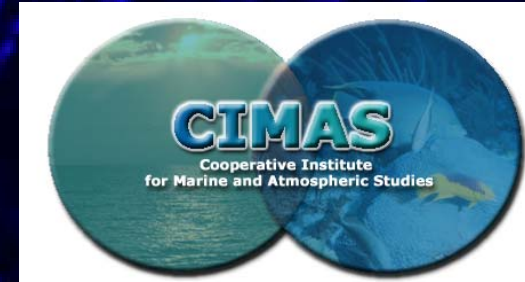


Acropora activities by SEFSC and partners

- University of Miami
- NOS-Bio geography Team
- CDHC
- USGS-BRD
- Penn State
- UNCW
- Sea-mester



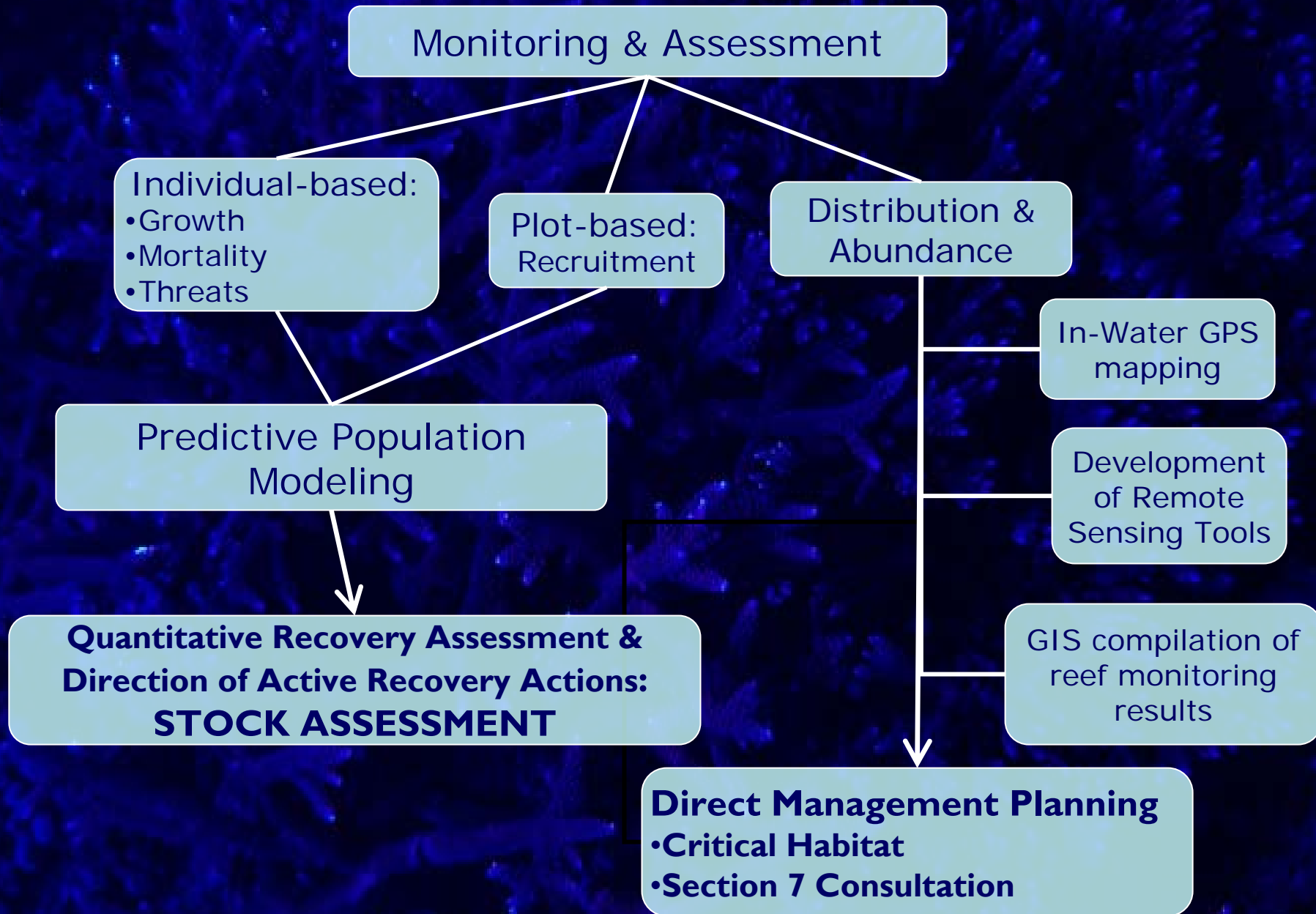
Mandate for *Acropora* Monitoring

- ESA requires monitoring of species throughout range
- Needed for the Recovery Plan
 - ▶ Quantitative framework
 - Stock assessment
 - demographic modeling
 - Predict population trajectory

Challenges to developing a quantitative framework

- Fragmenting inverts problematic from demographic point of view
 - ▶ clonal (what is an individual unit?)
 - ▶ colony delineation is difficult in thickets or remnant conditions
 - ▶ colony size fluctuates
 - ▶ age meaningless
- Coral reef monitoring programs often
 - ▶ Miss remnant, patchy *Acropora* populations
 - ▶ Quantify % cover (limited demographic usefulness)
- Targeted (i.e. non-random) monitoring is required
 - ▶ Characterize growth, survivorship, and threats via individual colonies
 - ▶ Characterize recruitment via exhaustive search of confined, permanently delineated areas/plots

Acropora Monitoring Approach



Progress to Date

- ◉ Distributional data from USVI and Florida Keys being collected and collated
 - ▶ Supports critical habitat designation
 - ▶ NCCOS/Biogeography Team leading GIS compilation effort
 - ▶ including general reef monitoring programs data
- ◉ Demographic monitoring –
 - ▶ Datasets from Florida Keys and USVI 2003 to present
 - ▶ New partnerships being formed to implement similar approach in other areas
 - Eastern Caribbean (Sea-mester and Curacao Sea Aquarium)

NEW!!

Acropora Monitoring Protocol

→ Aims to facilitate partnerships in other geographic areas

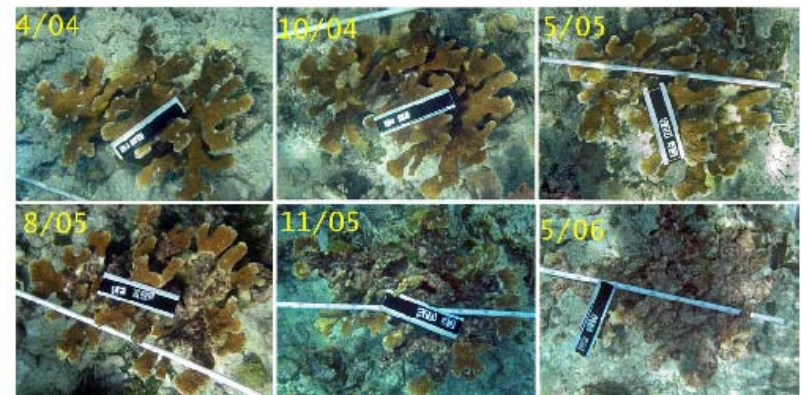
NOAA Technical Memorandum NMFS-SEFSC-XXX



DEMOGRAPHIC MONITORING PROTOCOLS FOR THREATENED CARIBBEAN ACROPORA SPP. CORALS

BY

Dana E. Williams, Margaret W. Miller, K. Lindsey Kramer



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
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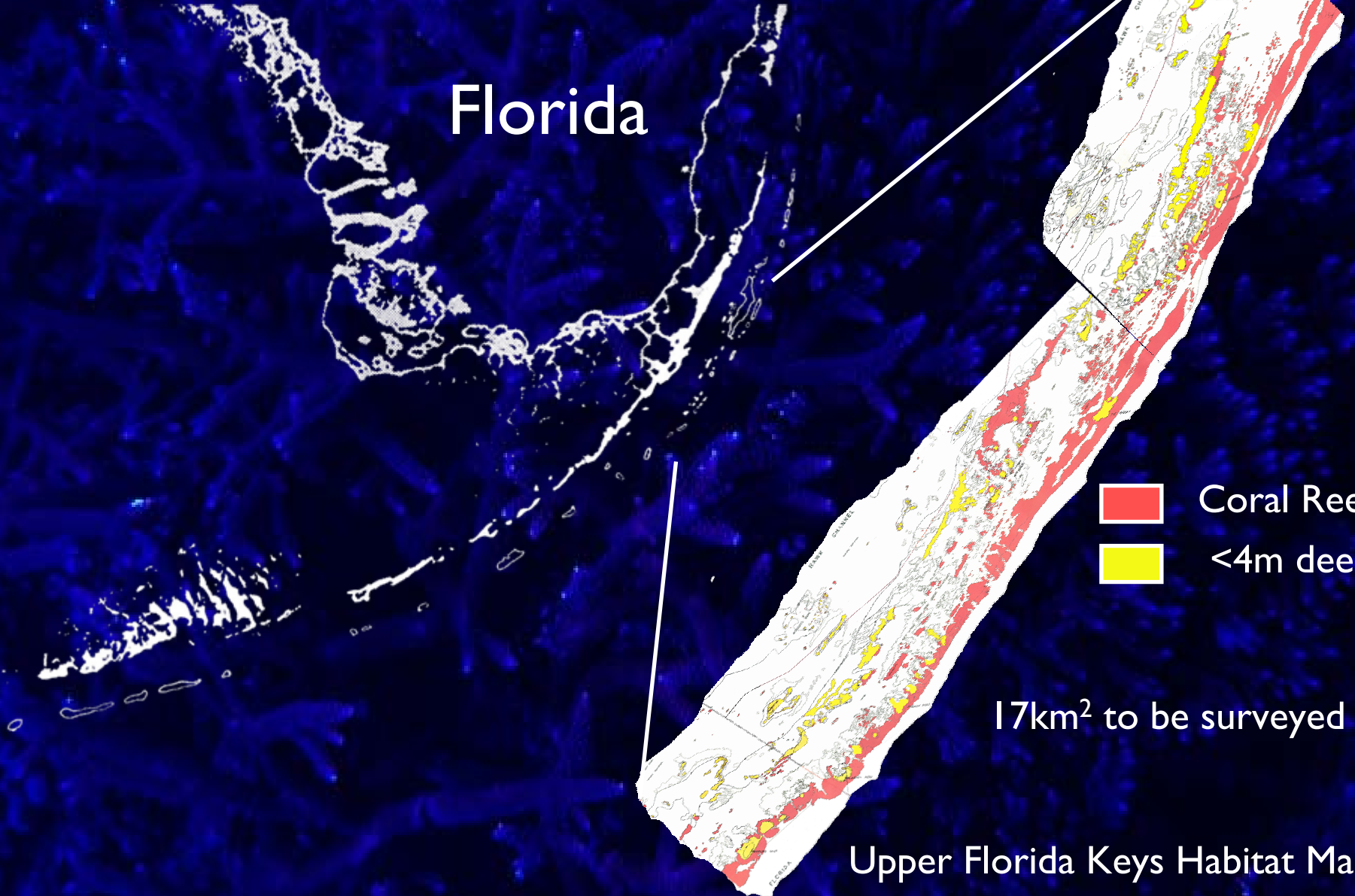
October 2006

Available for download from:

<http://www.sefsc.noaa.gov/PDFdocs/Acropora%20Manual-Electronic.pdf>

In Water GPS Mapping (aka Scooter Mapping)

Florida



Results - In water GPS Mapping

- Survey Track
- Acropora palmata*
- Acropora cervicornis*

Carysfort Reef

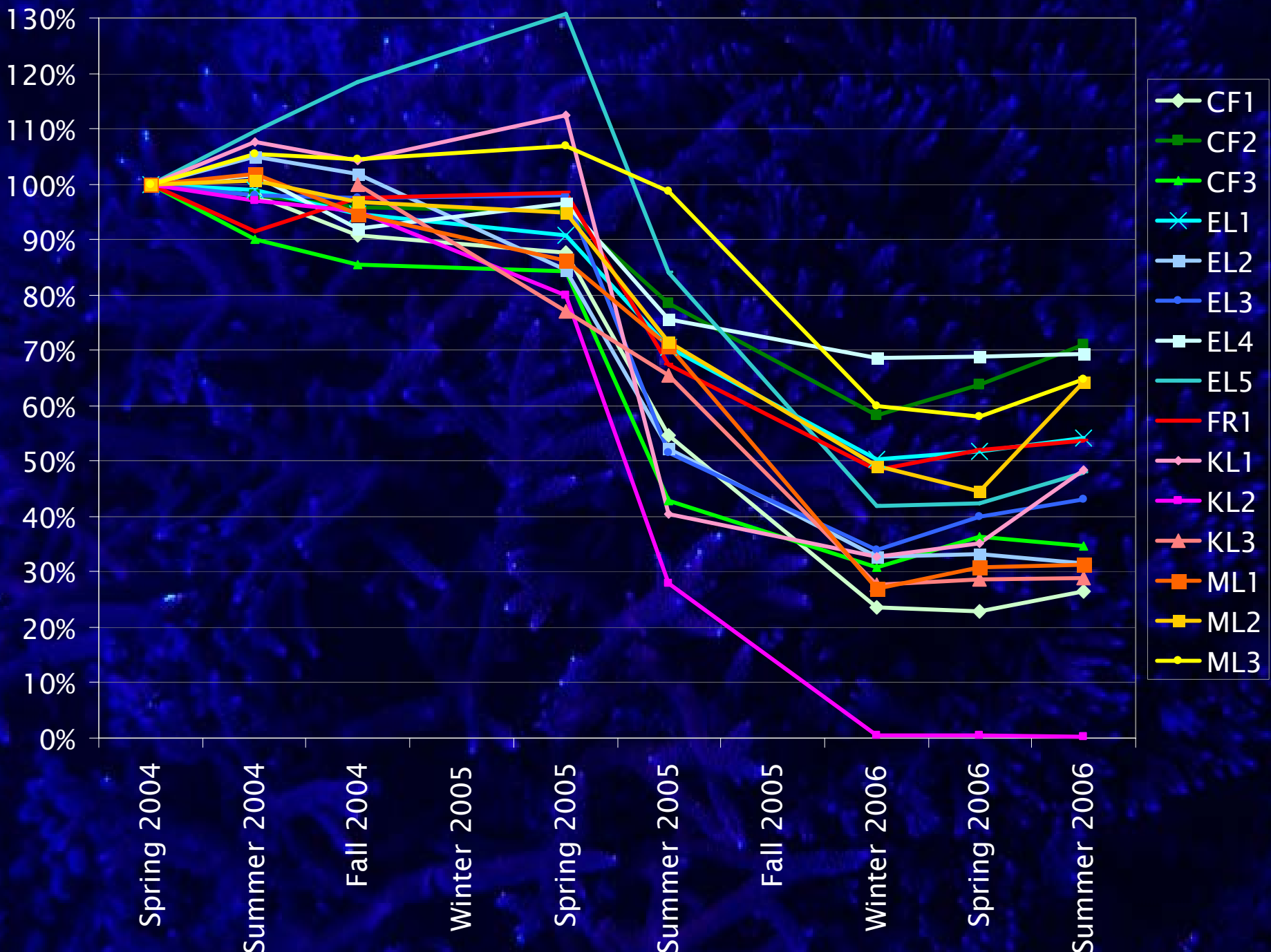
South Carysfort Reef

© 2005 Google

Image © 2006 DigitalGlobe



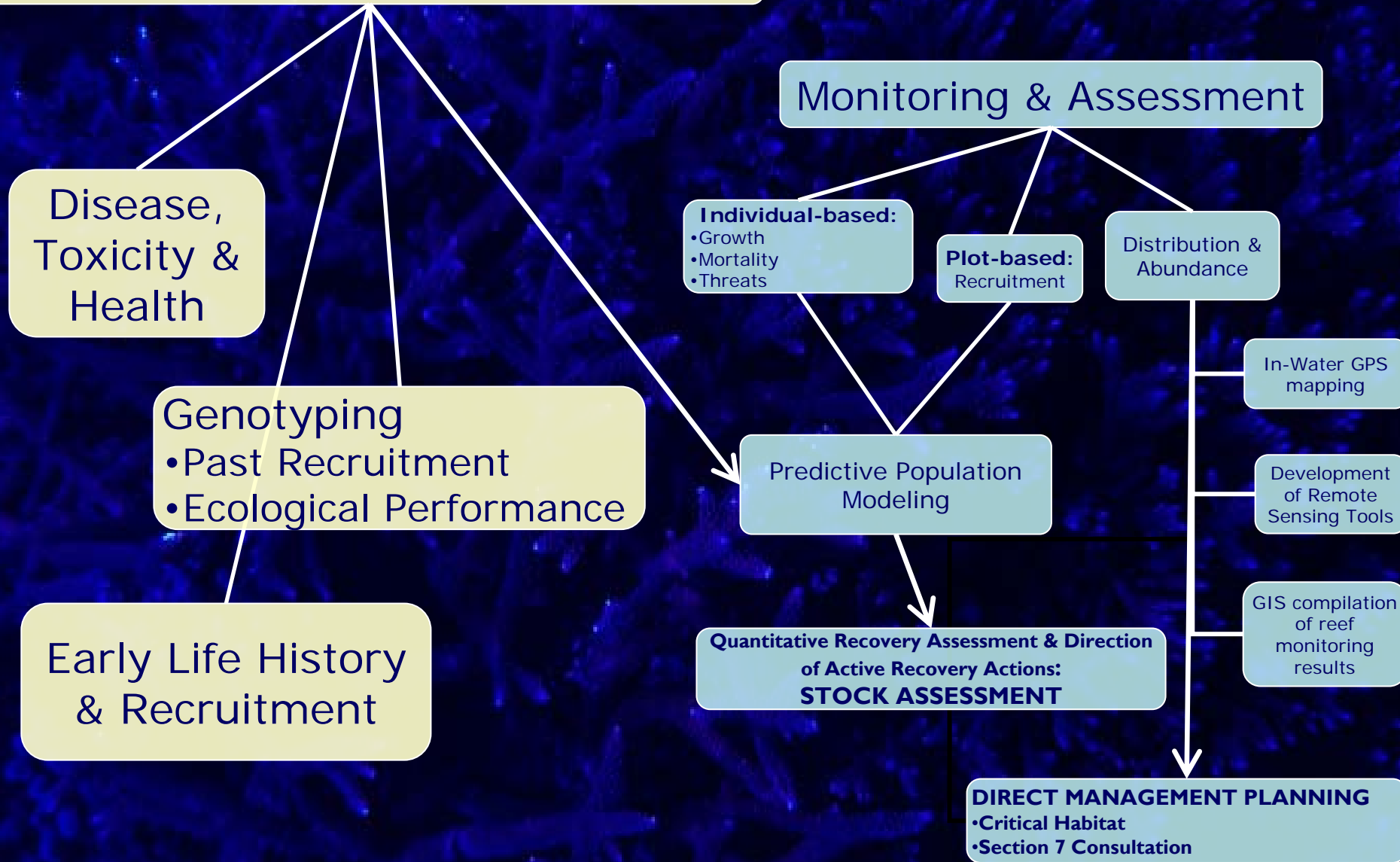
To date: 6 km² surveyed



Needs/Gaps: Stock Assessment

- Develop quantitative framework for population modeling of these species to lead to quantitative risk assessment and to refine monitoring protocol/parameters
- Colony/population level monitoring throughout geographic range of the spp (i.e. entire Caribbean, Venezuela to Bahamas)
 - ▶ Partnerships needed
 - ▶ Puerto Rico

Current Research Priorities



Needs/Gaps: Recovery

- Biggest need is for RESEARCH in areas of:
 - ▶ Health/disease (i.e. **How do we keep them from dying?**)
 - ▶ Early life history (ie. **How to get more babies surviving?**)
- The primary sources of decline in abundance both in the 1980's and recently are:
 - ▶ Diseases
 - ▶ Temperature induced bleaching
 - ▶ Hurricanes
- Other sources of decline such as groundings and water quality are manageable and must continue to be managed.
- **However**, the scope of these impacts is limited, so these actions will NOT be adequate to promulgate recovery.