



Spatial variation in stressors affecting Elkhorn coral in Puerto Rico

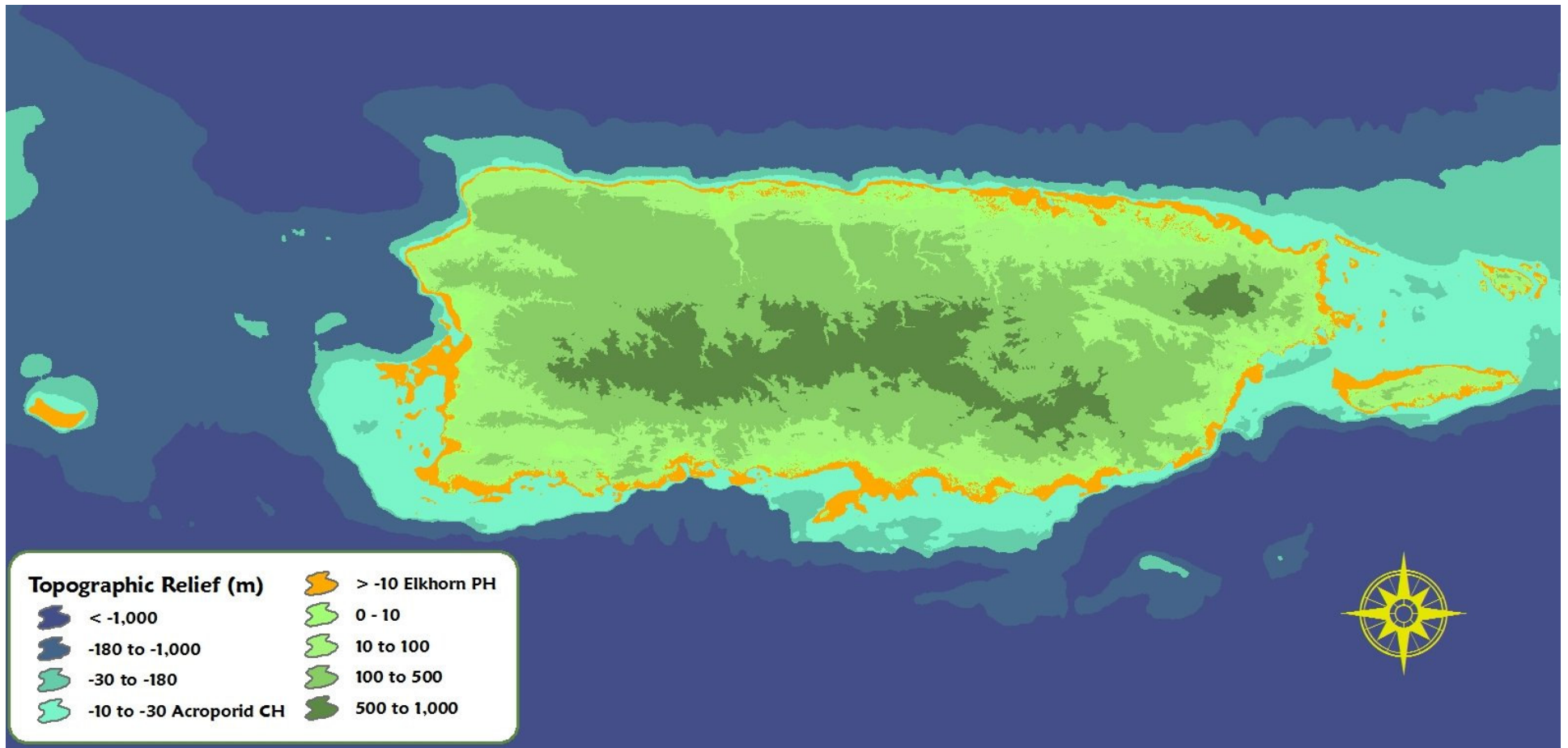
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USCRTF
UNITED STATES
CORAL REEF TASK FORCE

October 31, 2009
San Juan, Puerto Rico

Potential Habitat for Elkhorn coral (673 km²)



Methodology

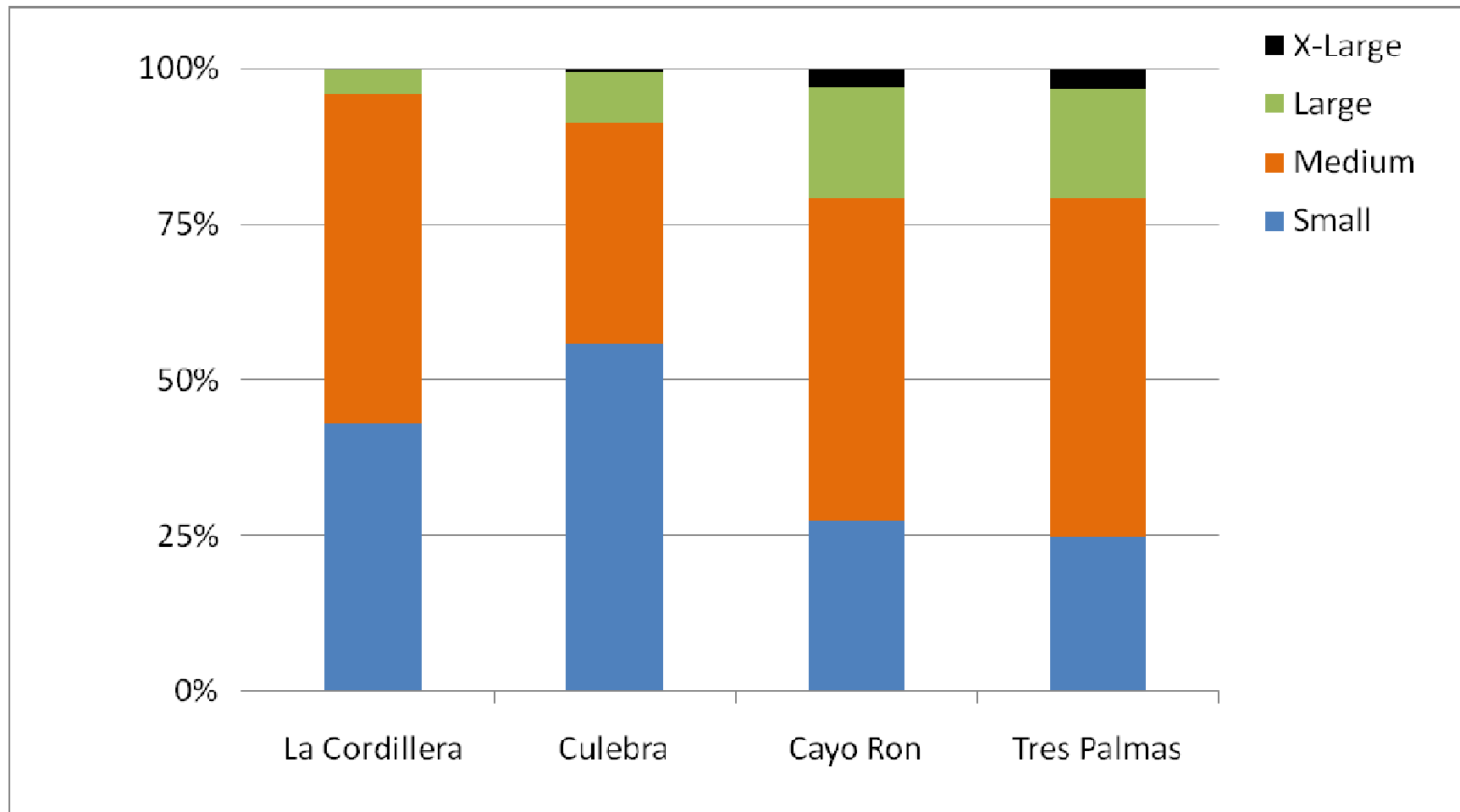
- Island-wide Survey

- Snapshot view
- Short-term
- 6 Study Sites (MPA)
 - La Cordillera, Fajardo
 - Luis Peña, Culebra
 - Bahias B., Vieques
 - Pta. Guaniquilla, CR
 - Cayo Ron, Cabo Rojo
 - Tres Palmas, Rincón
- 1,387 Colonies overall

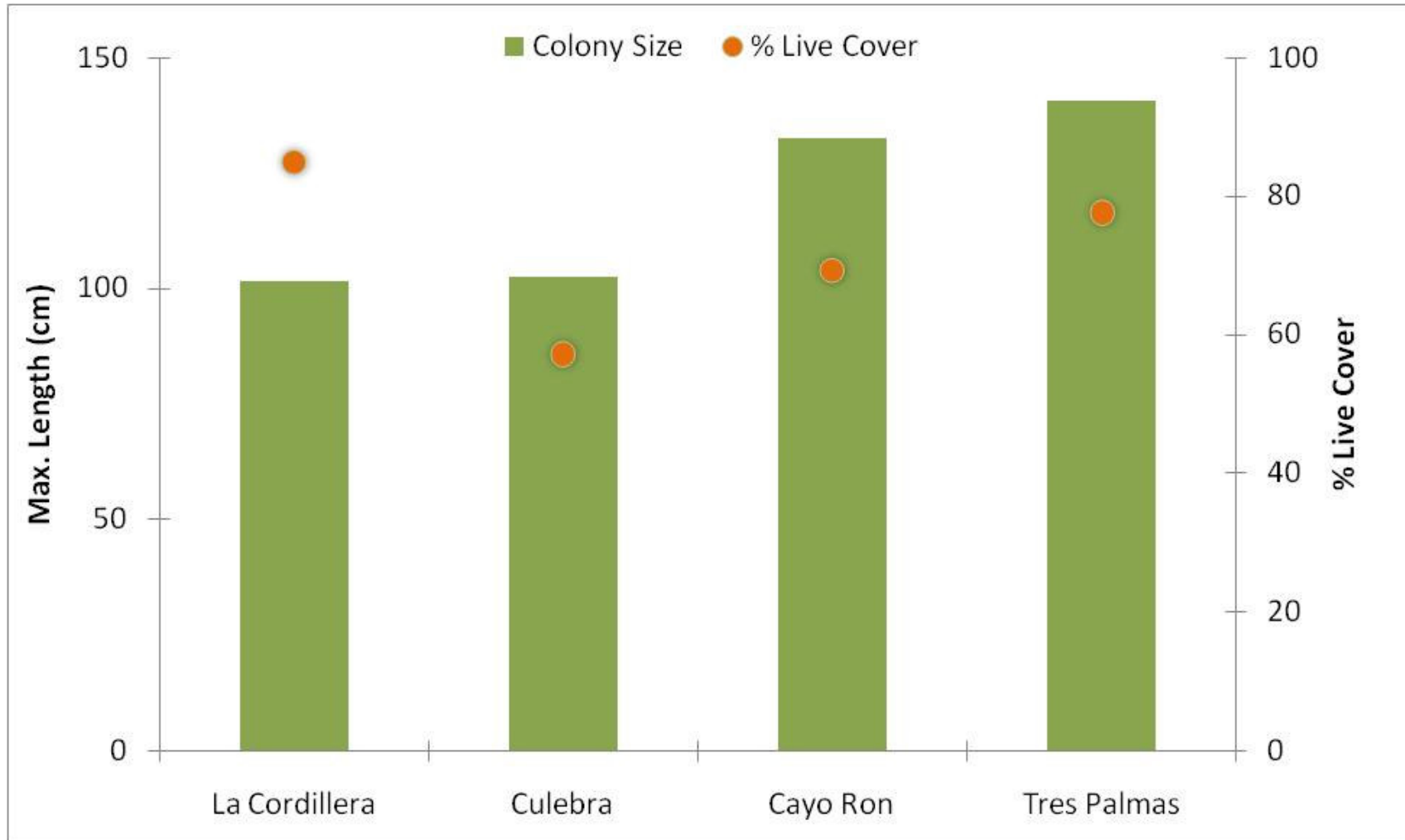
- Permanent Monitoring

- Demographic model
- Long-term
- 3 Study Sites
 - La Cordillera, Fajardo
 - Tres Palmas, Rincón
 - Cayo Ron, Cabo Rojo
- 3 Plots per site
- 12 Colonies per site ID
- 307 Colonies overall

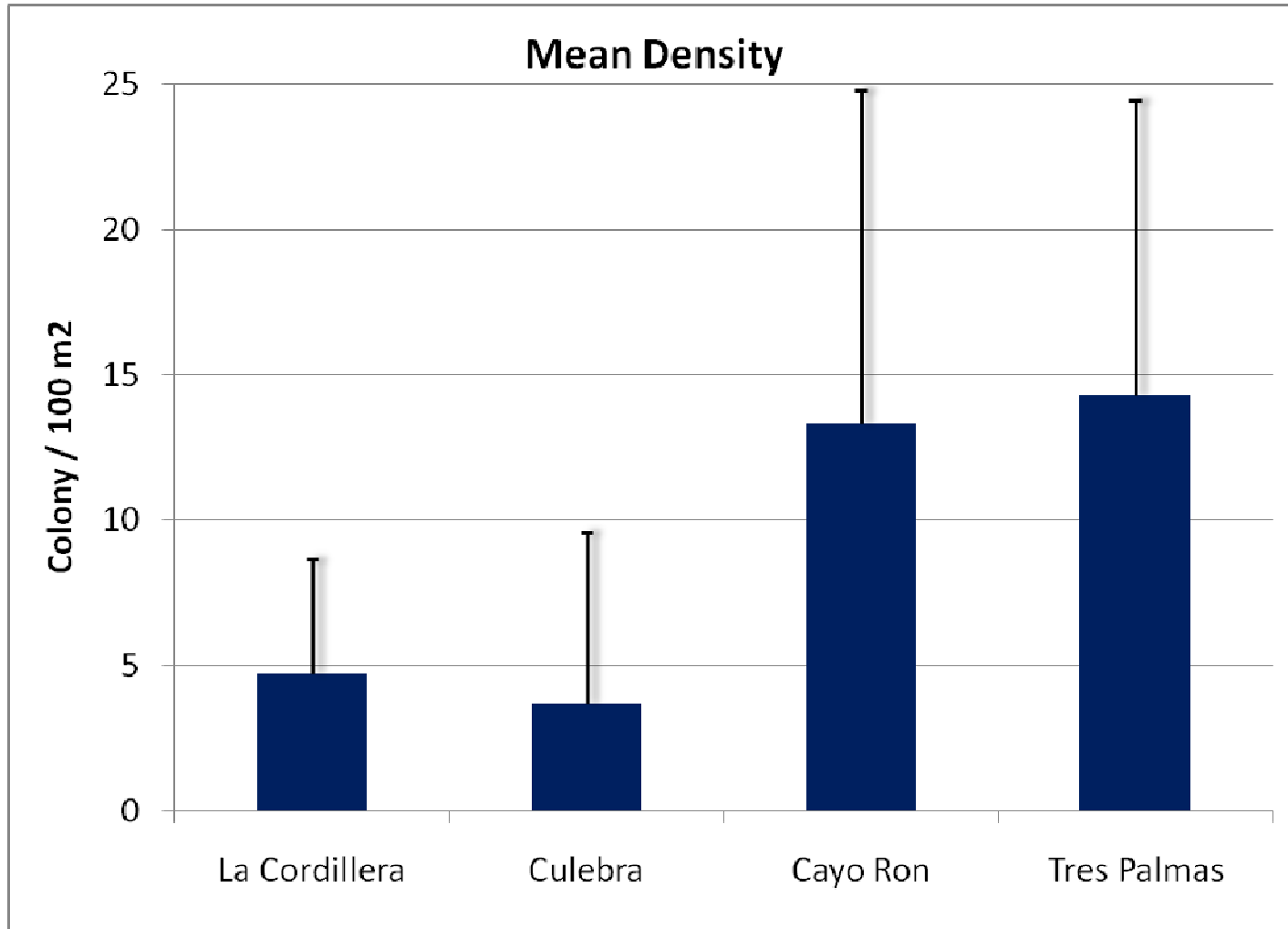
Size structure by study area



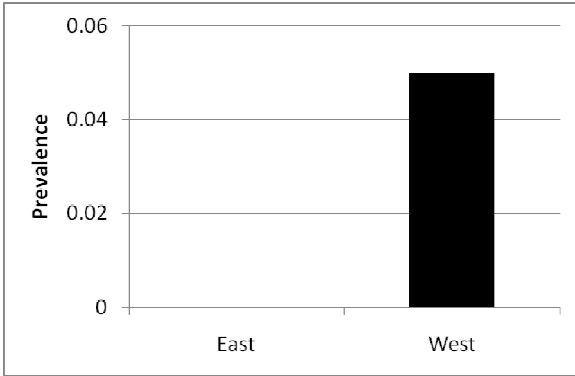
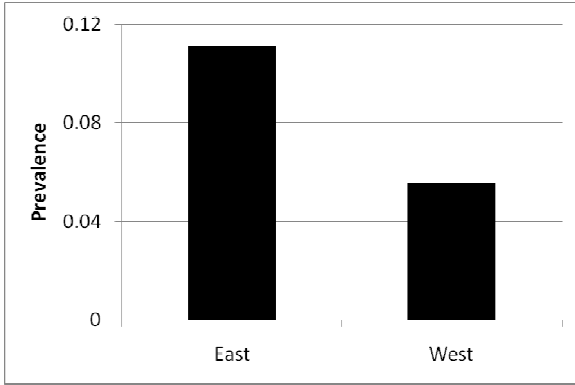
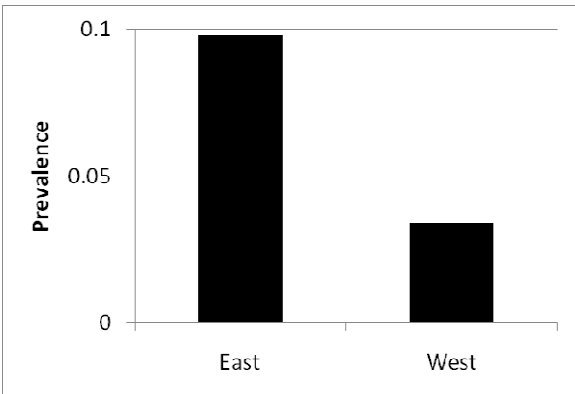
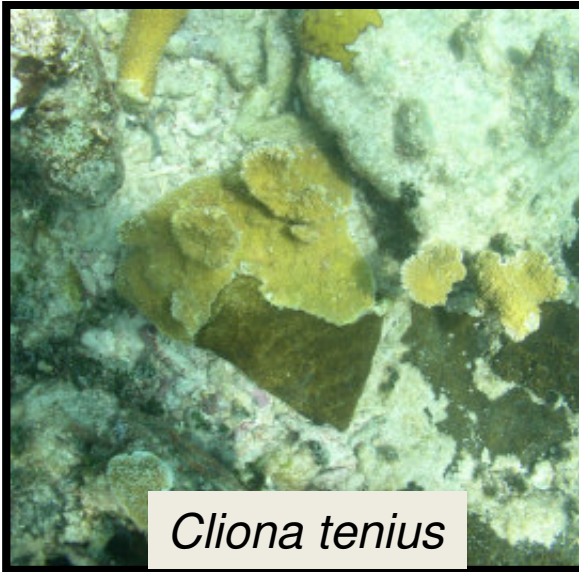
Mean size and % Live coral cover by study area



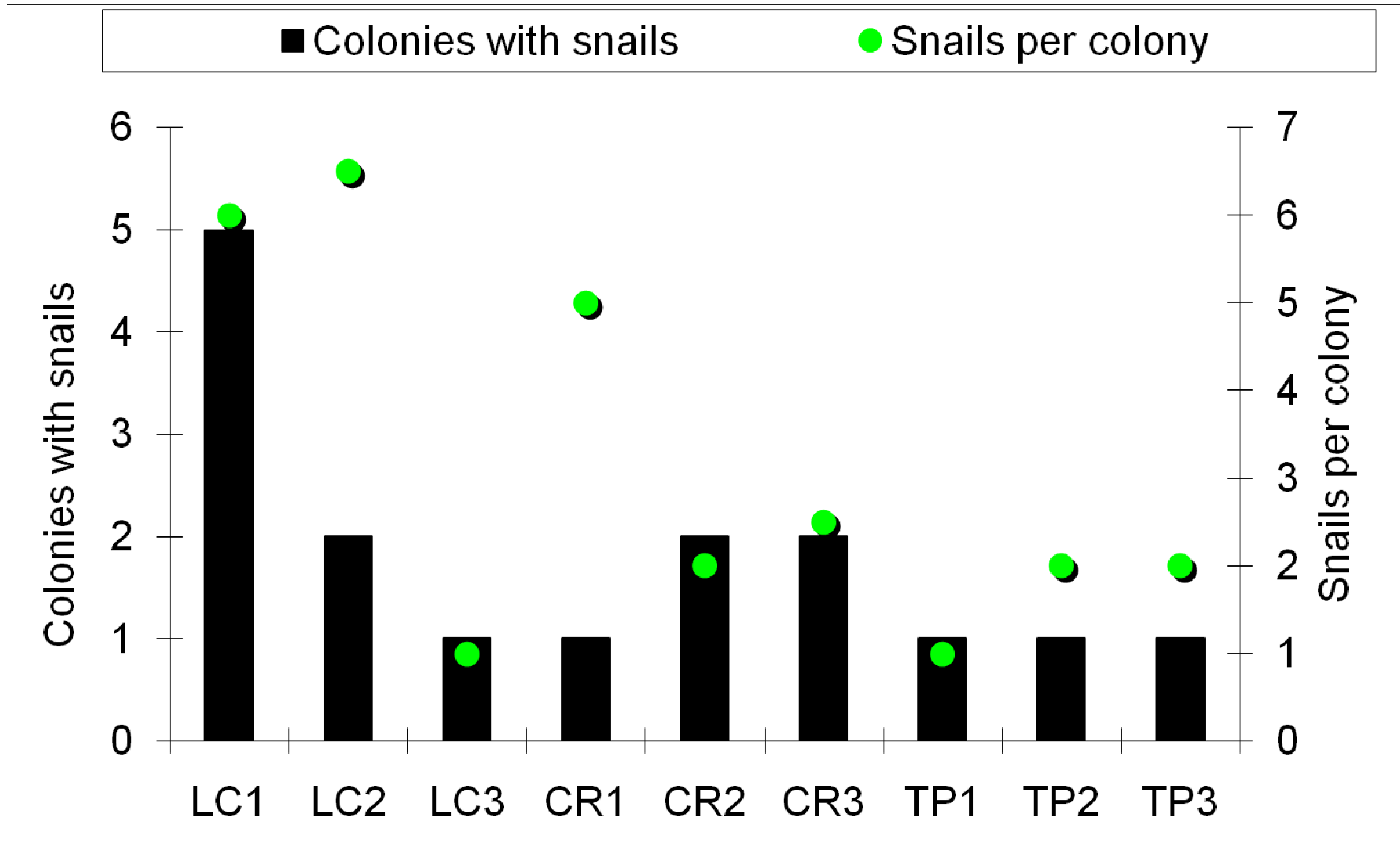
Density (Colonies / 100 m²) by study area

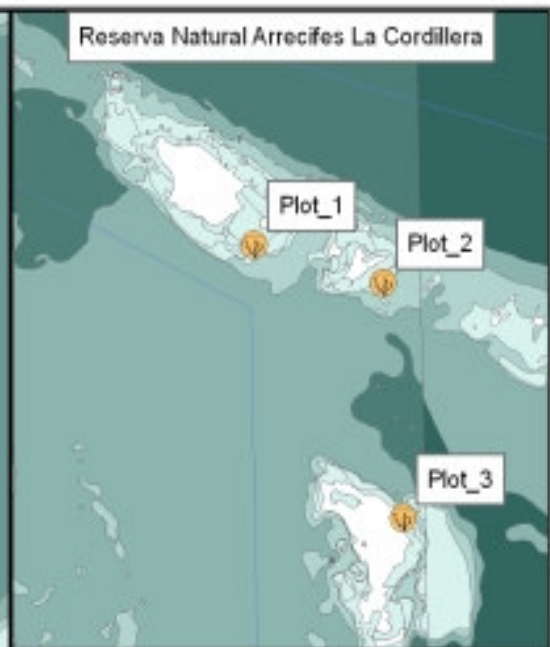
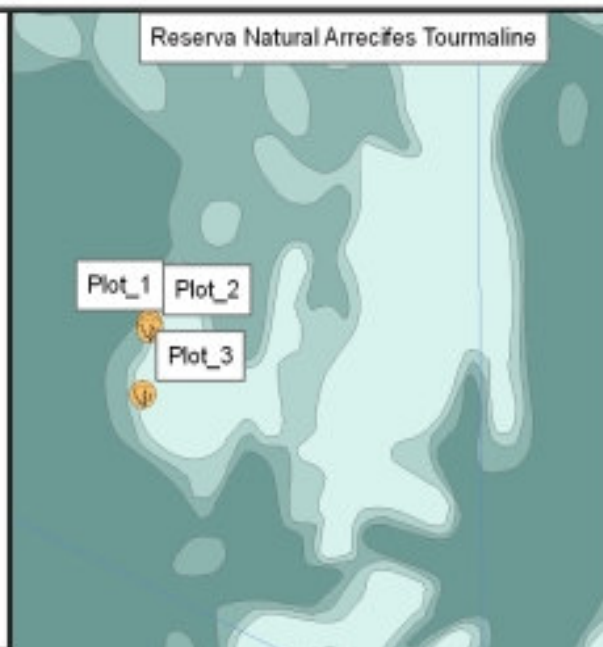
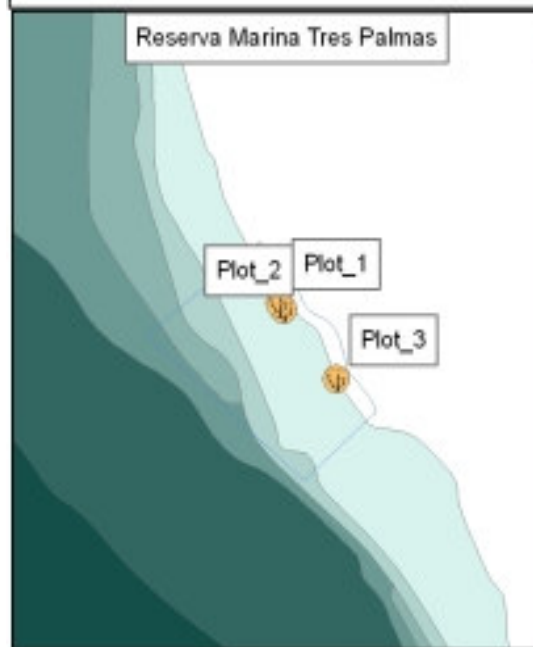
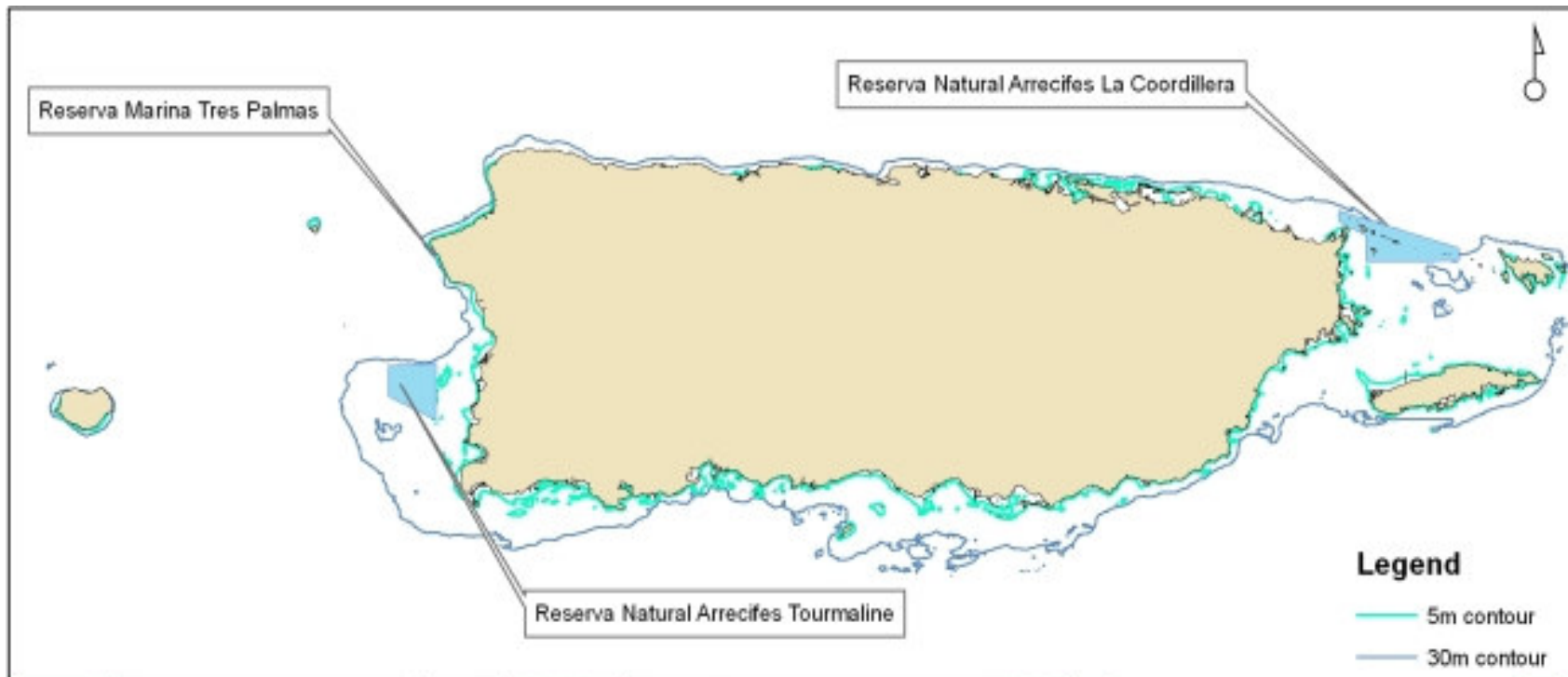


Natural stressors (East vs West)

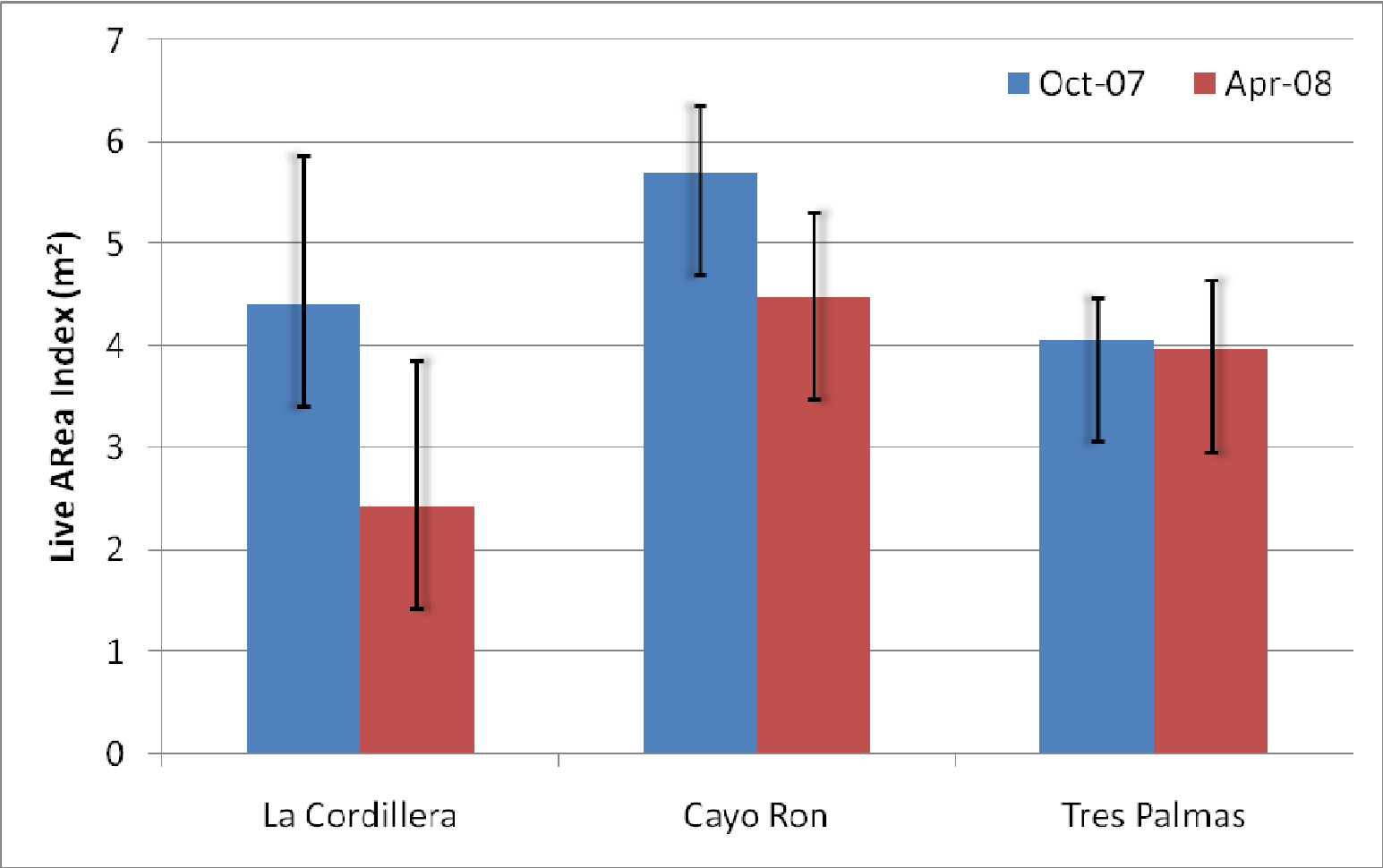


Predatory Snail Observations

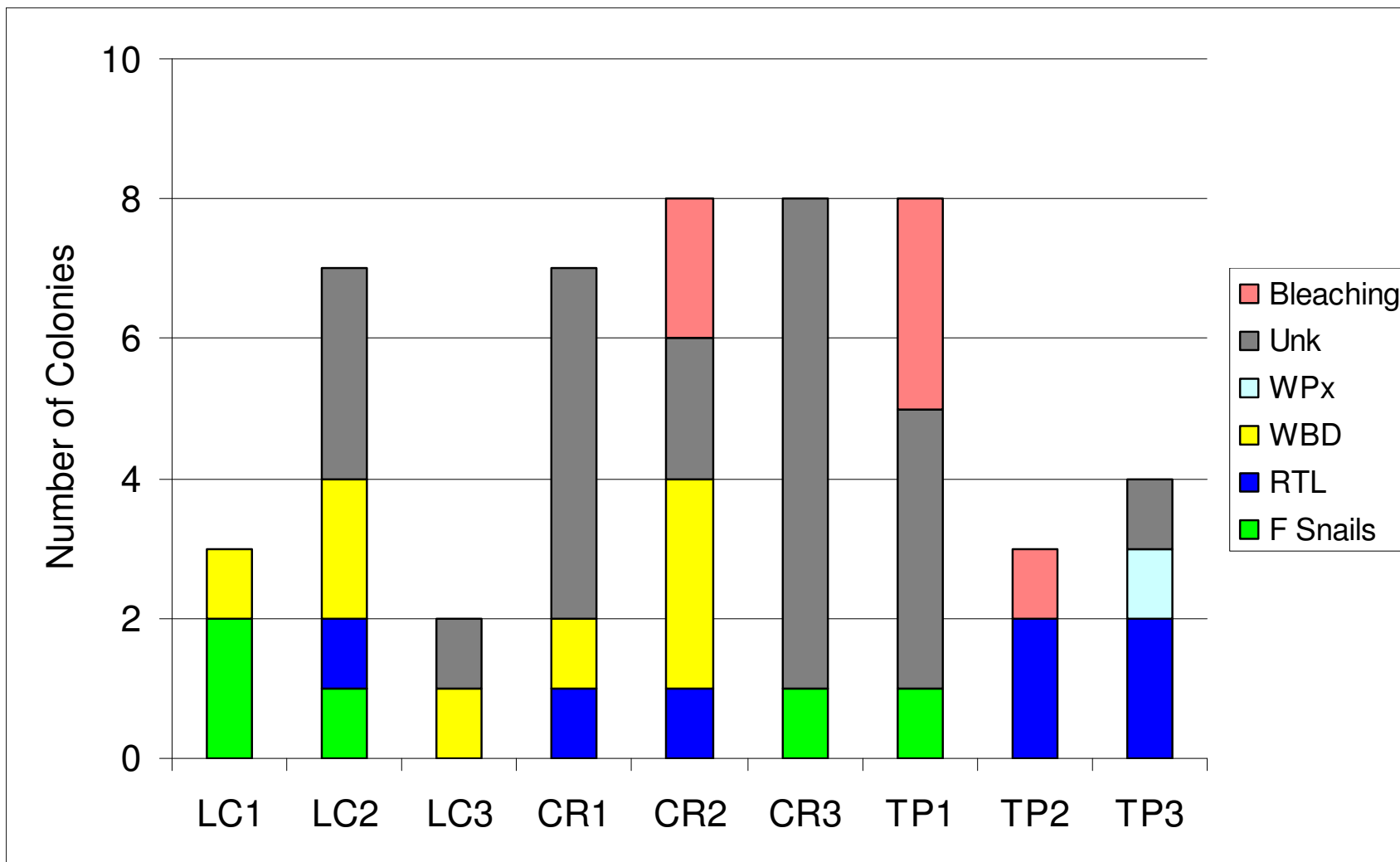




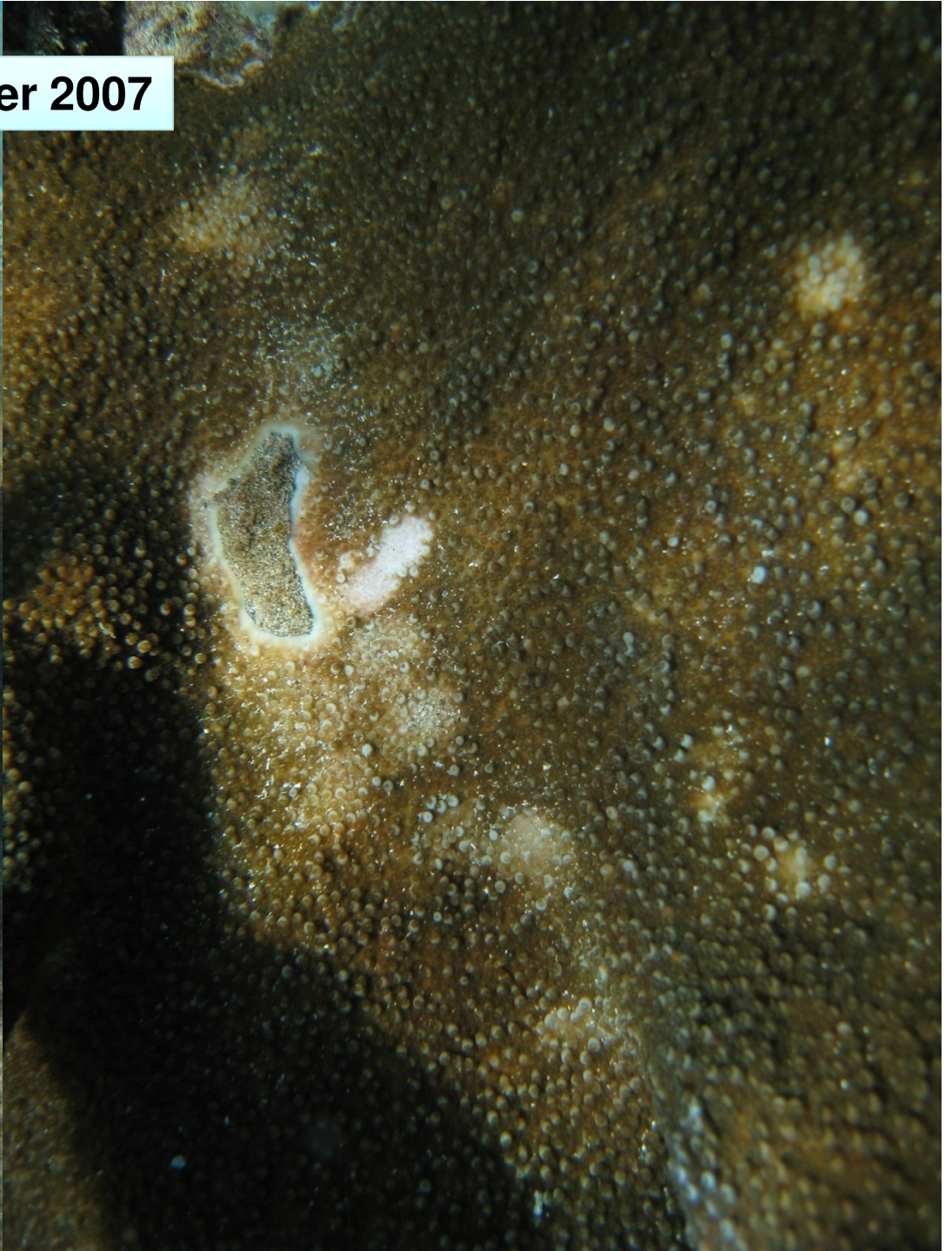
Changes in live tissue over time



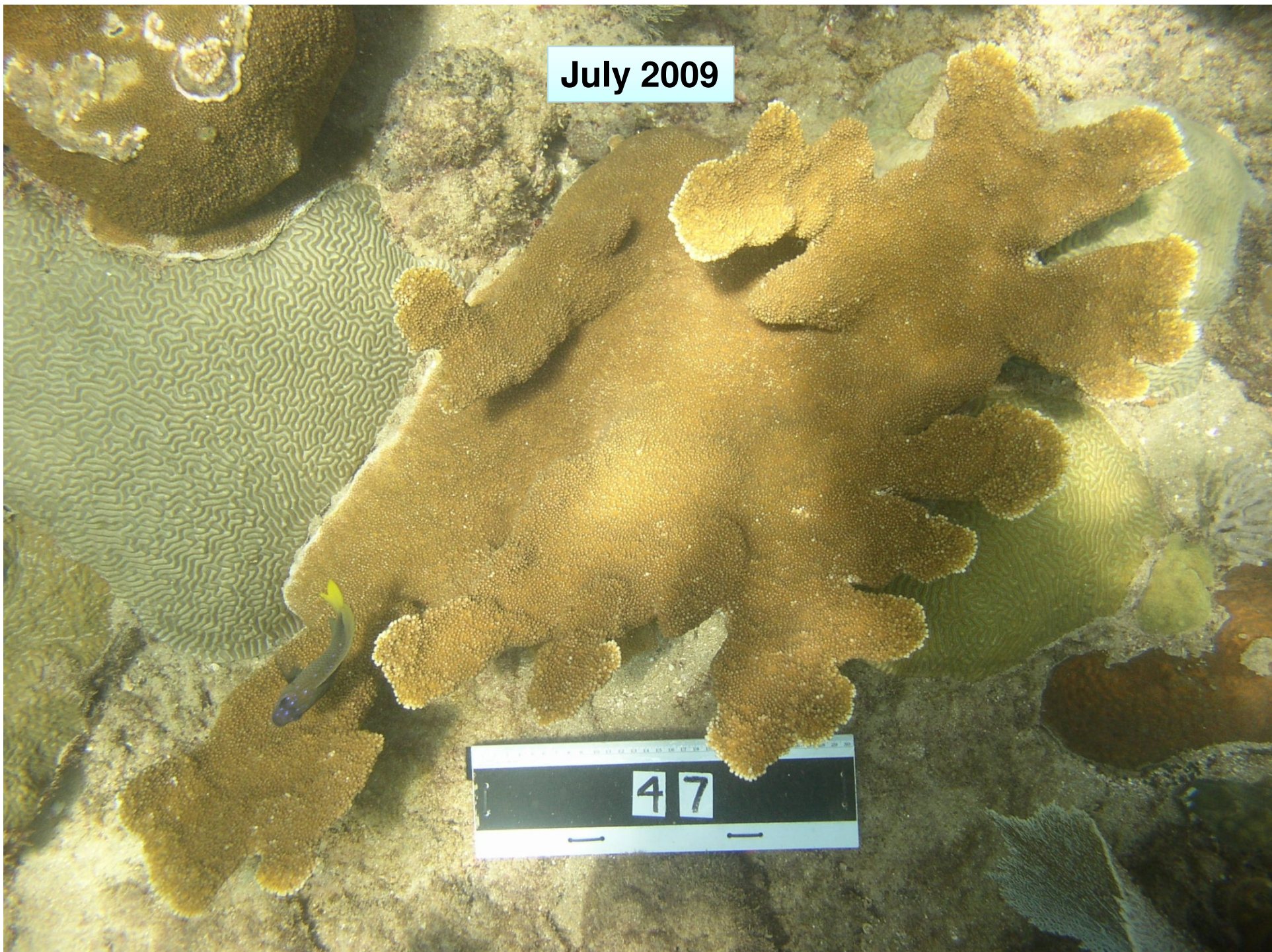
Partial tissue loss



October 2007



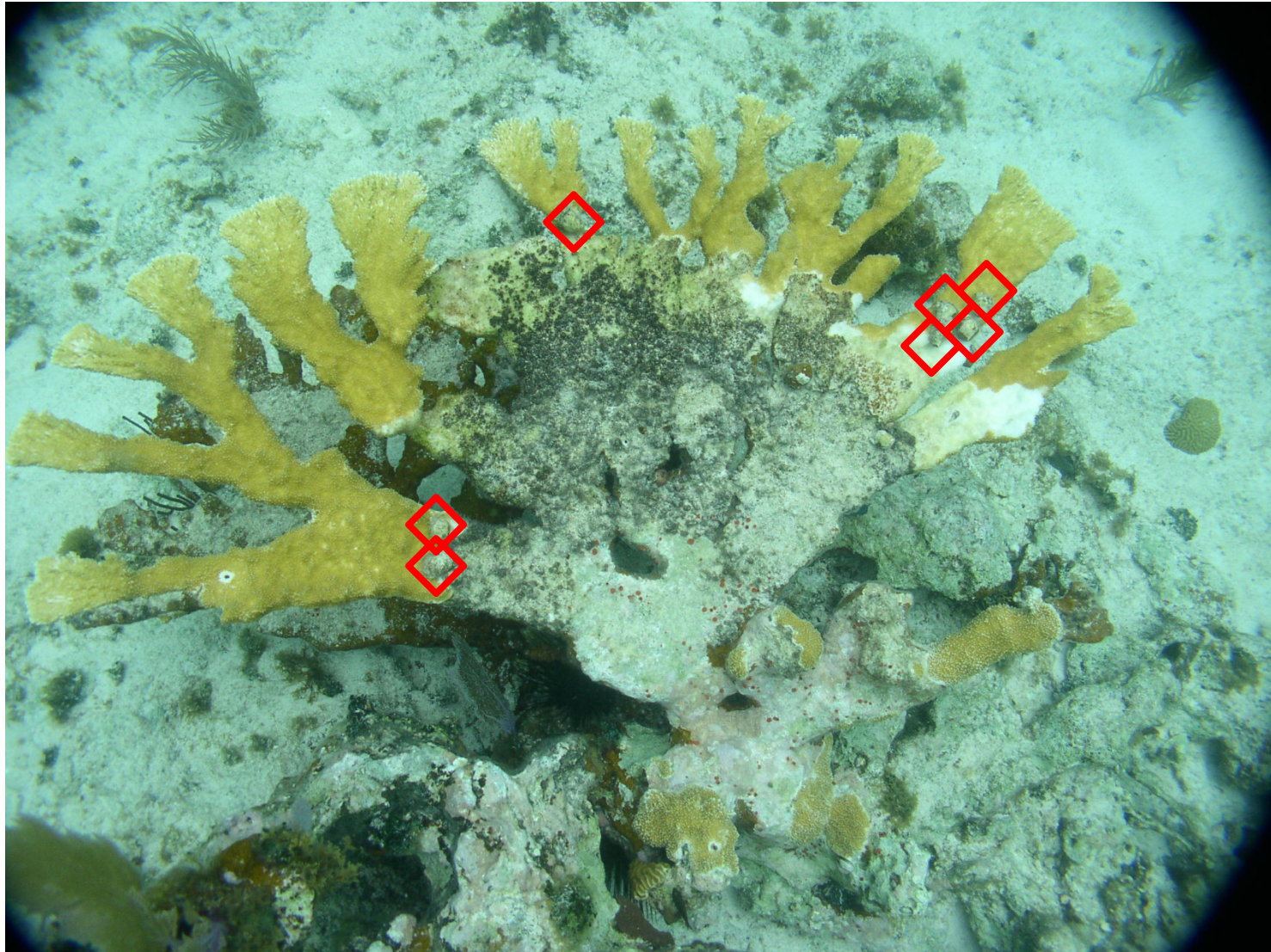
July 2009



Spatial trends

- East coast :
 - Low occurrence of live thickets
 - high proportion of DS skeletons
 - Lower density & survival
 - Smaller colonies
 - Snail incidence high
 - WBD prevalence
- West coast :
 - Competition and overgrowth by sponge (*Cliona tenius*)
 - Higher survival
 - Recent partial mortality
 - Marine debris

Recovery actions 1- Snails



Recovery actions 2- Debris



Recovery actions 3- Grounding Interventions-Restorations

