Australian Government

Australian Institute of Marine Science

Understanding the benthic community for reef surveys

Basic labelsets in ReefCloud

ReefCloud

AIMS: Australia's tropical marine research agency.

Basic taxonomy for coral reef monitoring

What is an basic labelset or Tier 1 labelset in ReefCloud?

- Labels given to benthic communities on the reef system, such as hard corals, soft corals, sponges, and turf algae.
- These labels help us understand:
  - ✓ the status of the reef systems at a snapshot;
  - ✓ changes across reefs at a highly specific scale

What questions can the Tier 1 labelsets answer?

- How has the reef changed over time?
- What is hard coral cover vs. soft coral cover?

What questions Tier 1 labelsets cannot answer?

- What is the composition of the reef system?
- Has the habitat of the reef changed over time?
- What benthic taxa has increased in abundance and how much?

What is a Hard Coral (HC)?

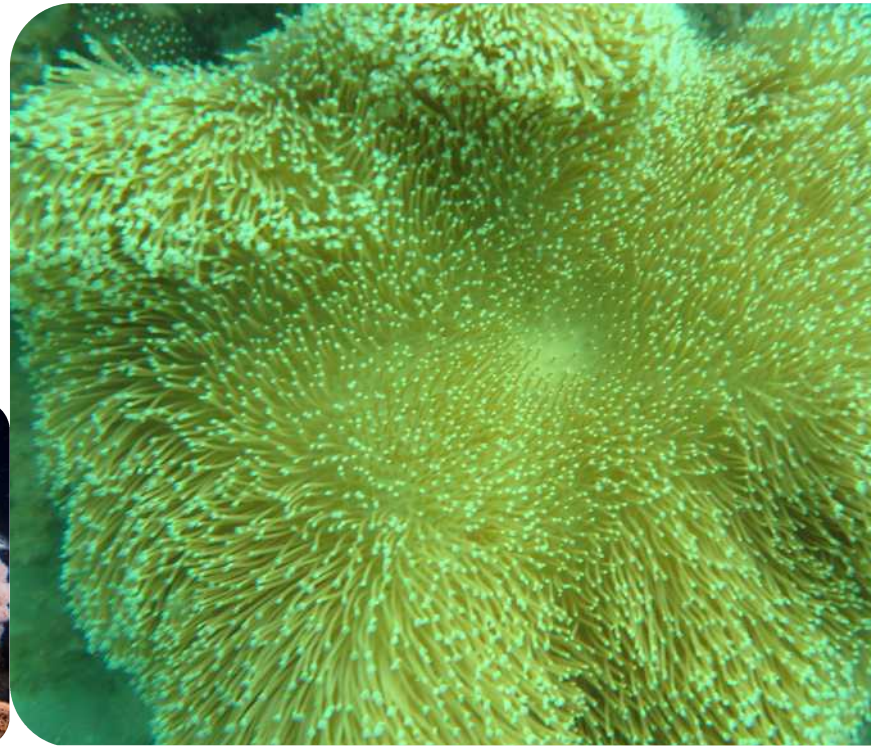
Key features

- Hard coral:
  - Hard skeleton behind the living tissue.
  - Polyps that extend from the tissue outwards with/without visible. “tentacles”.
  - Many shapes (growth forms), sizes, and shapes.

What is a Soft Coral (SC)?

Key features

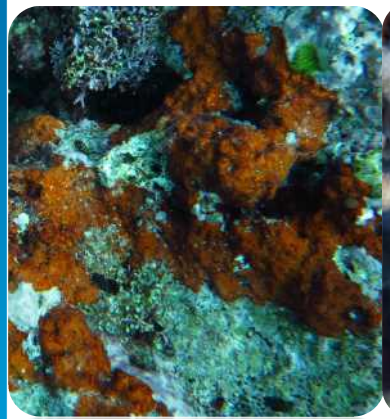
- Soft coral:
  - Usually soft tissue without skeleton
  - Exceptions - Heliopora (Blue coral) & some gorgonians
  - Soft coral colonies look like trees, bushes, grasses or flowers

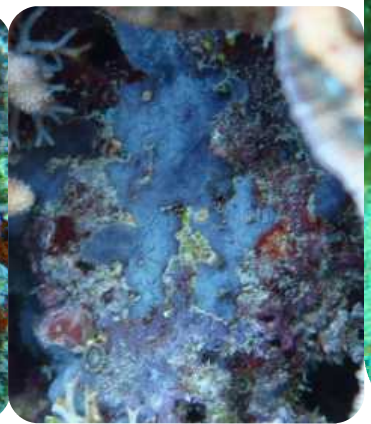


What is a Sponge (SP)?

Key features

- Sponges:
  - Soft to the touch but look solid
  - Small holes all over the body
  - Many shapes, sizes, and colours





What are Macroalgae (MA)?

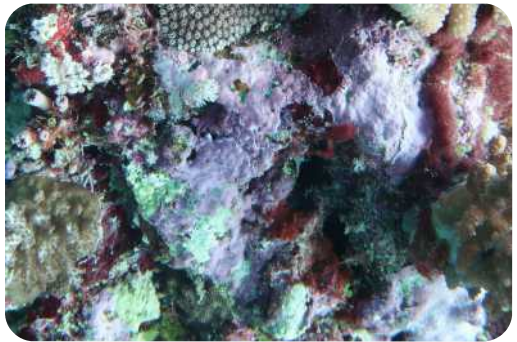
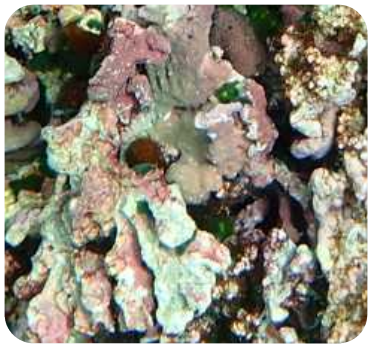
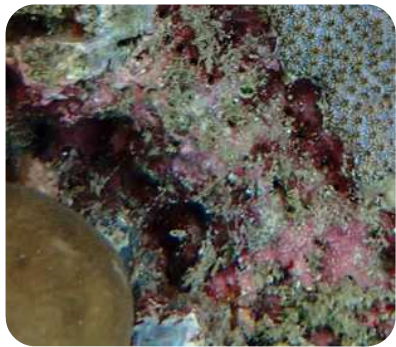
Key features

- Macroalgae:
  - Large fleshy algae > 2cm in size
  - Red, green and brown in colour
  - Can be leafy, bushy and/or mat-like

What are Coralline Algae (CA)?

Key features

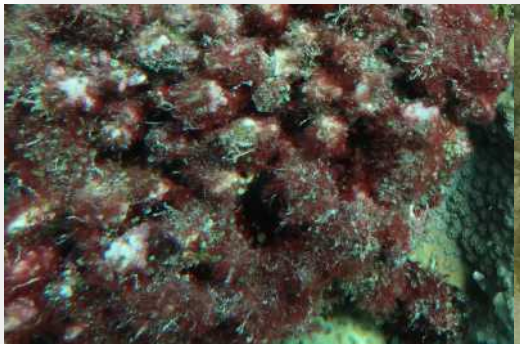
- Coralline algae:
  - Red algae
  - Two main forms: Articulate species are upright/erect and Crustose species are encrusting.

What are Turf Algae (TA)?

Key features

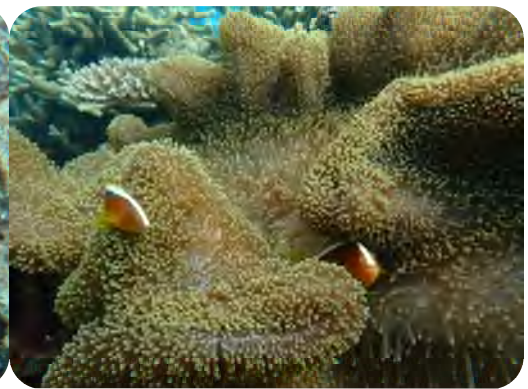
- Turf algae:
  - Short, hair-like algae is usually < 2 cm tall.
  - Can be an assemblage of many minute algae species
  - Grows over all surfaces of reefs that are not covered by other things




What are Sessile Benthic Invertebrates (SI)?
Key features

- Sessile benthic invertebrates are:
  - Marine organisms without a backbone
  - Attach themselves to hard, rocky substrates and generally do not move
  - Include anemones, zoanthids, and ascidians
  - Different groups have different forms which can be identified from each other

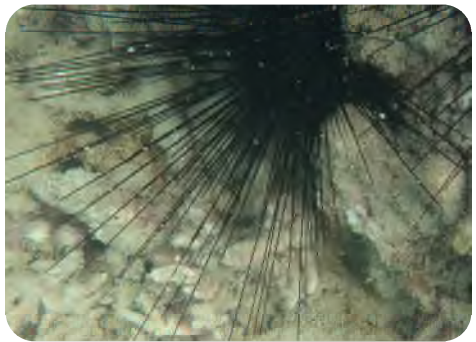




What are Mobile Invertebrates (MI)?

Key features

- Mobile invertebrates:
  - Organisms without a backbone.
  - Not attached to a substrate or ground
  - Include organisms like sea cucumber, starfish, and sea urchins.
  - Will not be present at the same locations across surveys



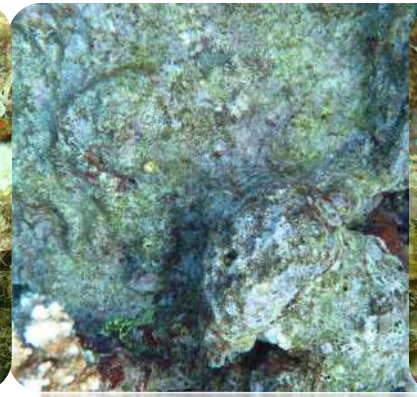

What are Soft Substrates (SS)?
Key features

- Soft Substrates are:
  - Unconsolidated substrate areas
  - Includes sand, silt, and mud
  - Often covered by turf algae

What are Hard Substrates (HS)?
Key features

- Hard Substrates are:
  - Harder structures that corals can grow on
  - Such as reef matrix, rubble, rocks
  - Often covered by turf algae

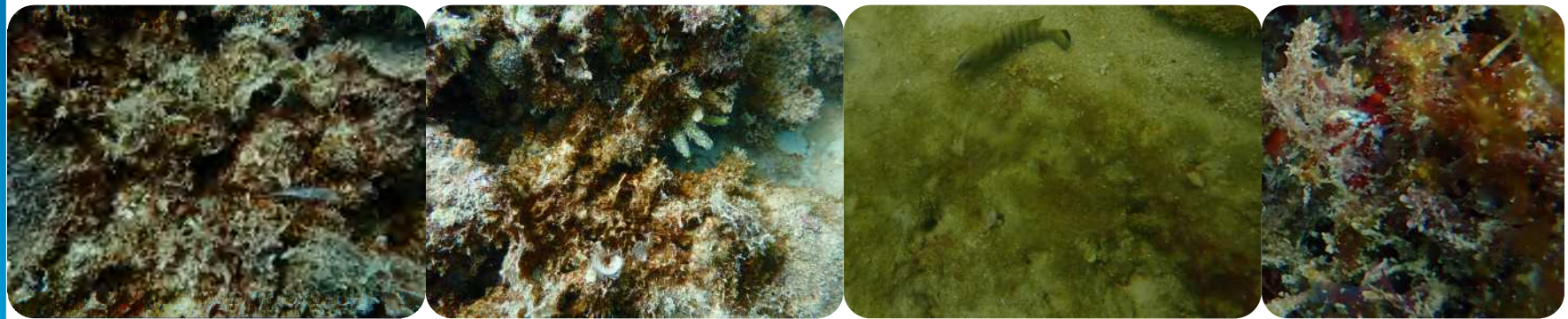





What are Microbial/Cynobacterial Mats (CM)?

Key features

- Microbial mats:
  - Type of biofilm that is large enough to the naked eye but smaller than other types of algae such as turf and macroalgae.
  - Typically formed by cyanobacteria (blue-green algae)
  - Can be shiny or off-colour from the rest of the substrate
  - Slimy texture.



What are Others or unknown (OT)?
Key features

- Others are:
  - Anything else
  - Includes objects not useful for analysis – such as transect tape
  - Includes other objects like garbage
  - Includes unknown for parts of the picture that is too dark or blurry

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AIMS: Australia's tropical marine research agency.

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