NOAA FISHERIES

Pacific Islands Fisheries Science Center

Coral Morphologies

Morphology code names for belt transect survey data collection

Morphology

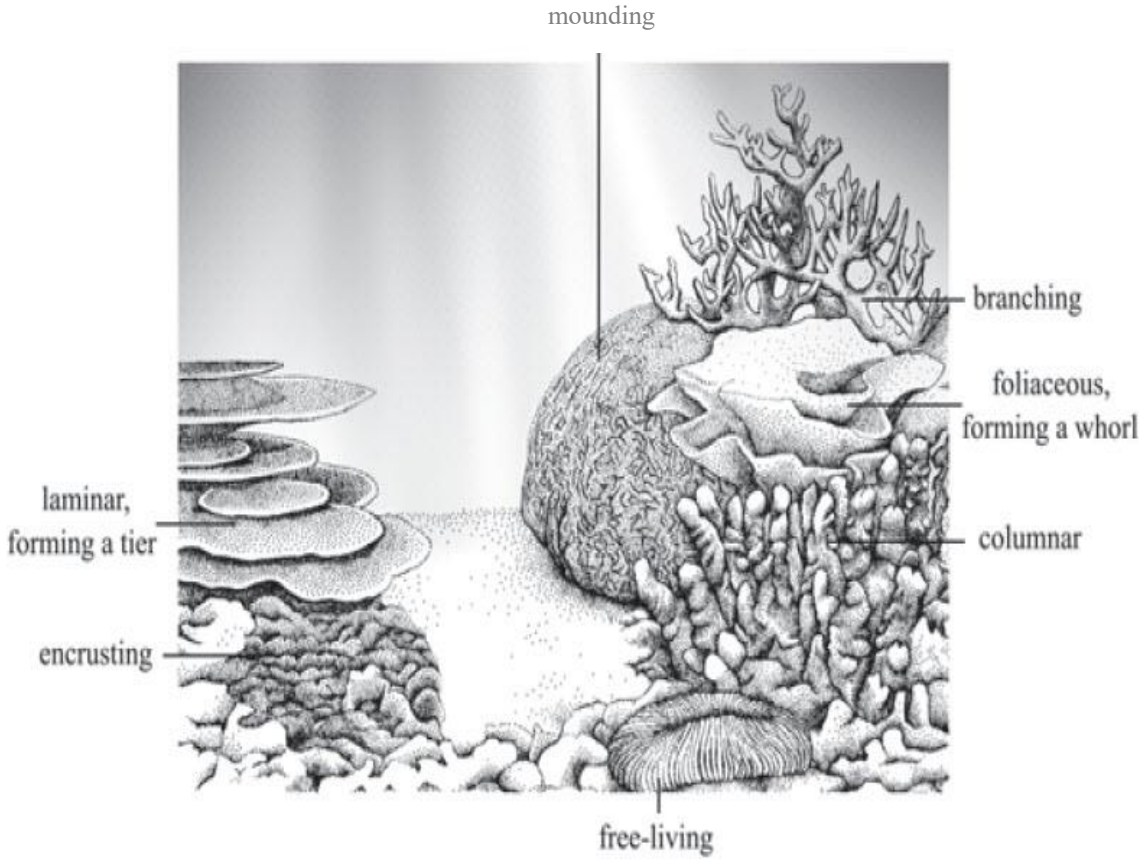
Morphology is a combination of growth form and shape.

- We are identifying morphology to get an idea of the surface area of living tissue, which will allow us to estimate a proxy for reproduction biomass within the population.
- For example, a round, quasi-hemispherical *Porites lobata* is ‘mounding,’ a nearly flat *Montipora pauta* is ‘encrusting’, and a towering *Porites rus* buildup can be ‘ laminar columnar’.
- Because we do not identify all coral taxa to species level, colony morphology is an ecologically meaningful way to separate taxa within genera that exhibit disparate life history strategies.

Morphology

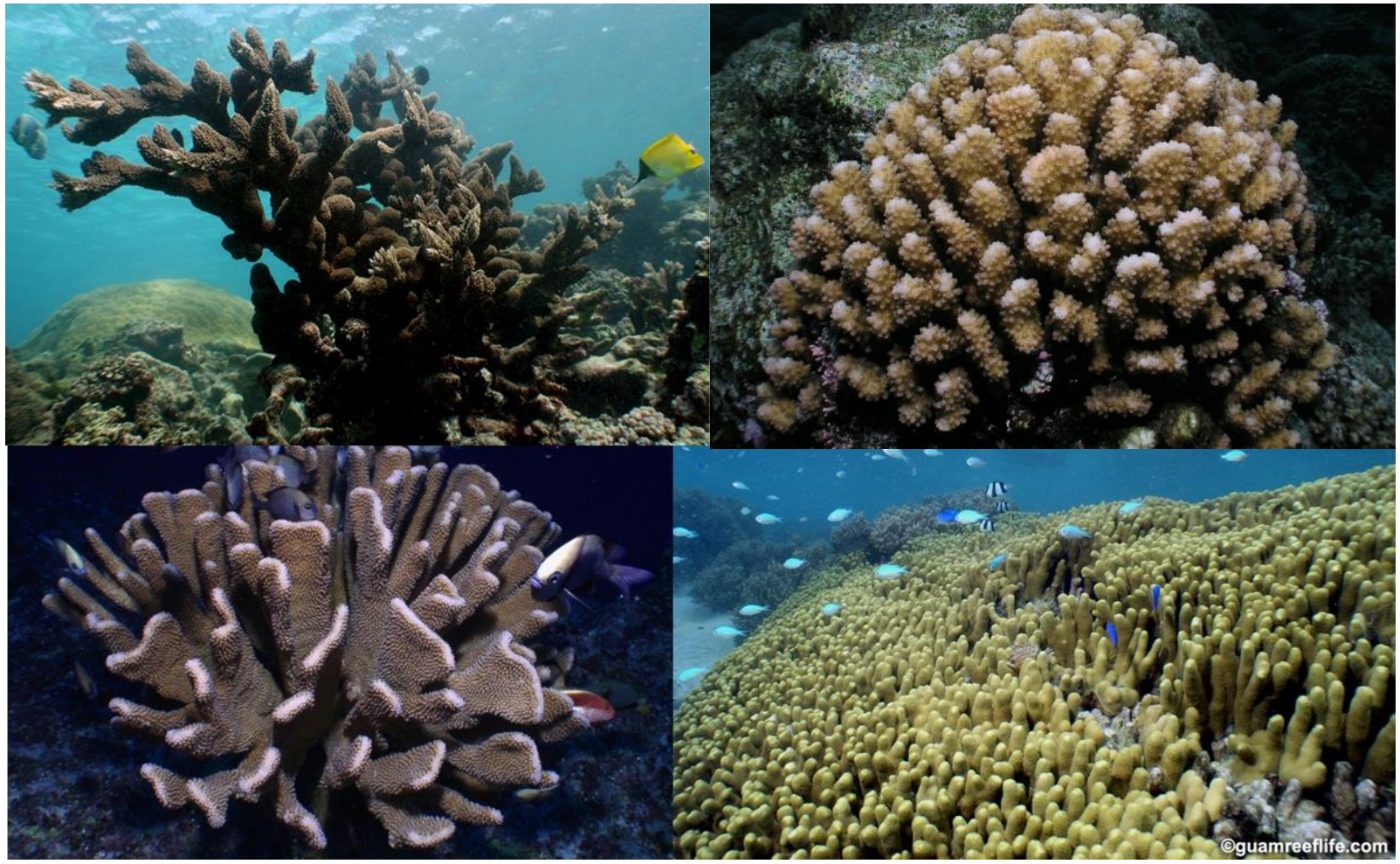
We recognize 11 colony morphology types:

- Branching (**BR**)
- Columnar (**CO**)
- Encrusting (**EN**)
- Foliose (**FO**)
- Free Living (**FR**)
- Knobby (**KN**)
- Laminar Columnar (**LC**)
- Mounding (**MD**)
- Mounding Lobate (**ML**)
- Plating (**PL**)
- Table (**TB**)



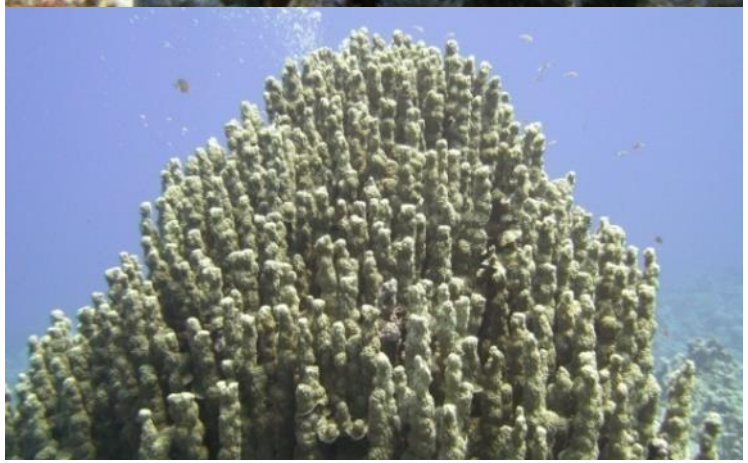
Morphology: Branching (BR)

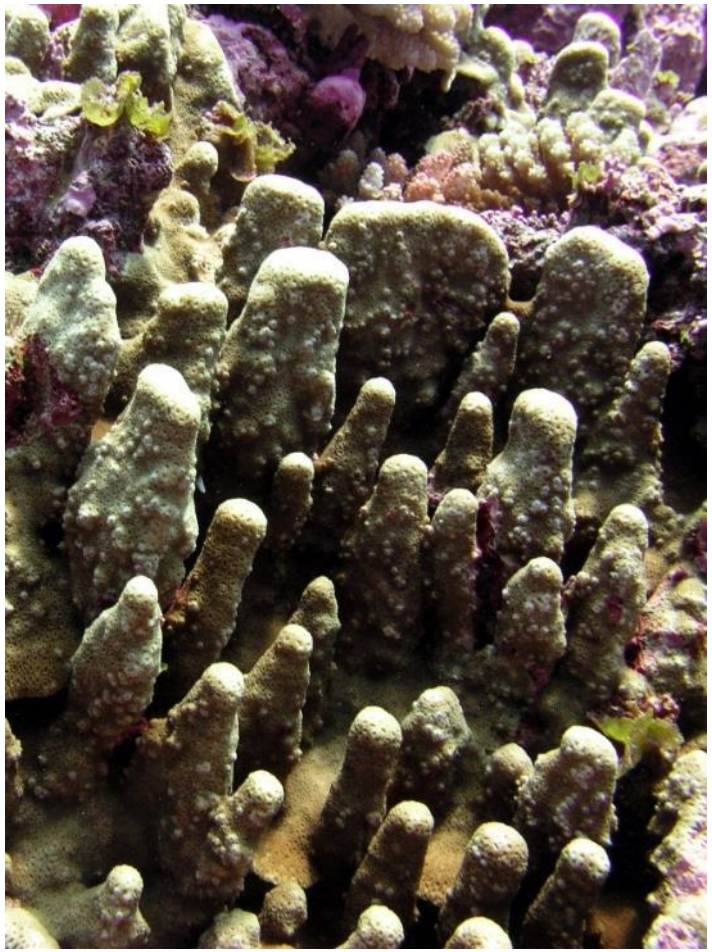
Branches or “fingers” - bifurcated/forked offshoots



Morphology: Columnar (CO)

Columns or “stumps” - stand independent from a common base and no bifurcation unlike branching corals



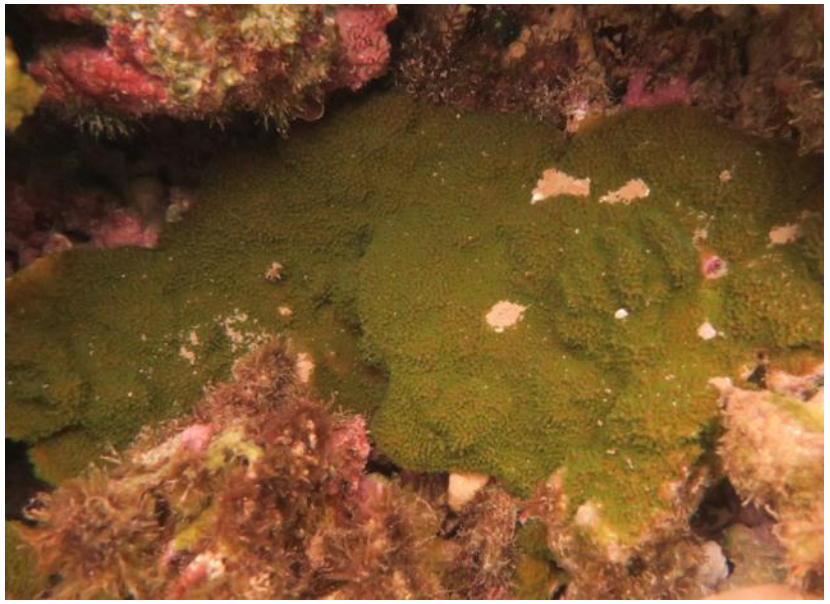


Morphology: Columnar (CO)

Adheres to a relatively flat surface with an encrusting or spread out base but also has columns, chimneys, or up growths that are taller than their width (e.g. *Montipora capitata*).

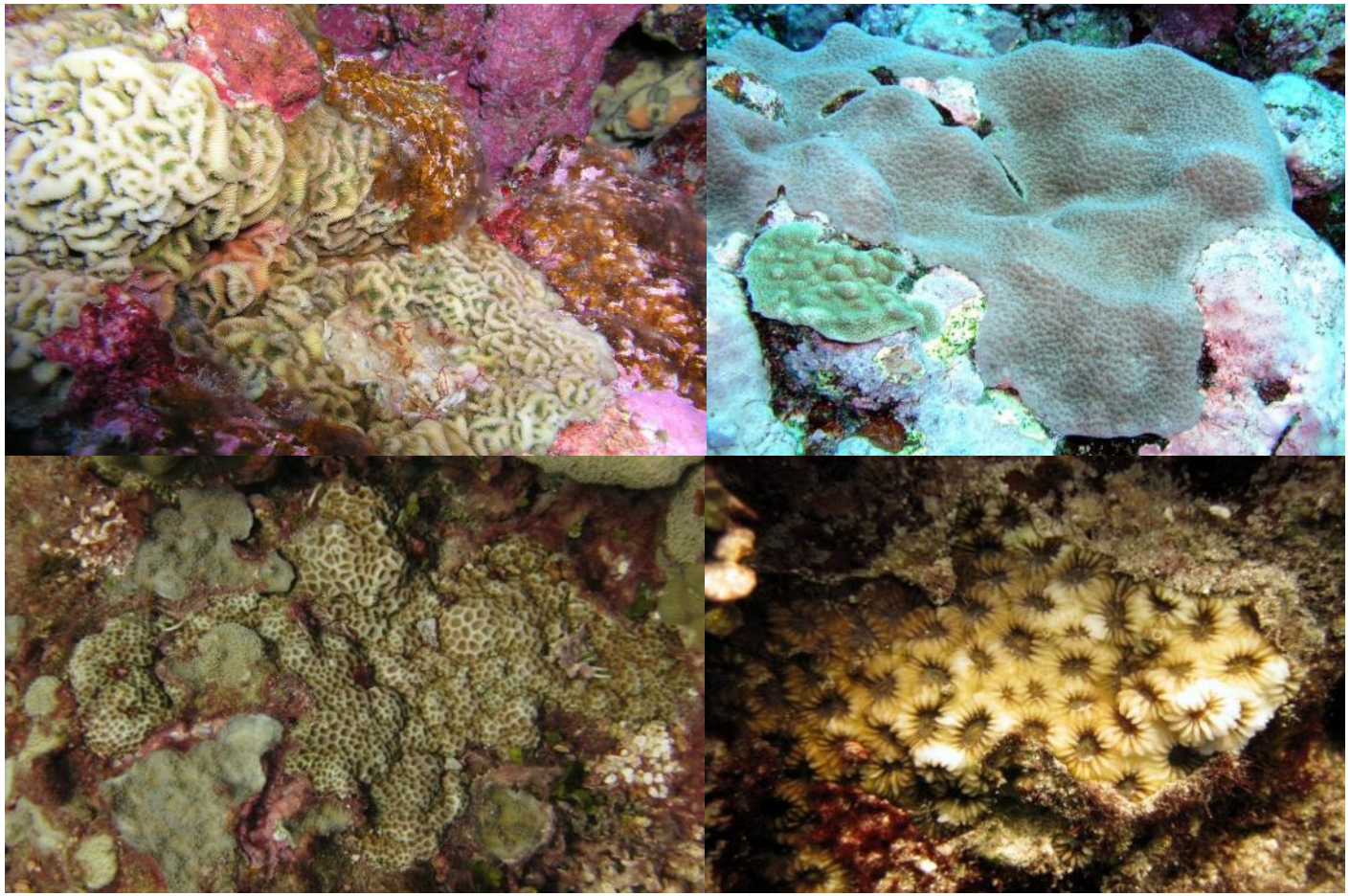
Morphology: Encrusting (EN)

Adheres to the surface following the contour or the substrate.
Encrusting morphologies can display texture features that are different and typical to specific taxa; e.g: thin and laminar, or bumpy and rugose.



Morphology: Encrusting (EN)

Common morphology associated with encrusting corals.

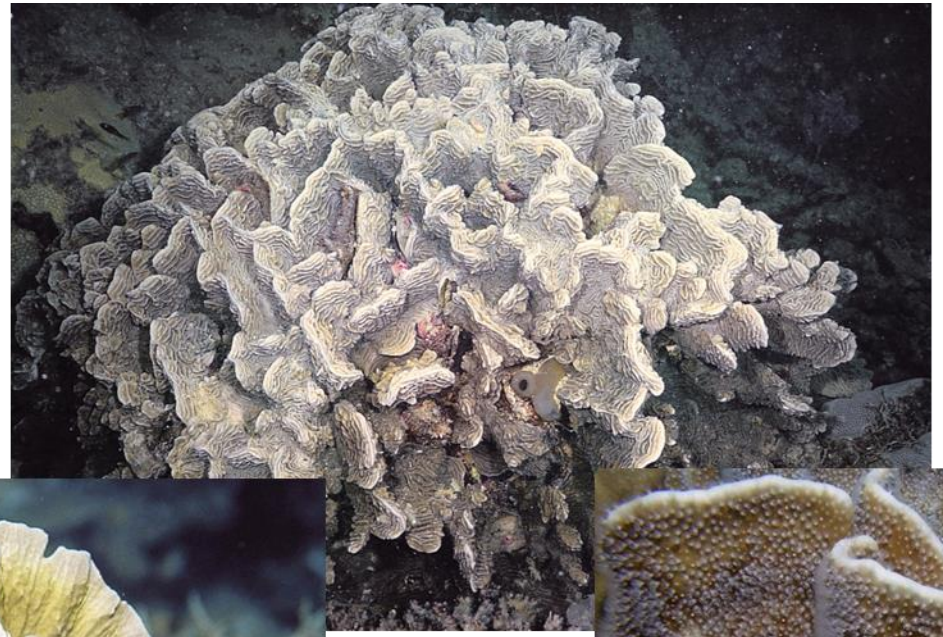


Morphology: Foliose (FO)

Plates that form whorls – usually multiple plates, “a head of lettuce”.

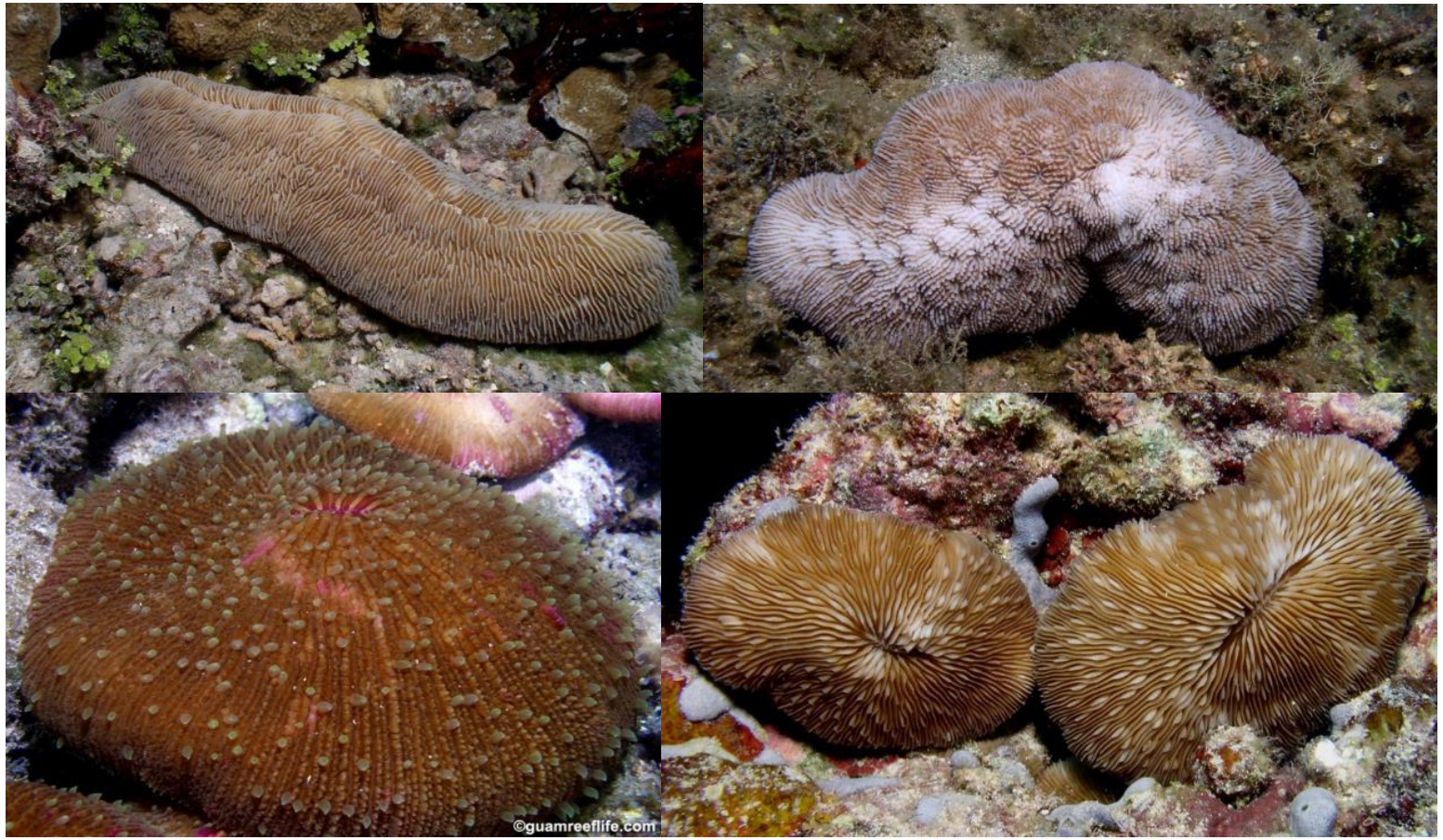
Morphology: Foliose (FO)

Other common architectures associated with the foliose morphology



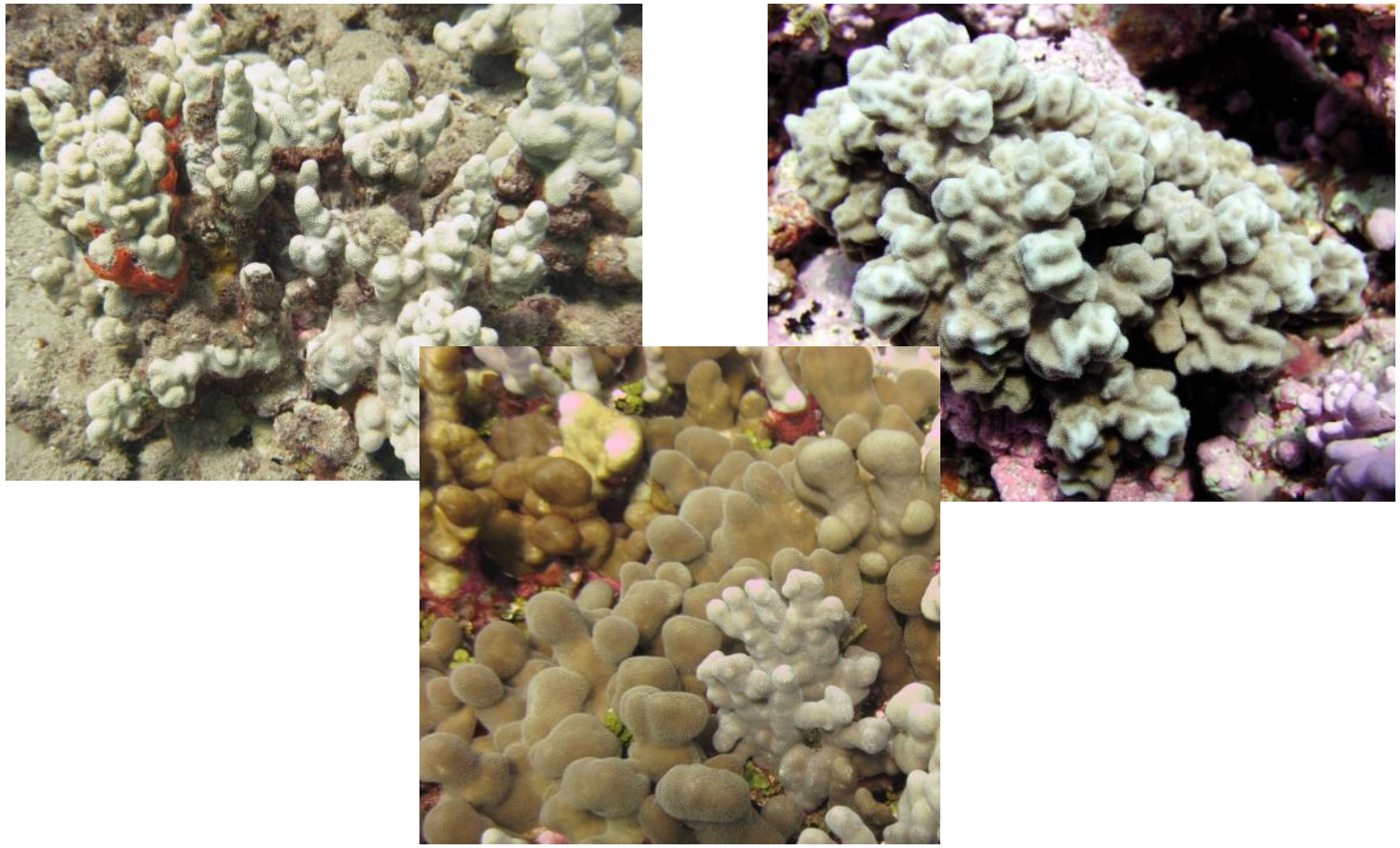
Morphology: Free Living (FR)

Not attached to any substrate –common to most corals in the Family Fungiidae. Important to note that juvenile *Fungia* are attached until they break off at ~2 cm diameter.



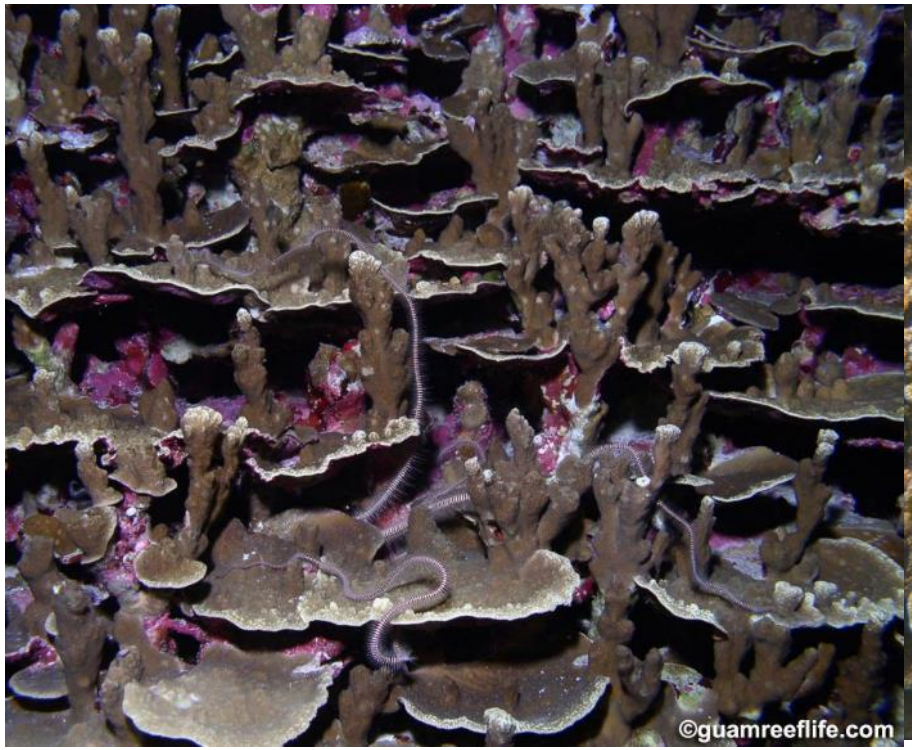
Morphology: Knobby (KN)

Stubby branchlets that resemble “knuckles”.



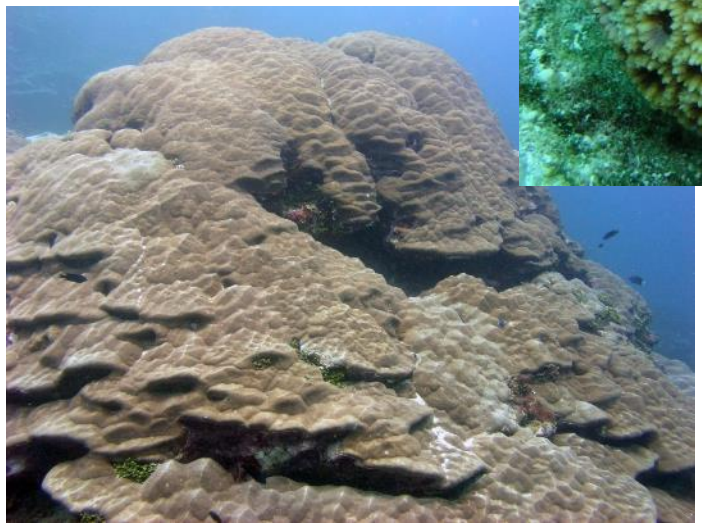
Morphology: Laminar Columnar (LC)

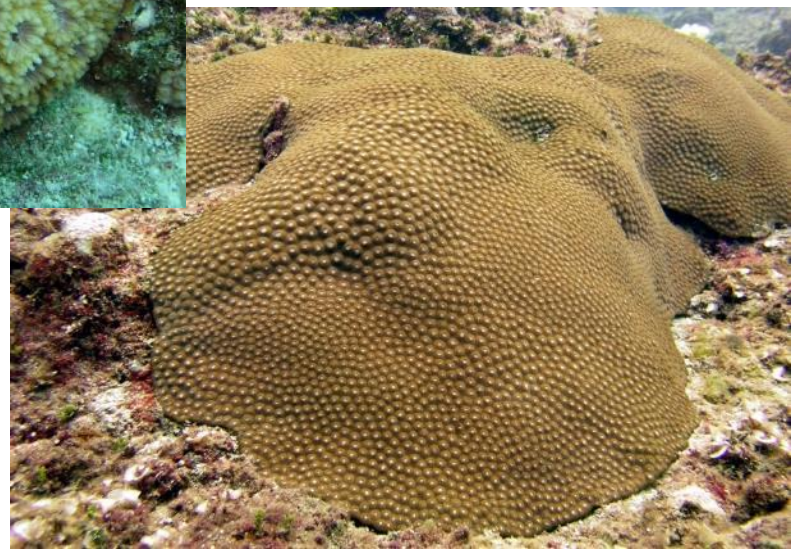
Combination of laminar and columnar morphologies, multiple plates on a larger structure with protruding columns; “candles on a tiered birthday cake”; common for *Porites rus* and *Montipora capitata.*



Morphology: Mounding (MD)

Solid and similar in shape in all dimensions; Can be ellipsoid or hemispherical – small or large





Morphology: Mounding Lobate (ML)

Mounding, vertically oriented lobes or “pork chops.”
Common in *Pavona duerdeni*

Morphology: Plating (PL)

Forms simple plates (single, multiple, or tiered).

Morphology: Plating (PL)

Multiple plates on a larger structure; “shingles on a mound”.
Common in *Porites rus* and *P. monticulosa*

Morphology: Table (TB)

Forms a table with one central leg attached to the substratum
-leg/base not always obvious. Common in some species of
Acropora

Morphology: Table (TB)

Other common colony architectures and textures associated with the Table morphology.