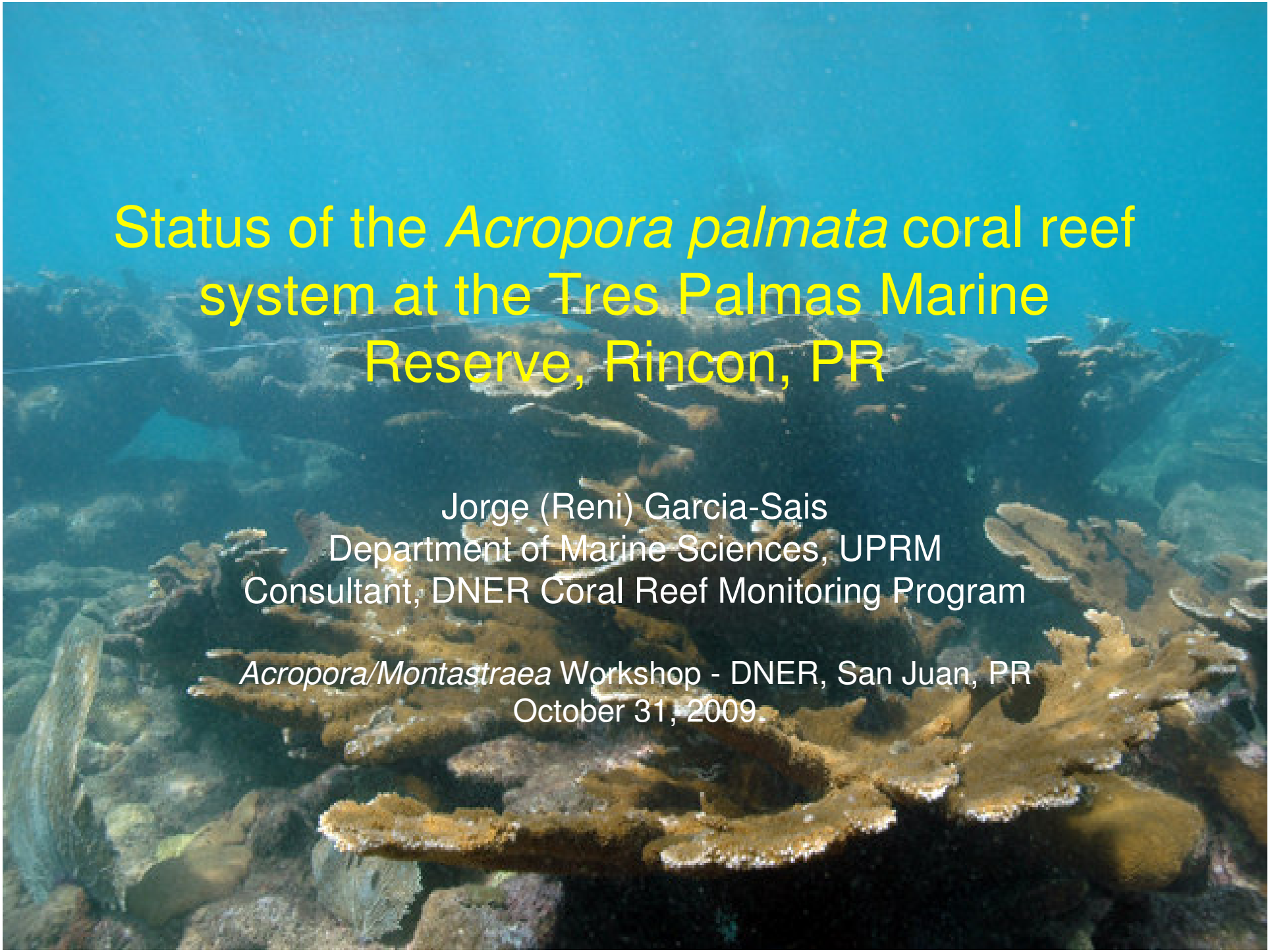

Status of the *Acropora palmata* coral reef system at the Tres Palmas Marine Reserve, Rincon, PR

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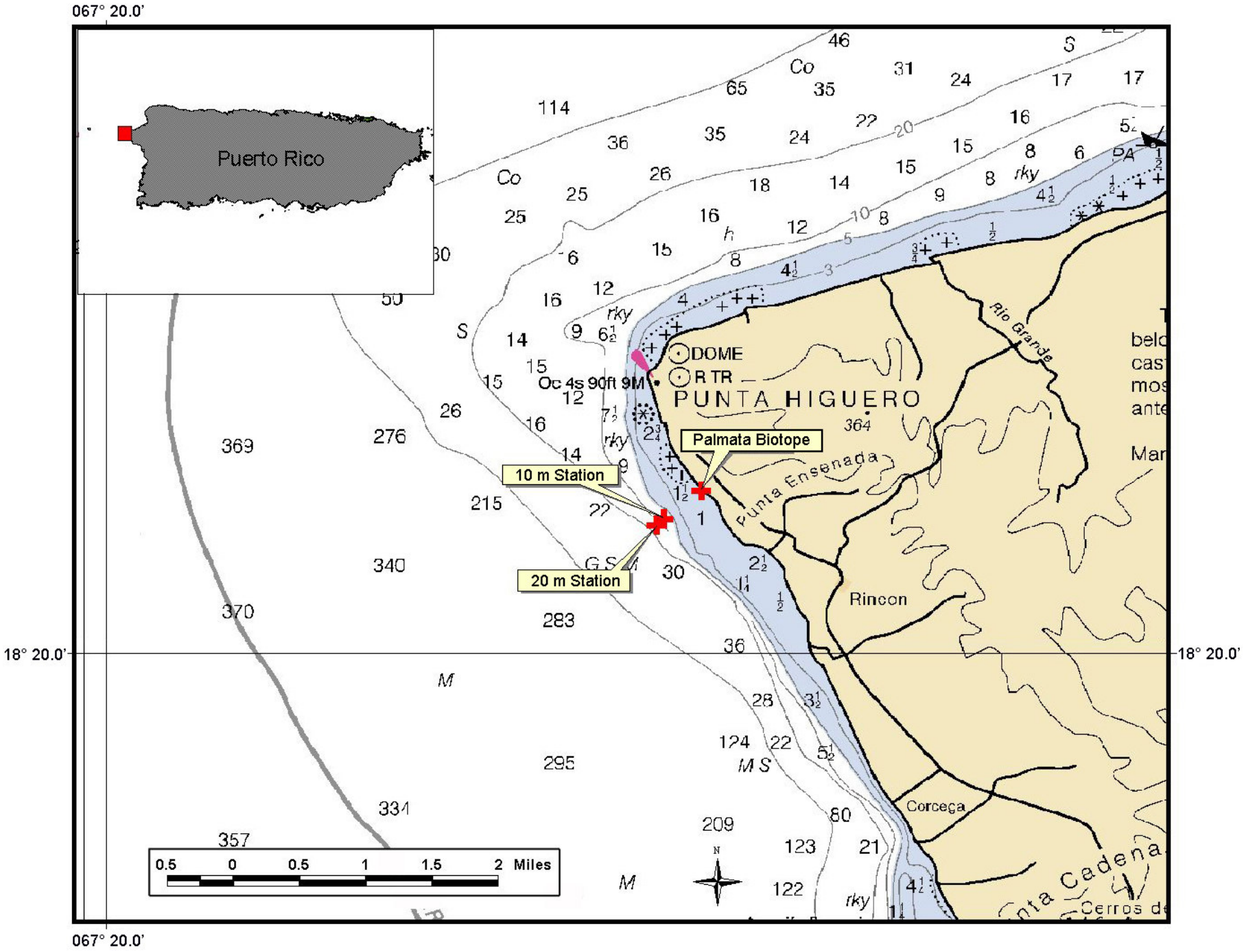
Consultant, DNER Coral Reef Monitoring Program

Acropora/Montastraea Workshop - DNER, San Juan, PR
October 31, 2009.

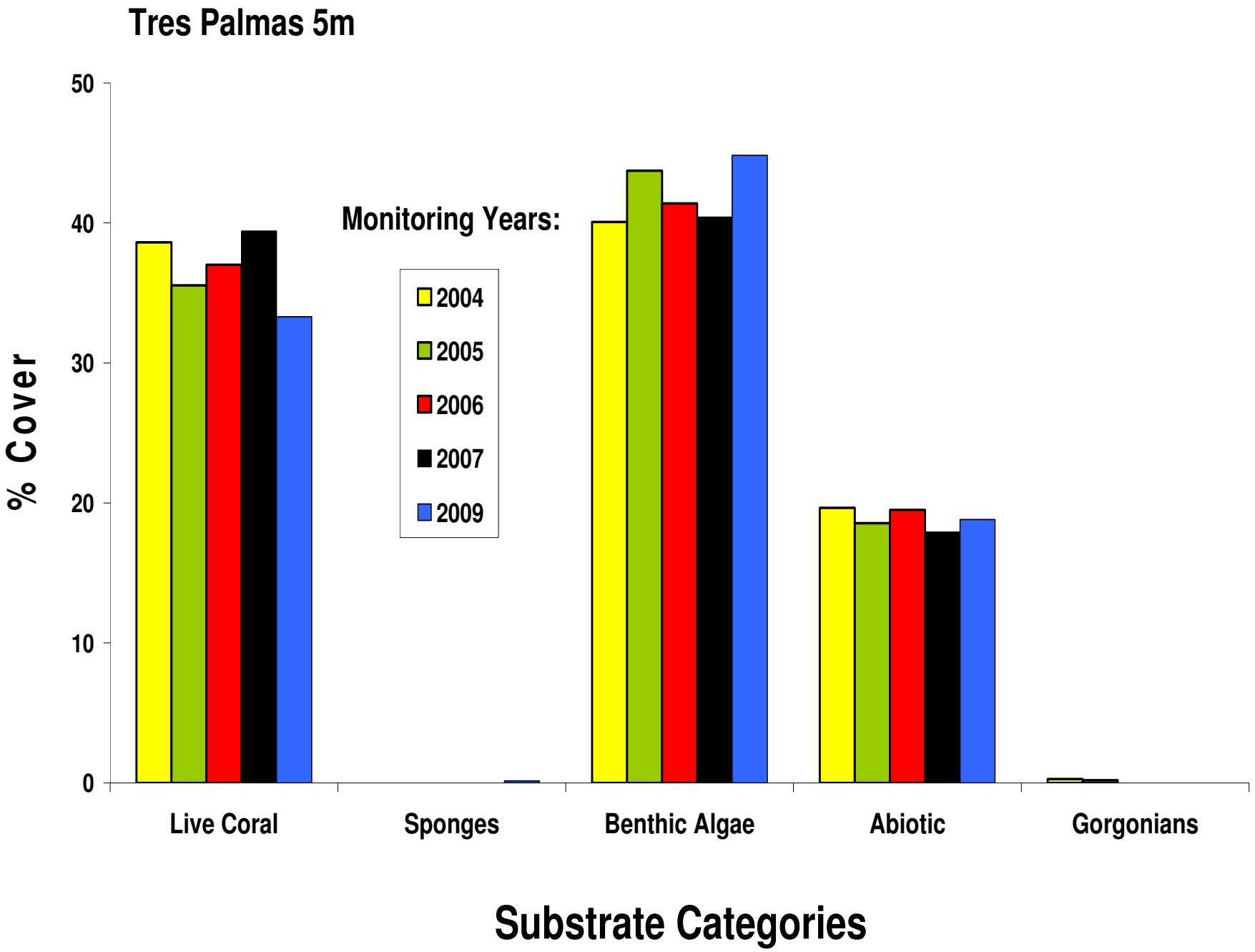

067° 20.0'
Puerto Rico
DOME
R TR
Oc 4s 90ft 9M
PUNTA HIGUERO
Palmata Biotope
10 m Station
20 m Station
Punta Ensenada
Rio Grande
Rincon
Corcega
0.5 0 0.5 1 1.5 2 Miles
18° 20.0'
067° 20.0'

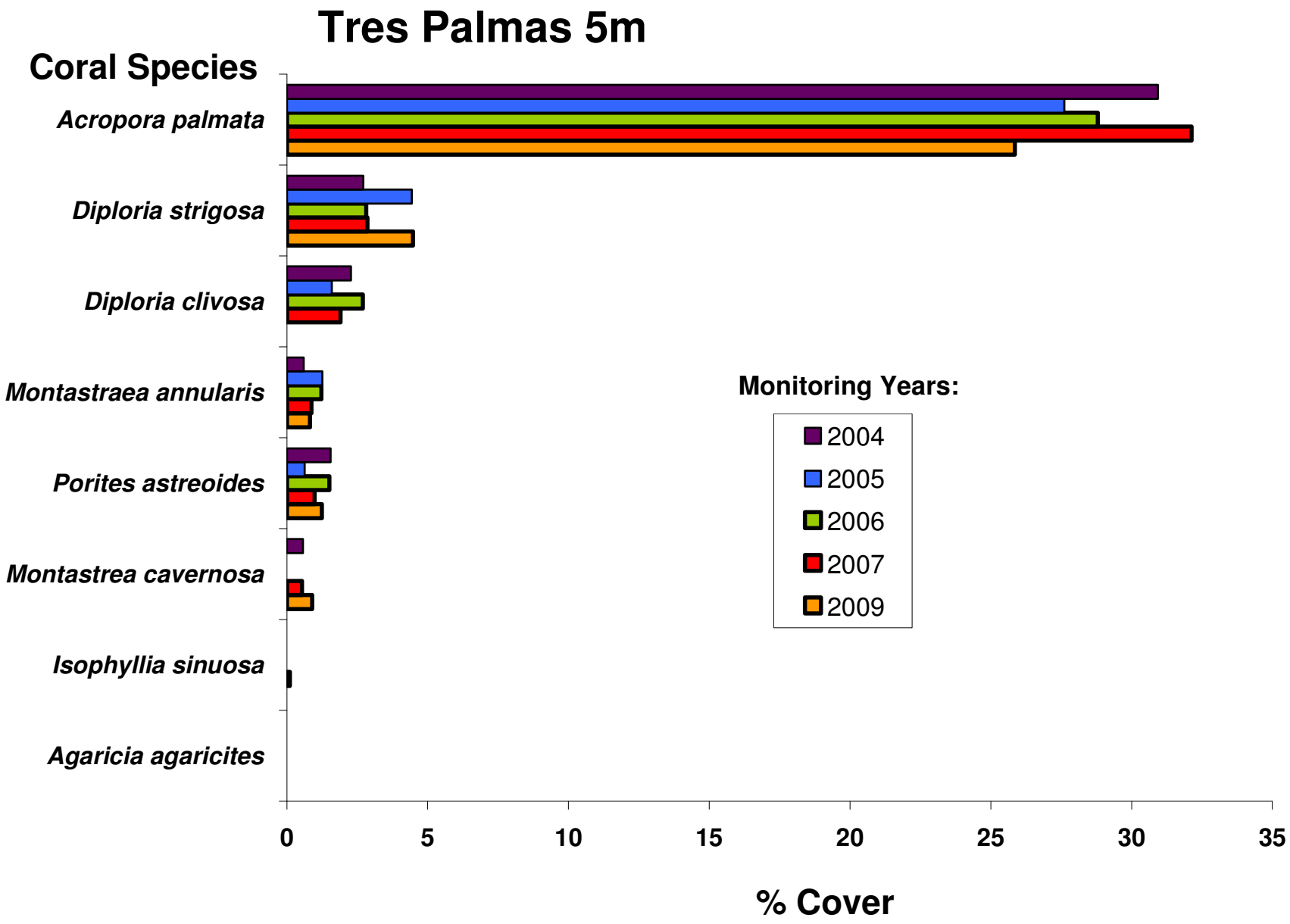
Acropora palmata Reef at Tres Palmas

- One of the most extensive Elkhorn coral (*A. palmata*) reefs of Puerto Rico
- *A. palmata* listed as an endangered coral spp.
- Main precursor/driver of the designation of the Tres Palmas reef as a Marine Reserve
- Included in the National Coral reef Monitoring program (DNER/NOAA) since 2004
- Resilient to regional coral bleaching mortality of late 2005

Benthic Community

- Highest live coral cover reef system among those studied from Natural Reserves in PR with live coral cover averaging 36 - 40.0 % from 2004 – 2007
- *A. palmata* represents ~ 80 % of the total reef substrate cover by corals
- At least 15 spp. of stony corals present. Aside from branching *A. palmata*, encrusting growth forms prevail.
- Important nursery, recruitment, residential, and foraging habitat for fishes, invertebrates and sea turtles
- 74 spp of reef fishes identified to date, including juvenile snappers, mackerels, barracudas & jacks


Tres Palmas 5m
% Cover
50
40
30
20
10
0
Monitoring Years:
2004
2005
2006
2007
2009
Live Coral
Sponges
Benthic Algae
Abiotic
Gorgonians
Substrate Categories


Tres Palmas 5m
Coral Species
Acropora palmata
Diploria strigosa
Diploria clivosa
Montastraea annularis
Porites astreoides
Montastrea cavernosa
Isophyllia sinuosa
Agaricia agaricites
Monitoring Years:
2004
2005
2006
2007
2009
0
5
10
15
20
25
30
35
% Cover

New Development

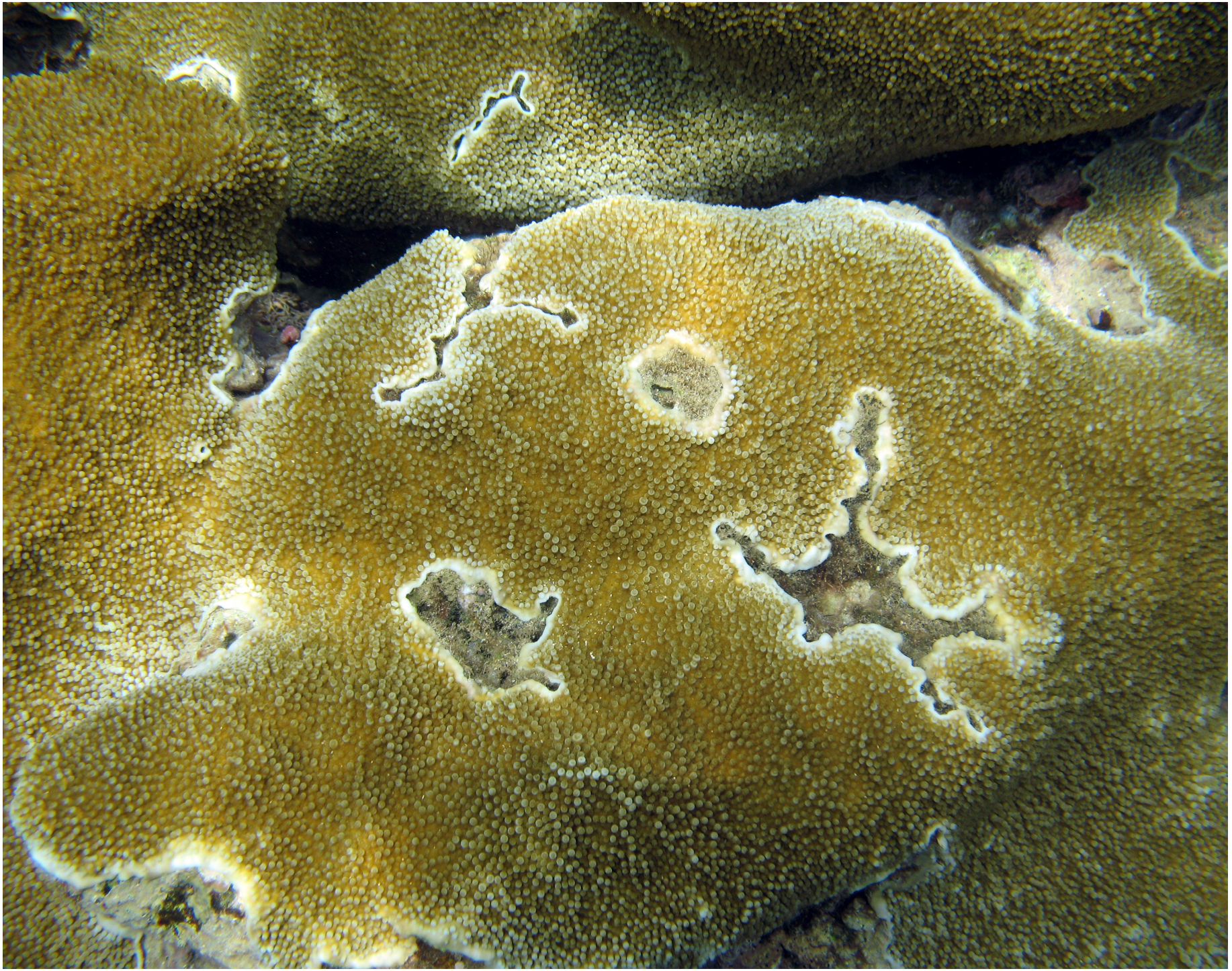
Loss of 19.5 % in substrate cover by *A. palmata* attributable in part to tissue necrosis associated with a disease similar to "White Pox"

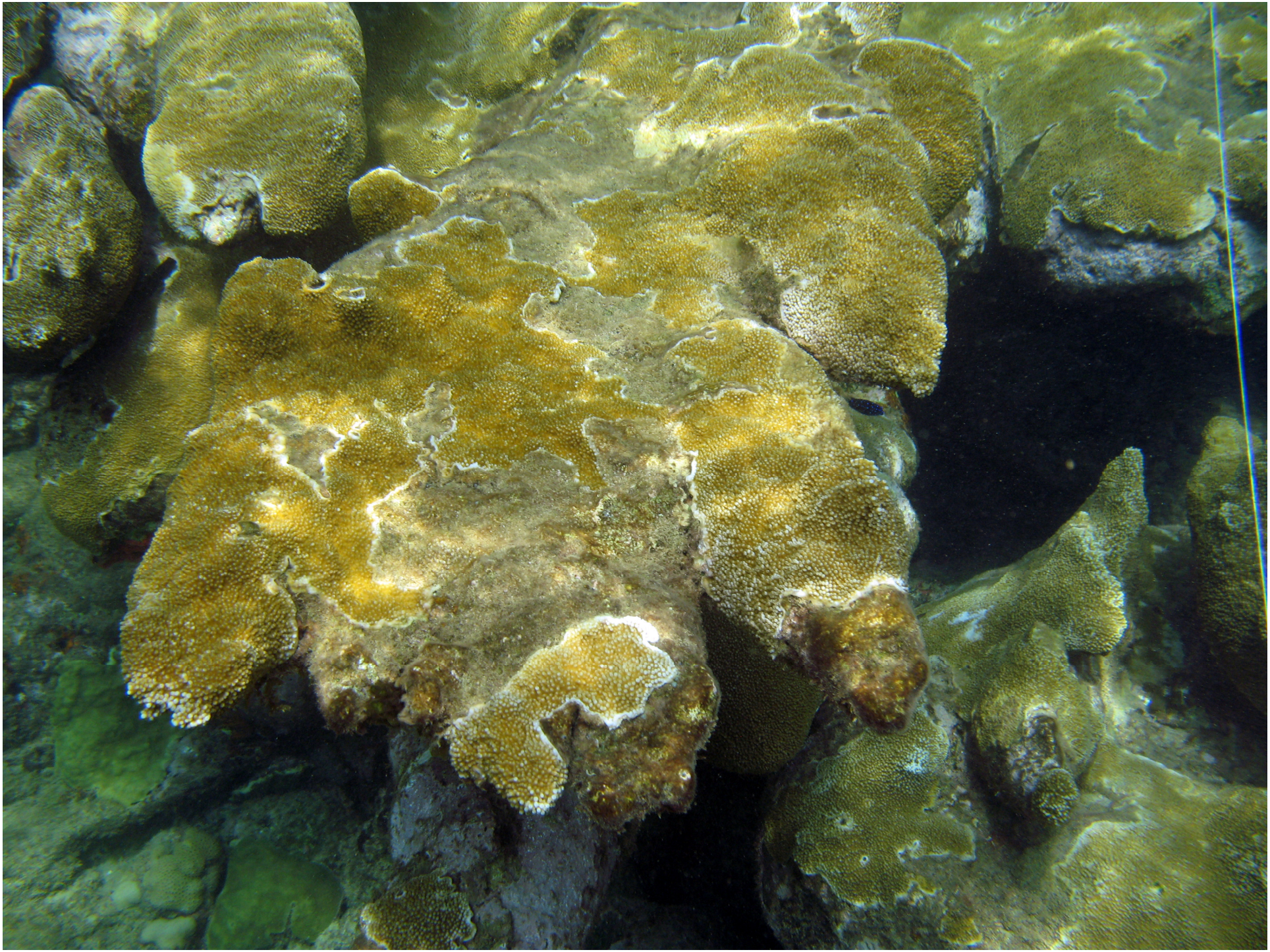
Incidence of disease high at the southern section of marine reserve, geographic extension uncertain

White pox disease is specific for *A. palmata* and epizootic has caused catastrophic losses in the FKNMS in just 9 yrs

White pox disease caused by fecal enteric bacterium (*Serratia marcescens*) of possible human origin

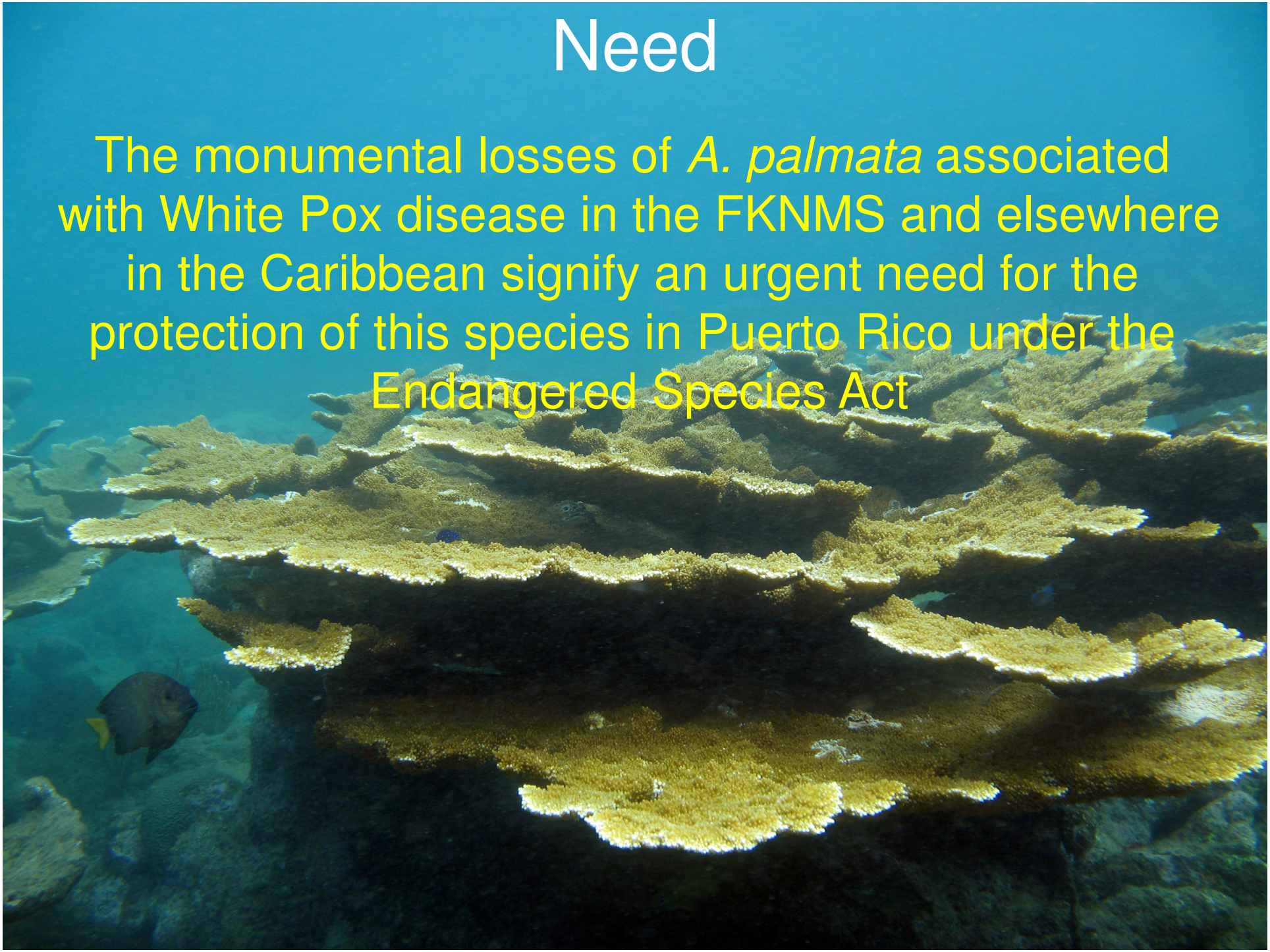
Possible sources of pathogen include: wastewater influent, septic tank effluent, feces of fishes, white pox diseased and apparently healthy *A. palmata*





Need

The monumental losses of *A. palmata* associated with White Pox disease in the FKNMS and elsewhere in the Caribbean signify an urgent need for the protection of this species in Puerto Rico under the Endangered Species Act



Proposed Action

- Survey the geographic extension and incidence of diseased *Acropora palmata* colonies within the Tres Palmas Reef system
- Collect tissue samples from infected coral colonies to ascertain pathogen taxonomy
- Mark diseased colonies to monitor rate of progress of disease
- Conduct water quality samplings directed to detect pollution of fecal origin and eliminate source(s)
- Launch island-wide inventory of *A. palmata* distribution and health status