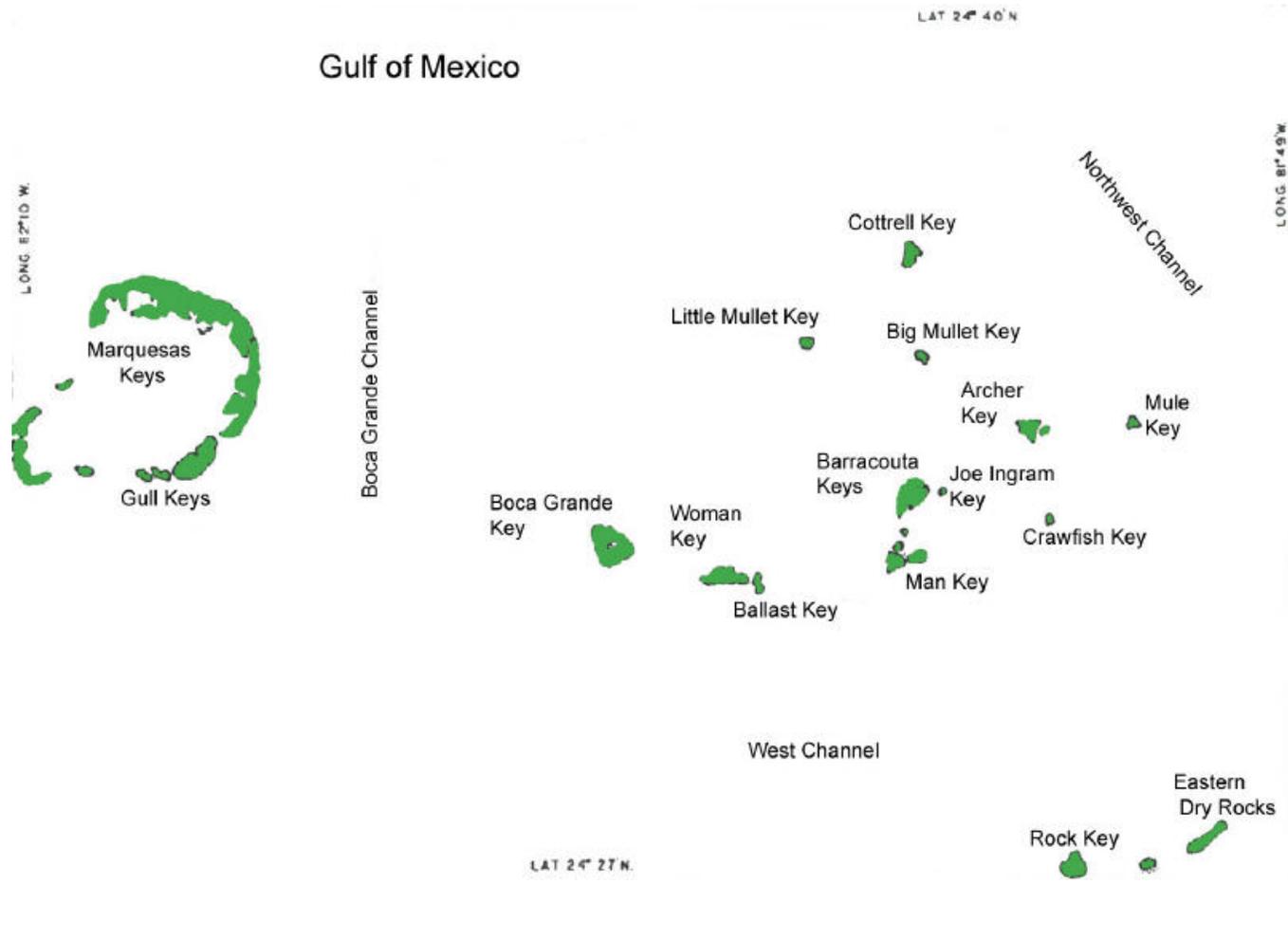
In 2002, Inwater Research Group was asked to build on this preliminary work.

METHODS



42 km

35 km

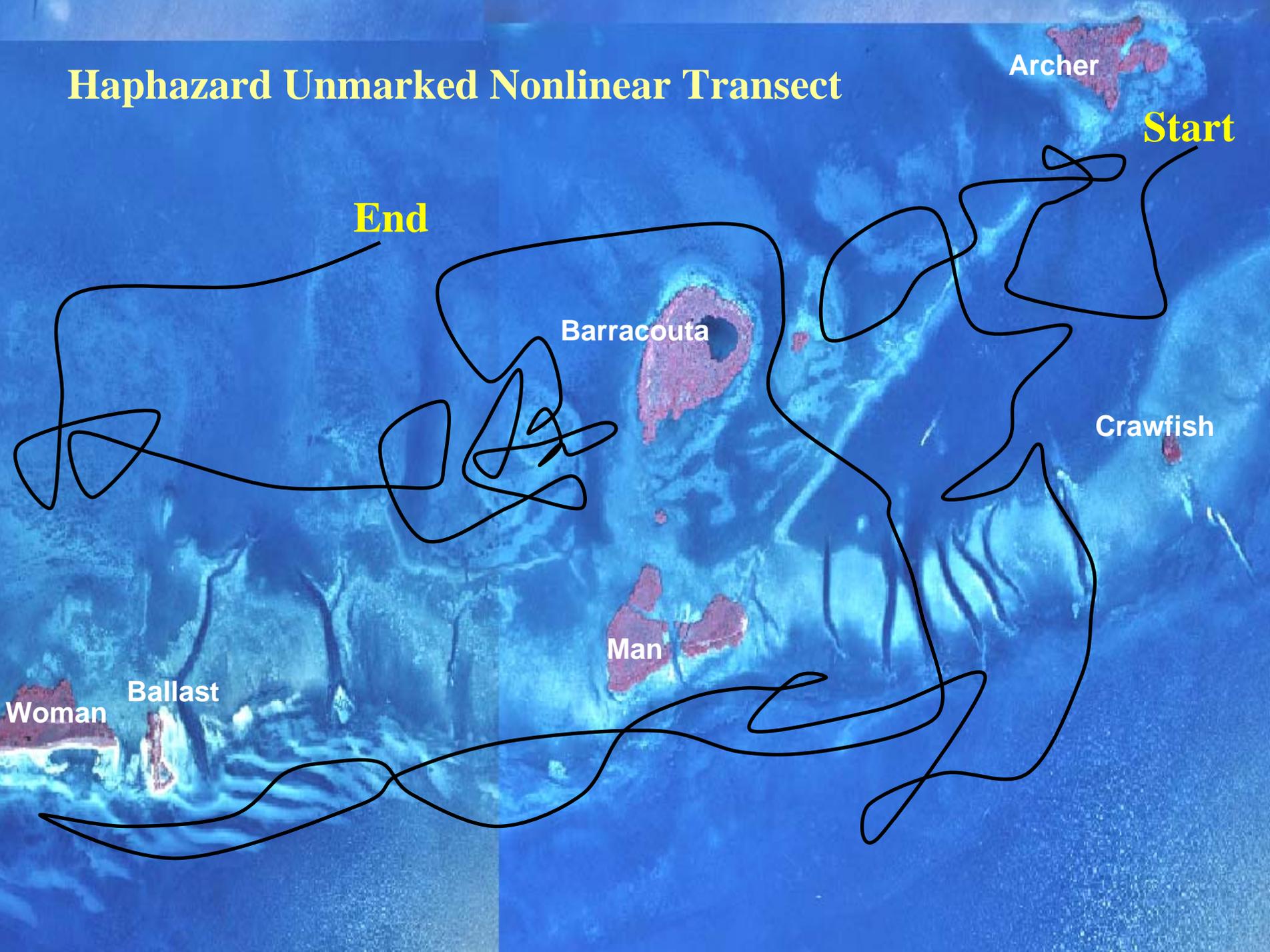


The H.U.N.T. Method



Haphazard Unmarked Nonlinear Transects

Haphazard Unmarked Nonlinear Transect









SEA TURTLE
RESEARCH













Intercomp
100.63

I.R.G. INC.

Marking Methods



•Inconel tag



•PIT tag

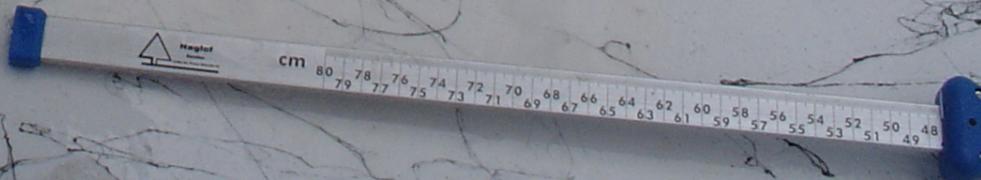
•Paint mark



7-12-04

RRE 859

RRE 860







MARINE RESEARCH

CAROLINA SKIFF

RESULTS
2002 – 2004
22 DAYS
149 HOURS ON THE WATER



H.U.N.T. RESULTS

DATA FROM 2004

103.7 kilometers of transects

Overall = .92 turtles/km transect

Cc = .42 turtles/km transect

Cm = .44 turtles/km transect

Ei = .05 turtles/km transect



LOGGERHEADS



KWNWR LOGGERHEADS

2002 - 2004

SIGHTINGS	181
CAPTURES	80
SCL RANGE	55.8 – 98.1 cm
MEAN	77.4 cm
MALE	14
FEMALE	10
FP RATE	2.5%

GREEN TURTLES



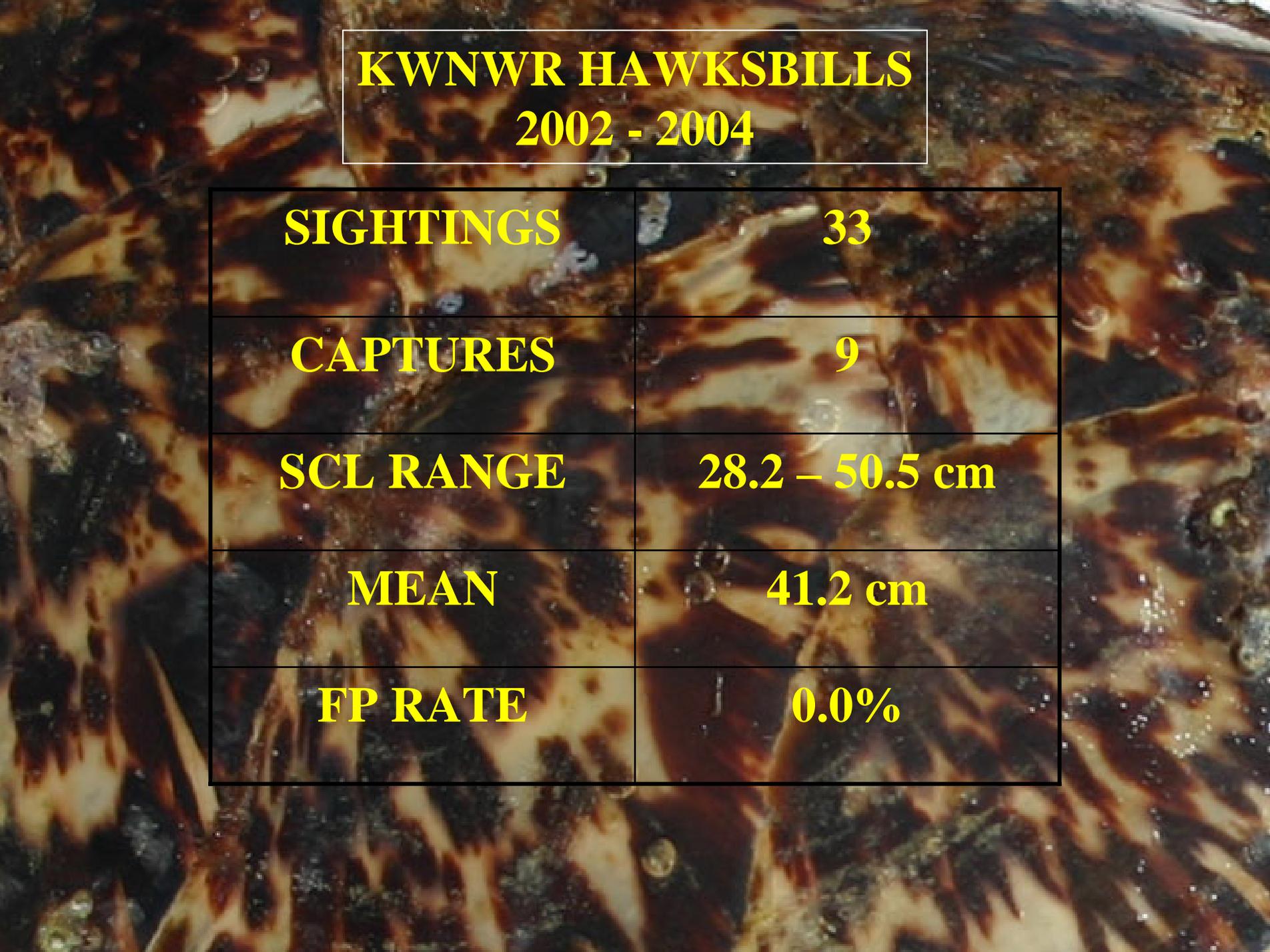
KWNWR GREEN TURTLES

2002 - 2004

SIGHTINGS	200
CAPTURES	18
SCL RANGE	34.4 – 84.5 cm
MEAN	51.3 cm
FP RATE	2 out of 18



HAWKSBILLS



KWNWR HAWKS
BILLS
2002 - 2004

SIGHTINGS	33
CAPTURES	9
SCL RANGE	28.2 – 50.5 cm
MEAN	41.2 cm
FP RATE	0.0%

HABITAT IN THE REFUGE

SEAGRASS



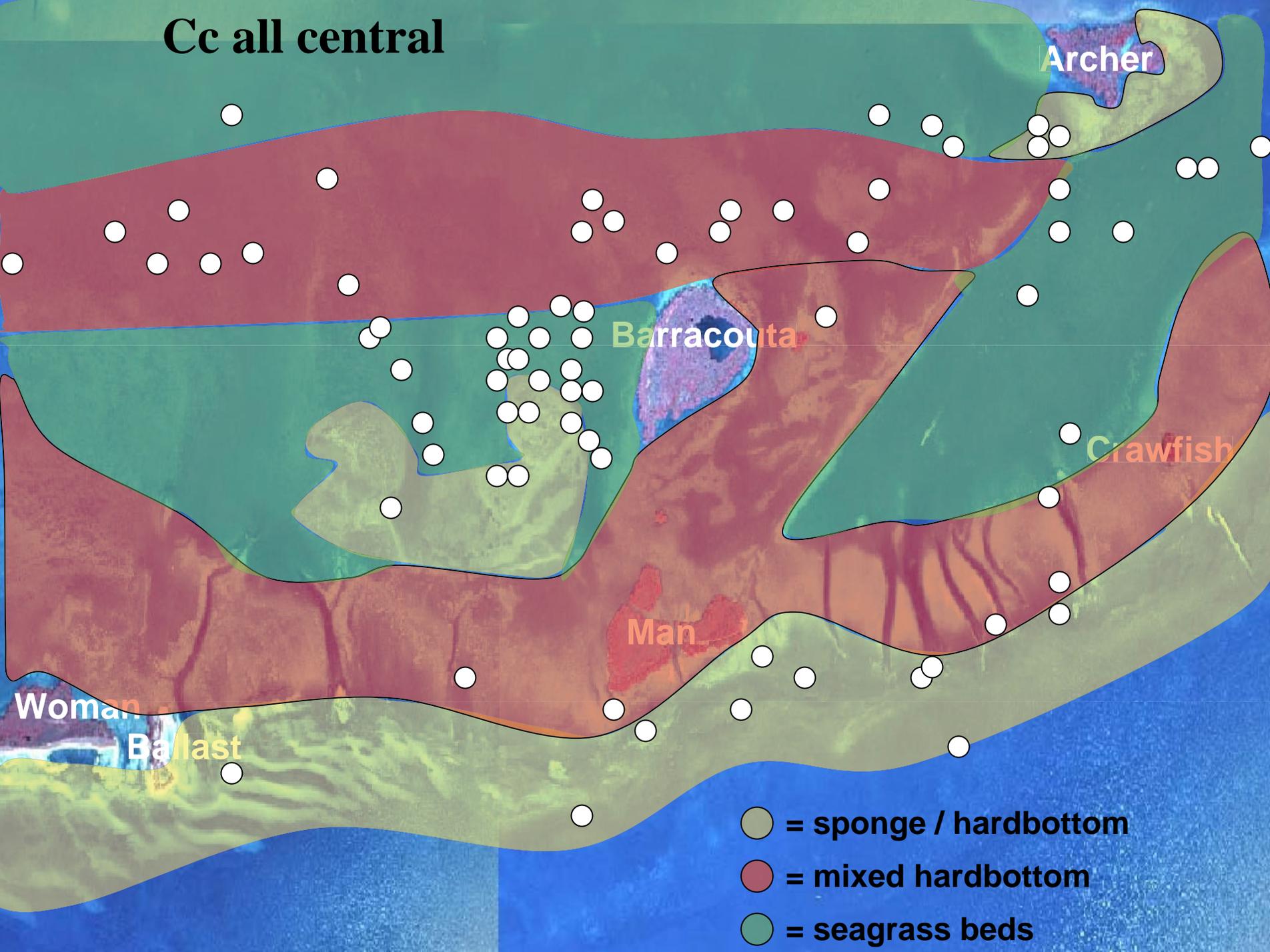
MIXED HARDBOTTOM





SPONGE HABITAT

Cc all central



Archer

Barracouta

Crawfish

Man

Woman

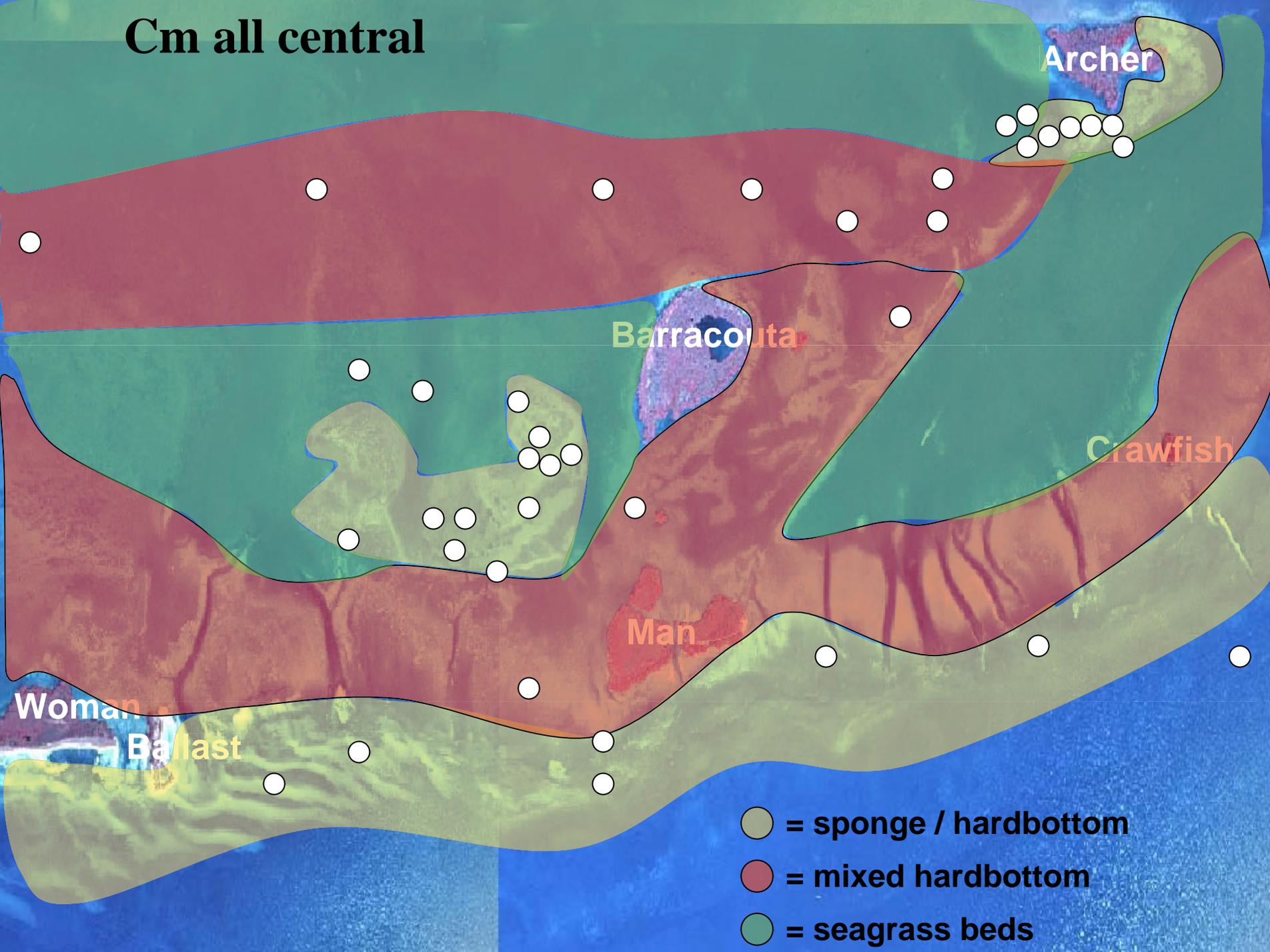
Ballast

○ = sponge / hardbottom

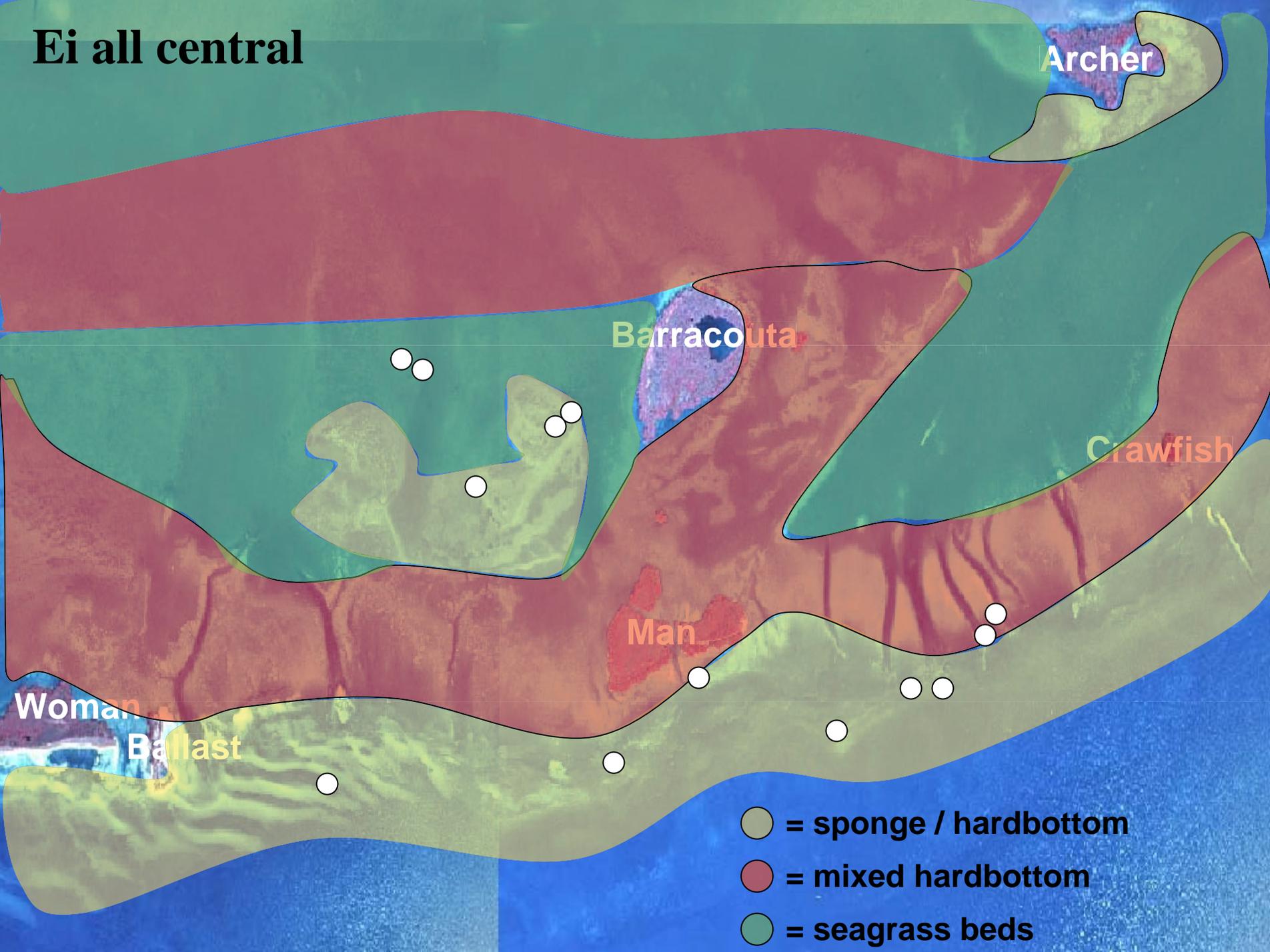
● = mixed hardbottom

● = seagrass beds

Cm all central



Ei all central



Archer

Barracouta

Crawfish

Man

Woman

Ballast

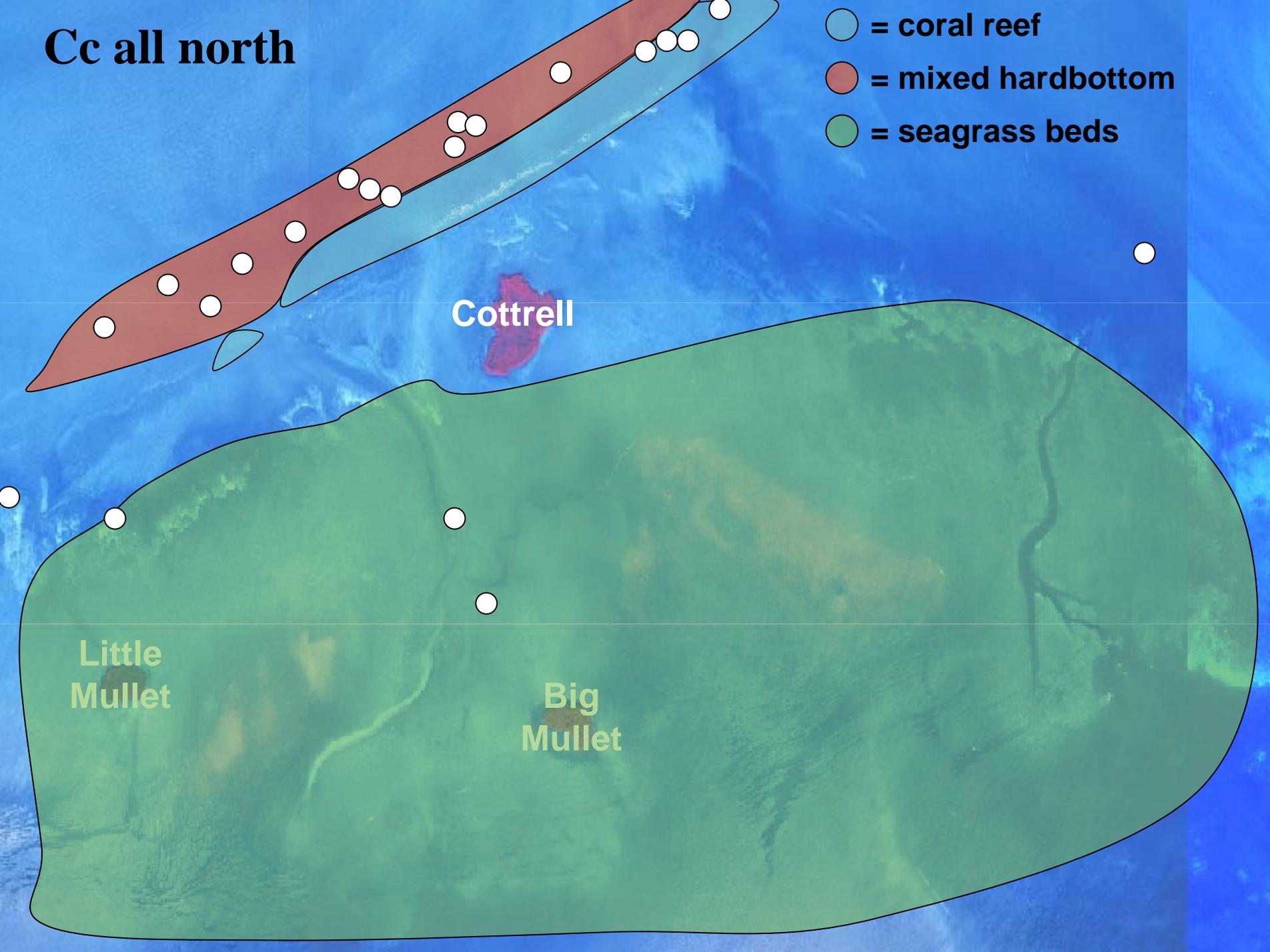
○ = sponge / hardbottom

○ = mixed hardbottom

○ = seagrass beds

Cc all north

-  = coral reef
-  = mixed hardbottom
-  = seagrass beds

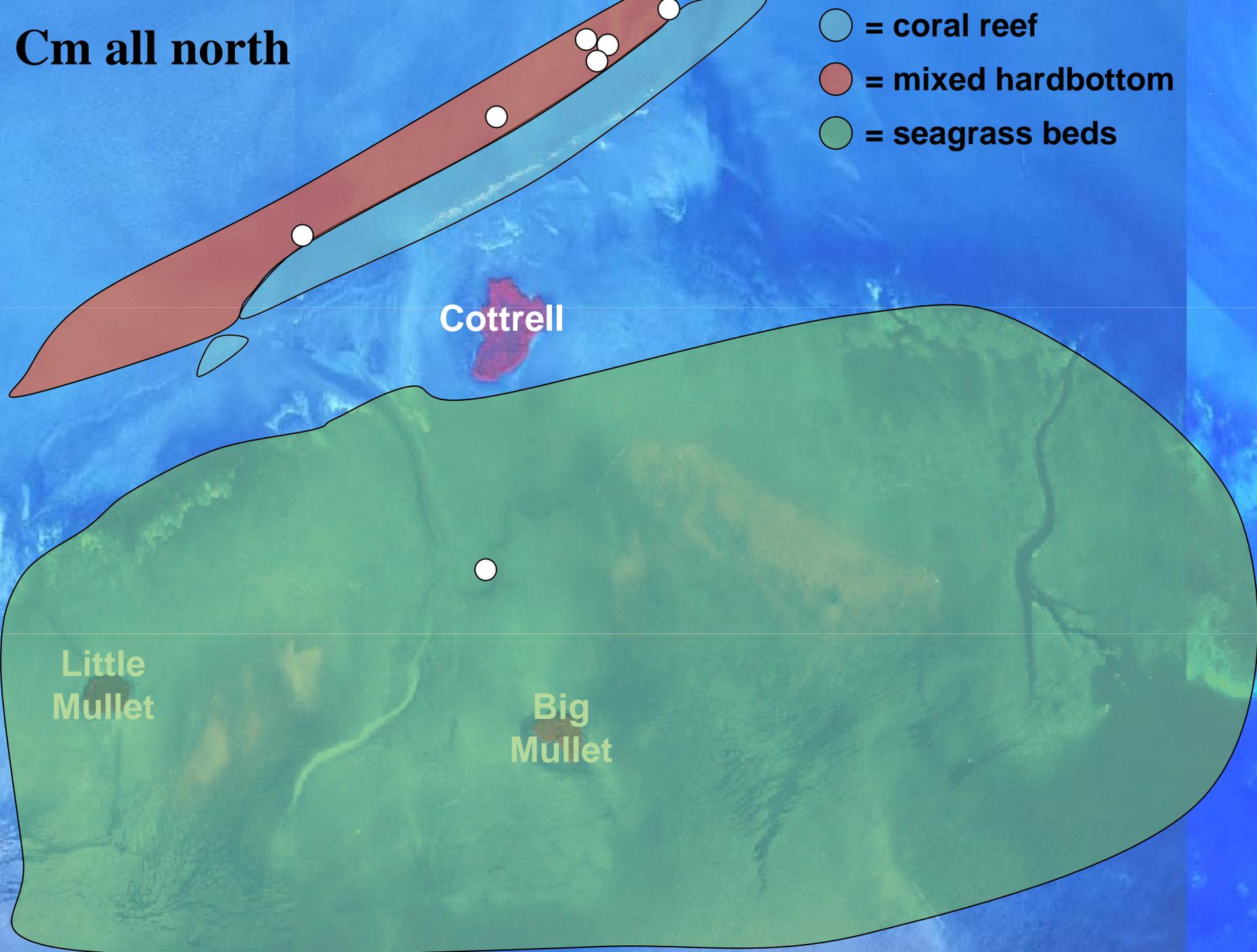


Cm all north

 = coral reef

 = mixed hardbottom

 = seagrass beds



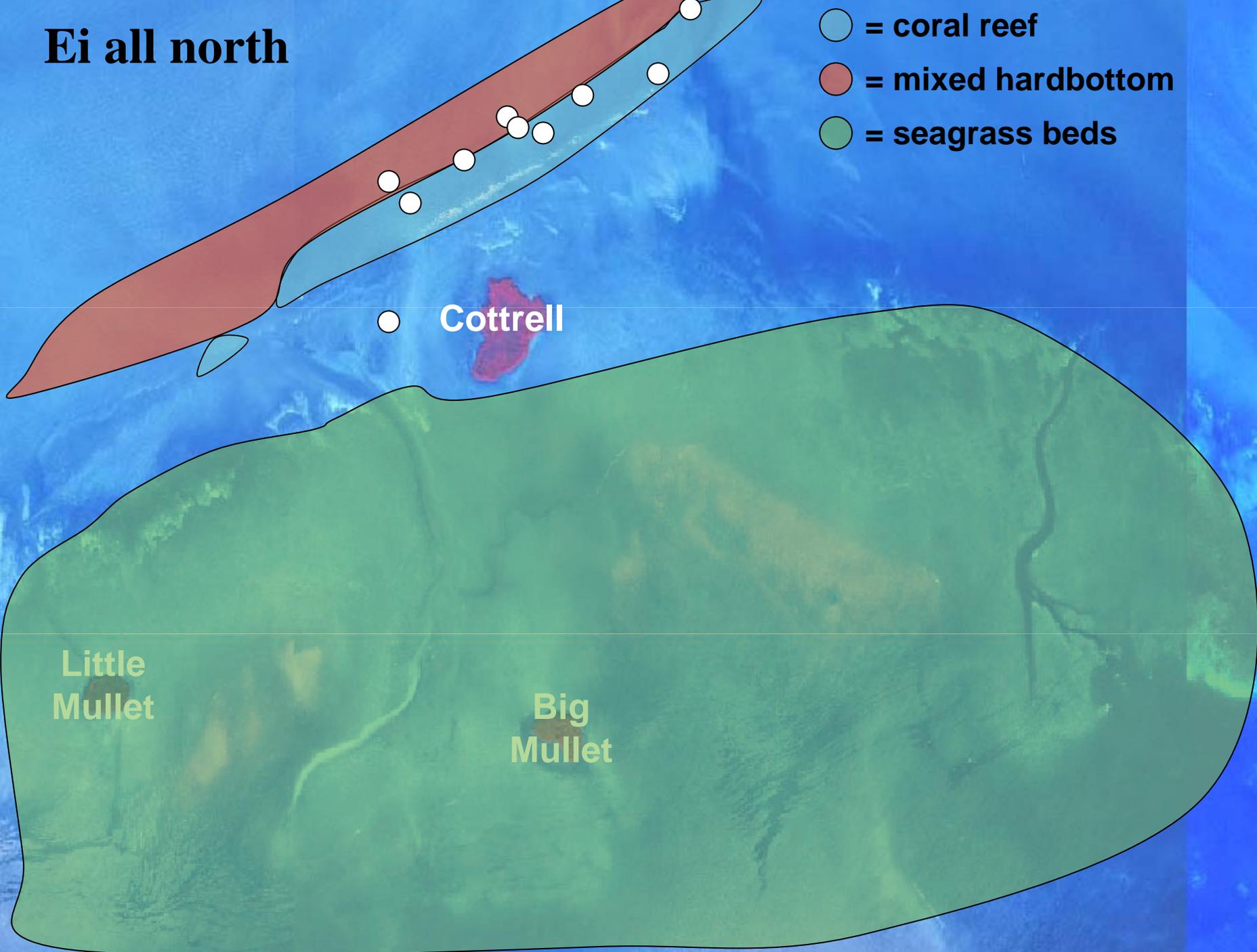
Cottrell

**Little
Mullet**

**Big
Mullet**

Ei all north

-  = coral reef
-  = mixed hardbottom
-  = seagrass beds

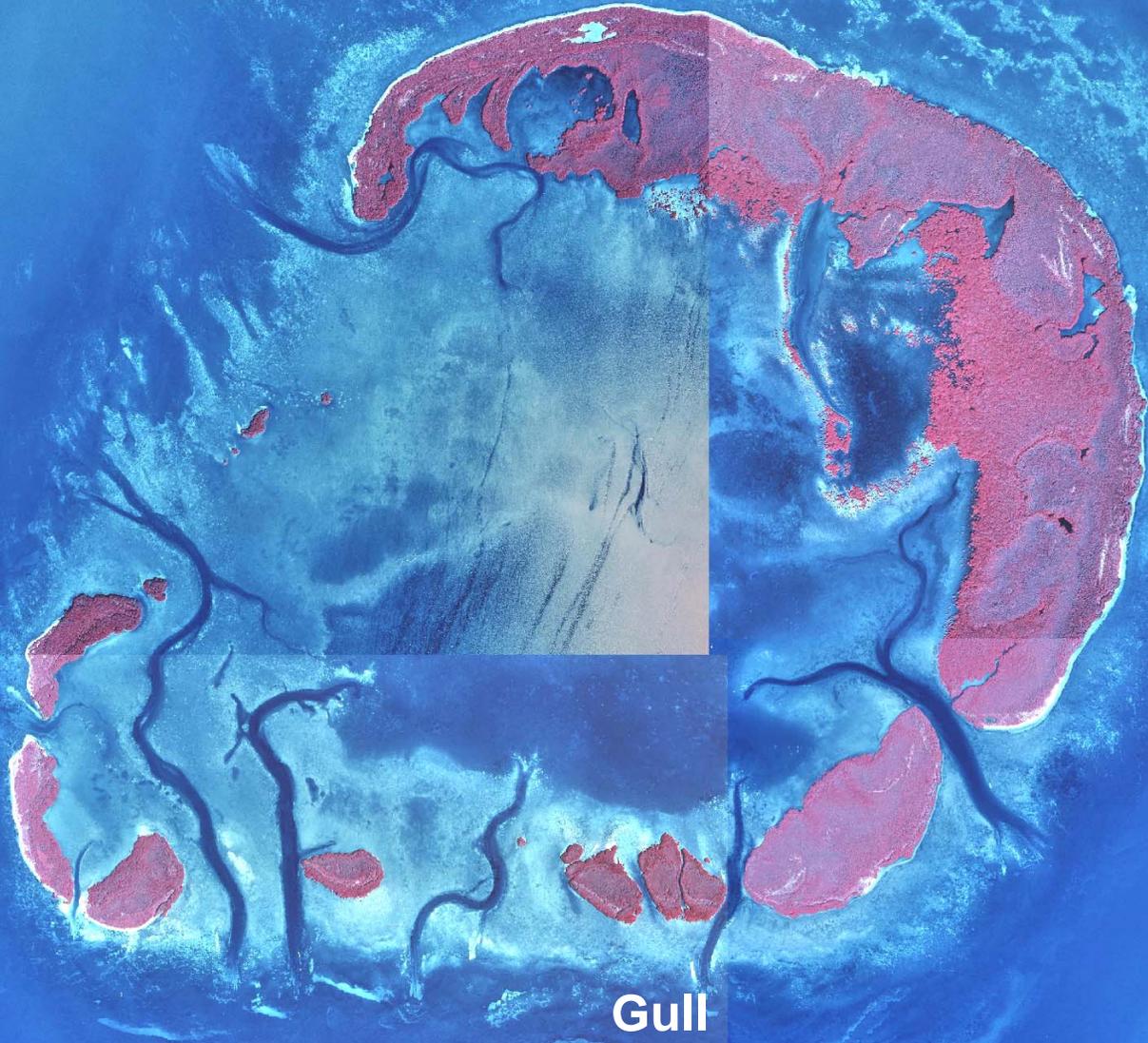


 Cottrell

Little
Mullet

Big
Mullet

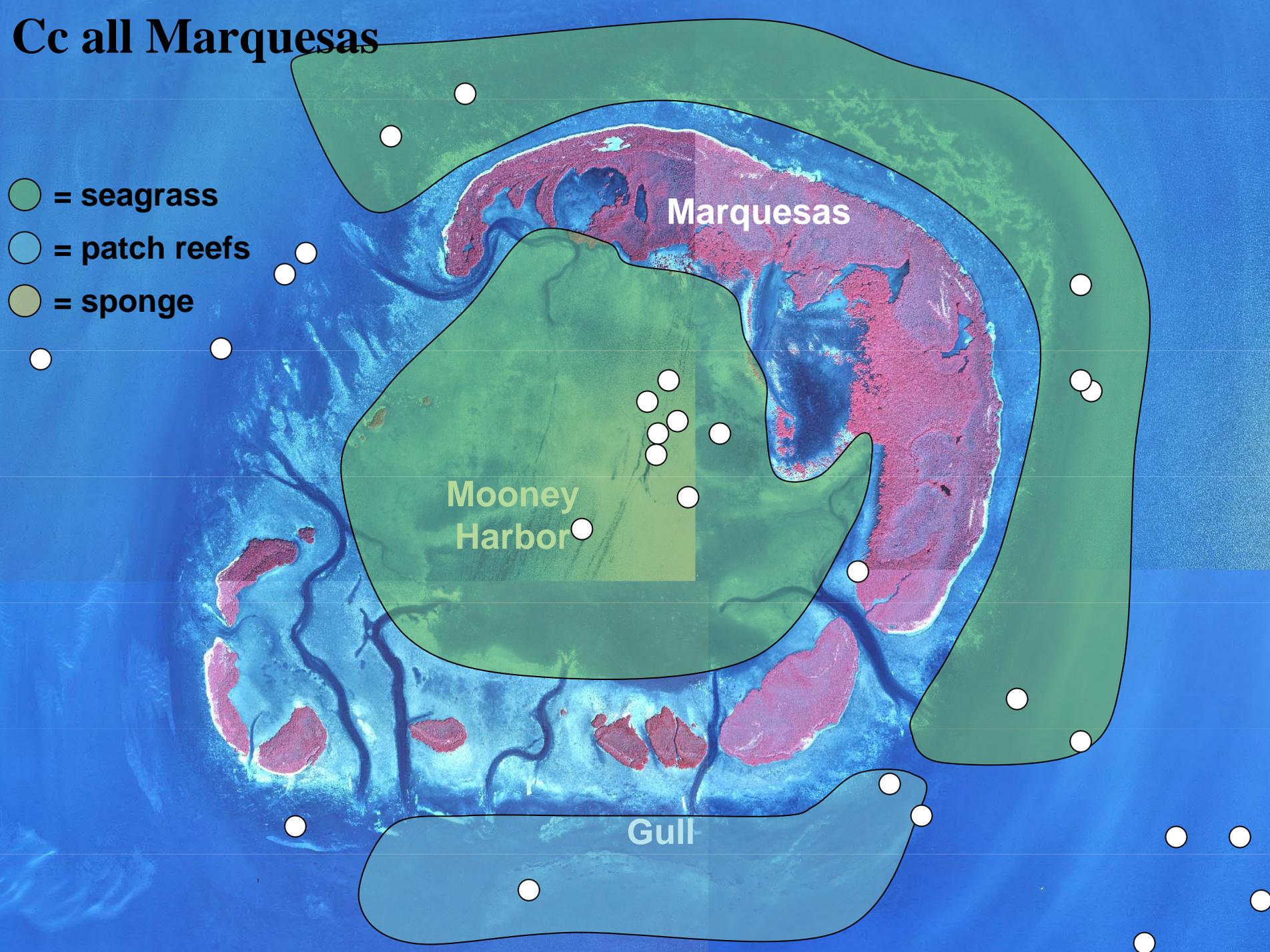
Marquesas Keys





Cc all Marquesas

-  = seagrass
-  = patch reefs
-  = sponge



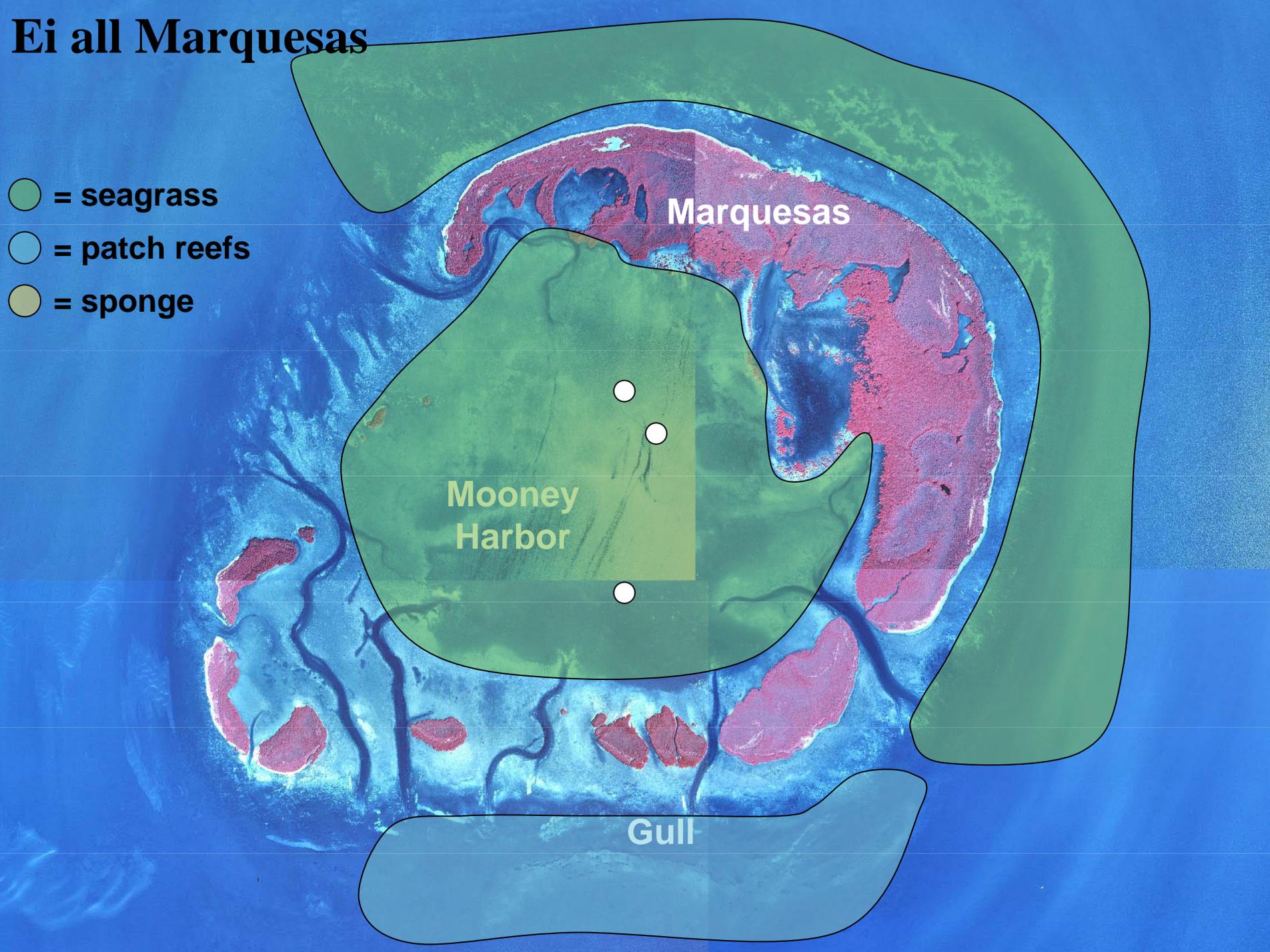
Marquesas

Mooney
Harbor

Gull

Ei all Marquesas

-  = seagrass
-  = patch reefs
-  = sponge



Marquesas

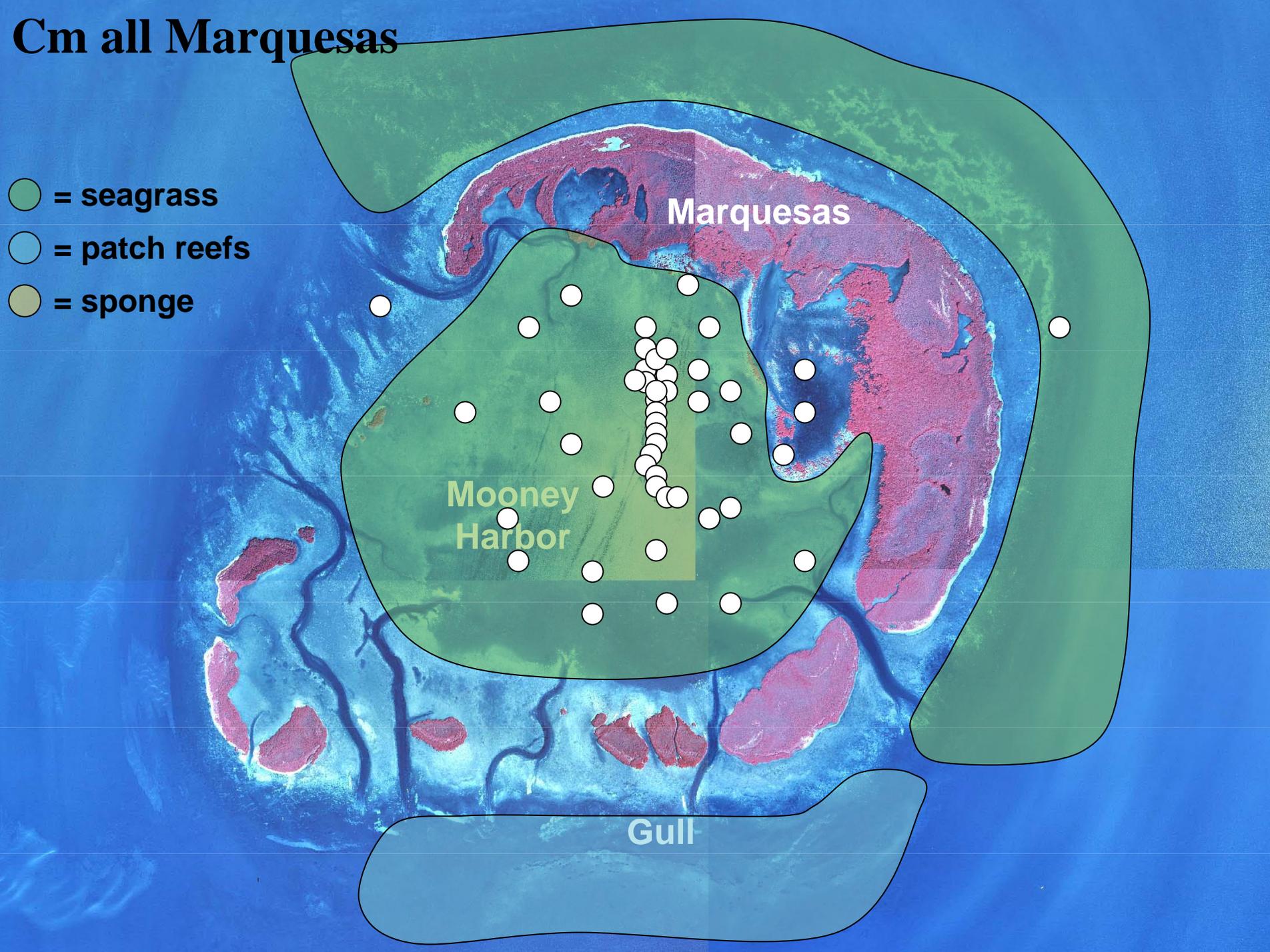
Mooney
Harbor

Gull



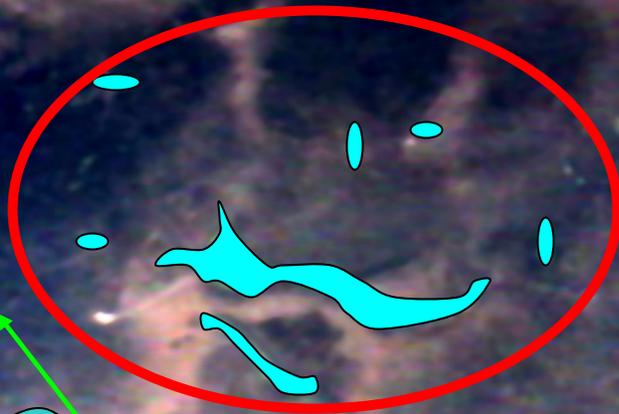
Cm all Marquesas

-  = seagrass
-  = patch reefs
-  = sponge



MARQUESAS KEYS

Mooney Harbor

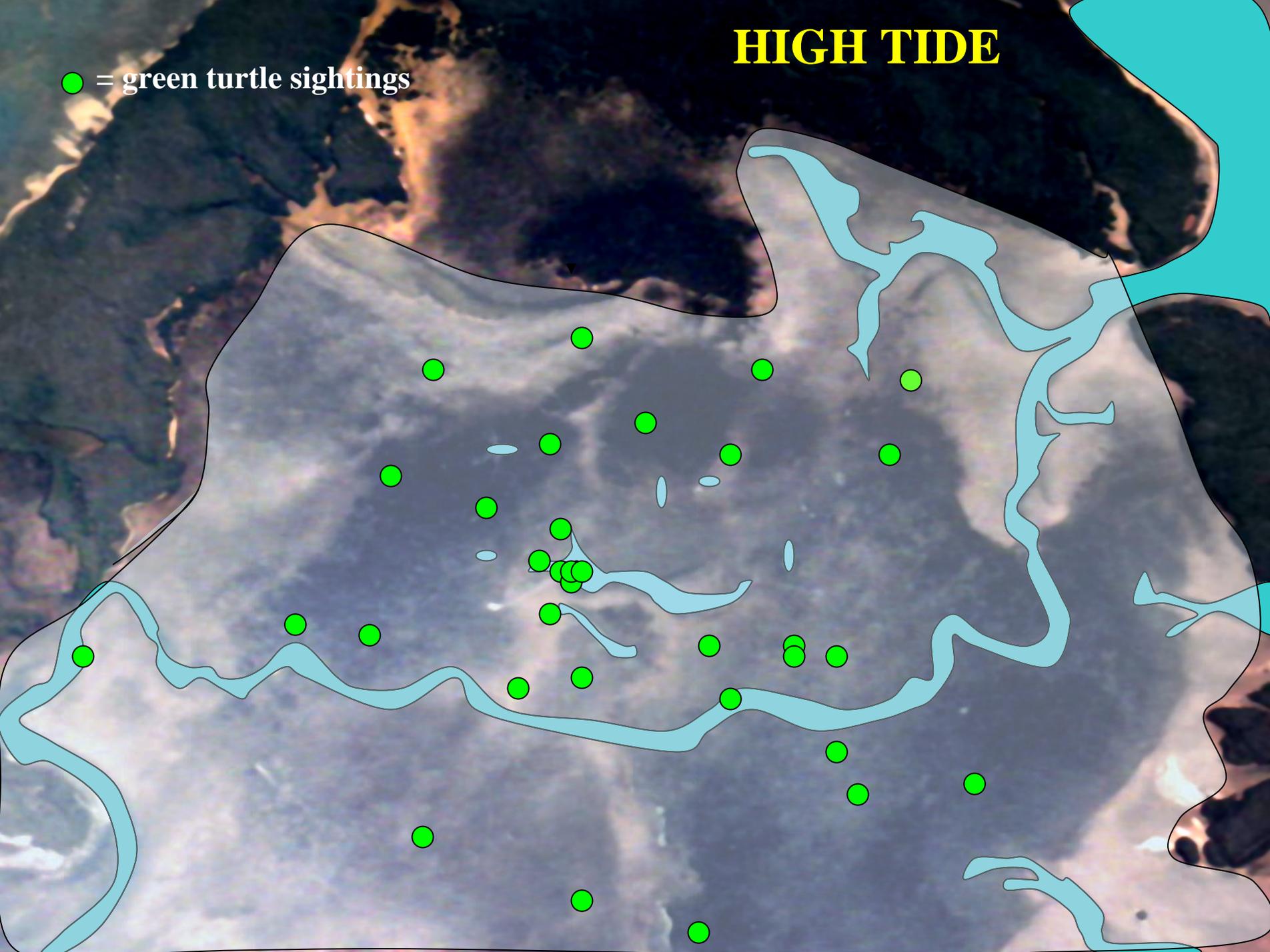


Shallow sea grass beds



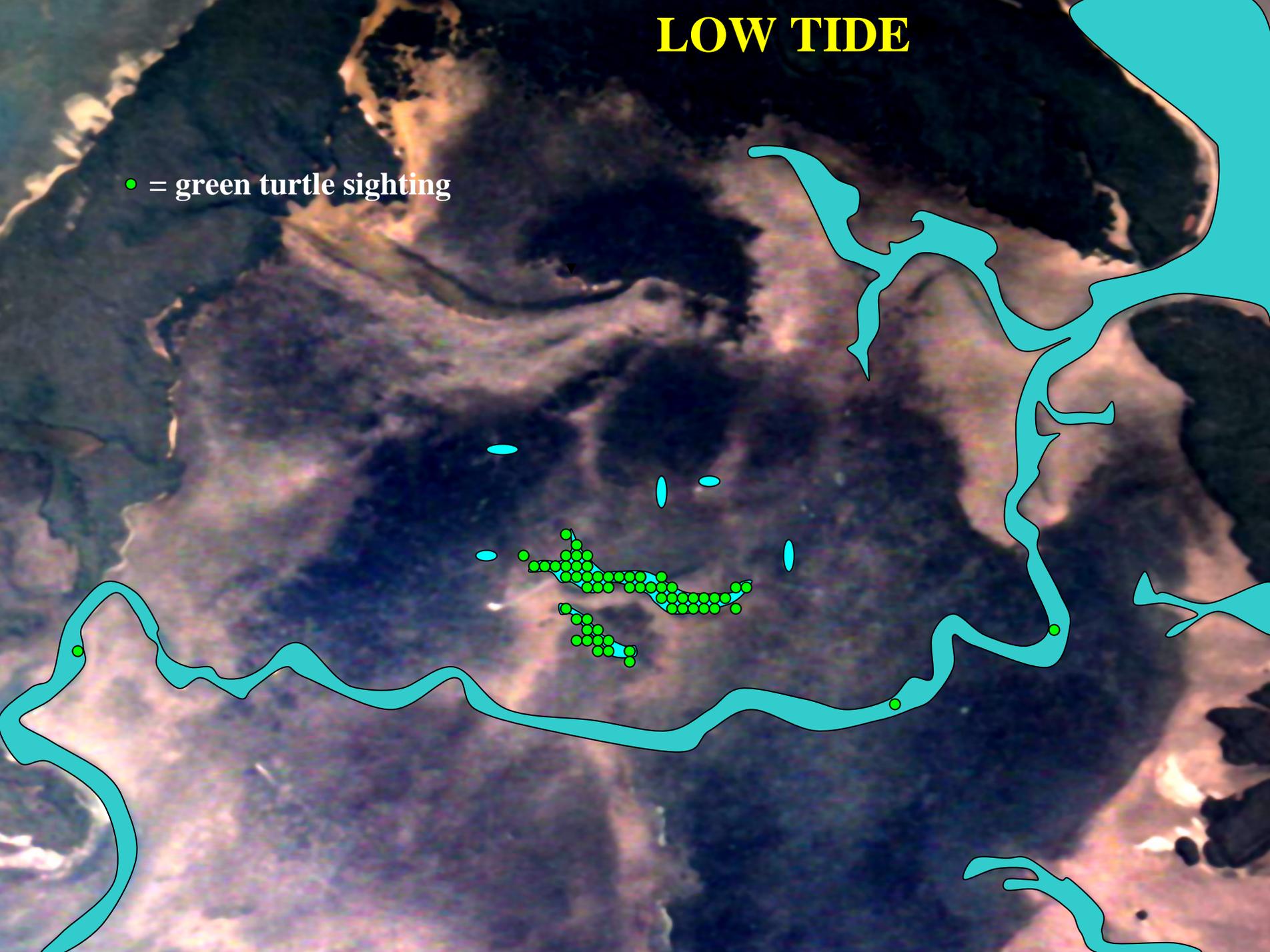
HIGH TIDE

● = green turtle sightings

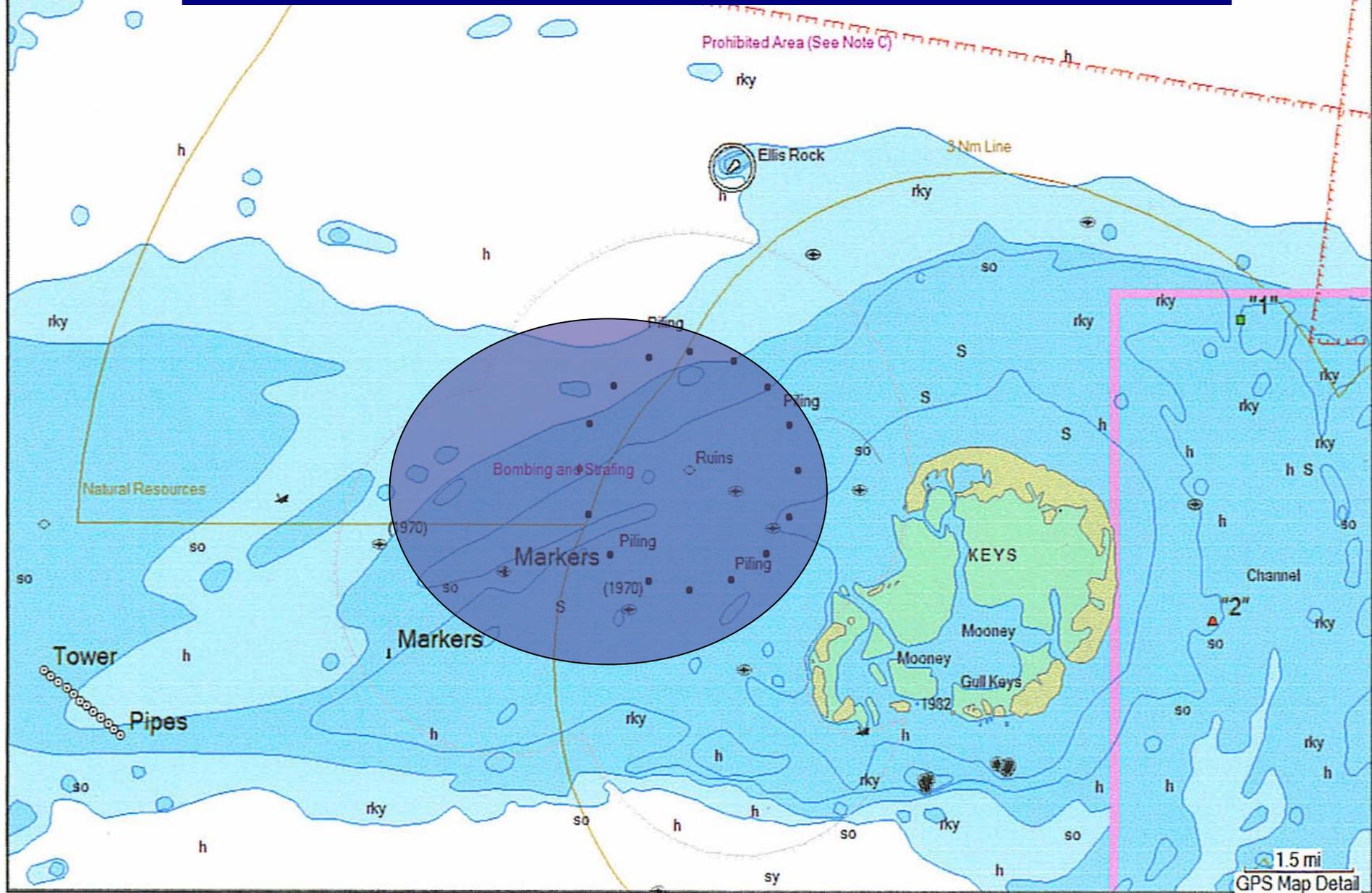


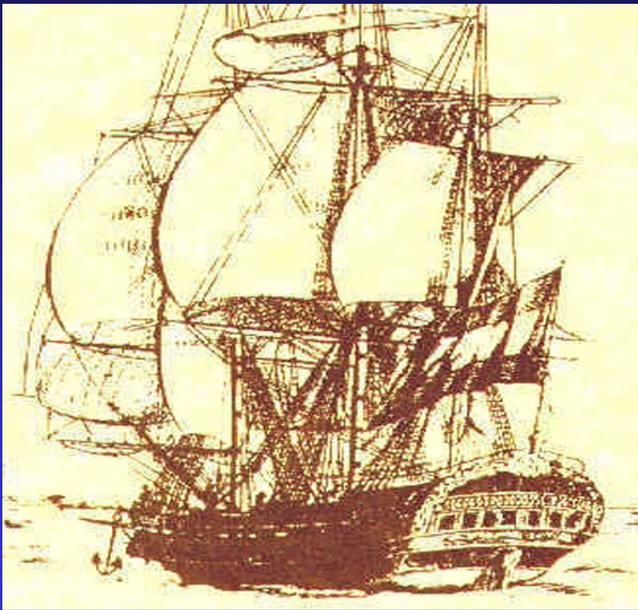
LOW TIDE

● = green turtle sighting



On July 15, 2004 Inwater Research Group searched the area west of the Marquesas Keys





July 4, 1622, the Spanish galleon *Atocha* sinks in a hurricane near the Marquesas

July 20, 1985, Mel Fisher finds the sunken treasure of the *Atocha* just west of the Marquesas in an area named Quicksands



42 KILOMETERS WEST OF KEY WEST



Sea Turtle Habitat?

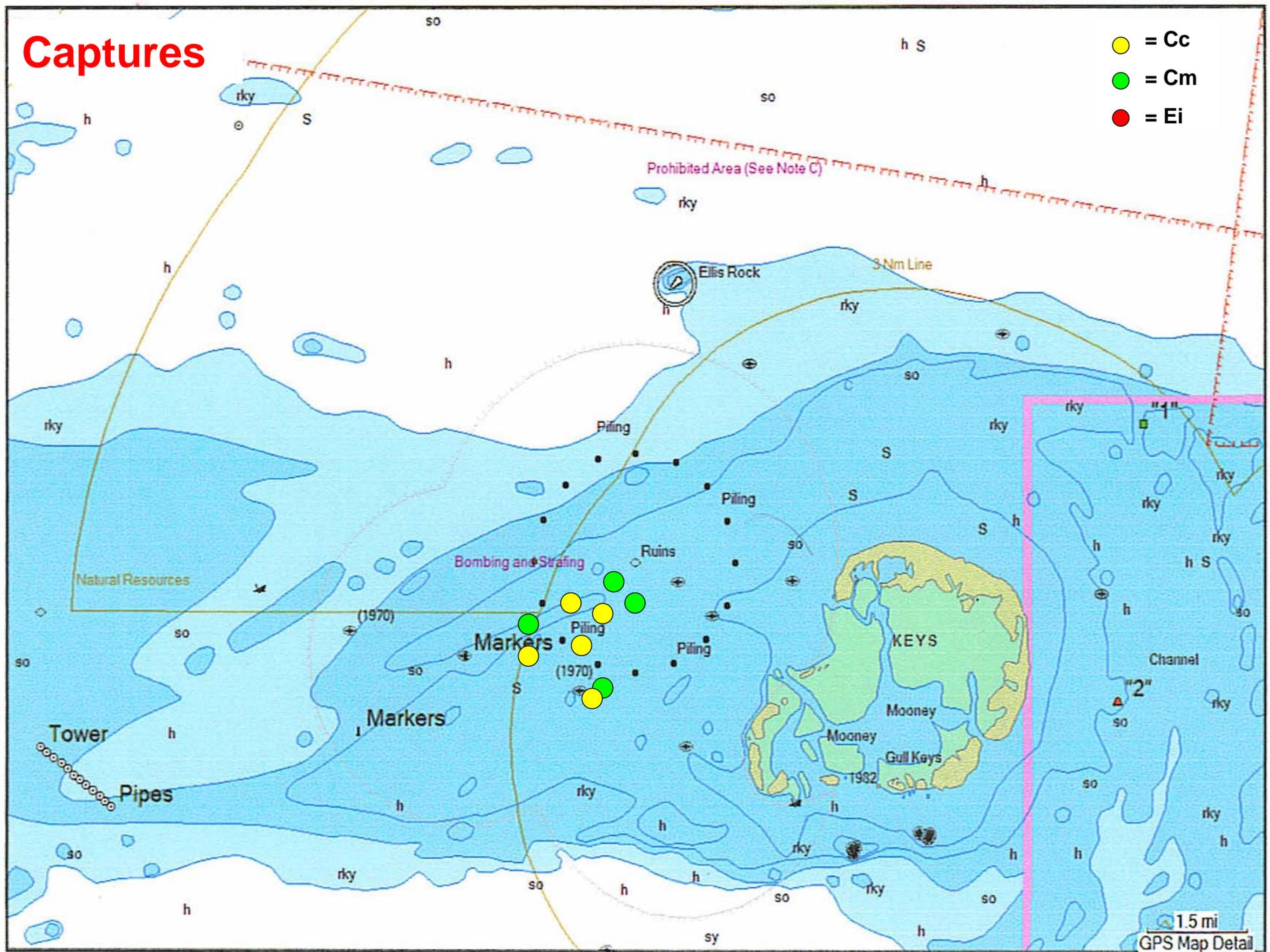






Captures

- = Cc
- = Cm
- = Ei



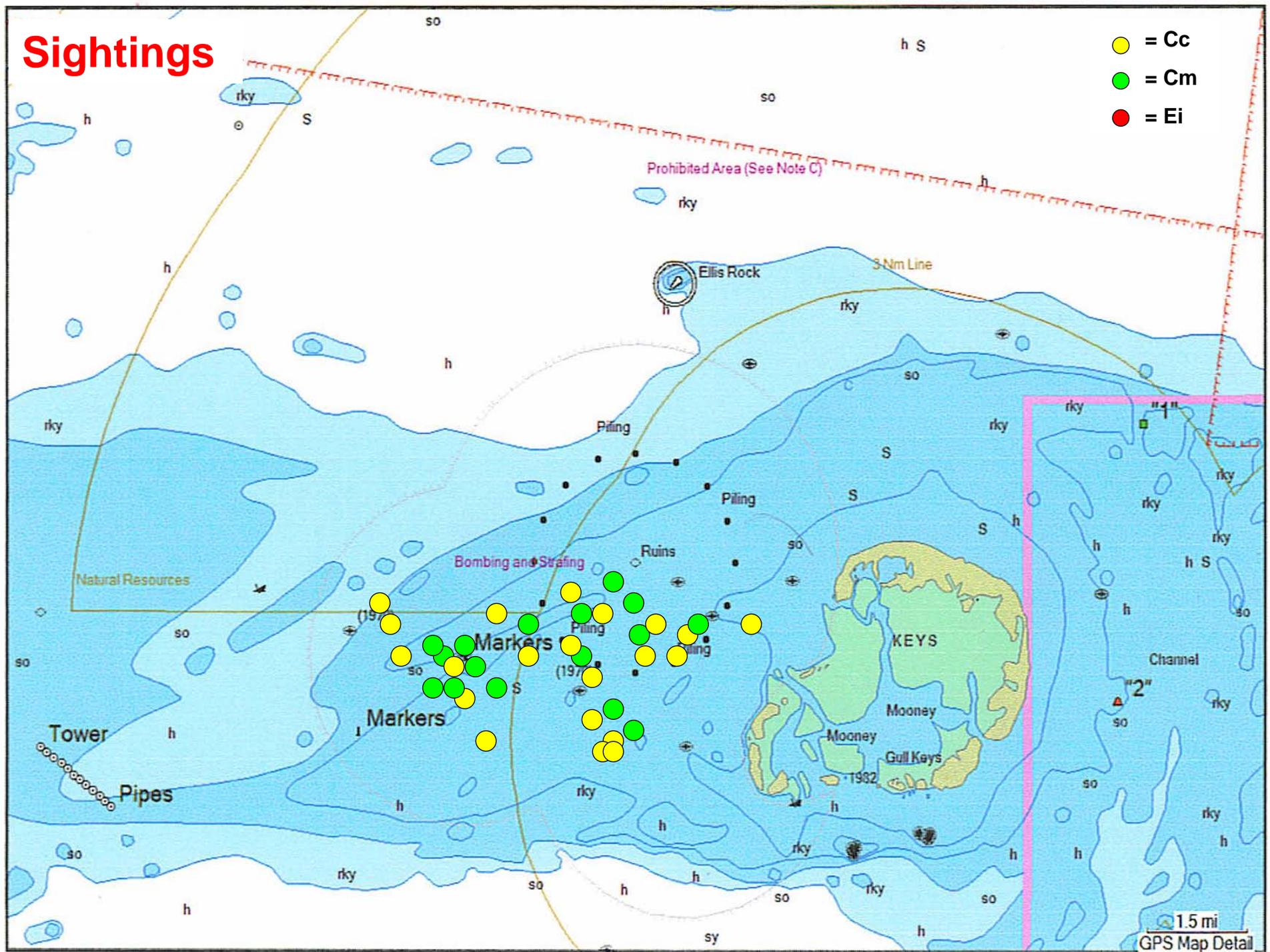






Sightings

- = Cc
- = Cm
- = Ei

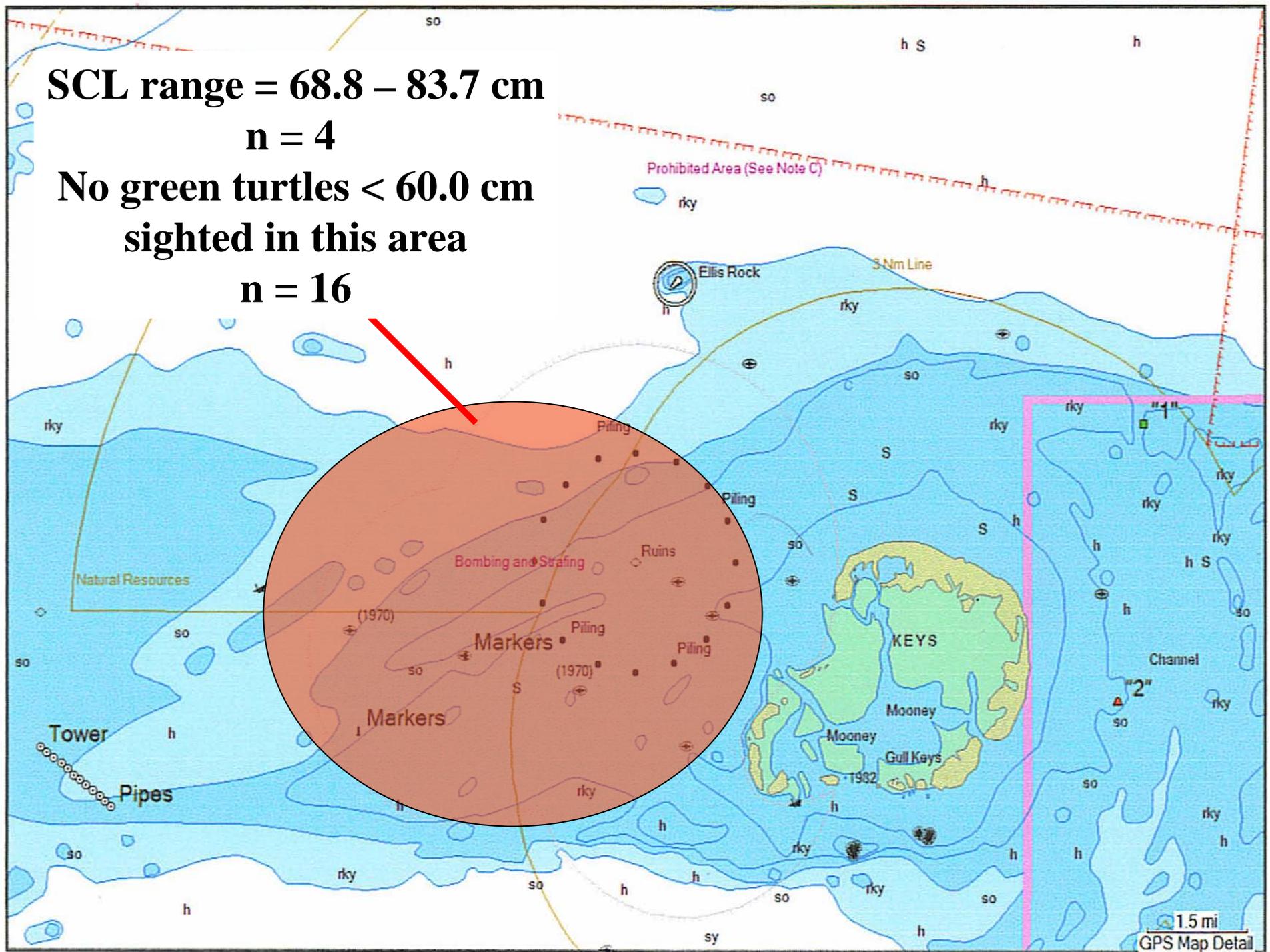


SCL range = 68.8 – 83.7 cm

n = 4

**No green turtles < 60.0 cm
sighted in this area**

n = 16



SCL range = 68.8 – 83.7 cm

n = 4

**No green turtles < 60.0 cm
sighted in this area**

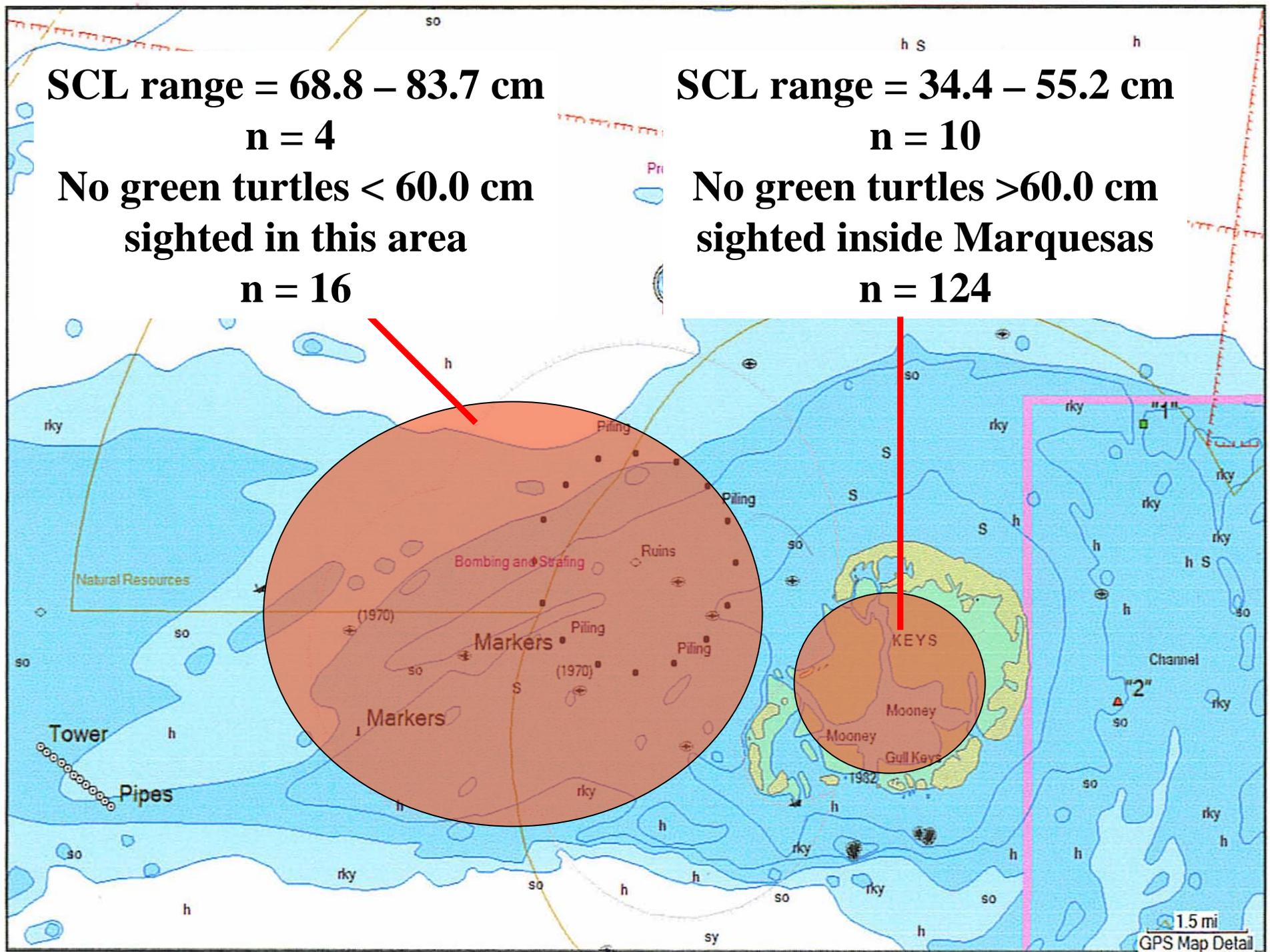
n = 16

SCL range = 34.4 – 55.2 cm

n = 10

**No green turtles > 60.0 cm
sighted inside Marquesas**

n = 124





RRC 407
408
7/14/04
W of Marquesas

WHAT HAVE WE LEARNED?

The KWNWR provides important habitat for loggerheads, hawksbills and green turtles.

The area west of the Marquesas is potentially the first known foraging ground for large subadult green turtles in the contiguous U.S.

The distribution of small green turtles within the Marquesas is influenced by tide. (Possibly a survival strategy).

FP does exist among the aggregation of large subadult green turtles found west of the Marquesas.

FUTURE PLANS

Expand study area to include 30 kms north, south and west of the Marquesas.

Satellite track large subadult green turtles west of the Marquesas.

Continue to collect data on marine turtles found in the refuge and surrounding waters.

Analyze and continue to collect genetic samples from marine turtles in the refuge and surrounding waters.





Acknowledgements

Tom Wilmers (USFWS) for his unrelenting support of this project.

The Sea Turtle License Plate Grants Program for funding our most critical piece of equipment; a seaworthy research vessel.

Special thanks to all the people who worked tirelessly to support this project: Karrie Singel, Chris Koepple, Dawn Witherington, Eliza Gilbert, Stacy Kubis, Laura Herren, Wanda Bresette, Steve Traxler, Karen Holloway-Adkins, Ann Marie Maharaj and Karen Frutchey.

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Save-A-Turtle and the Norcross Foundation for funding and support.

The Turtle Hospital in Marathon for storage of our equipment during the hurricanes.