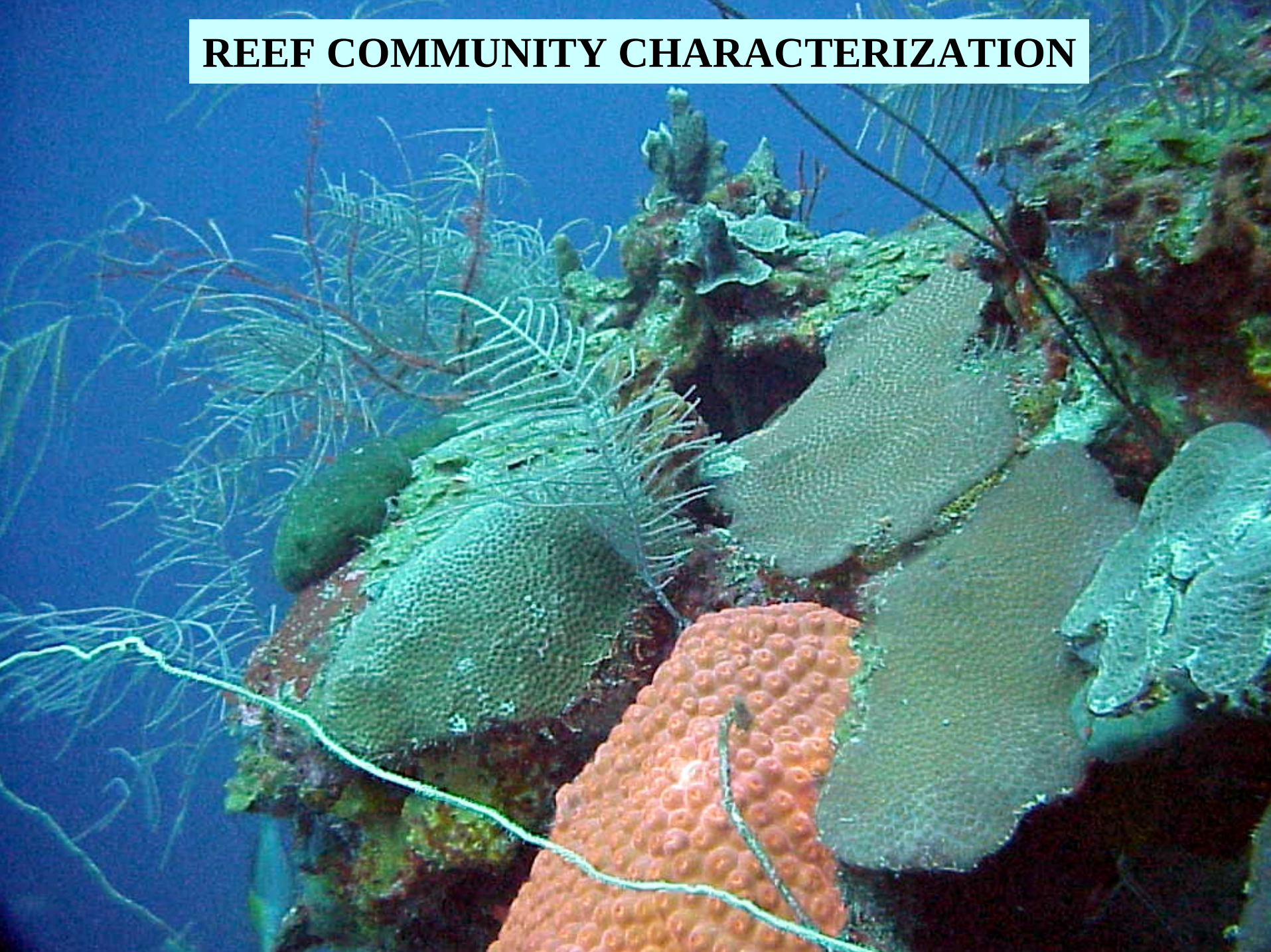
REEF COMMUNITY CHARACTERIZATION



Goals-Objectives

- Assessment of spatial and temporal changes in the composition, structure and demographics of the reef communities.
- Temporal changes in spatial heterogeneity
- Assessment of changes in habitat quality and quantitative estimates of population dynamics of some key species.

Community and demographic characterization

- Baseline data to establish current biological structure of the reef community and spatial heterogeneity of reef localities.
- Demographic studies will provide fundamental basis for defining habitat quality and provide quantitative estimates of population and community flux.

Experimental Design – Community characterization

- Three main zones (distance from the coast)
  - coastline, mid shelf and shelf edge
- Three reefs per zone (9 reef localities)
- Four depth intervals per reef (3, 6, 10, >15 m)
- Four 20 m long random transects per depth interval (16 per reef locality)
- Six randomly selected 1 m^2 quadrats/transect (24 m^2 per depth interval and 96 m^2 per reef)

ENVIRONMENTAL CHARACTERIZATION

- **Temperature, dissolved O_2 , conductivity, turbidity, etc. in three reef localities (multi-loggers).**
- **Temporal and spatial variability in temperature in each reef locality (Continuous Temp. Loggers).**
- **Spatial and temporal variability in Sedimentation rates and sediment composition.**

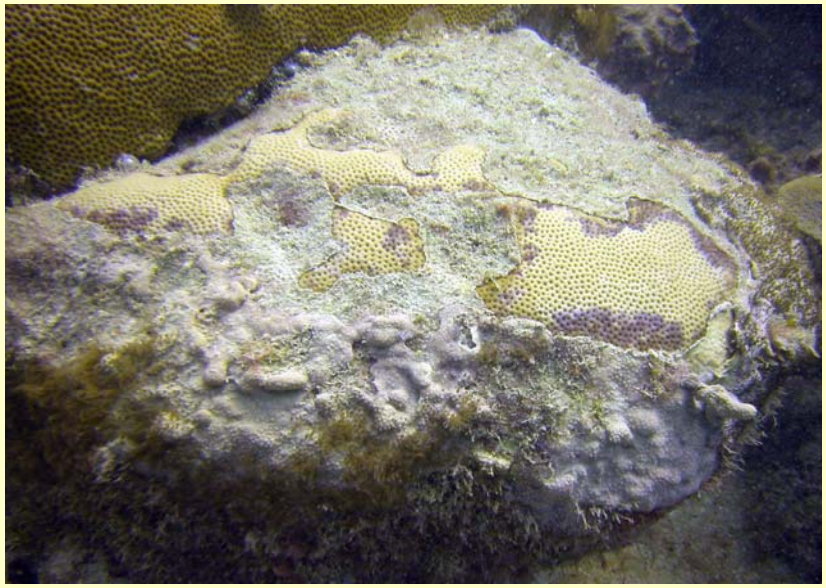
Community and demographic characterization

- **Diversity, distribution, abundance and live cover of major biological groups:**
  - **Scleractinian corals**
  - **Octocorals**
  - **Hydrocorals**
  - **Zoanthids**
  - **Sponges (*Cliona tenuis* – distribution, density and cover)**
  - **Macroalgae**
  - **Crustose algae**
  - **Turf algae**

Other substrates

- Sand
- Bare substrate

- Rubble
- Miscellaneous



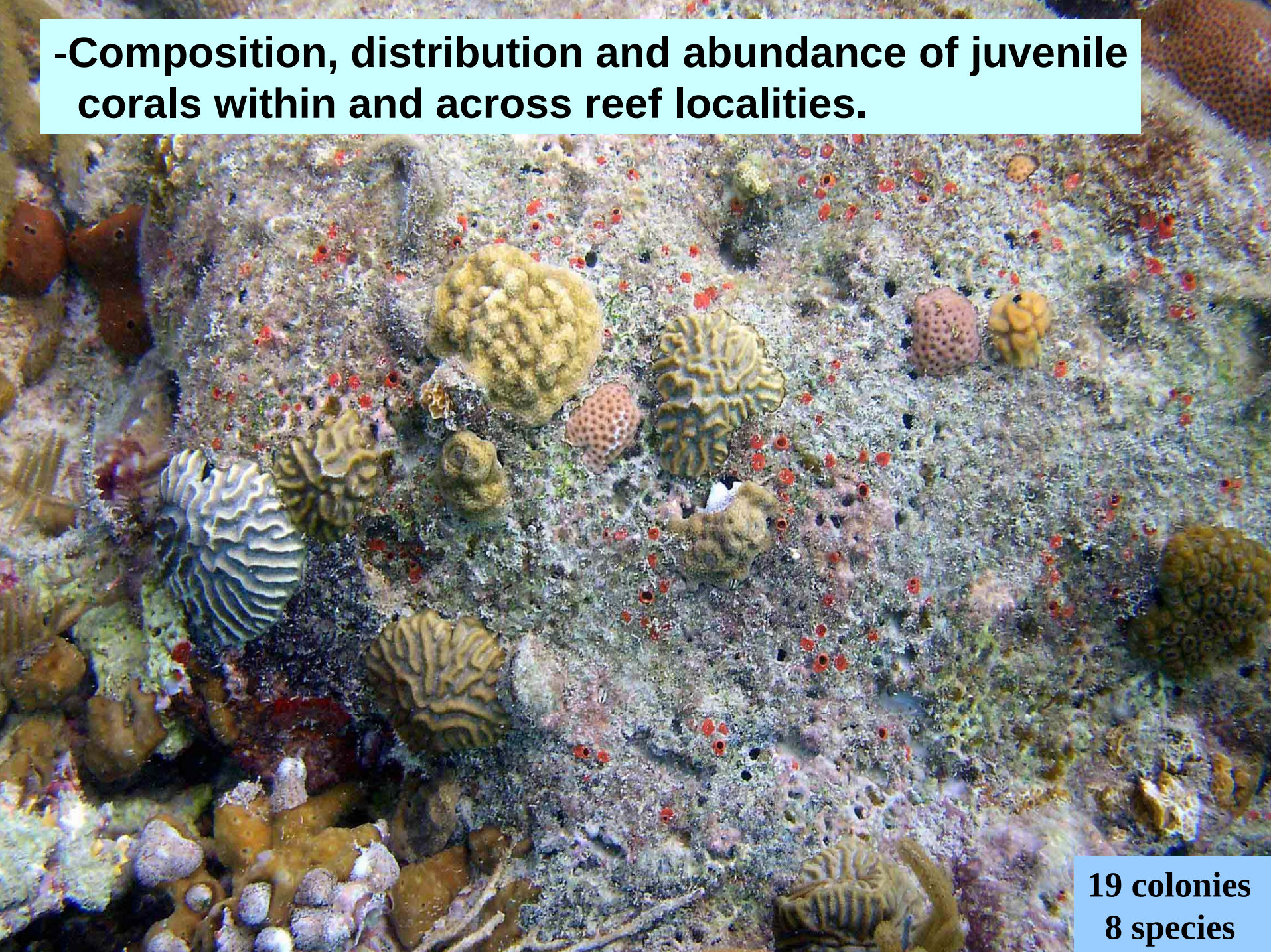
Community and demographic characterization

- **Densities, distribution and temporal change of some Key species:**

Diadema antillarum

Cliona tenuis

-Composition, distribution and abundance of juvenile corals within and across reef localities.



19 colonies
8 species

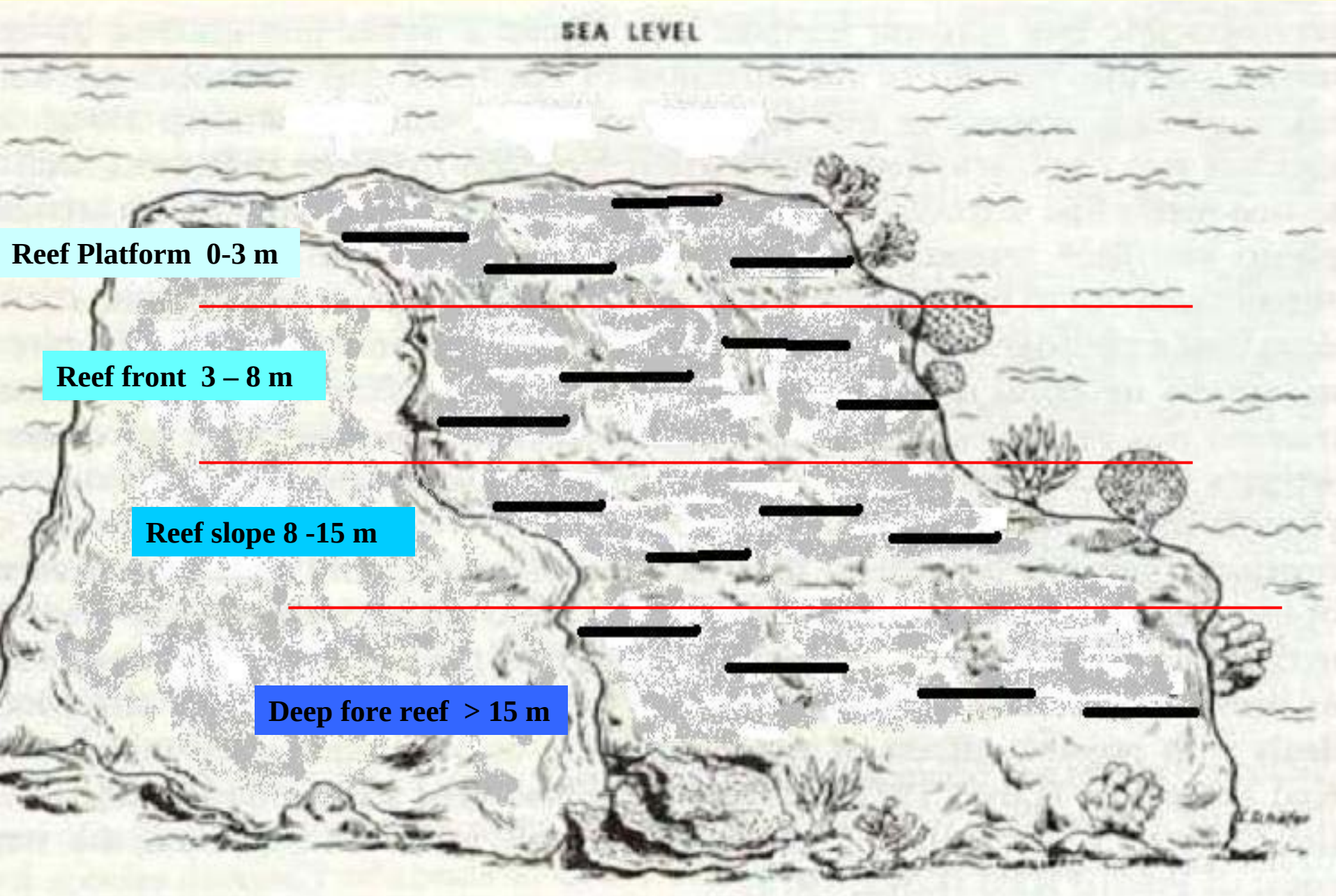
Coral recruits and juveniles

- **Temporal and spatial variability in recruitment and mortality rates of juvenile corals.**

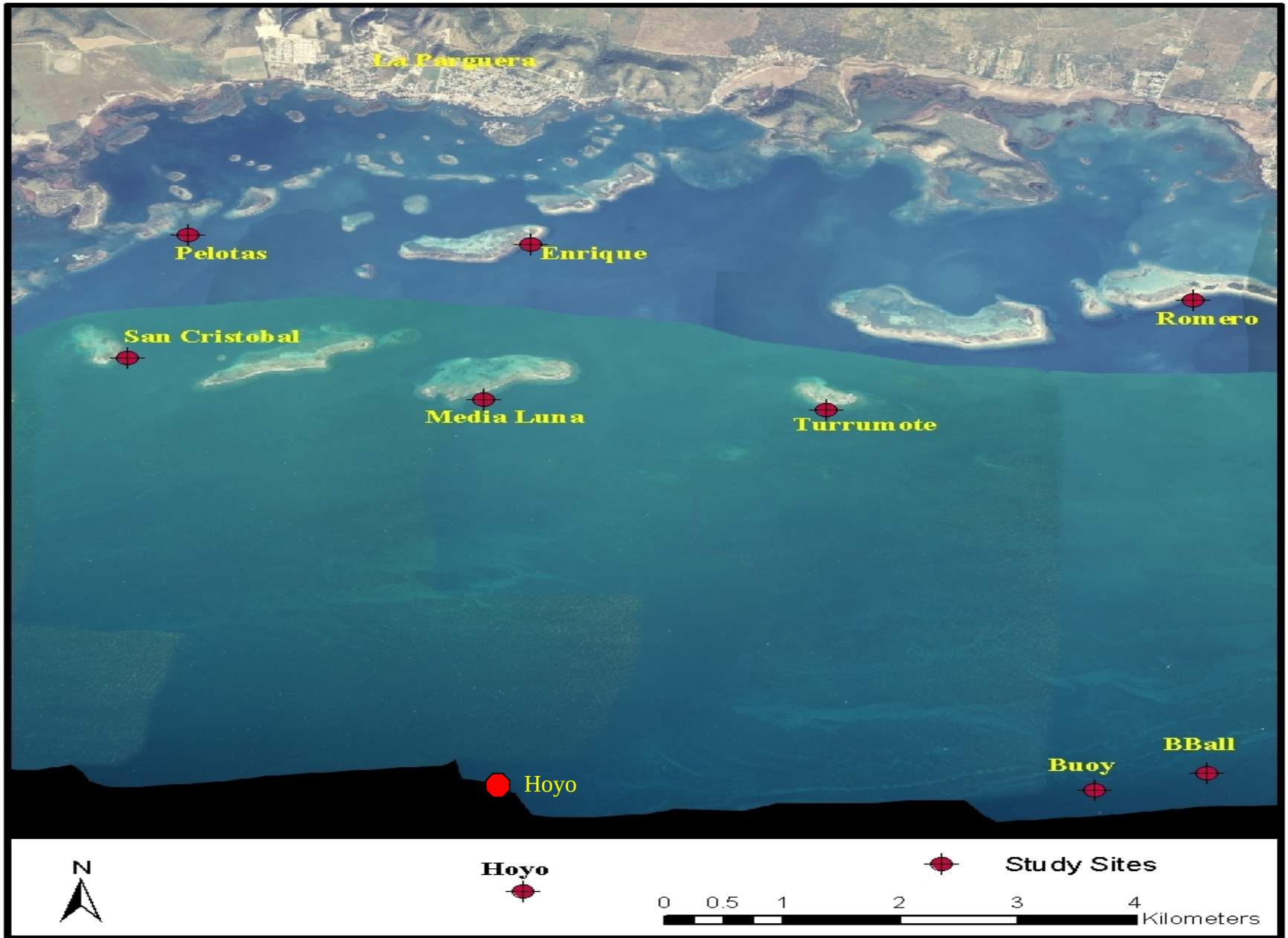
19°00
Caribbean Sea
PUERTO RICO
18°00

La Parguera

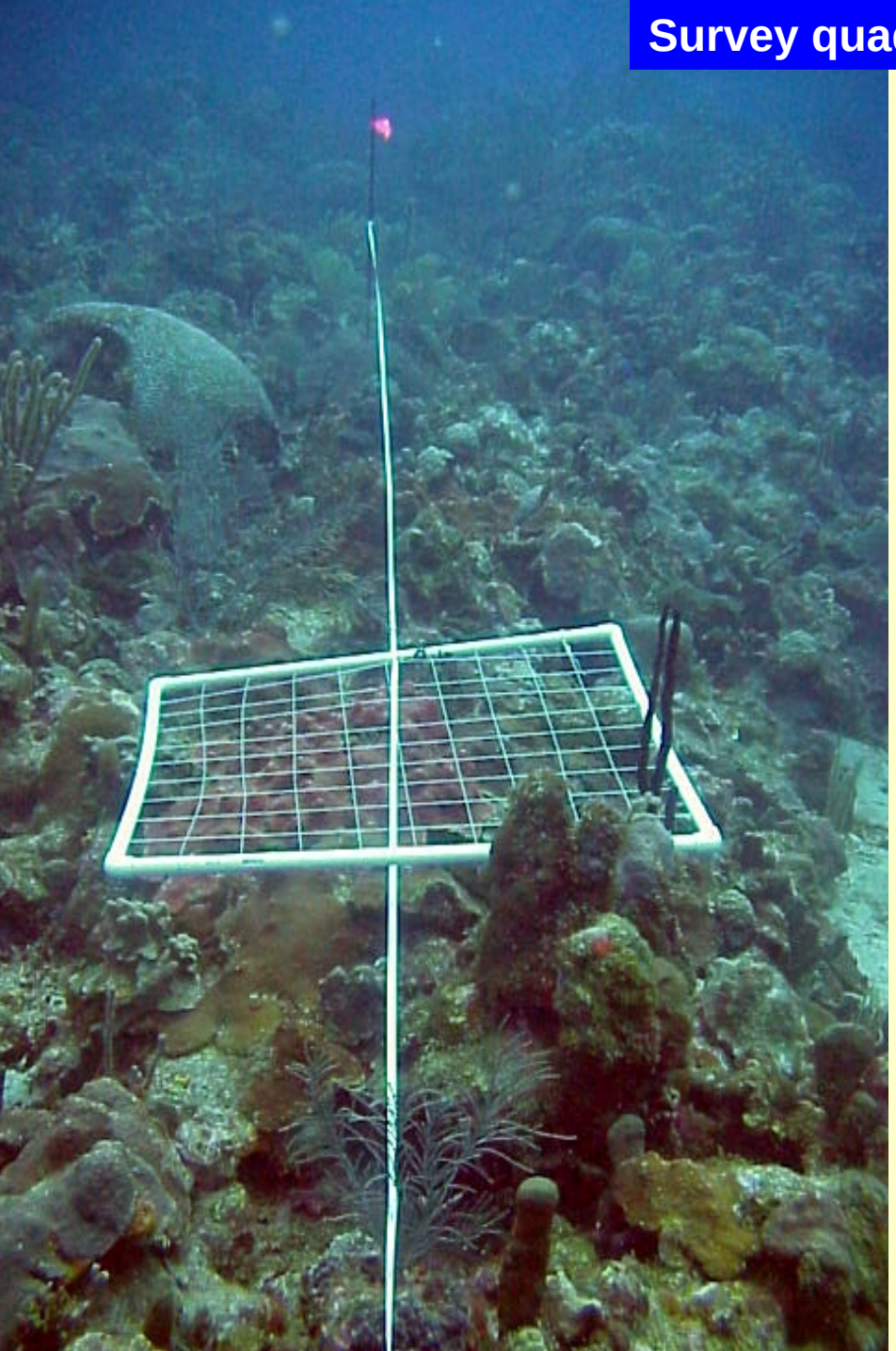
SAMPLING DESIGN

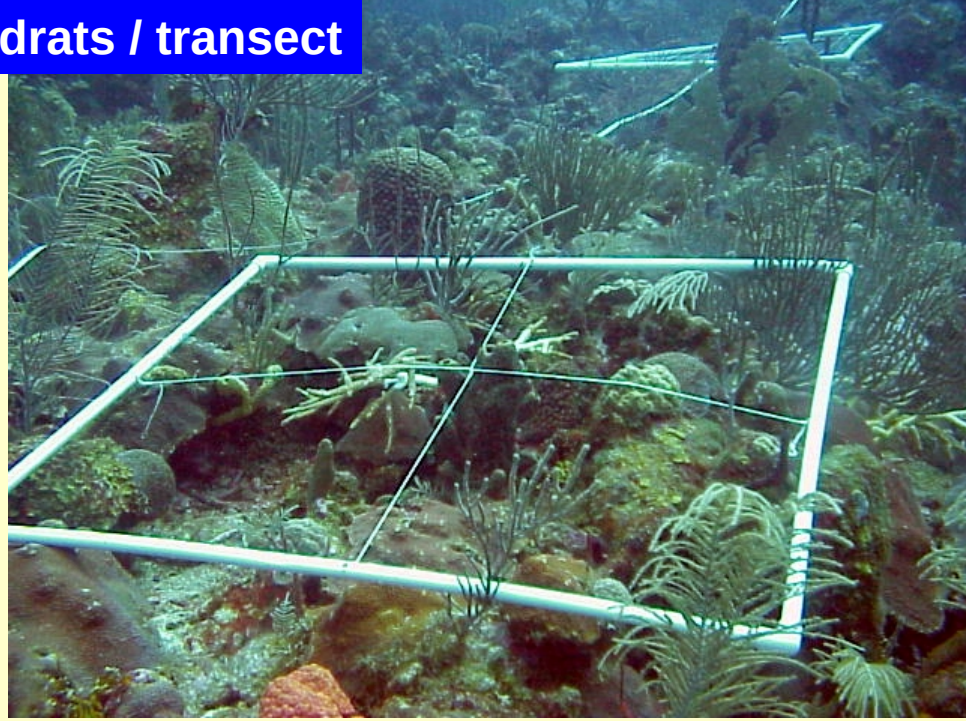


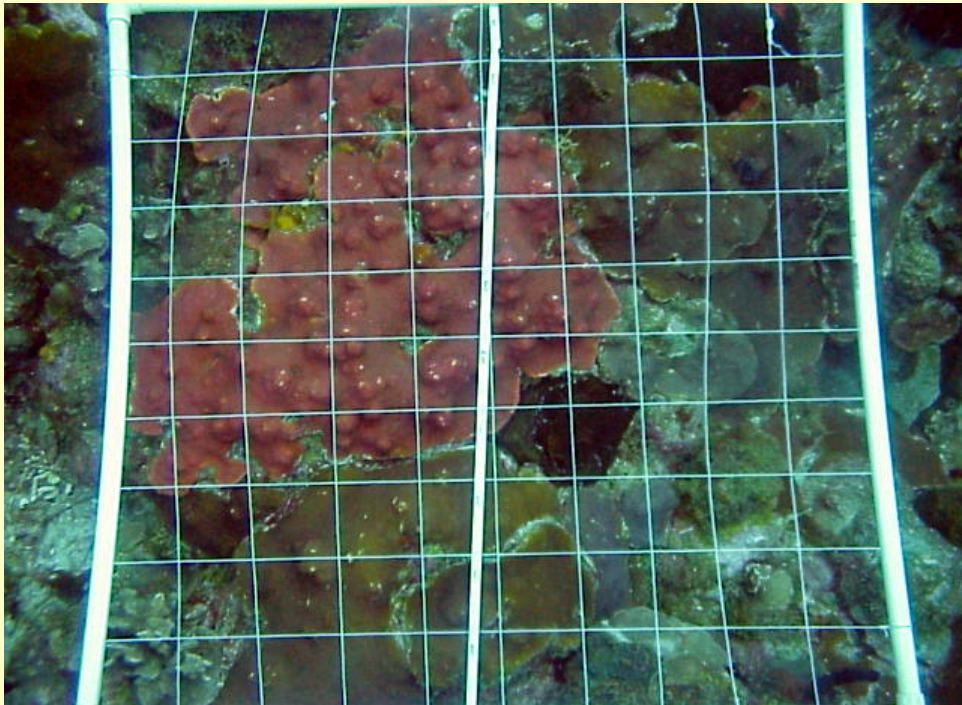
Experimental Design



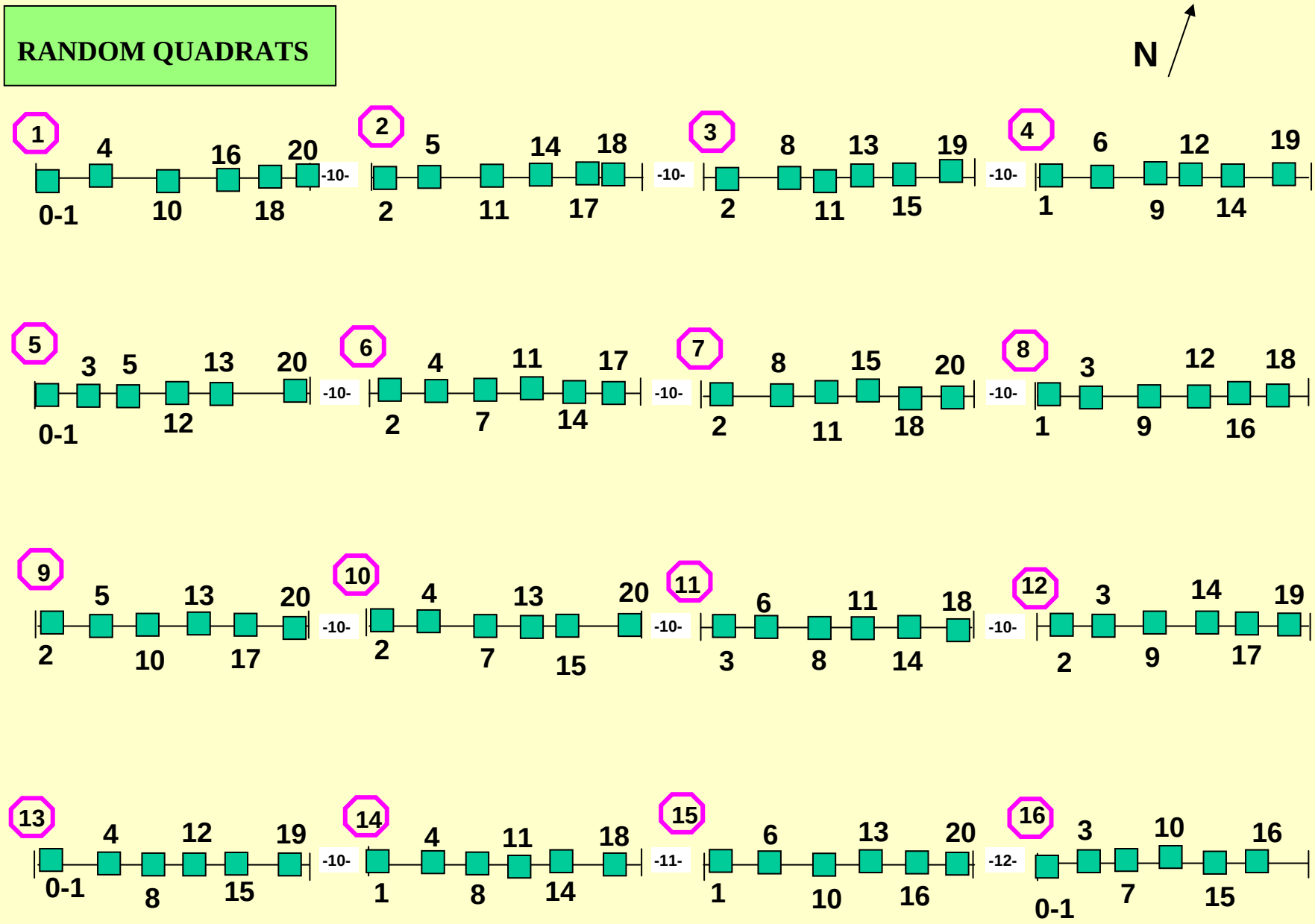
Survey quadrats / transect

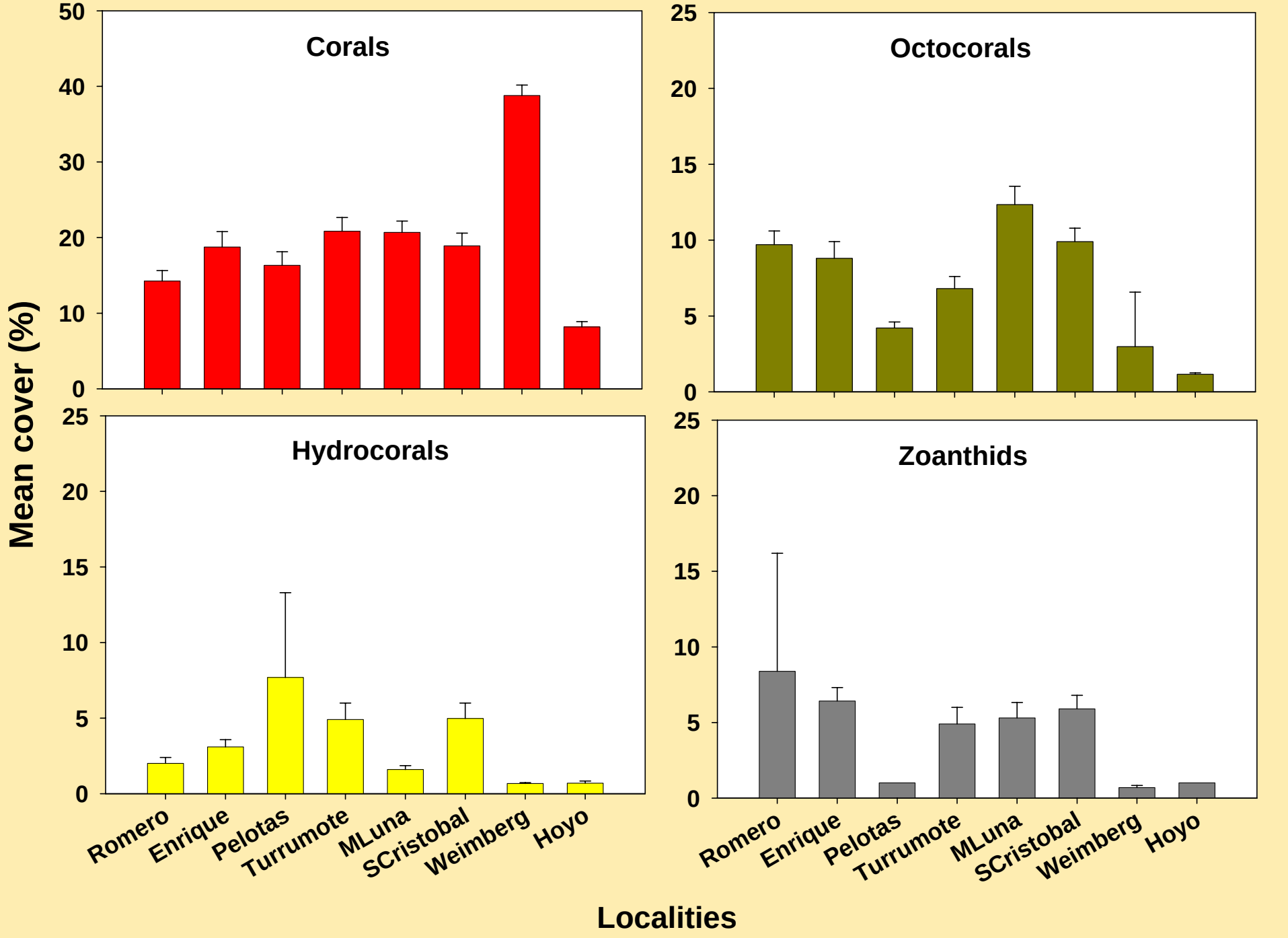


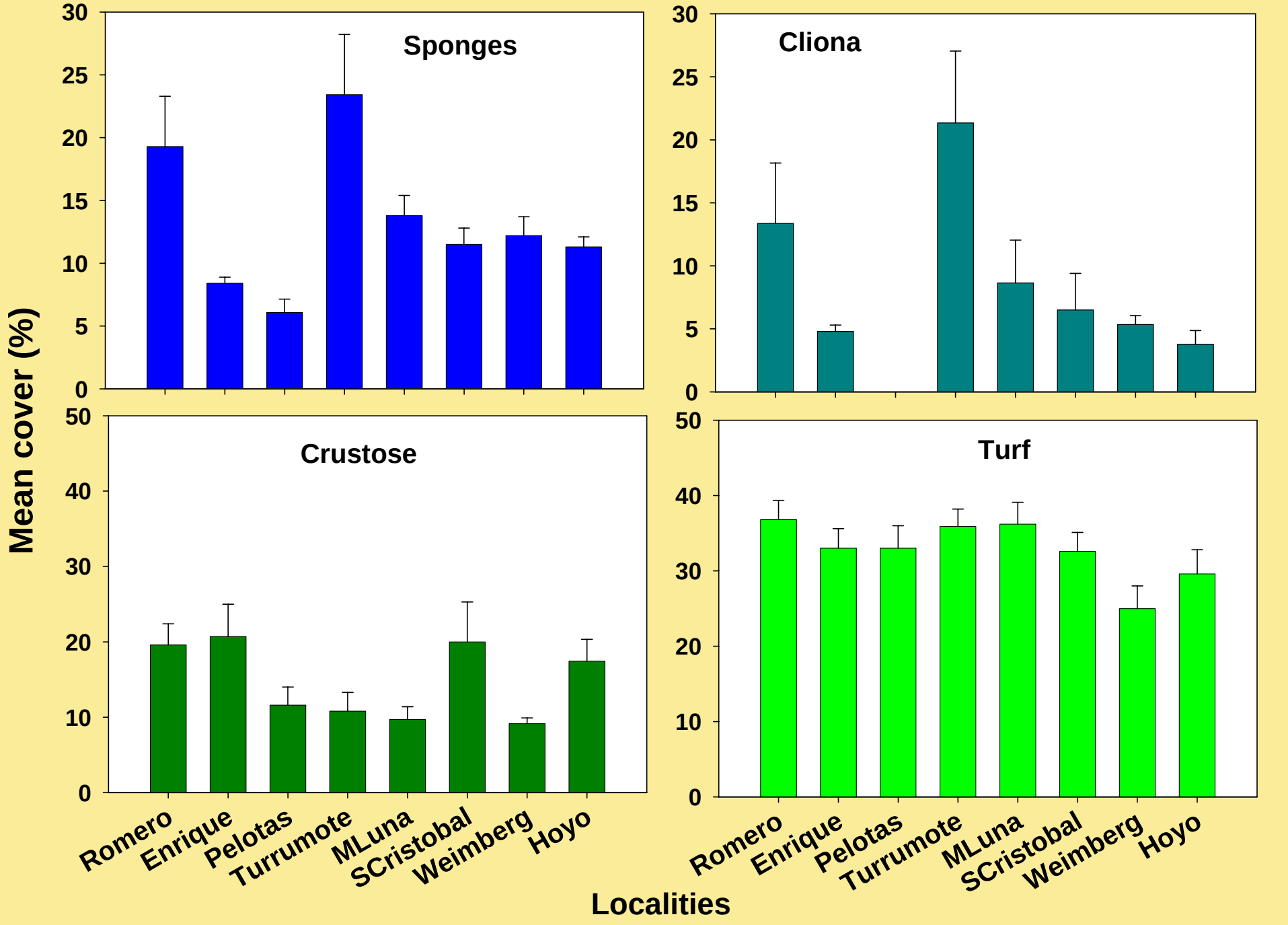


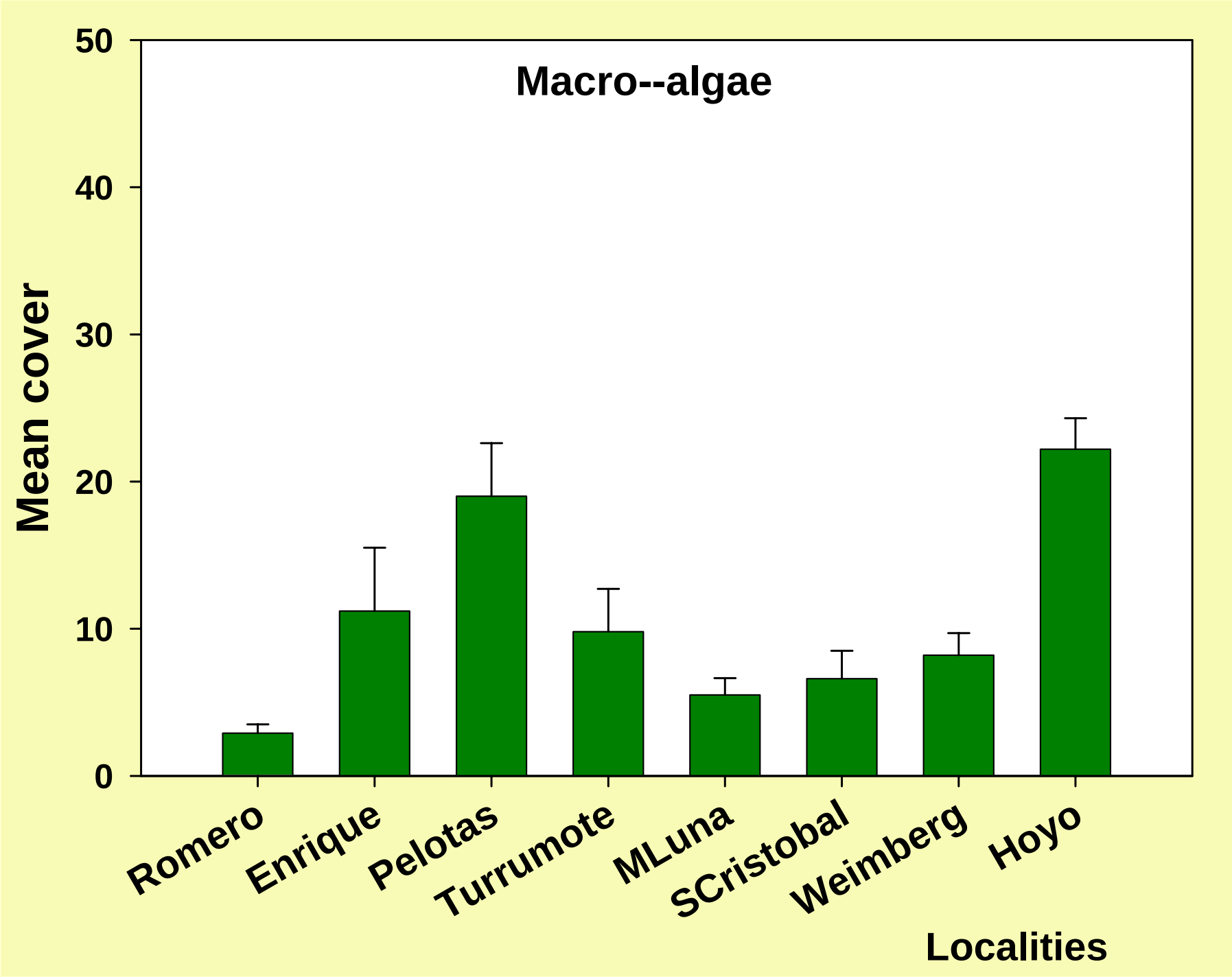


RANDOM QUADRATS




Corals
Octocorals
Hydrocorals
Zoanthids
Mean cover (%)
Localities
Romero
Enrique
Pelotas
Turrumote
MLuna
SCristobal
Weimberg
Hoyo
0
10
20
30
40
50
5
15
25


Sponges
Cliona
Crustose
Turf
Mean cover (%)
Localities
Romero
Enrique
Pelotas
Turrumote
MLuna
SCristobal
Weimberg
Hoyo
0
5
10
15
20
25
30
40
50


Macro--algae
Mean cover
50
40
30
20
10
0
Romero
Enrique
Pelotas
Turrumote
MLuna
SCristobal
Weimberg
Hoyo
Localities