







KEY LARGO  
DIVING HOODS

KEY LARGO  
DIVING  
HEADQUARTERS

FIRST AID



- **Popularity of recreational diving is growing rapidly**
- **882,000 new divers certified in U.S. 2004**

Shipwreck  
vs  
Submerged  
Cultural  
Resource

“Living museums under the sea”



# SAN PEDRO

Lost in a hurricane July 1733  
bound for Cadiz, Spain from Havana, Cuba

## UNDERWATER ARCHAEOLOGICAL PRESEPVE



A JOINT PROJECT OF THE FLORIDA DEPARTMENT OF STATE  
DIVISION OF HISTORICAL RESOURCES  
AND THE FLORIDA DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF RECREATION AND PARKS  
OPENED APRIL 1989





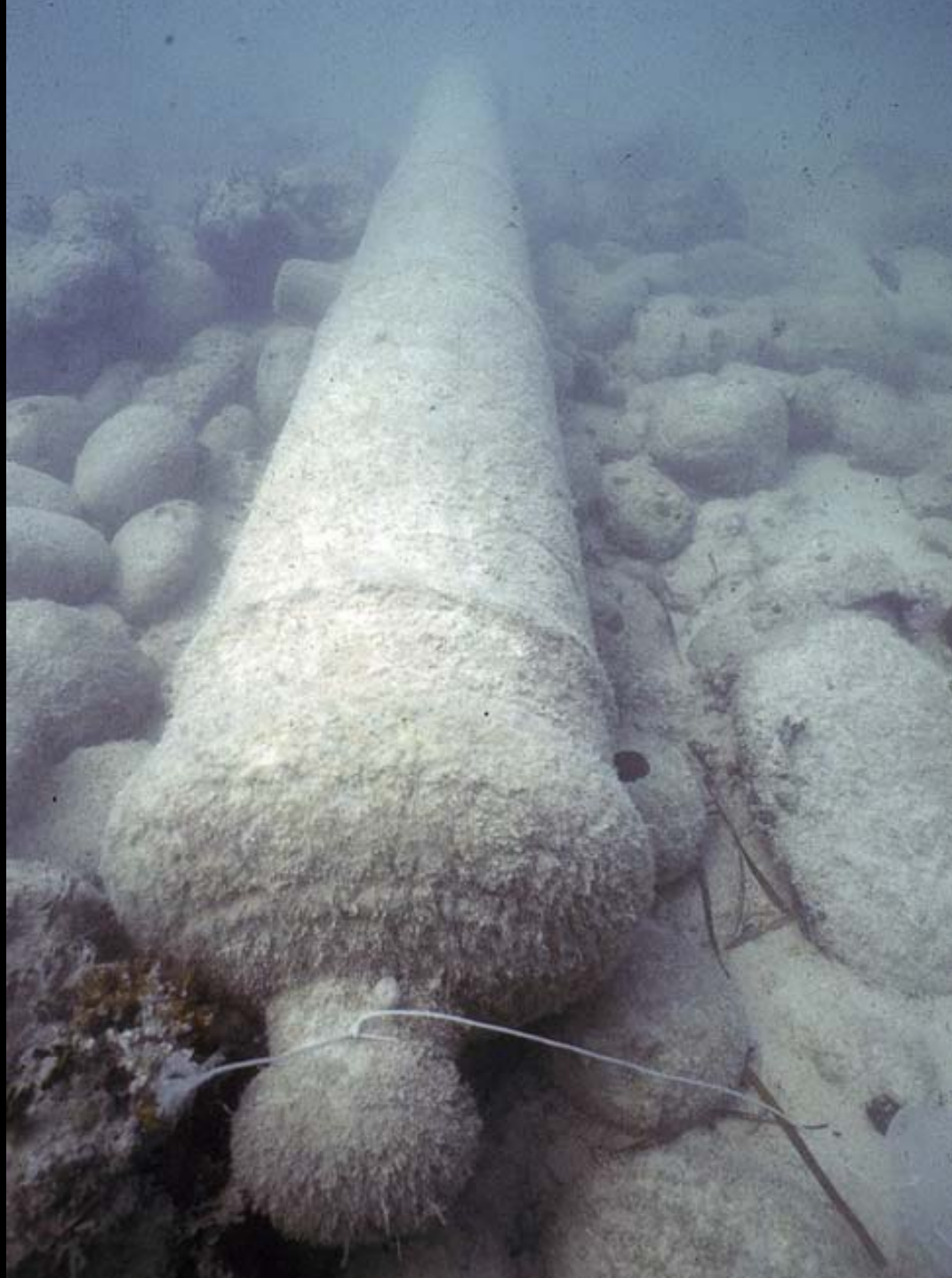






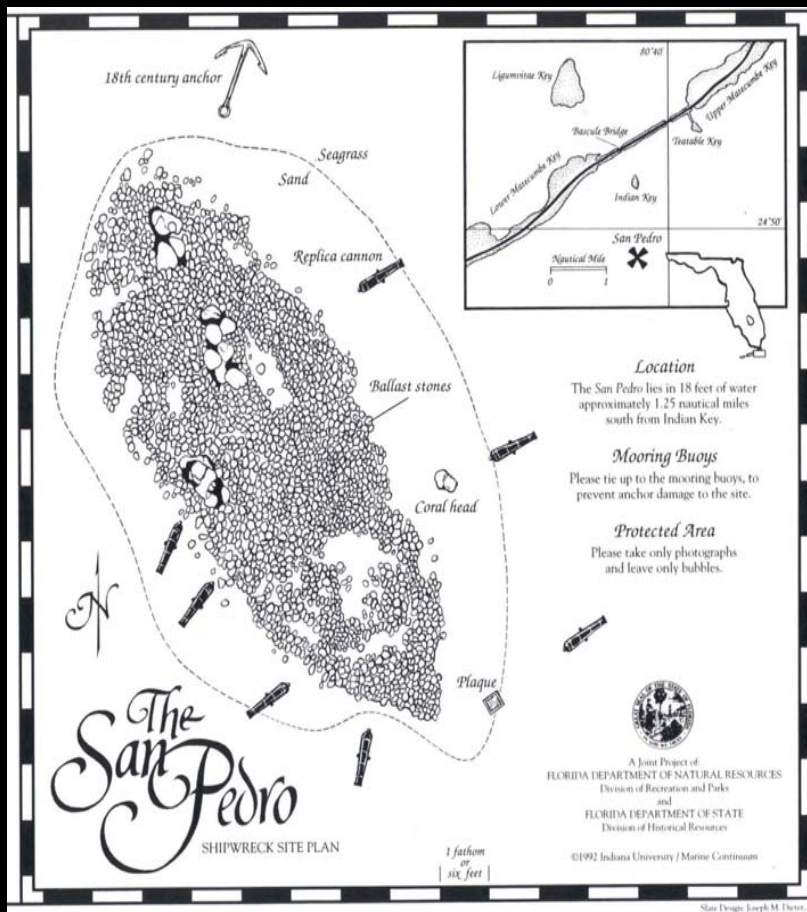








# An Underwater Site Plan on a Slate Assists Divers



Exploring

# The San Pedro



## 18th Century Merchant Ship

Designed to transport peoples and cargoes across vast oceans, the ship is a complex and highly organized expression of the technology of the time.



## Time of Wrecking

The impact of the wreck damages the ship's structure and scatters parts. Winds, waves, and currents further scramble the remains.



## One Hundred Years Later

Nature has taken its toll on the exposed part of the wreck. Shifting sands have covered much of the remains, and

*Make history come alive: experience the mystique of the Spanish Main by viewing the remains of an 18th century sailing ship.*

## A Dynamic Living Ecosystem...

*Observe firsthand how nature reclaims what humans construct: from brittle stars to barracudas, sea life thrives on the artificial reef.*

## UNDERWATER ARCHAEOLOGICAL PRESERVE



*'Today'* The wreck, shown here in a cutaway view, has become part of the seabed. Some parts are still preserved under the sand, and an artificial reef has developed on top of the remains.



# Monitoring is Critical





Pedro

2

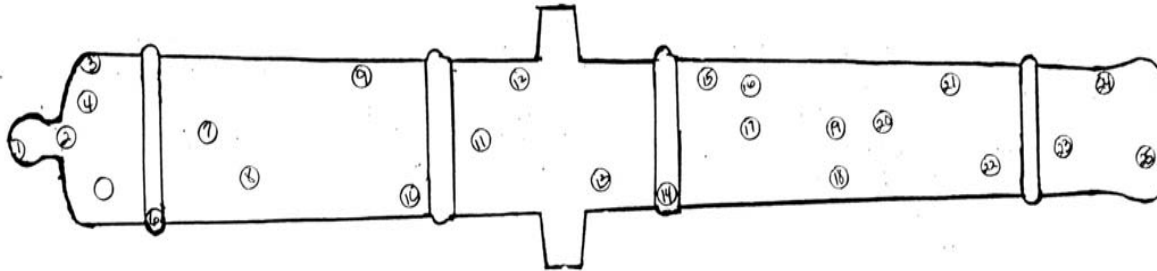
HELEX

# Field Notes Document Biological Details

San Pedro Biological Assessment  
Cannon # 1

May 1993

CANNON # 1



Cascabel:

1. Golfball coral
2. Ridge cactus coral
3. Smooth star coral
4. Lesser starlet coral
5. Lesser starlet coral
6. Brain coral

First Reinforce:

7. Lesser starlet coral
8. Lesser starlet coral
9. Lesser starlet coral
10. Lesser starlet coral

Second Reinforce:

11. Lesser starlet coral
12. Lesser starlet coral
13. Lesser starlet coral
14. Golfball coral

Chase:

15. Lesser starlet coral
16. Lesser starlet coral
17. Lesser starlet coral
18. Lesser starlet coral
19. Lesser starlet coral
20. Lesser starlet coral
21. Lesser starlet coral
22. Brain coral

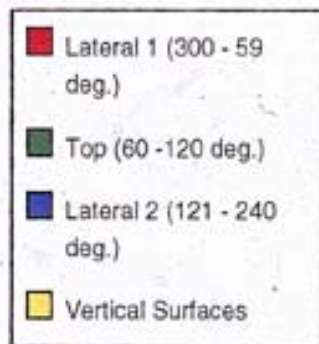
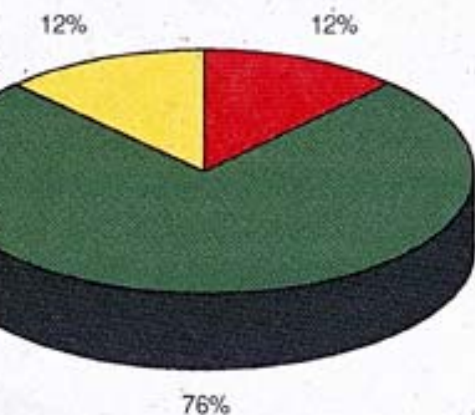
Muzzle:

23. Lesser starlet coral
24. Lesser starlet coral
25. Lesser starlet coral



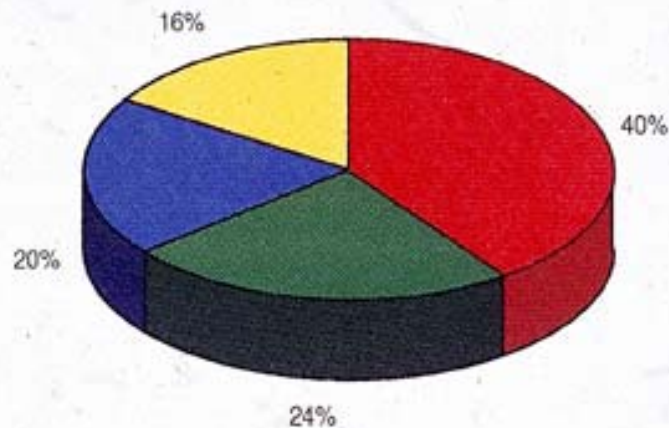
# The San Pedro Biological Survey Cannon #1

Coral Growth Distribution



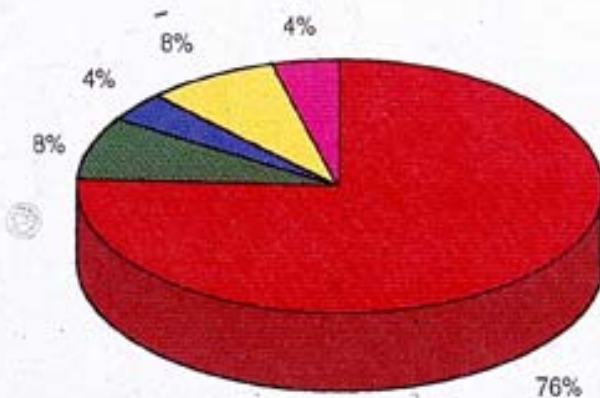
Sample Size = 25  
Bottom Type: Seagrass  
Heading = 68.5 Degrees

Coral Size Distribution



Sample Size = 25  
Bottom Type: Seagrass

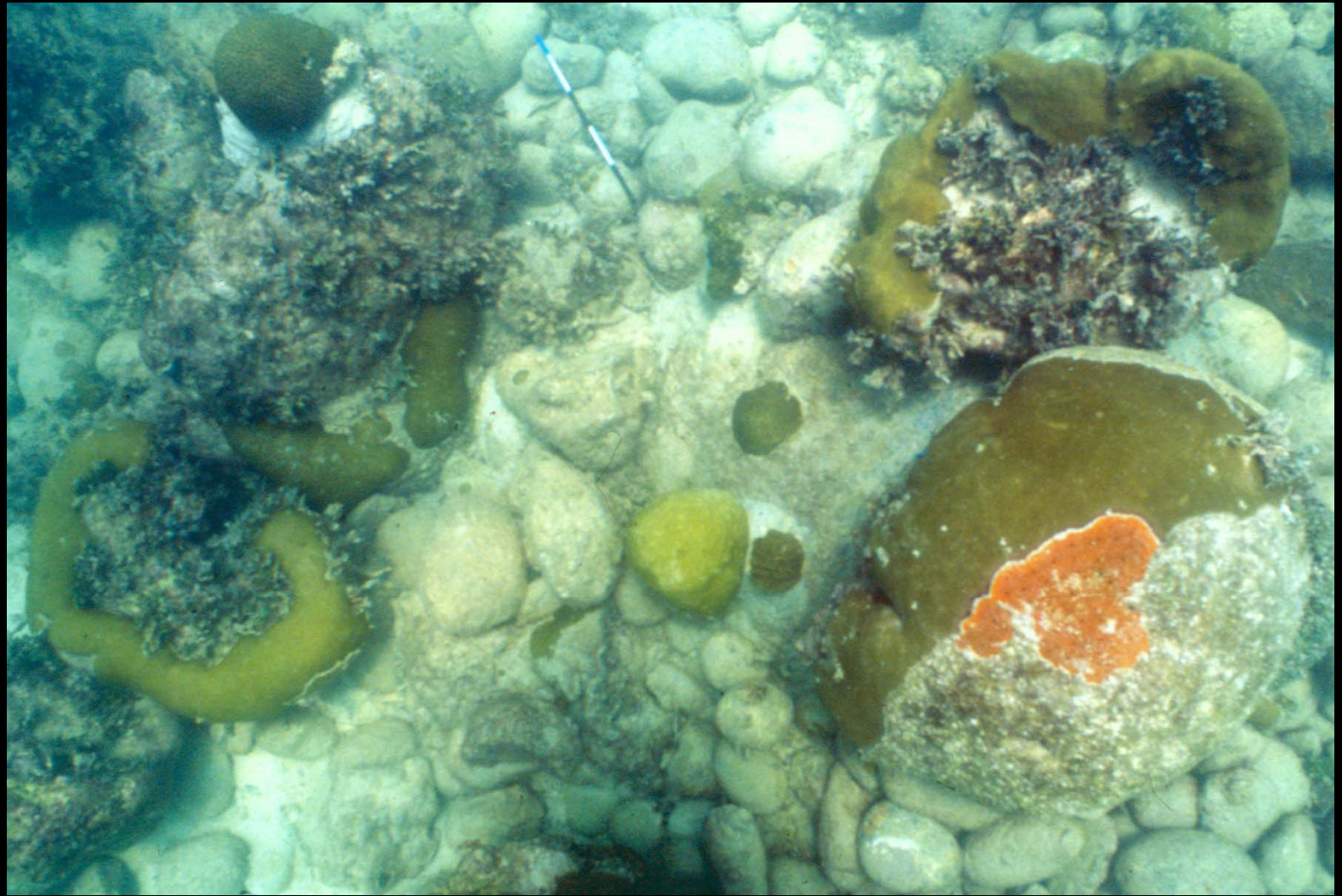
Coral Types

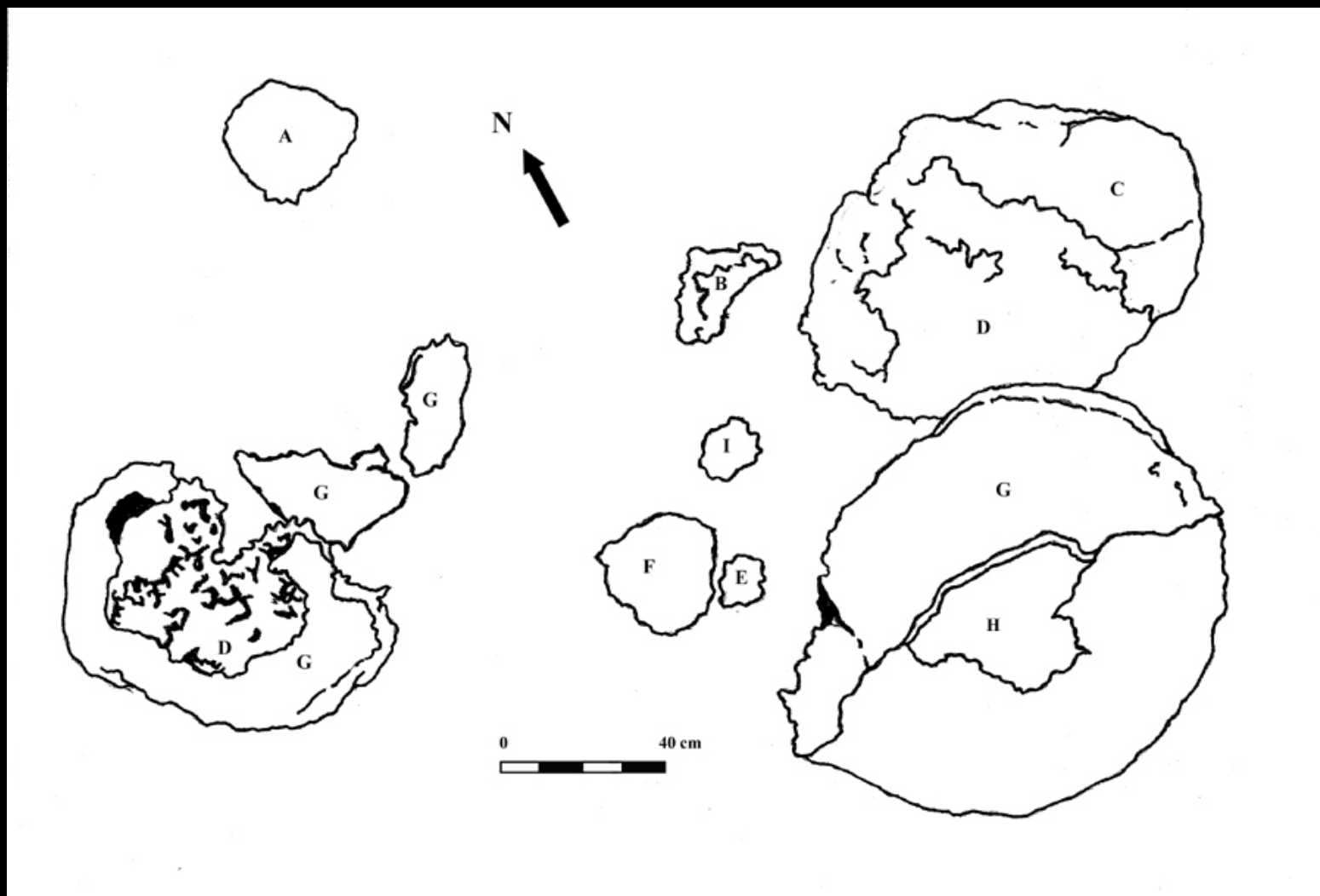


Sample Size = 25  
Bottom Type: Seagrass









A: Grooved Brain Coral, *Diploria labyrinthiformis*  
 B: Mustard Hill Coral, *Porites astreoides*  
 C: Boulder Star Coral, *Montastraea annularis*  
 D: Algae, *Halimeda* sp.

E: Maze Coral, *Meandrina meandrites*  
 F: Smooth Star Coral, *Solenastrea bournoni*  
 G: Massive Starlet Coral, *Siderastrea siderea*  
 H: Orange Encrusting Sponge, *Diplastrella* sp.

# *Certificate of Participation*

presented to

*William Jones*

for successful completion of the  
**Reef Medics Partner Training Workshop**  
**San Pedro Coral Restabilization Project**

conducted at the  
**Florida Keys National Marine Sanctuary**  
**Upper Keys Region, Key Largo, FL**  
May 20 & May 25, 2003

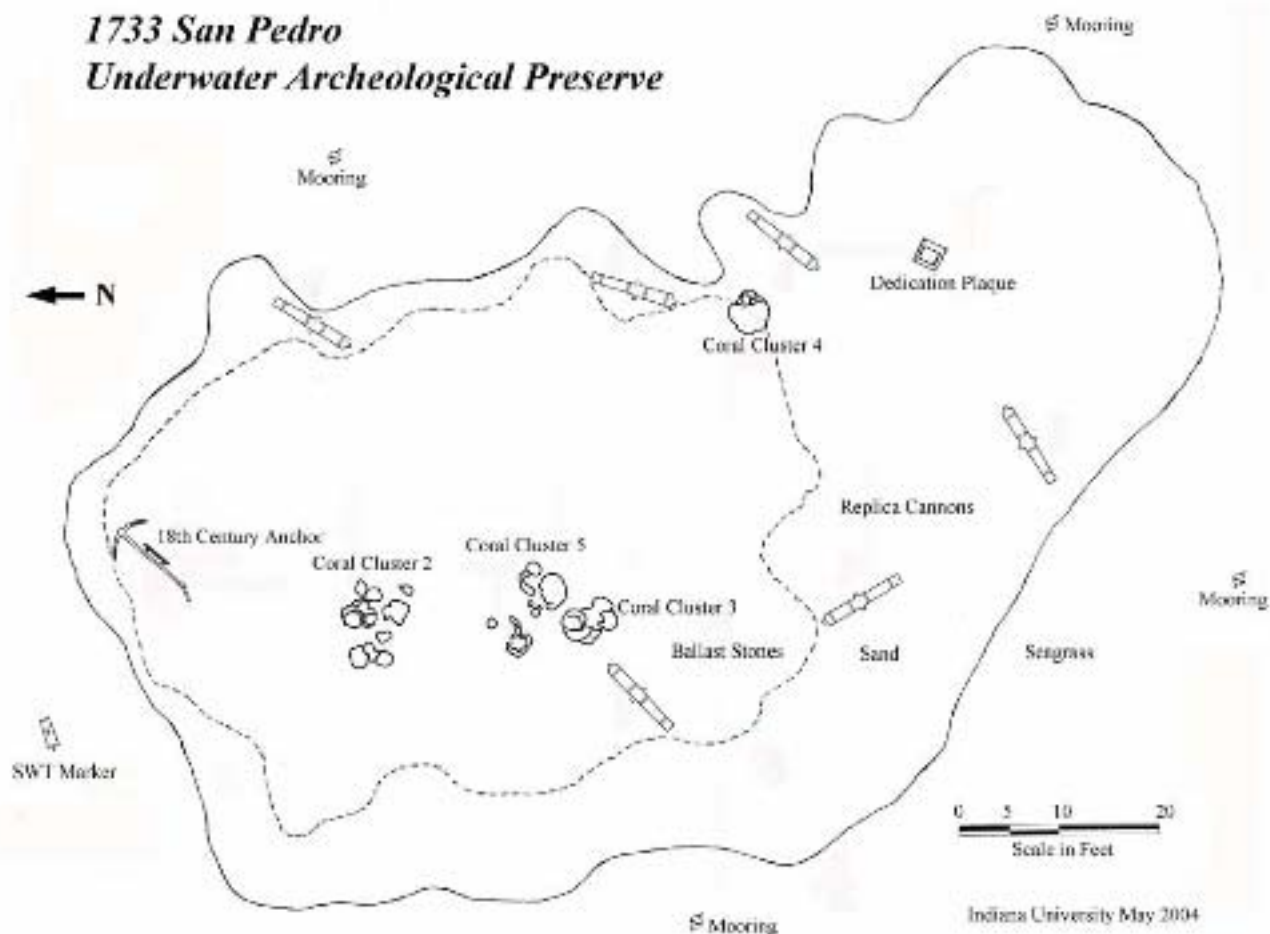


Bill Goodwin, Program Coordinator, Reef Medics

Charles Beeker, Director, Underwater Science,  
Indiana University



## 1733 San Pedro Underwater Archeological Preserve



### Location

The San Pedro lies in 20 feet of water 1.25 nautical miles south of Indian Key, Florida Keys National Marine Sanctuary. GPS: 24-51.802N, 80-40.780W

### Buoy System

Four mooring buoys and a historic marker are located on the site.

### Protected Area

Florida Keys National Marine Sanctuary Shipwreck Trail site is subject to rules and regulations.  
"Take only photos and leave only bubbles"









MARKER  
SAFE  
DIVER

**BENWOOD  
WRECK**  
2-1992





BENWOOD  
WRECK

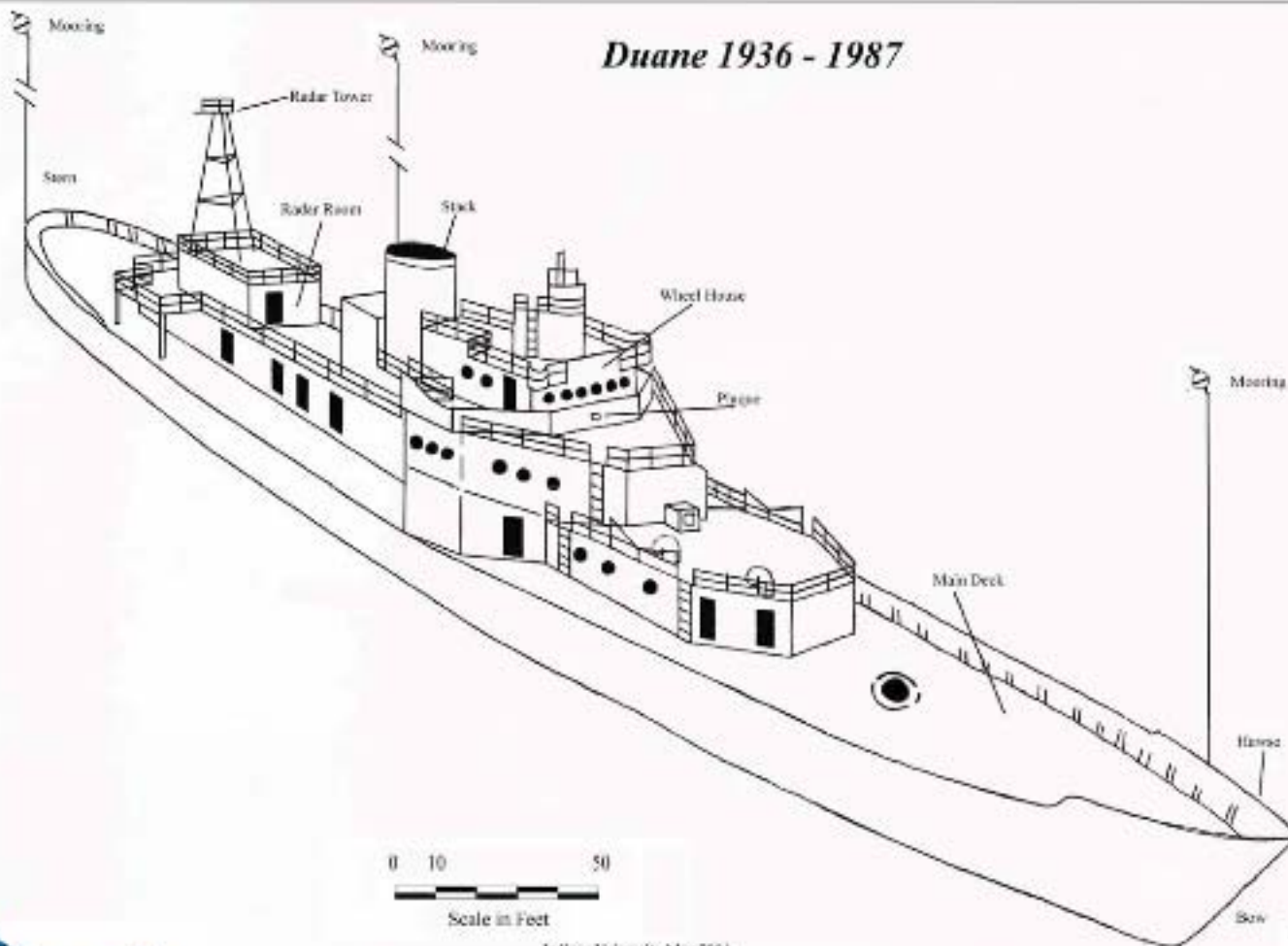
1942



- **Intentional Sinkings**

**The Coast Guard Cutter Duane was sunk as an artificial reef on November 26, 1987 in Florida's upper keys.**

## Duane 1936 - 1987



0 10 50  
Scale in Feet

Indiana University May 2004

### Location

The Duane lies in 120 feet of water one mile south of Molasses Reef off Key Largo, Florida Keys National Marine Sanctuary. GPS: 24-59.388N, 80-22.888W

### Buoy System

Mooring buoys are attached to the bow, stern and midship.

### Protected Area

Florida Keys National Marine Sanctuary Shipwreck Trail site is subject to rules and regulations.  
"Take only photos and leave only bubbles"



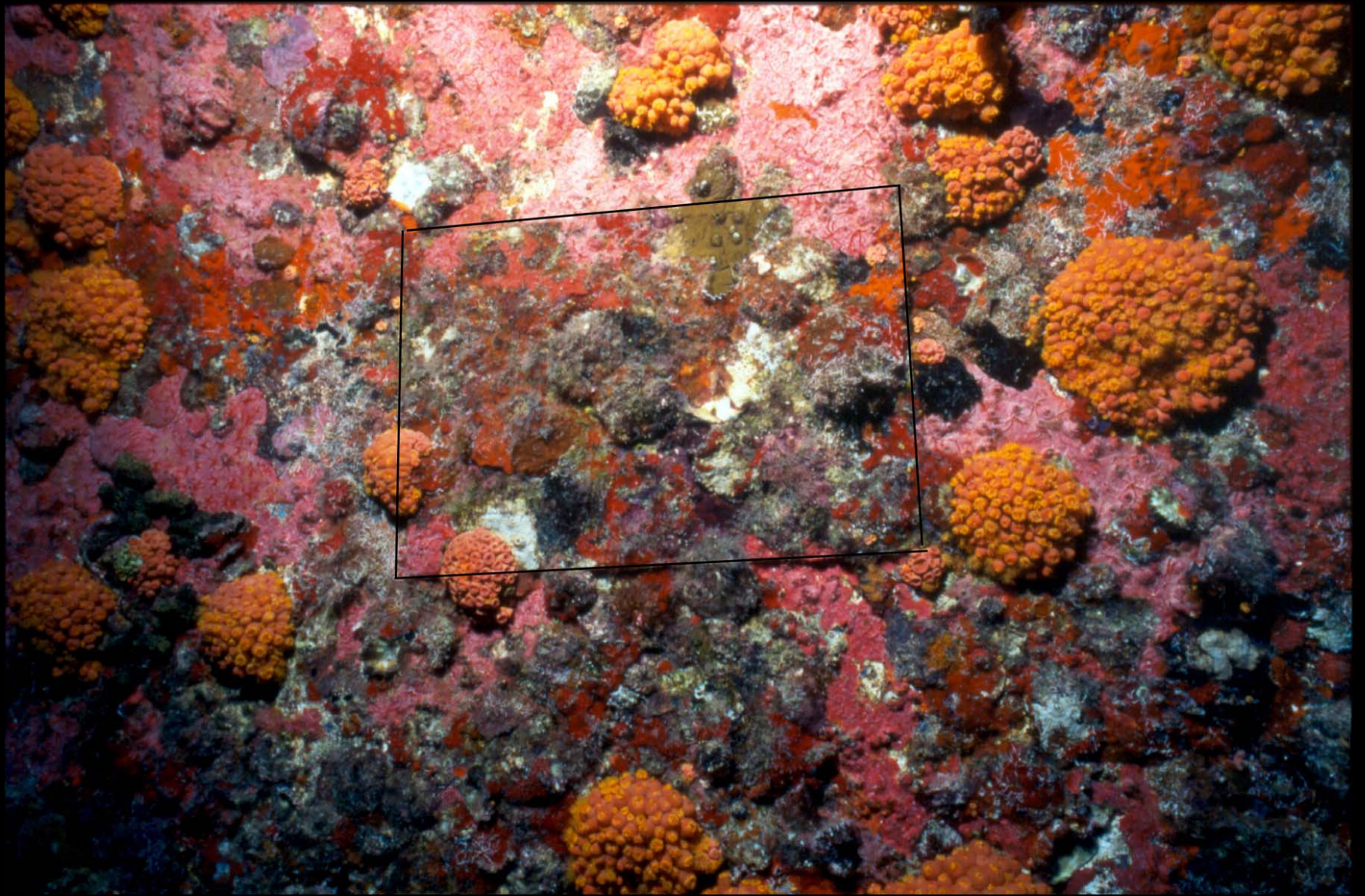
NATIONAL MARINE  
SANCTUARIES



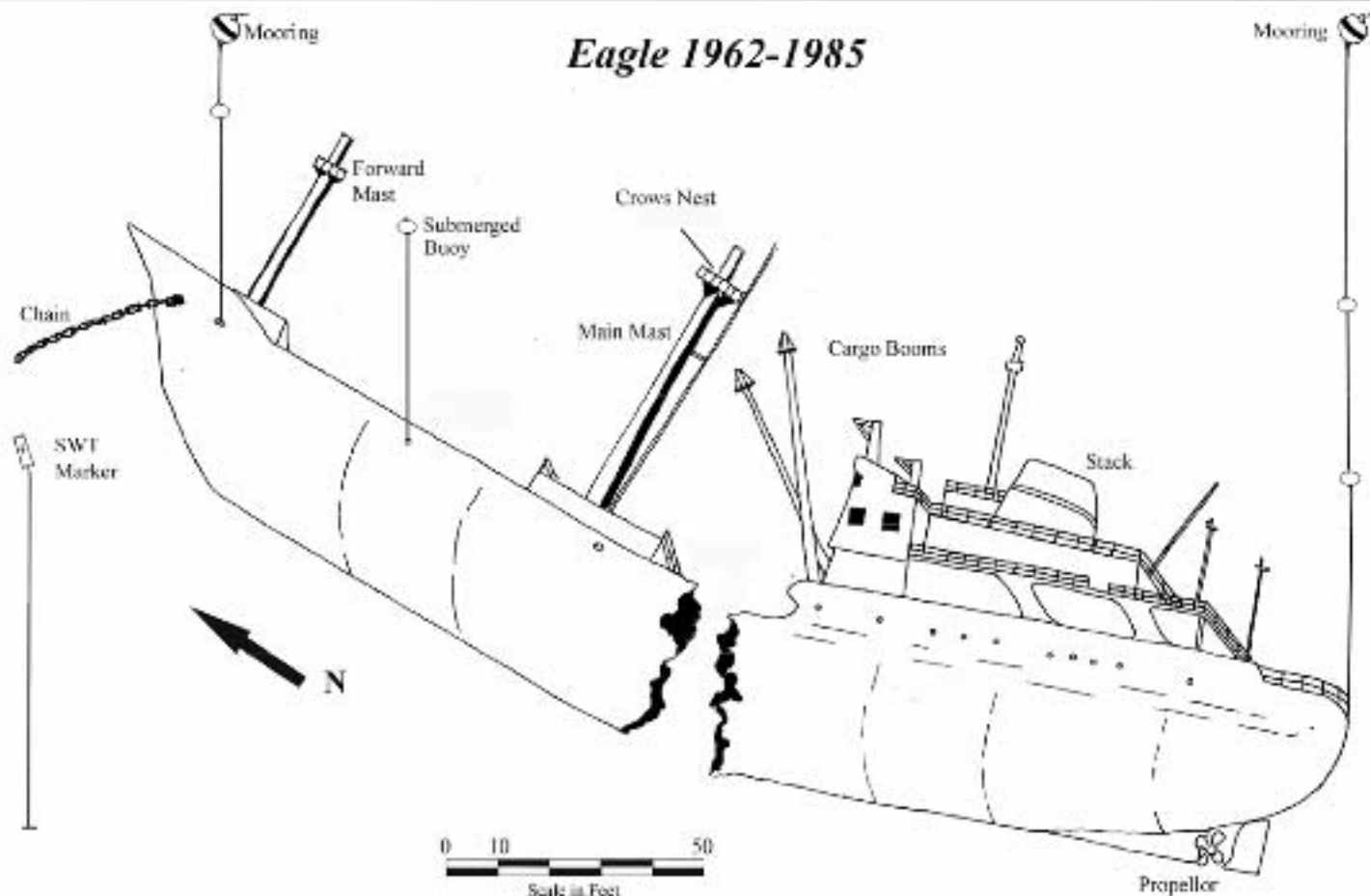








## Eagle 1962-1985



Indiana University May 2004

### Location

The Eagle lies in 110 feet of water three miles northeast of Alligator Reef Light, Florida Keys National Marine Sanctuary. GPS: 24-52.184N, 80-34.217W

### Buoy System

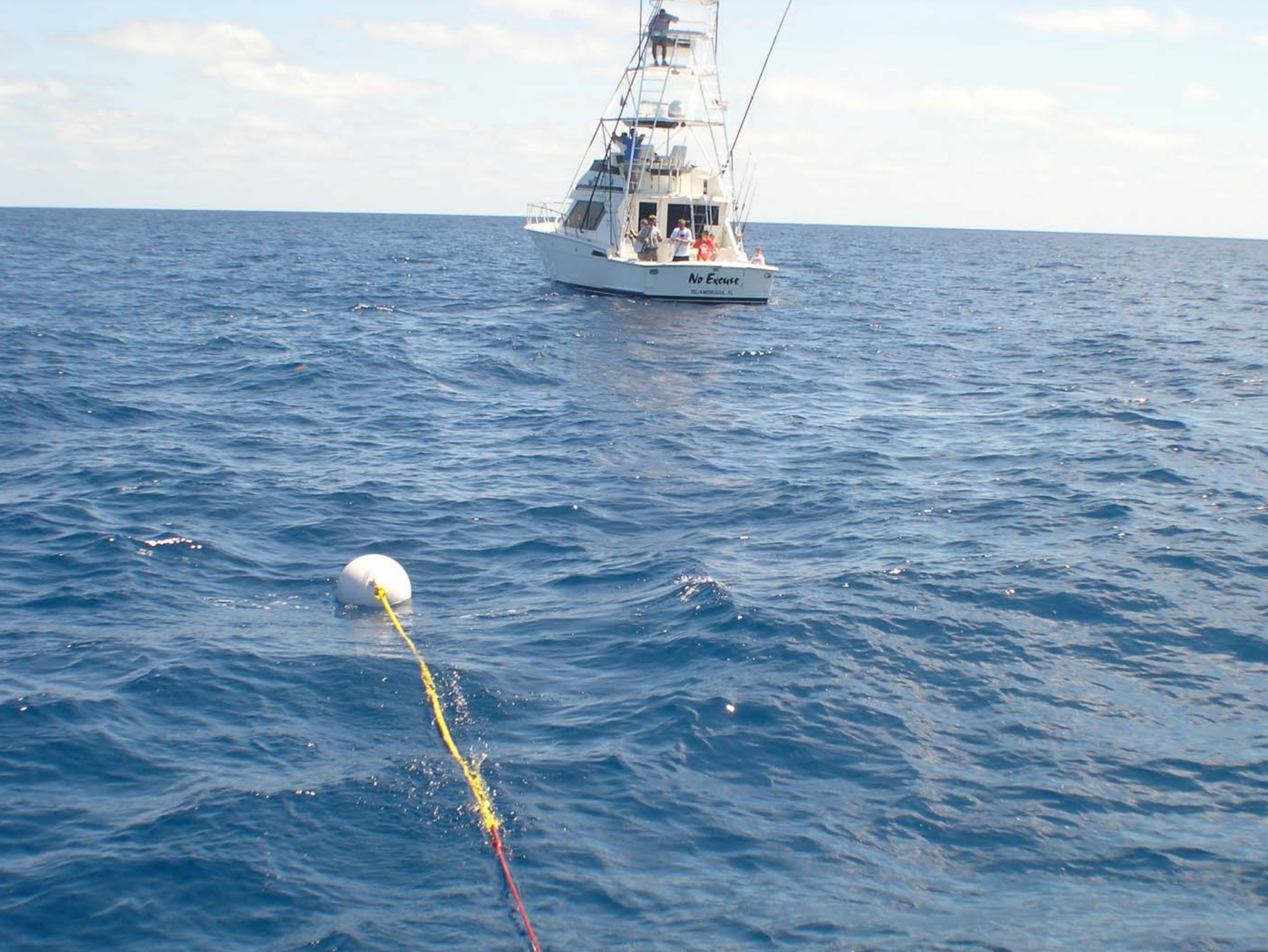
Mooring buoys are attached to the bow and stern of the ship.

### Protected Area

Florida Keys National Marine Sanctuary Shipwreck Trail site is subject to rules and regulations.  
"Take only photos and leave only bubbles"







No Excuse

ISLAMORADA, FL

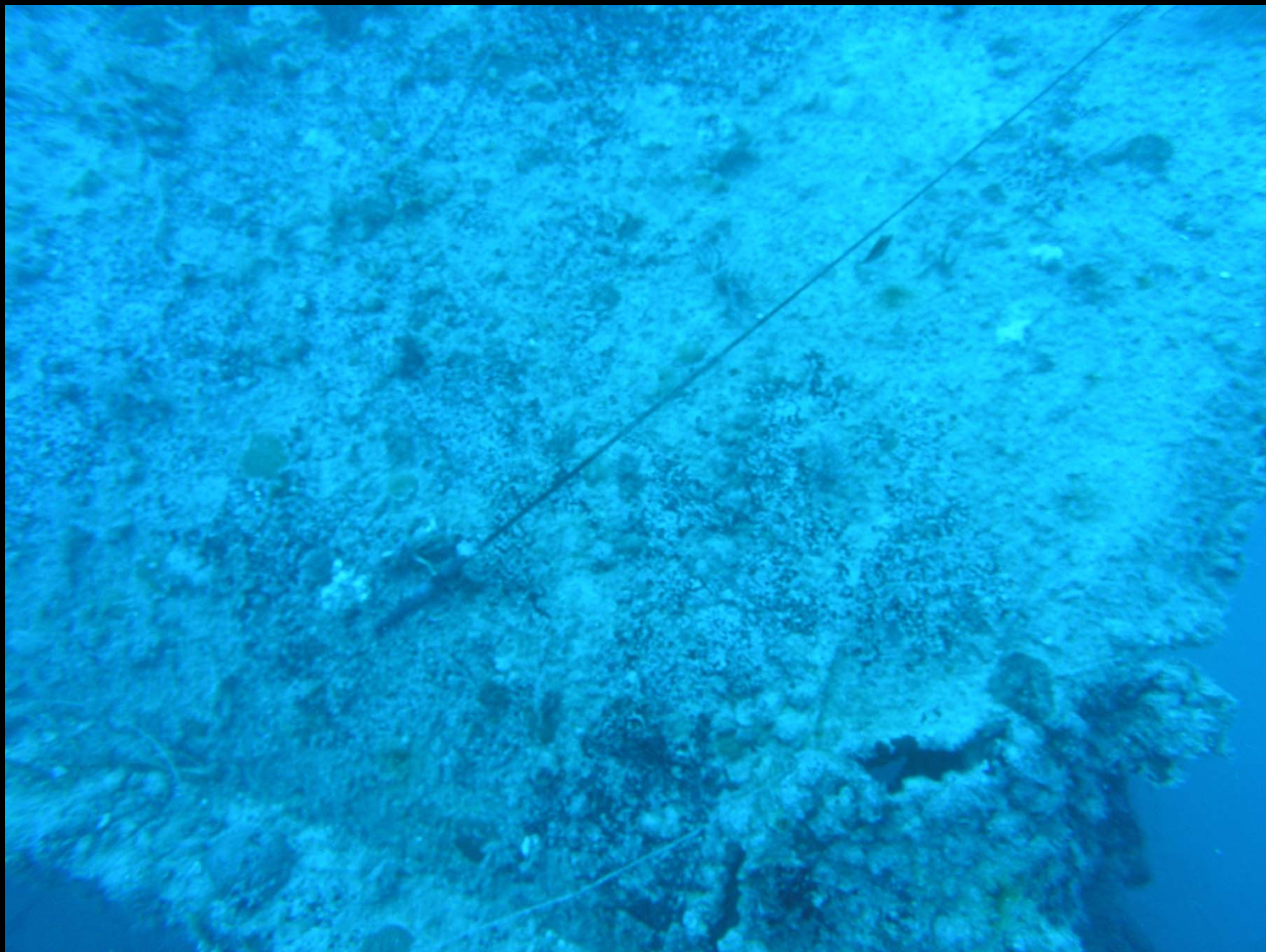












# FKNMS Shipwreck Trail- Biological Monitoring

<b>SWT Site</b>	<b>Biological Monitoring Stations</b>	<b>REEF fish surveys</b>	<b>Fish Species</b>	<b>Coral Species</b>	<b>Level of Protection fish/coral</b>
<i>Adelaide Baker</i>	3	1	54	13	Low/high
<i>Benwood</i>	3	456	251	20	Low/high
<i>City of Washington</i>	3	239	215	19	High/high
<i>Duane</i>	2	85	155	2	Low/high
<i>Eagle</i>	2	57	149	7	Low/high
<i>San Pedro</i>	3	[25 IU]	[108 IU]	17	High/high
<i>Thunderbolt</i>	2	15	95	6	Low/high





“Living museums under the sea”