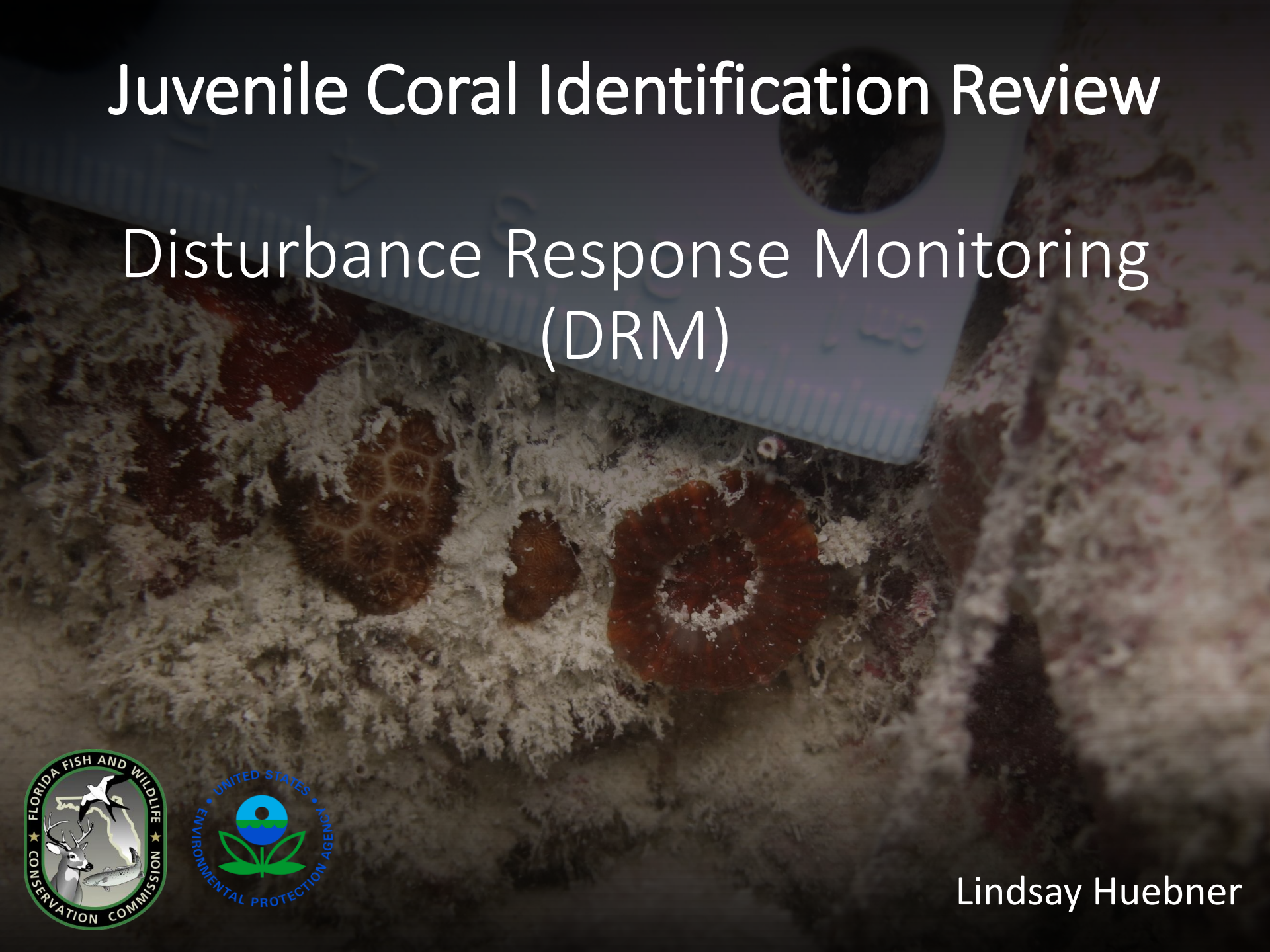
Juvenile Coral Identification Review

Disturbance Response Monitoring (DRM)



Lindsay Huebner

Target Juveniles

- Faviinae (FAVI)
  - *Colpophyllia natans*
  - *Diploria labyrinthiformis*
  - *Favia fragum*
  - *Manicina areolata*
  - *Pseudodiploria* spp.
- Mussinae (MUSS)
  - *Isophyllia* spp.
  - *Mussa angulosa*
  - *Mycetophyllia* spp.
  - *Scolymia* spp.
- Meandrinidae (MEAN)
  - *Dendrogyra cylindrus*
  - *Dichocoenia stokesii*
  - *Eusmilia fastigiata*
  - *Meandrina* spp.
- *Montastraea cavernosa* (MCAV)

Why Survey These Groups?

- Included species are highly (or presumed) susceptible to stony coral tissue loss disease (SCTLD)
- Determine recovery and/or survivorship of juveniles in the endemic zone of SCTLD

Why These Groupings?

- In FAVI, MUSS, and MEAN: there's difficulty in distinguishing genera and/or species for colonies <4cm
- Facilitate rapid survey & additional transects
- MCAV is the only member of its family

Faviinae (FAVI)

CNAT

DLAB

MARE

Pseudodiploria

FFRA

FAVI Juveniles

CNAT

MARE

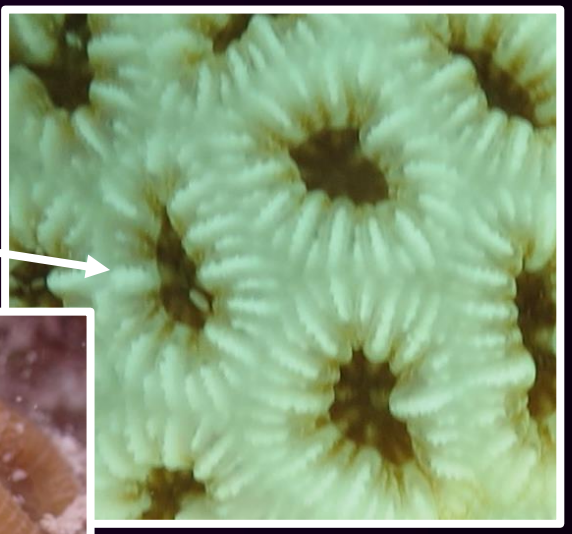
DLAB

Pseudodiploria

FFRA

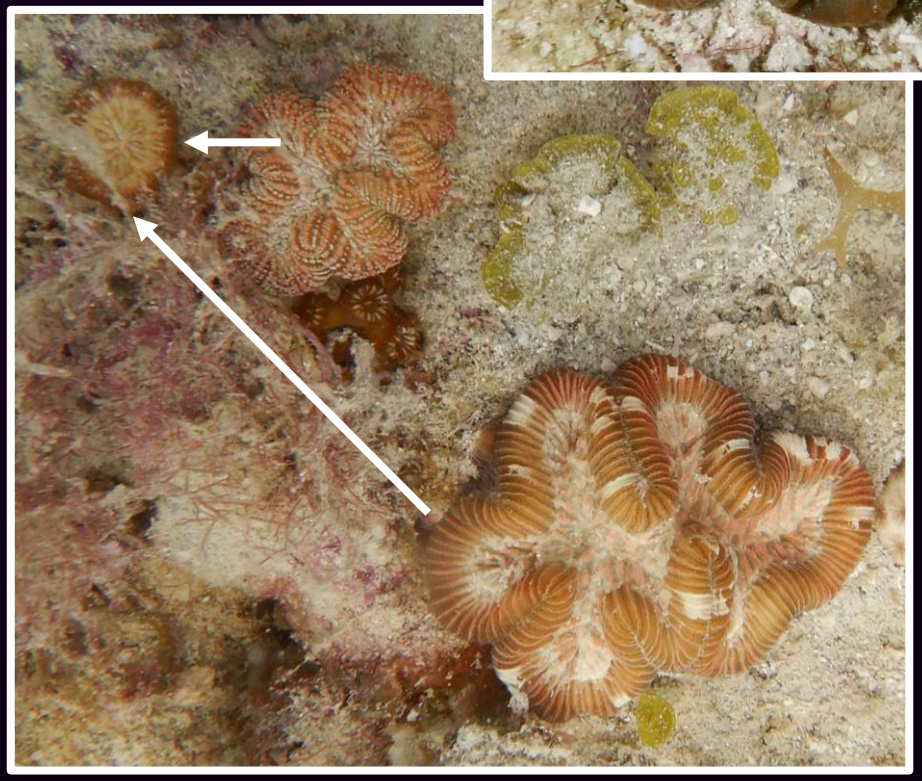
FAVI Juvenile Characteristics

- Narrow, sharp septa with small serrations/teeth
- Septa fairly regular in size & arrangement
- Tissue line/flap partway down septa moving from ridge to valley



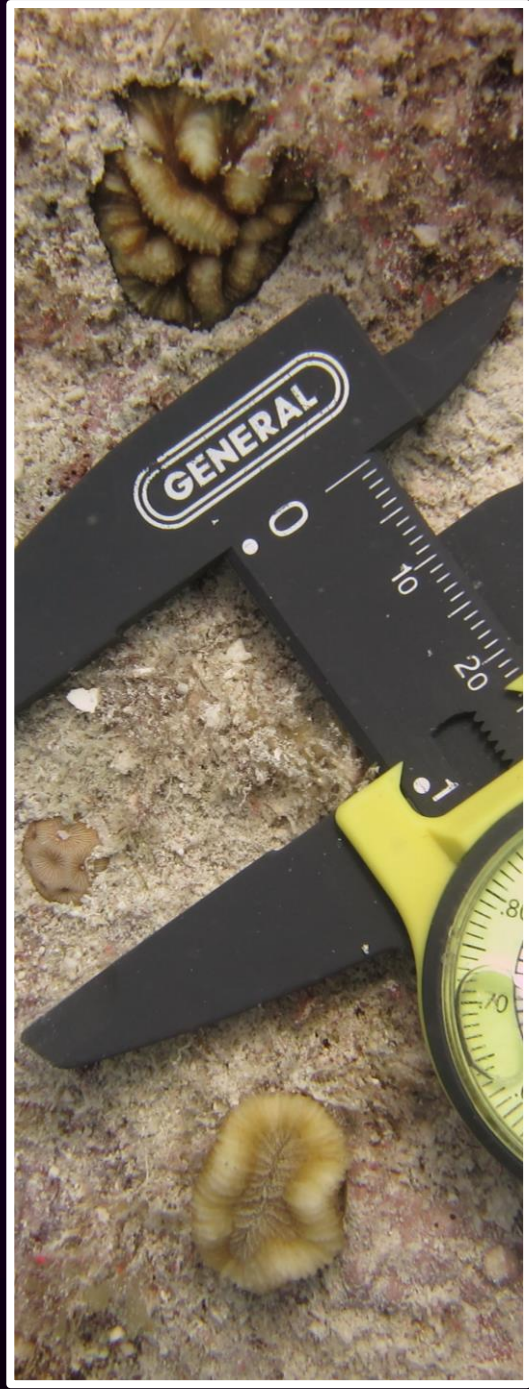
FAVI Juvenile Characteristics Cont'd

Juveniles look more like miniature adults than do those of MUSS & MEAN



FAVI Examples

FAVI Examples



Mussinae (MUSS)

Isophyllia

MANG

Mycetophyllia

Scolymia

MUSS Juveniles

Isophyllia
?

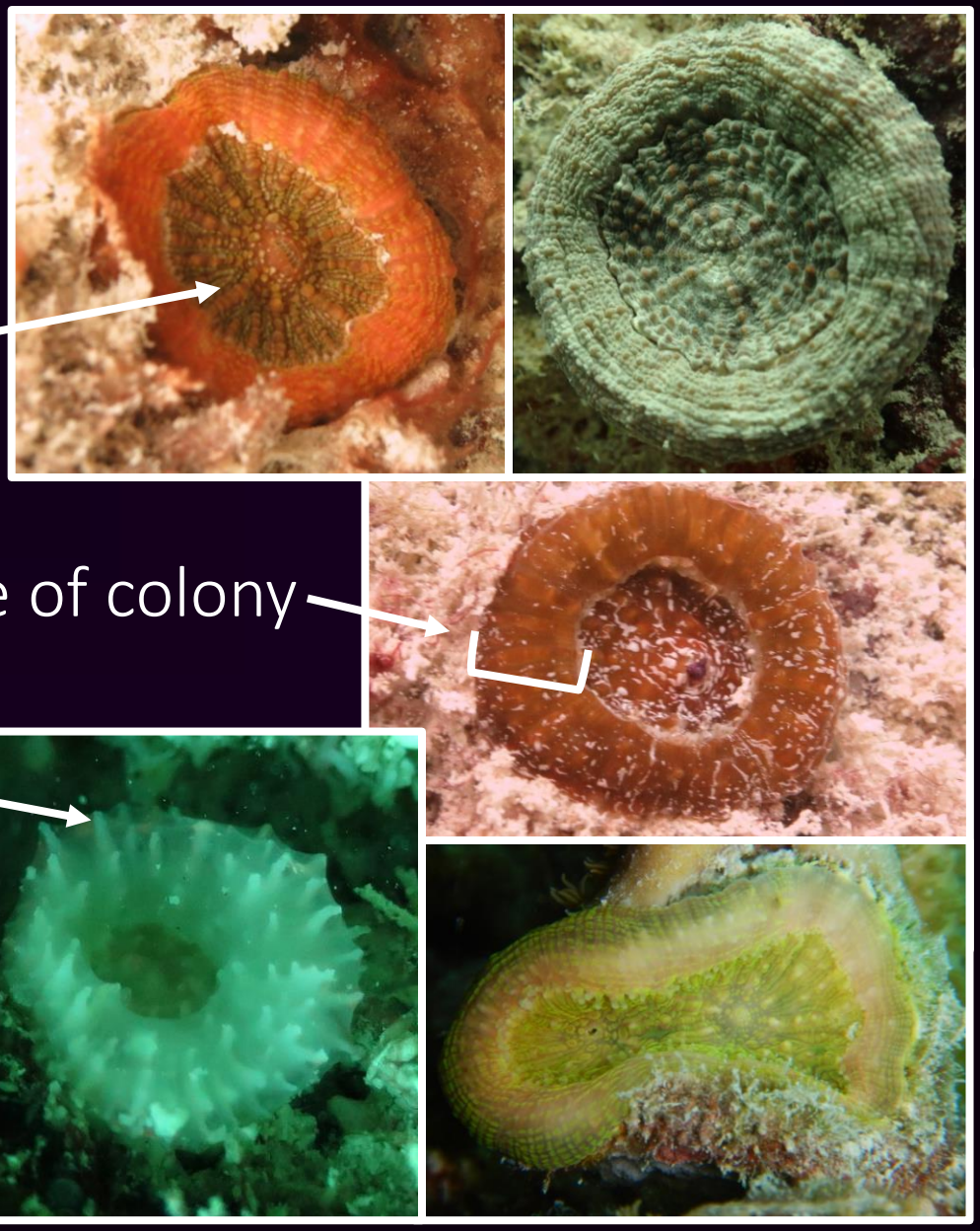
Mycetophyllia

MANG

Scolymia

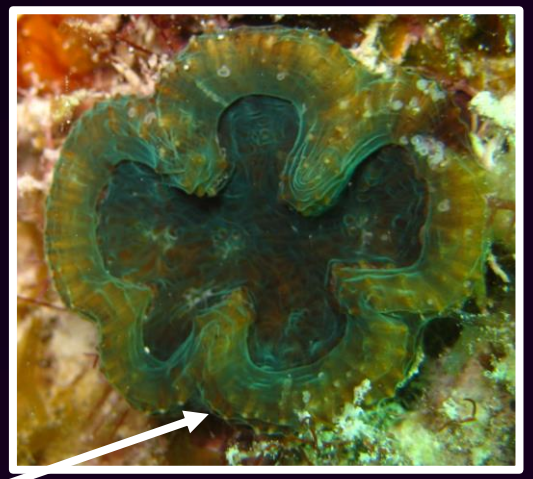
MUSS Juvenile Characteristics

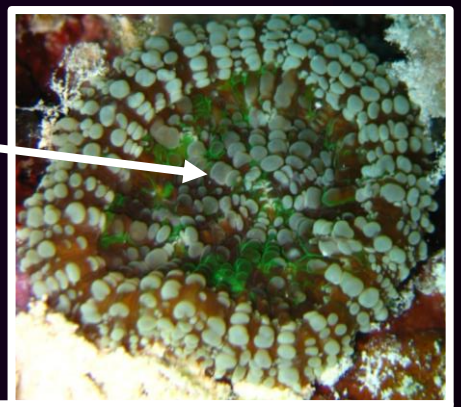
- Single, (mostly) round, fleshy polyp with sometimes pronounced wheel-spoke design in central valley
- Wide ridge along outside of colony
- Septa with tall, sharp teeth on ridges (can wrap under colony edge in *Scolymia*)



MUSS Juvenile Characteristics Cont'd

- Can have fleshy bumps on septa teeth on ridges or around polyp mouths

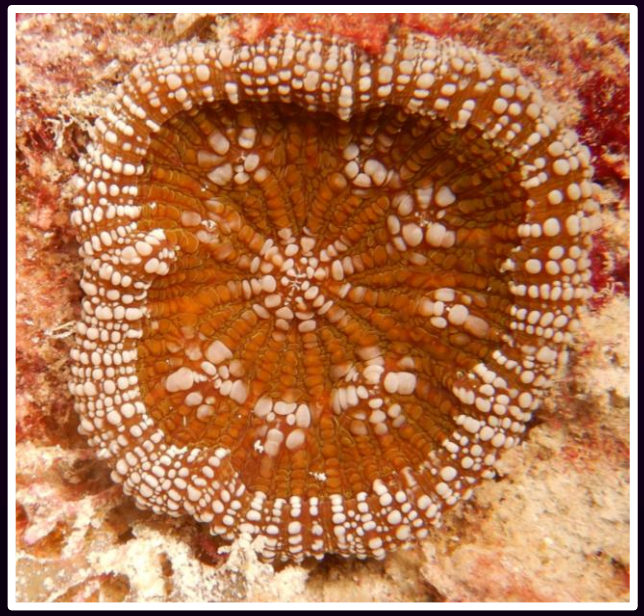


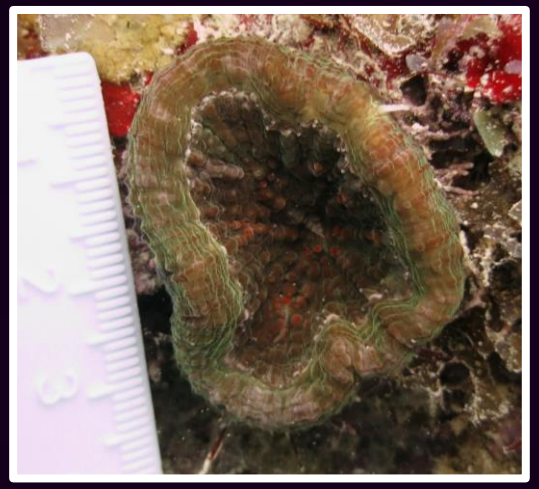


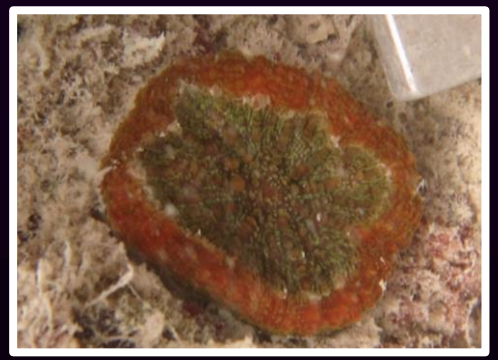
- *Mycetophyllia* colonies start to "flower" as outer ridge folds inward

- Often fluorescent with reds, oranges and/or greens

MUSS Examples



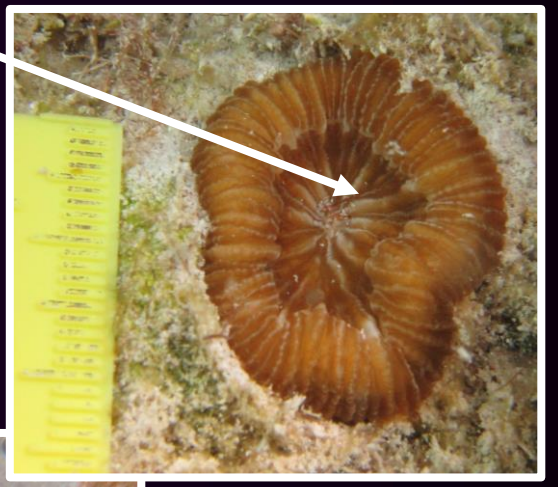


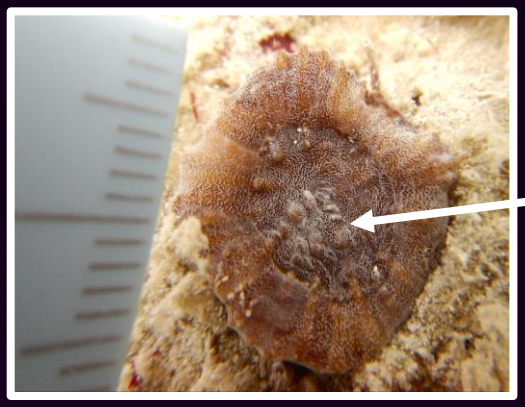


MUSS vs FAVI

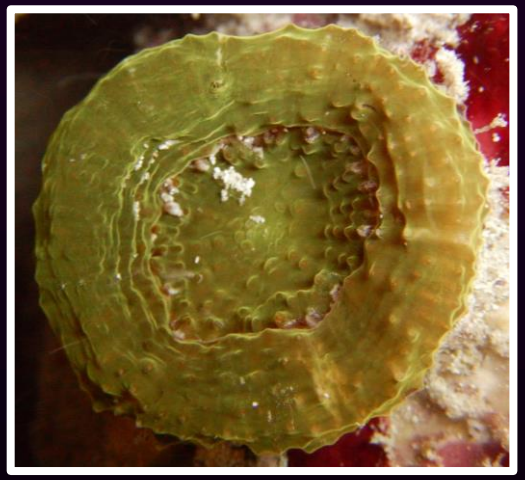
FAVI tissue flap partway down septa; MUSS have flap at juncture of ridge and valley

FAVI septa continue into valleys





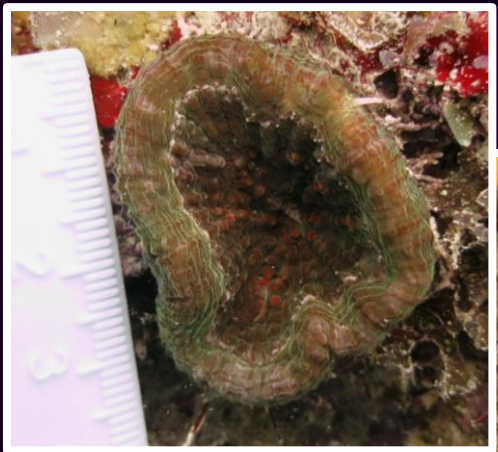
MUSS septa in valleys, if noticeable, are mostly noticeable as rows of bumps (tops of teeth)

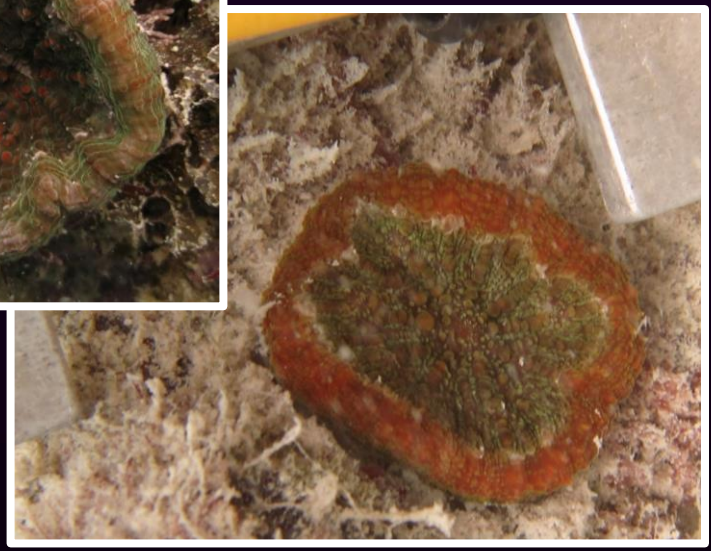


MUSS vs FAVI

Ridges usually wider on MUSS than FAVI

Labyrinthine FAVI species start folding ridges at smaller colony sizes than MUSS





metal brackets are 4cm

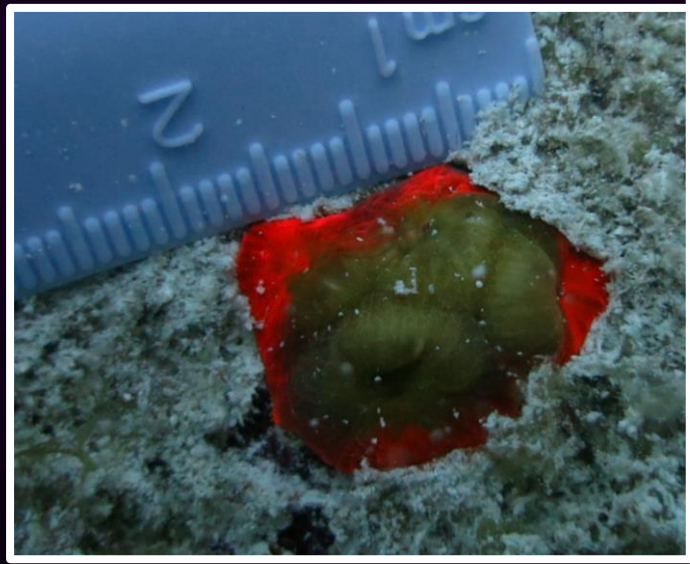
Montastraea cavernosa (MCAV)

MCAV Juvenile Characteristics

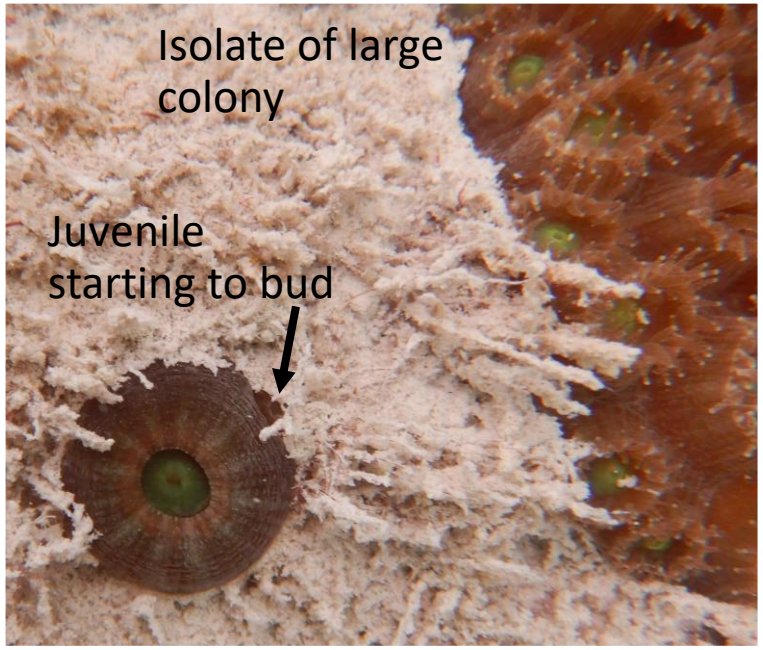
Large, round, exsert corallites which mound upward

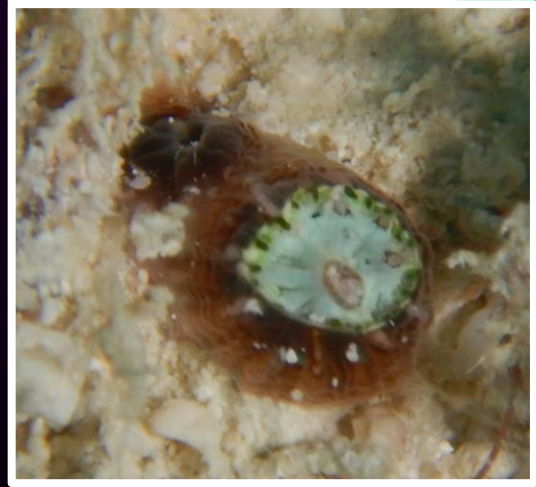
Frequently have tentacles out

Often fluorescent, typically orange



MCAV Examples



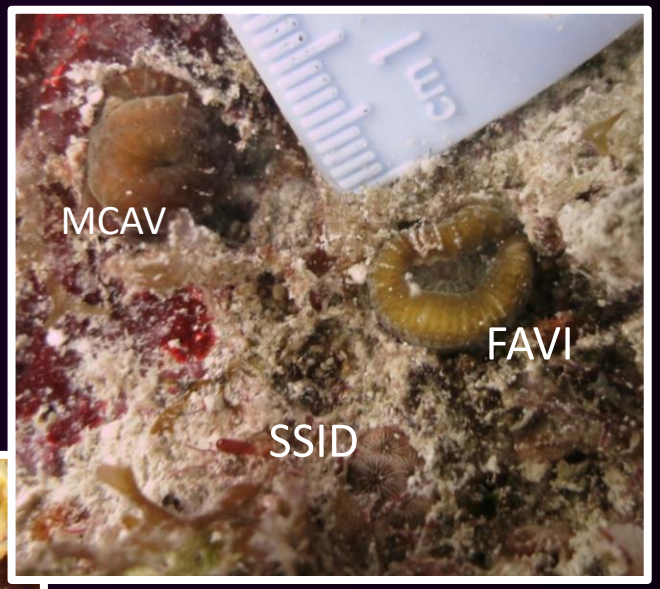


MCAV vs FAVI & MUSS Juveniles

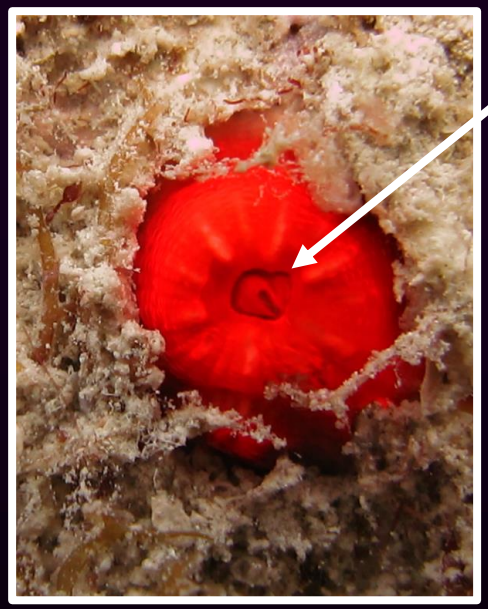
MCAV juveniles may be confused with very small FAVI & MUSS

MCAV corallites are exsert vs FAVI/MUSS which are flat or cupped

MUSS still single polyp at sizes by which MCAV have budded →



MCAV vs FAVI/MUSS Cont'd



MCAV has peristome and surface tissue which close polyp when retracted; FAVI/MUSS polyps can't "close" their valleys

Meandrinidae (MEAN)

DCYL

Meandrina

DSTO

EFAS

MEAN Juveniles

DCYL
?

Meandrina

DSTO

EFAS

MEAN Juvenile Characteristics

Thick, not noticeably toothy septa

Septa of alternating size/height (primary & secondary) or similar height but varying extension into valleys, toward corallite centers

Tentacles frequently out during day

MEAN Juvenile Characteristics Cont'd

- Typically tan, yellow-ish tan, or light brown
- Can have orange or green fluorescence, but whole tissue fluorescence rare

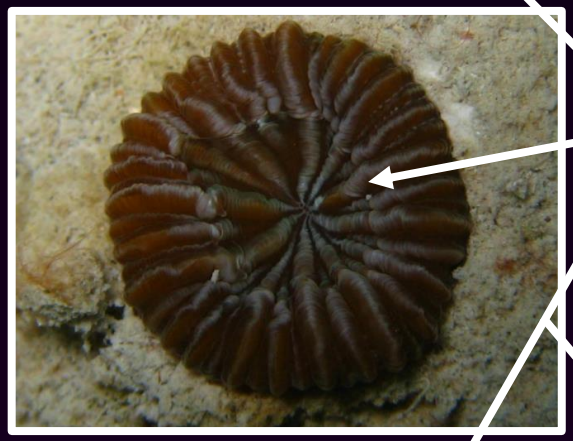
EFAS

MMEA

MEAN Examples

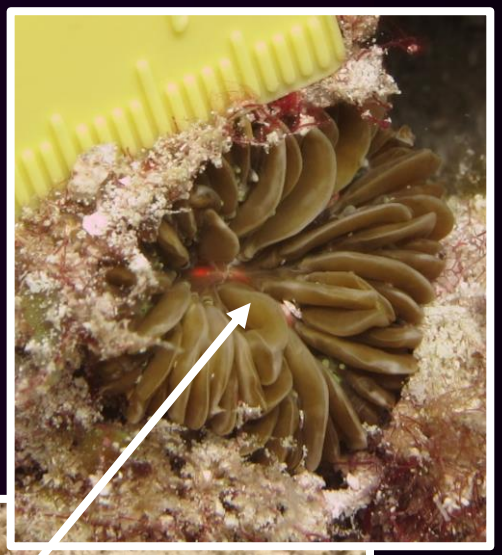
CNATs

FAVI vs MEAN



FAVI septa more even in size and arrangement than MEAN septa

FAVI have noticeable line/tissue flap partway down septa moving from ridge to valley that is absent in MEAN



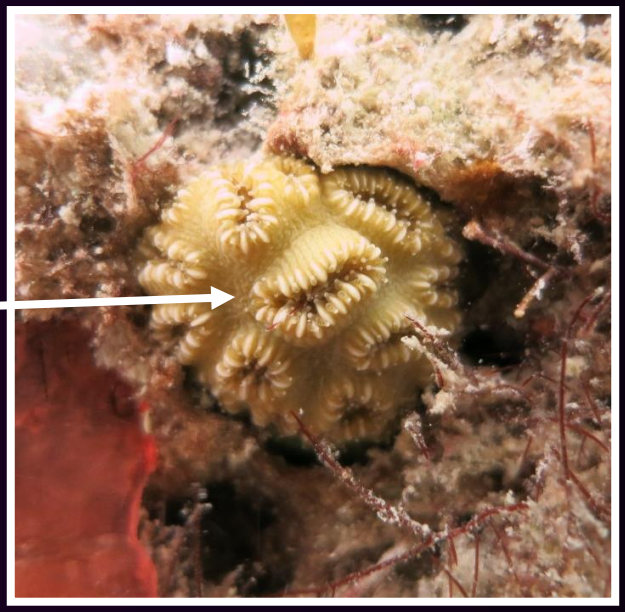
FAVI vs MEAN

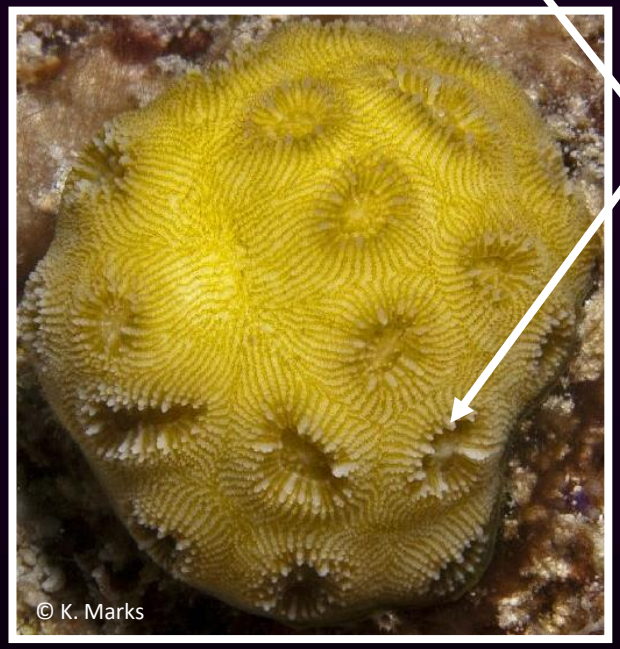
FAVI have line/tissue flap partway down ridge that is absent in MEAN

Individual FAVI septa not usually separately obvious in ridges of labyrinthine species, as are MEAN septa

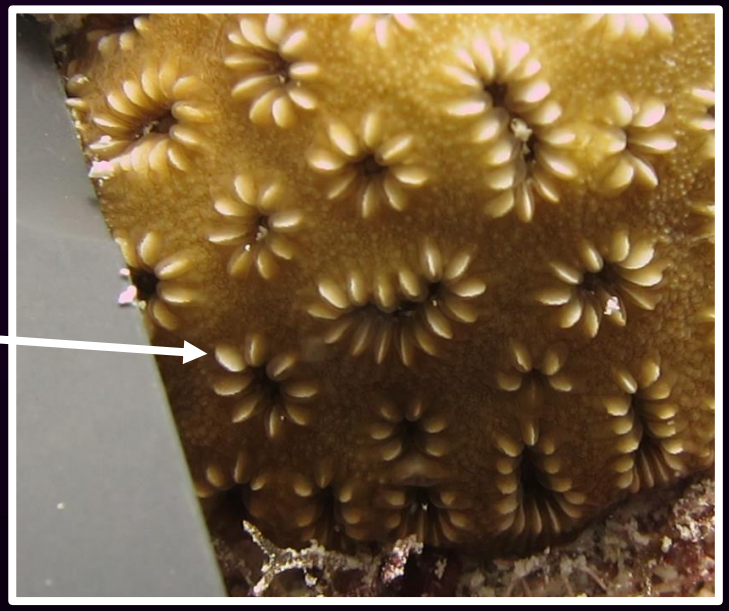
FAVI vs MEAN: FFRA vs DSTO

FFRA corallites usually less protruded than those of DSTO





FFRA septa teeth are sharp and up/outward facing; DSTO septa mostly smooth



MEAN Juveniles vs *P. americana*

PAME polyps flat to substratum;
MEAN tend to grow outward

MEAN septa of primary & secondary alternating height or similar height but varying extension into corallite center

PAME have primary, secondary, and tertiary septa alternating in size

MEAN nematocyst batteries visible on tentacle tip; on PAME they're visible on entire tentacle

Not target juvenile (other cnidarians)

Small or newly recruited anemones, corallimorphs, and zoanthids can look like some juvenile corals; make sure to waft and confirm there is a skeleton