

DRAFT

2016 coral disease epizootic (update II)

Photos and preliminary interpretation by Jan Landsberg and Yasu Kiryu (FWRI/FWC)

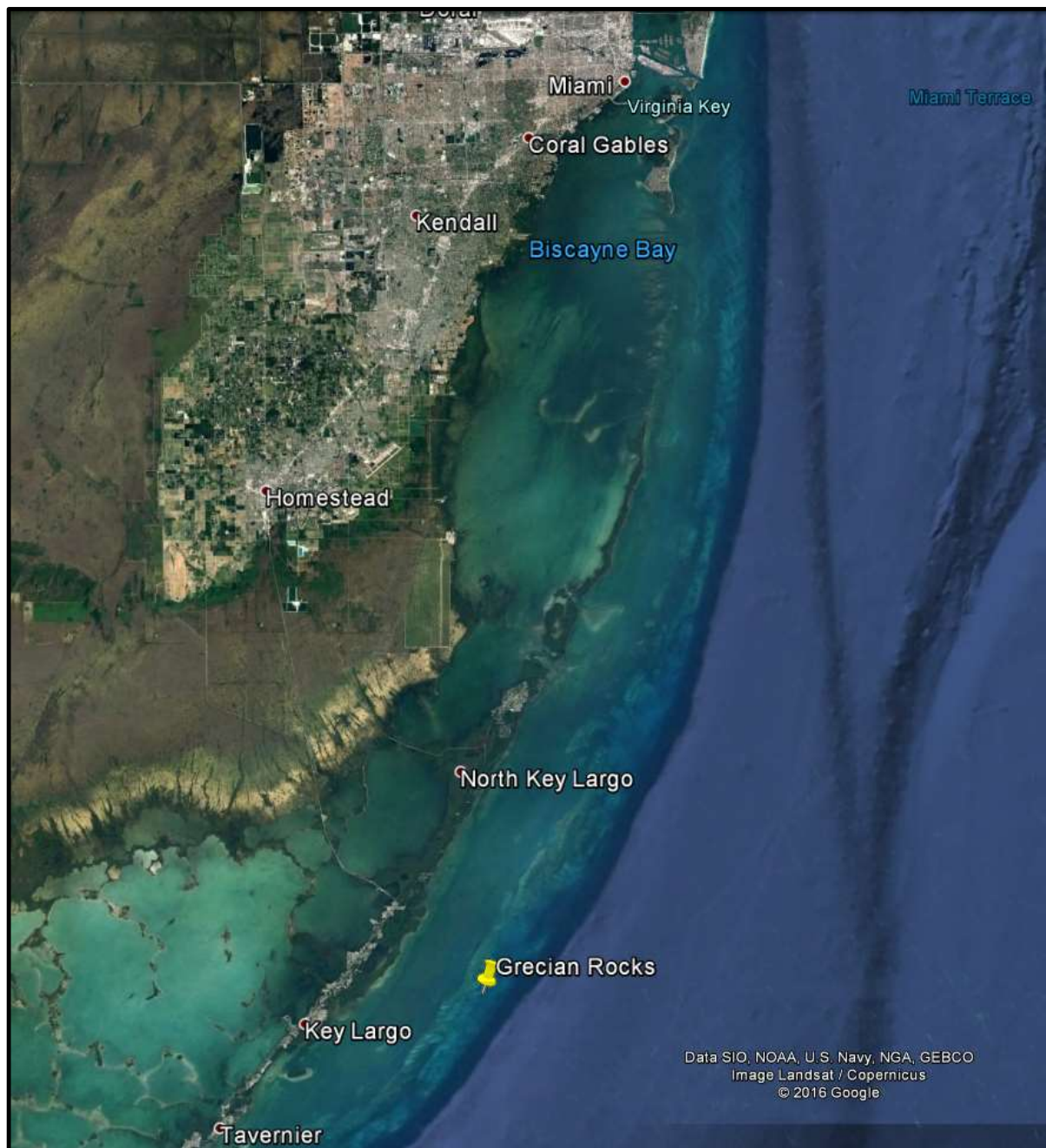
Histological processing by Noretta Perry, Michelle Franco, and Patrick Wilson (FWRI/FWC)

Transmission Electron Microscopy (TEM) processing by Clark Gray (FWRI/FWC)

July 2016 samples collected by Vanessa Brinkhuis (FWRI/FWC)



July 2016 sample location



SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks

Photo: Vanessa Brinkhuis (FWRI/FWC)

before
sampling



after sampling
diseased area

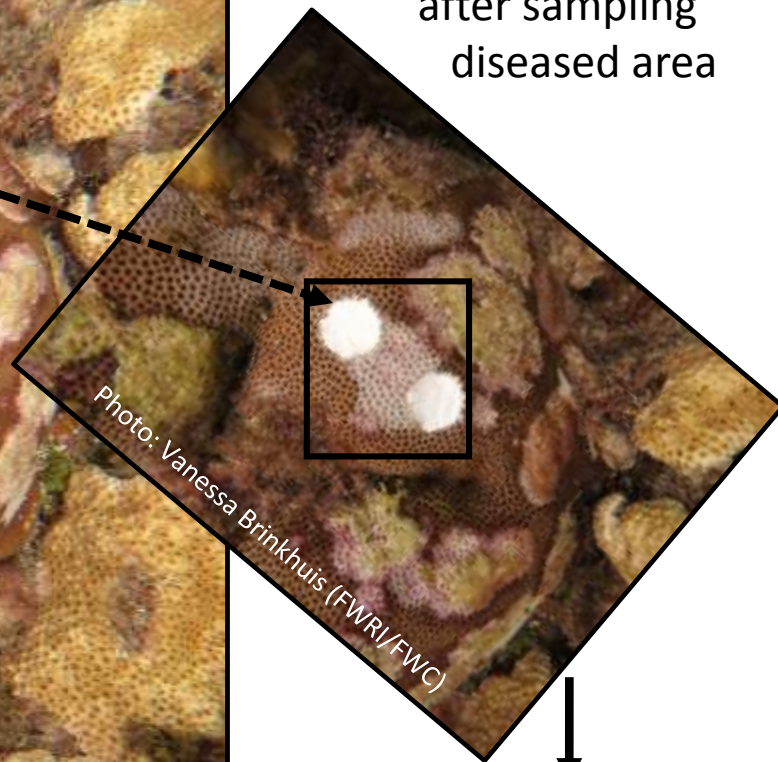


Photo: Vanessa Brinkhuis (FWRI/FWC)

Photo: Vanessa Brinkhuis (FWRI/FWC)

after sampling
unaffected area



Photo: Yasu Kiryu (FWRI/FWC)



macrophoto of preserved
unaffected sample

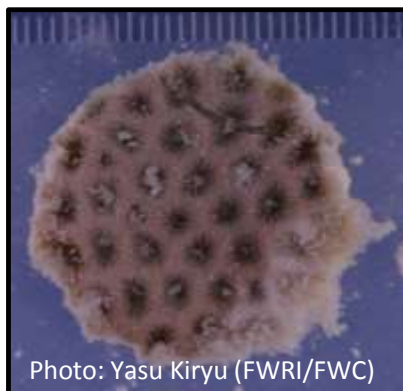
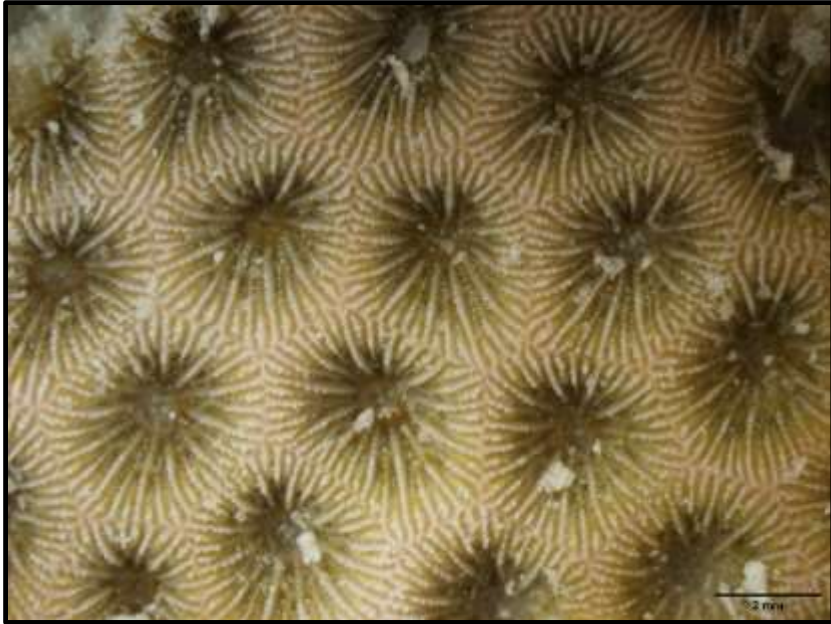


Photo: Yasu Kiryu (FWRI/FWC)

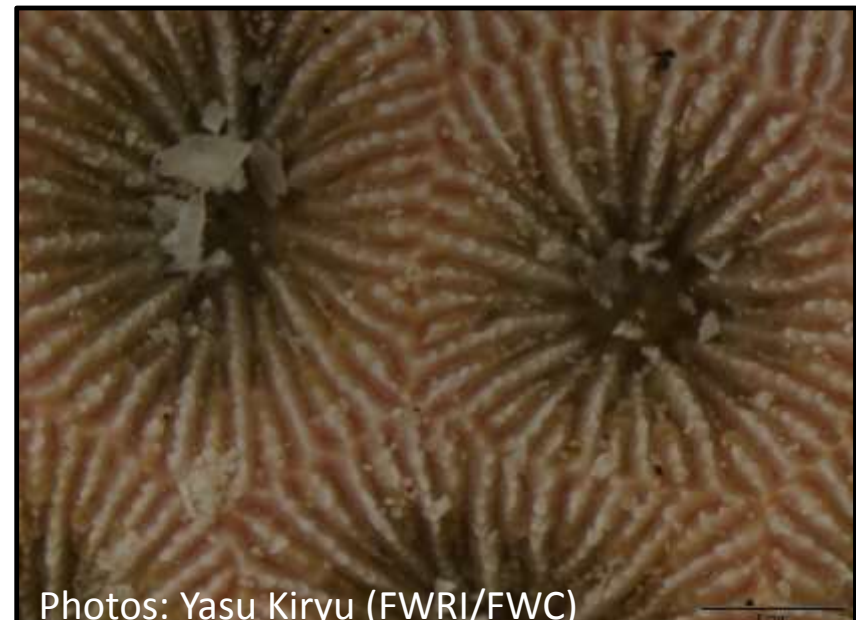
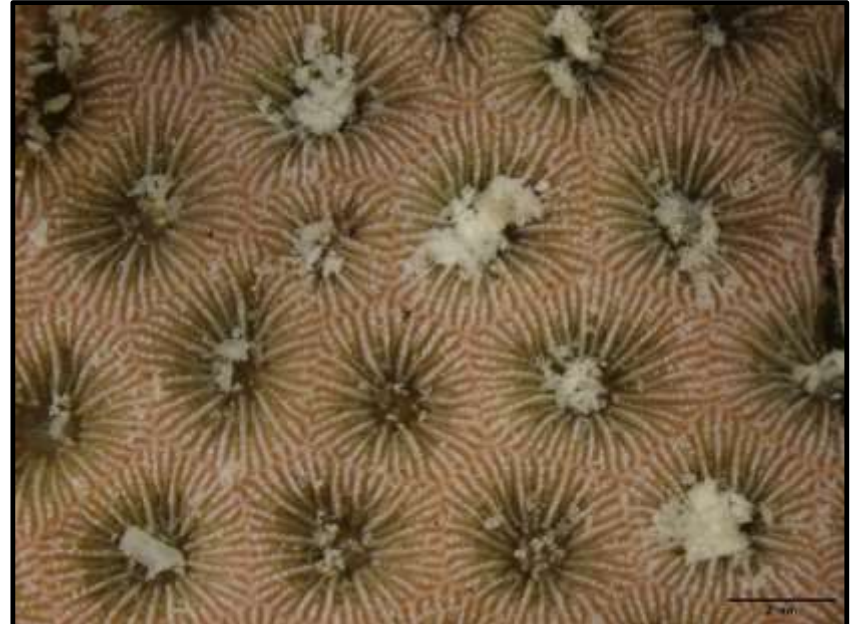
macrophoto of preserved
diseased sample

SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks

unaffected

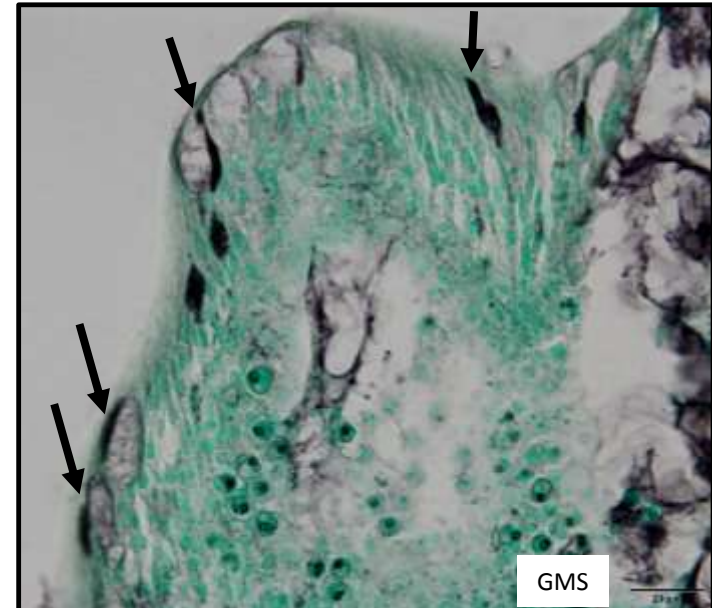
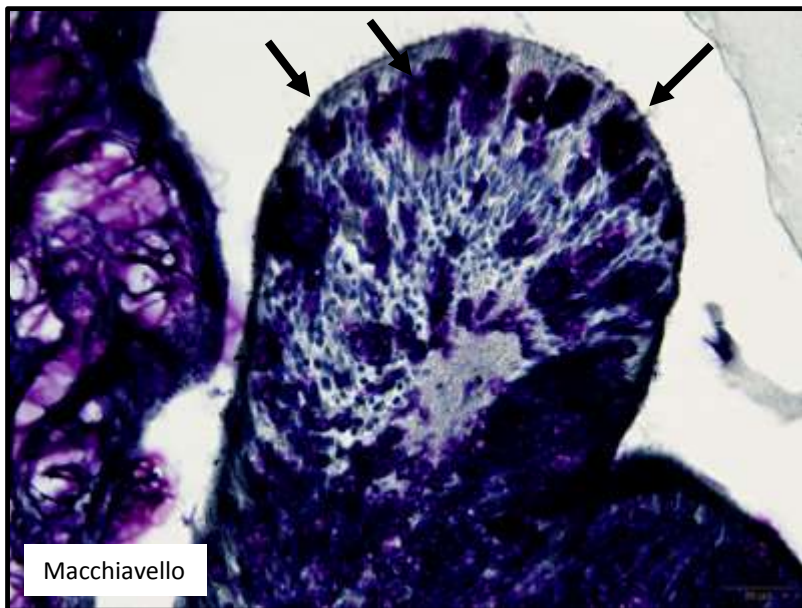
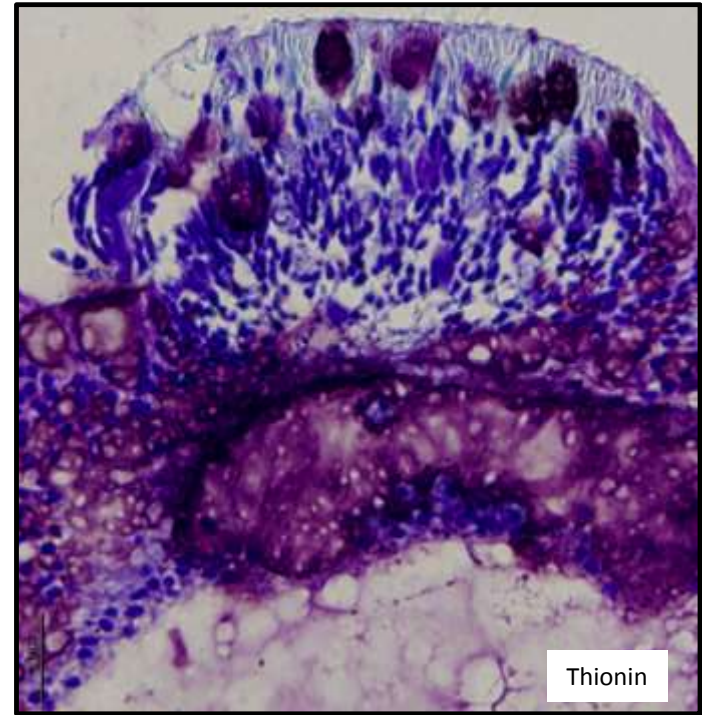
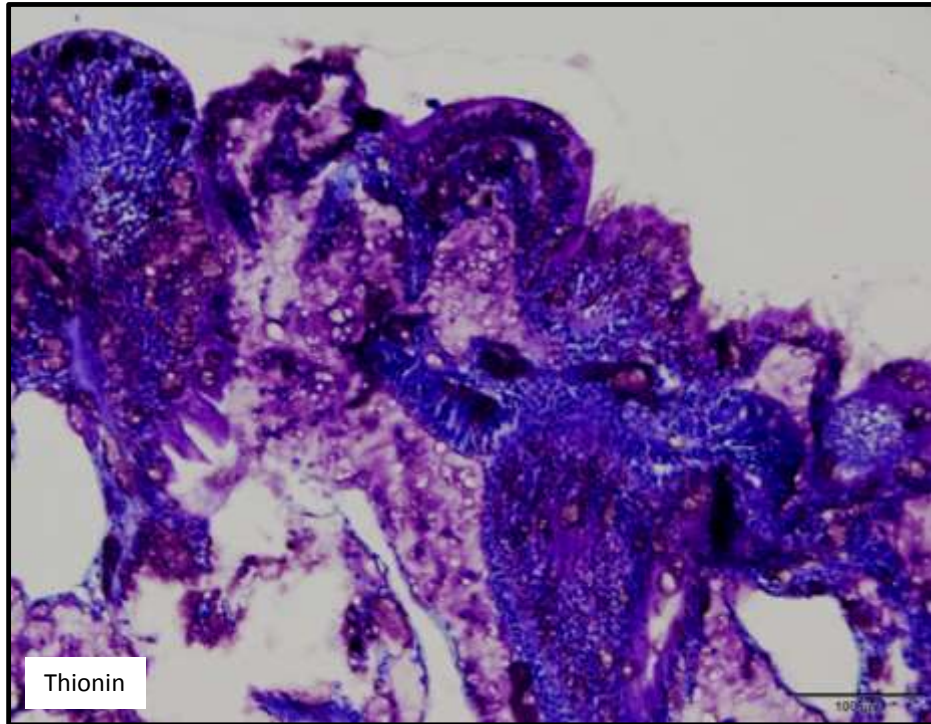


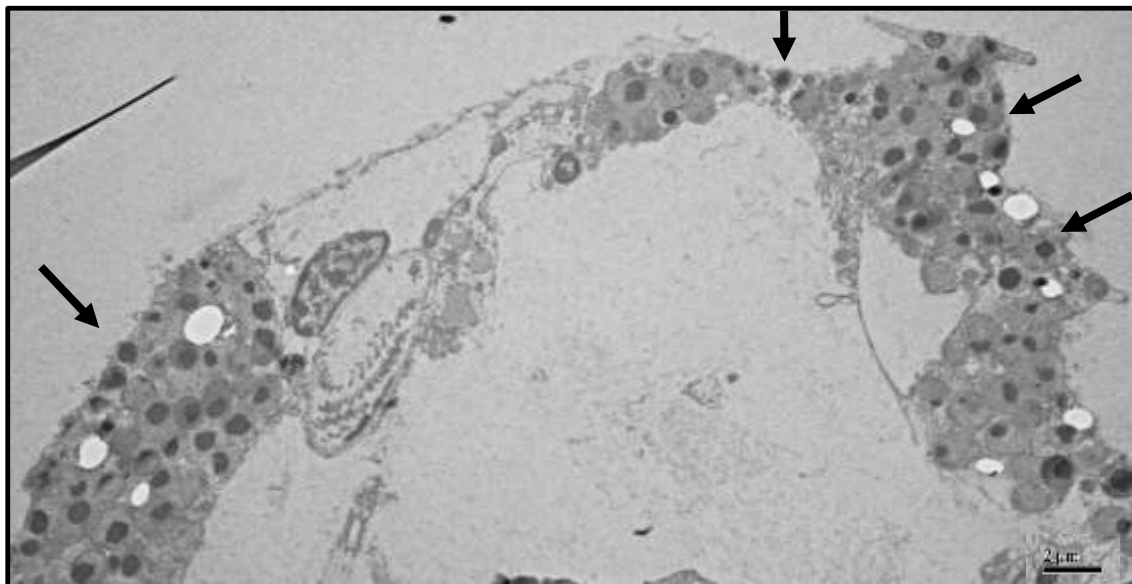
diseased



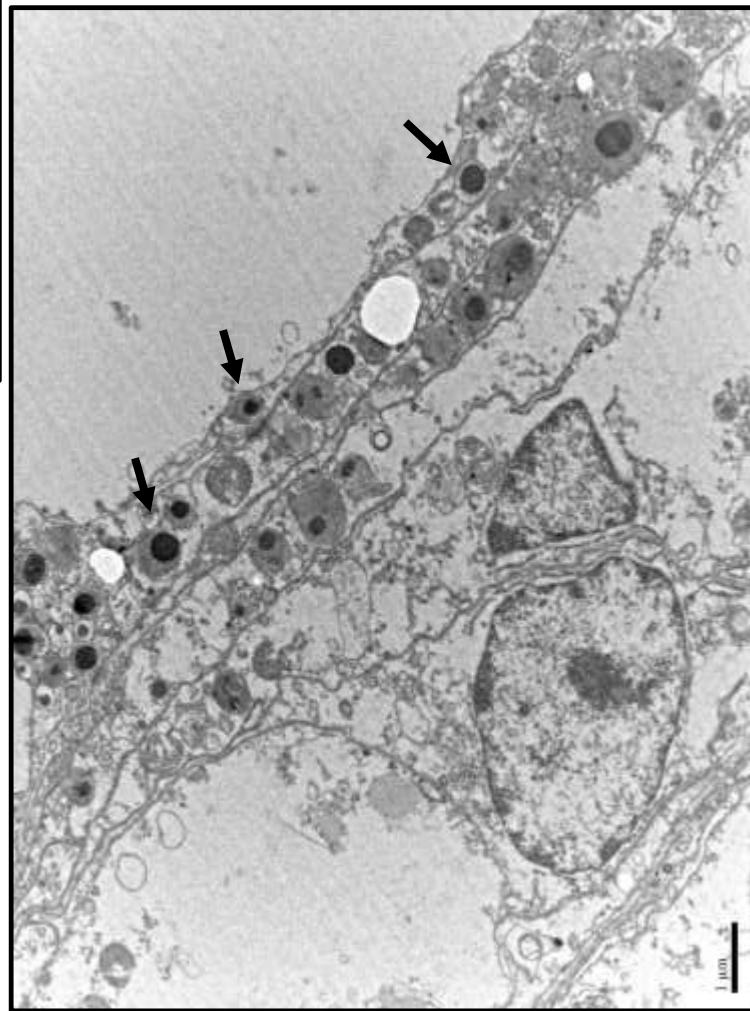
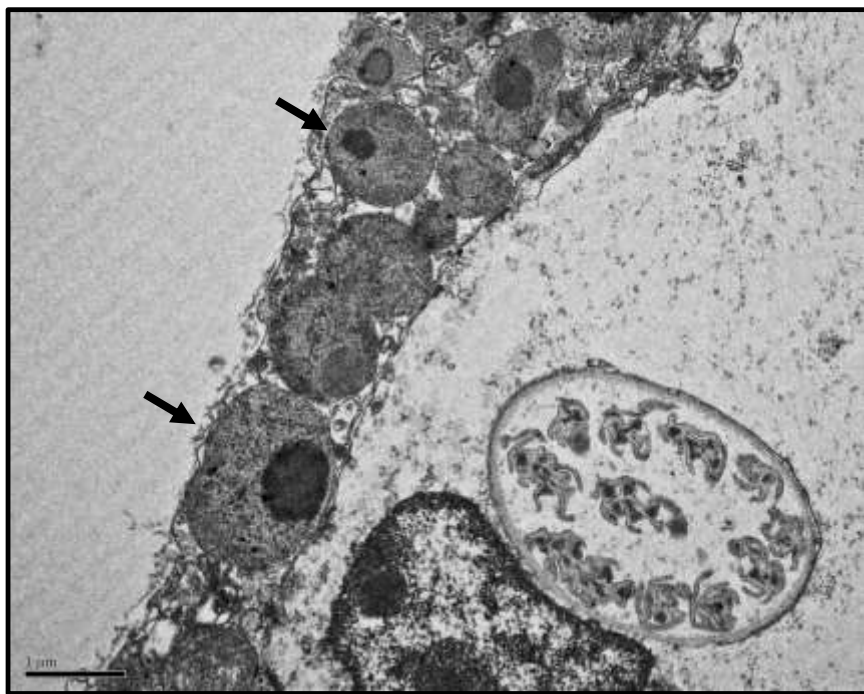
Photos: Yasu Kiryu (FWRI/FWC)

SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, diseased sample

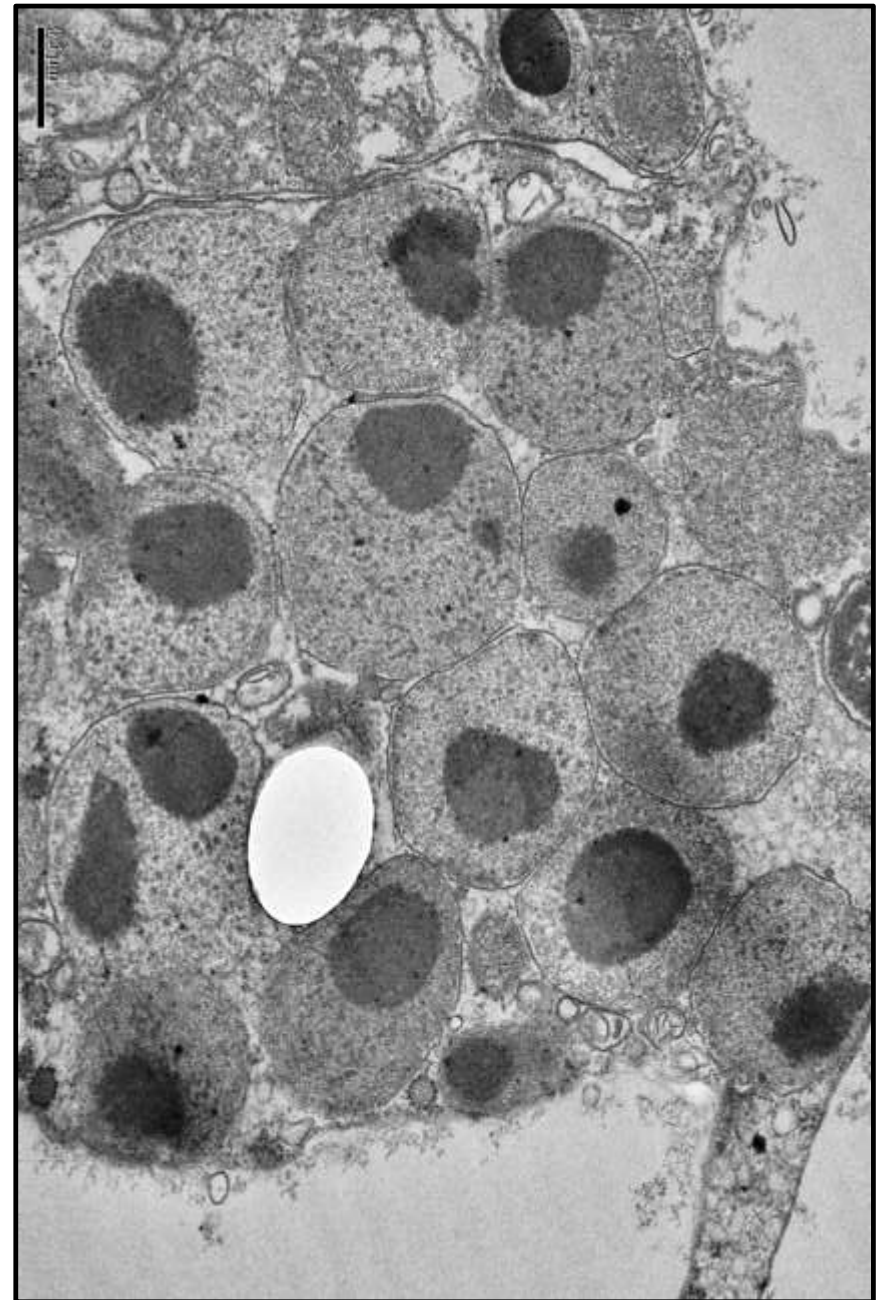
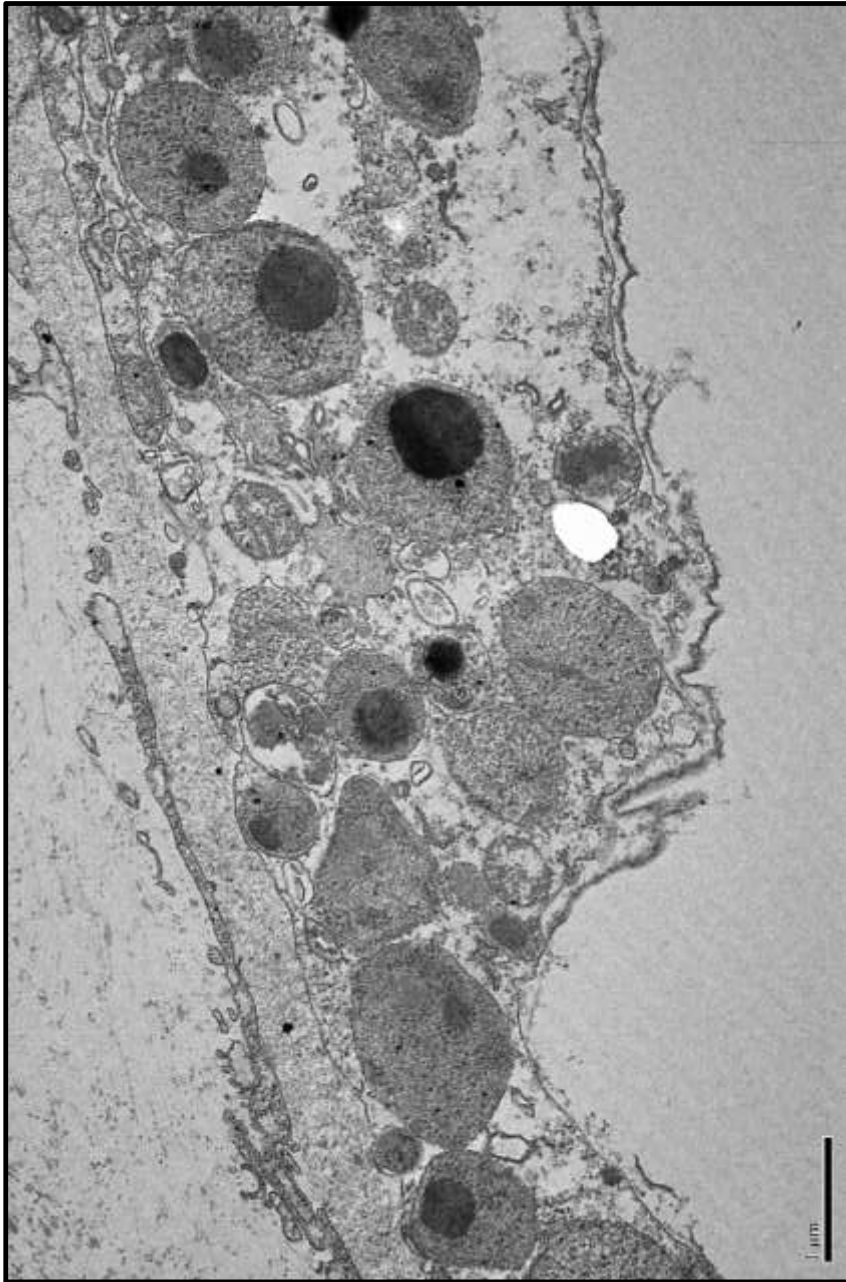


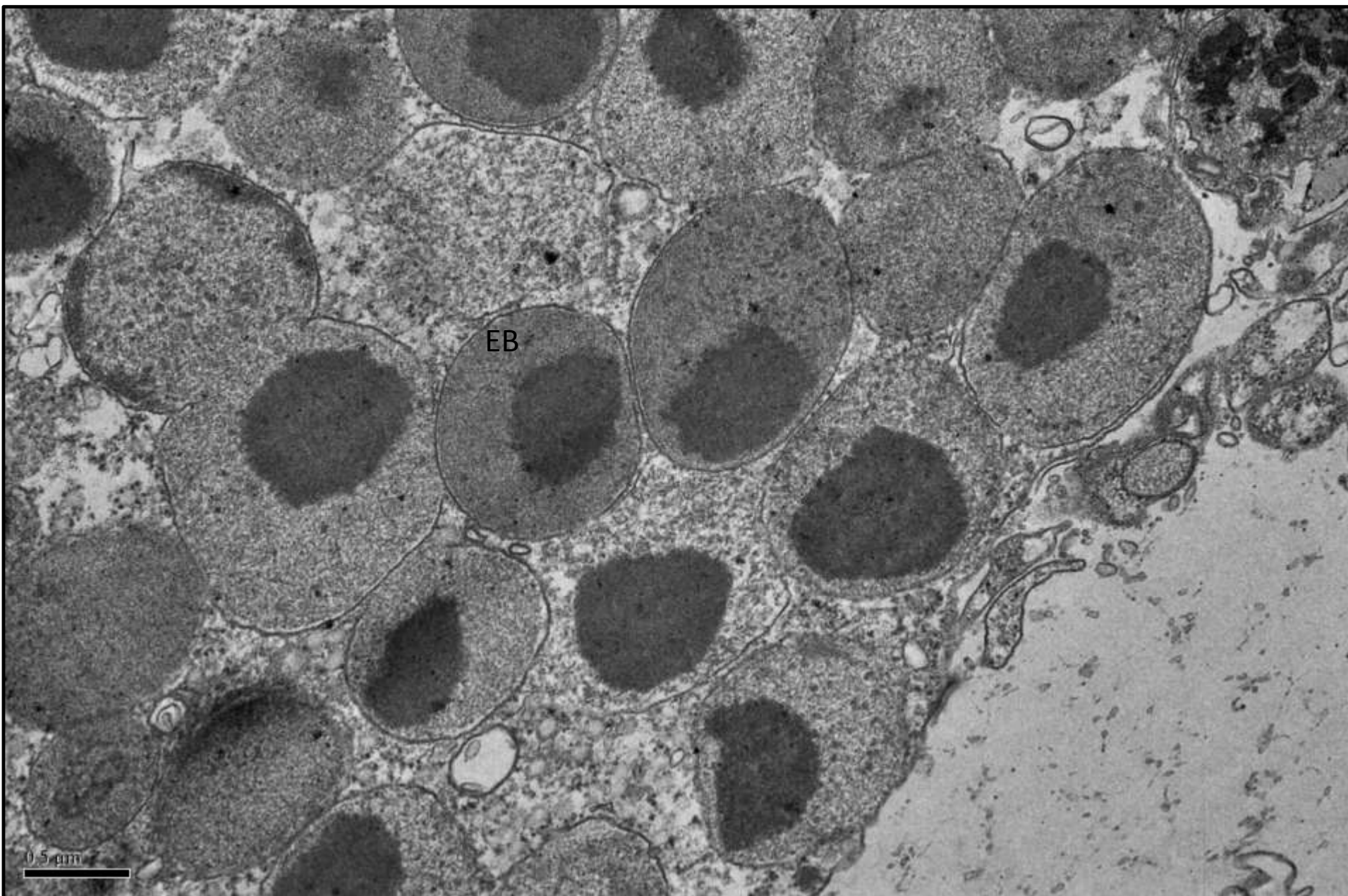


low magnification view of
putative CLOs



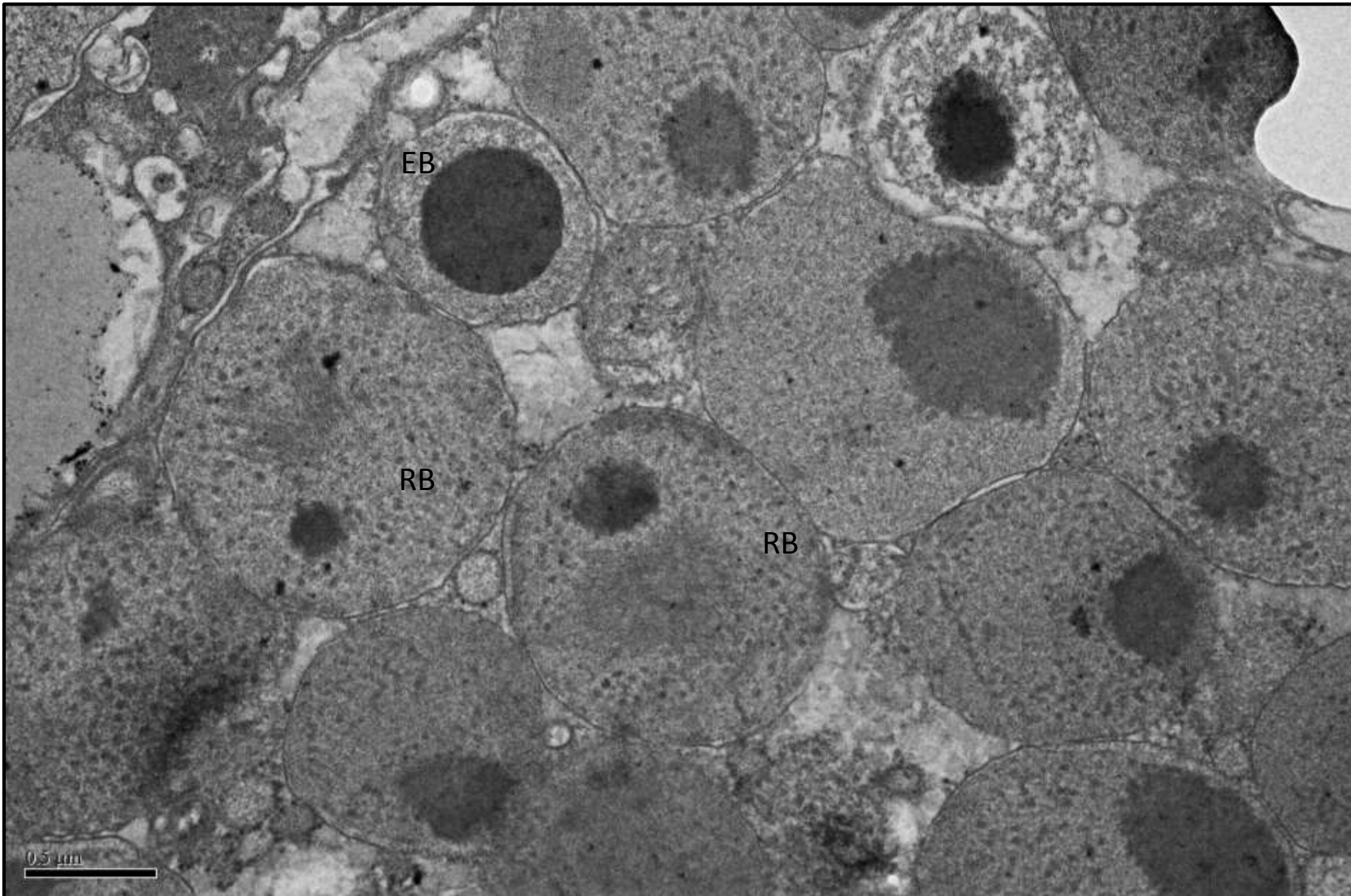
SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, diseased sample, TEM





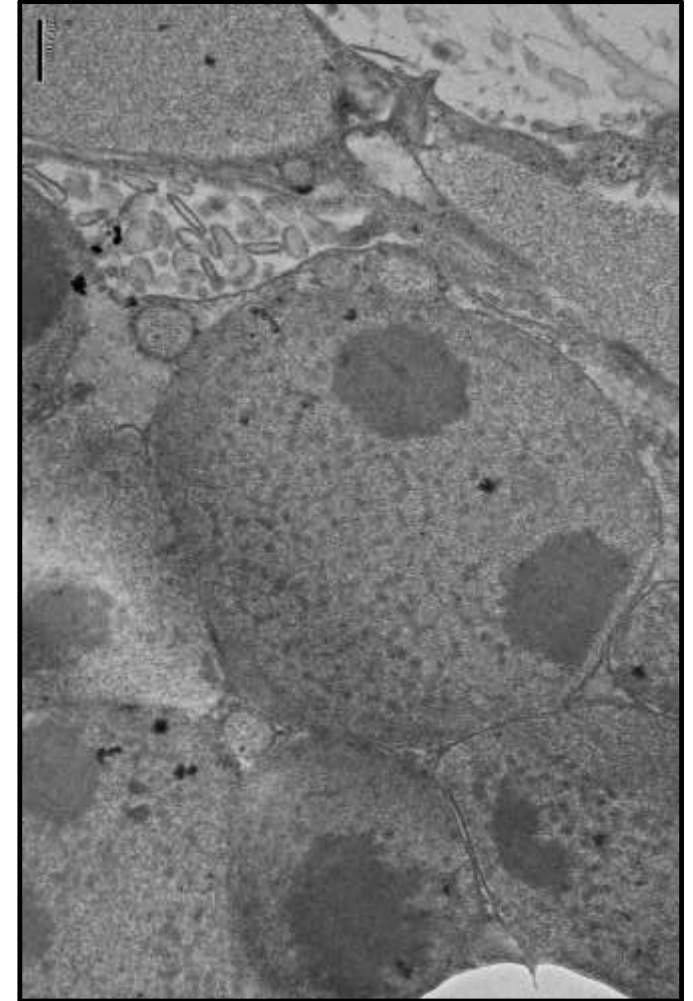
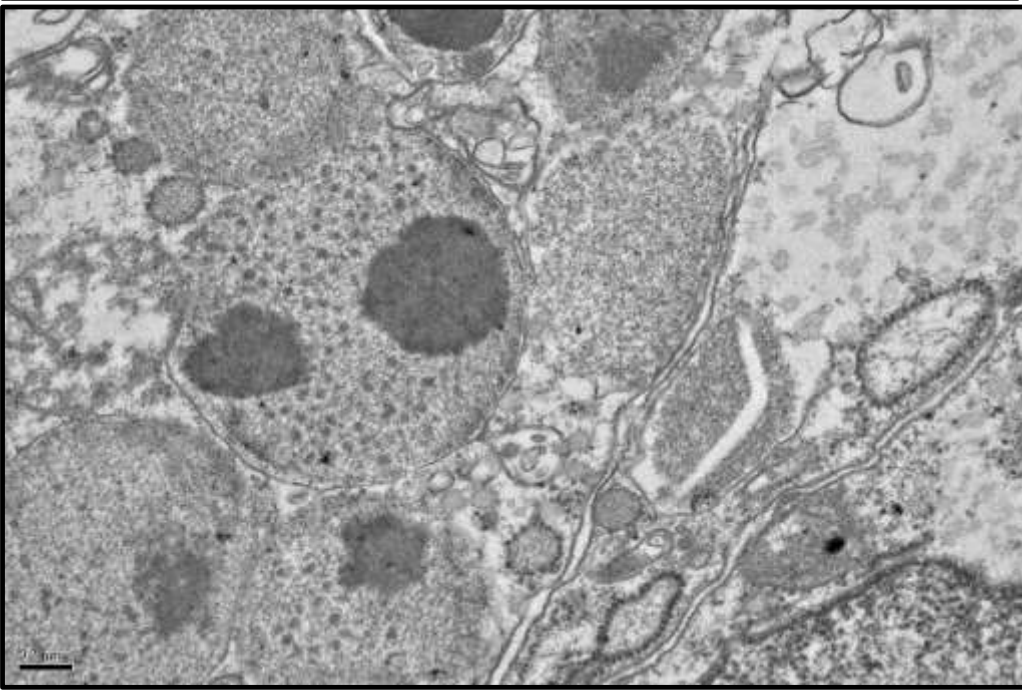
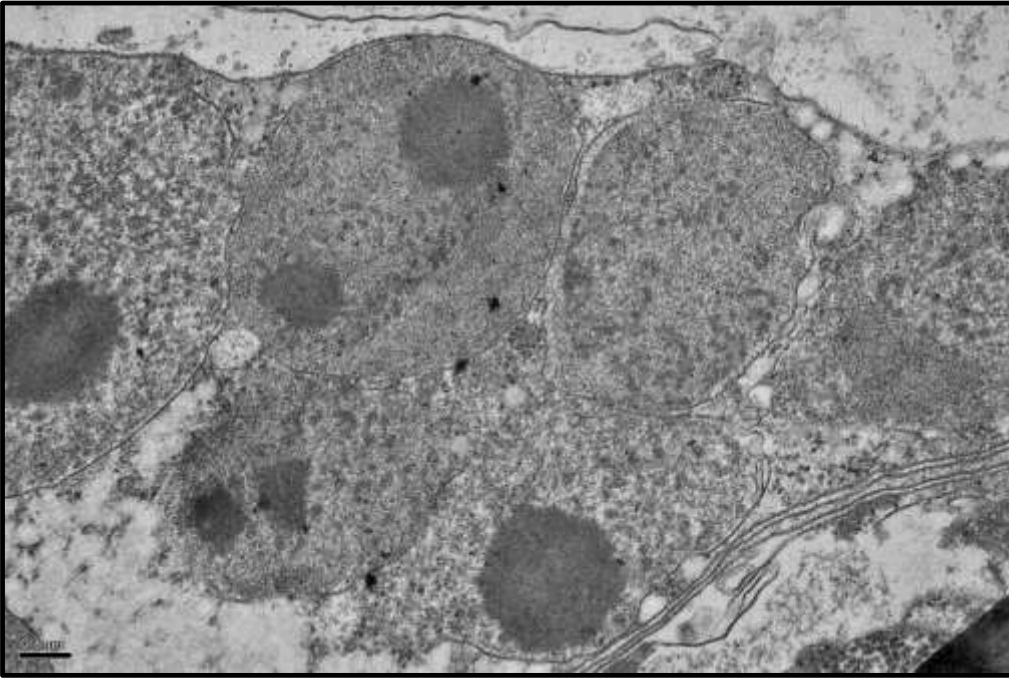
putative chlamydia-like organisms; mostly elementary bodies and/or transitional ?

SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, diseased sample, TEM



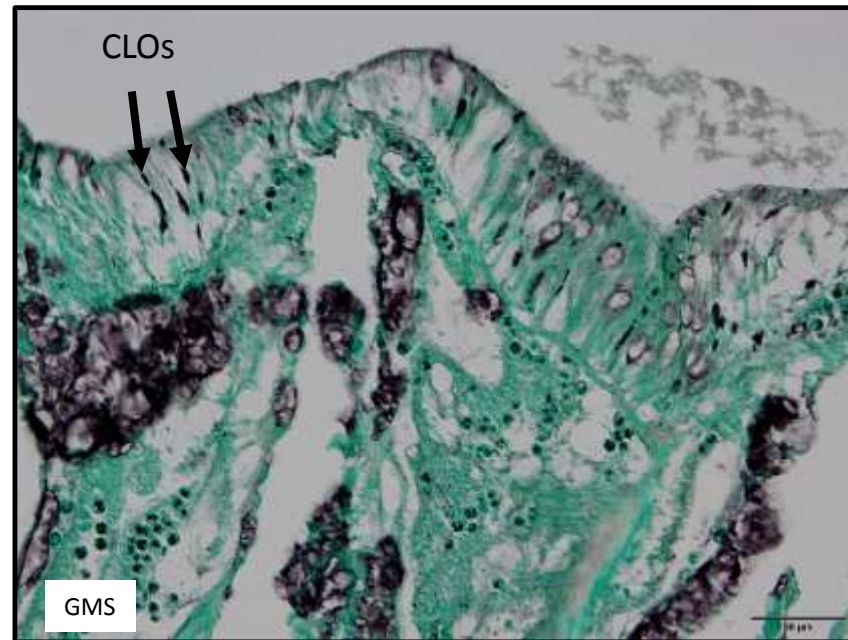
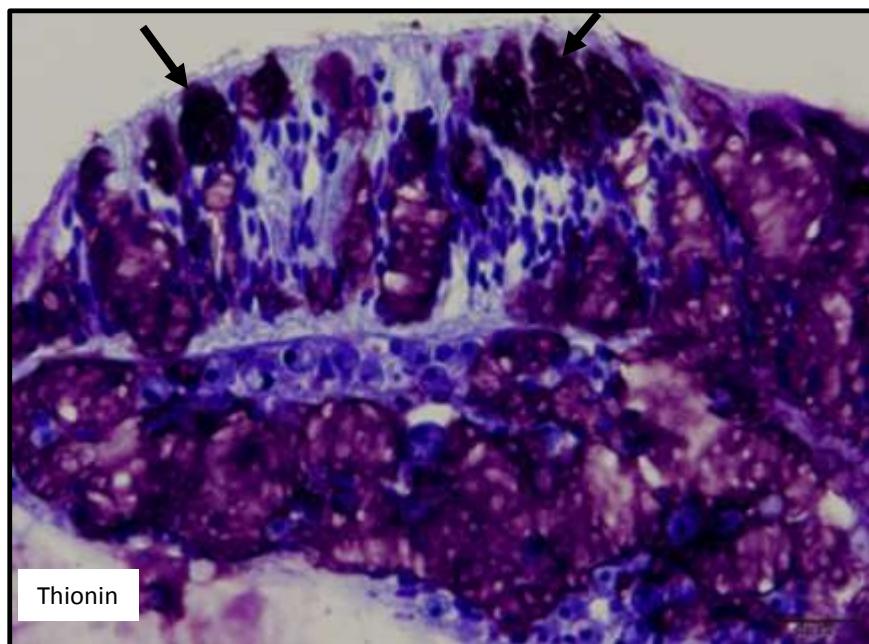
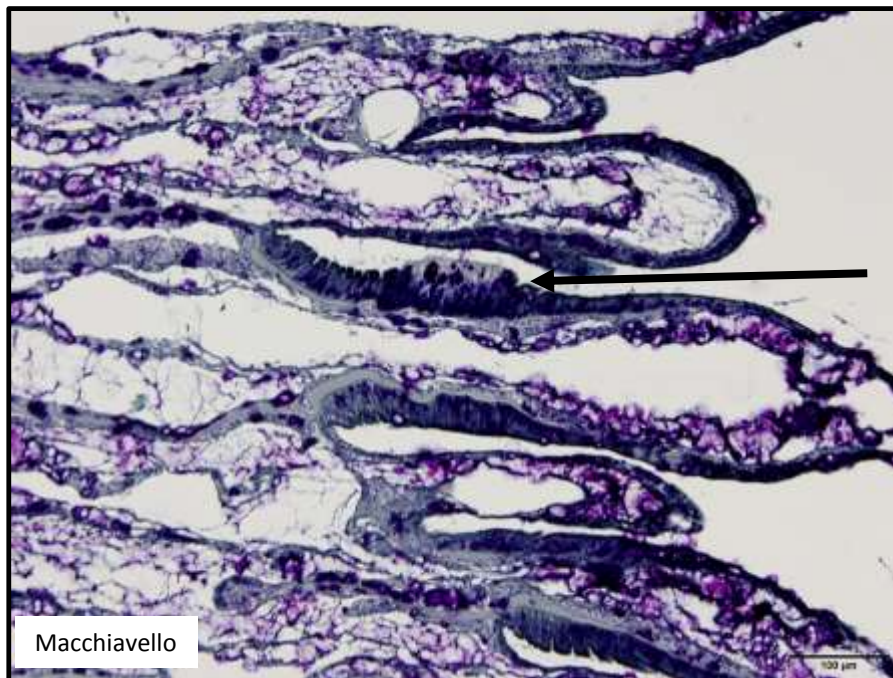
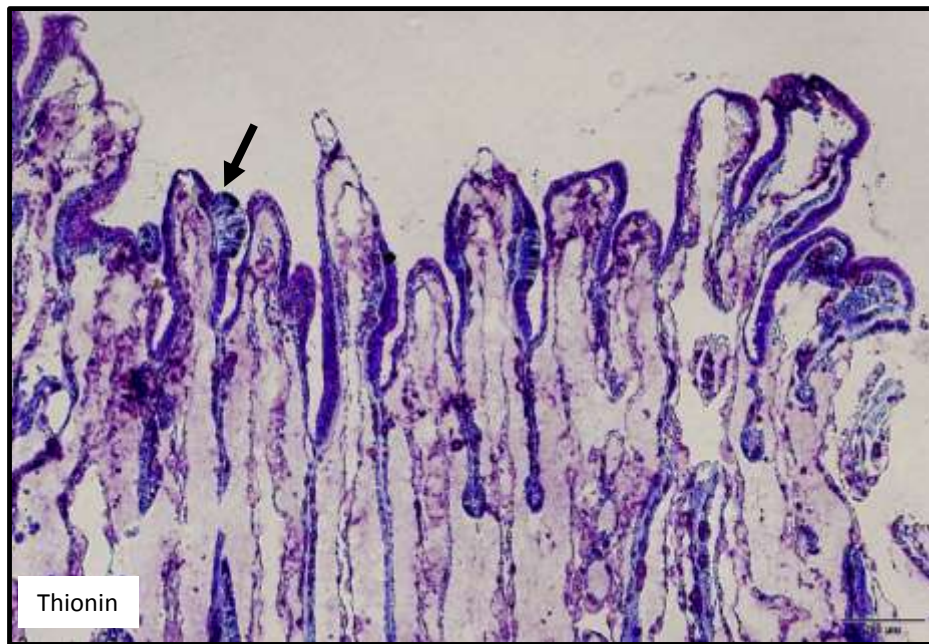
putative chlamydia-like organisms, mostly reticulate bodies and/or intermediate transitional?

SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, diseased sample, TEM

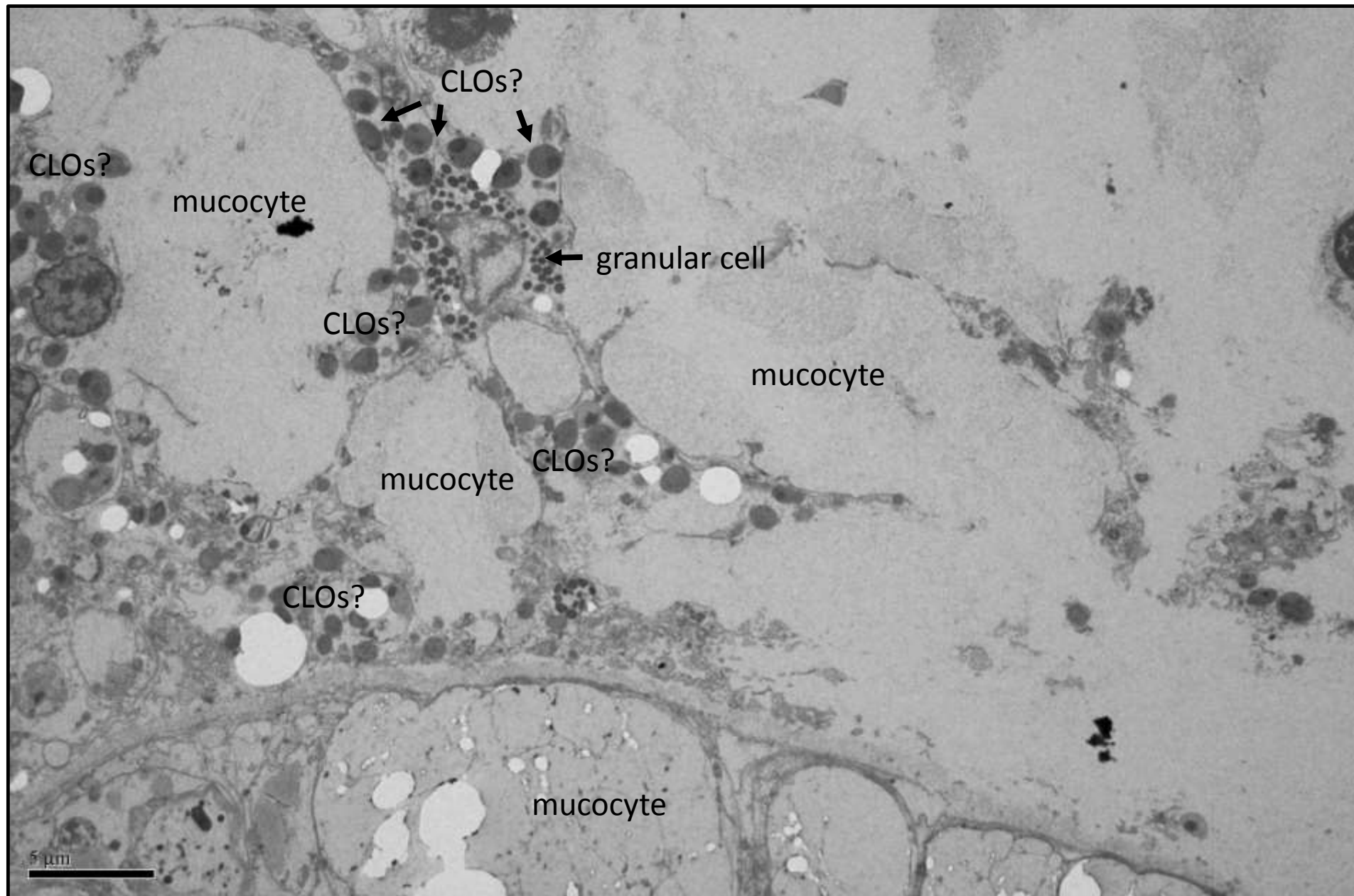


putative chlamydia-like organisms,
dividing reticulate bodies?

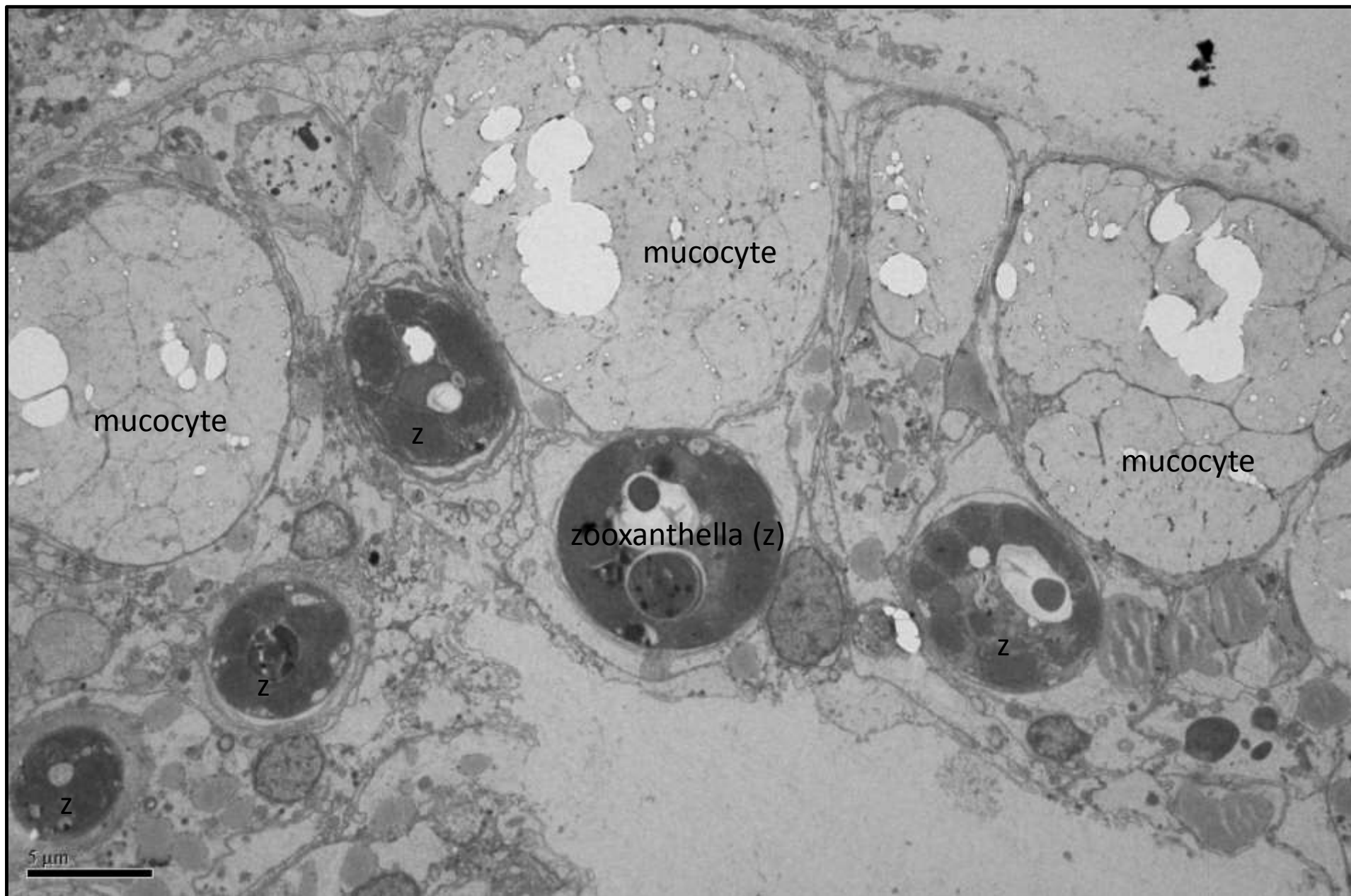
SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, unaffected sample



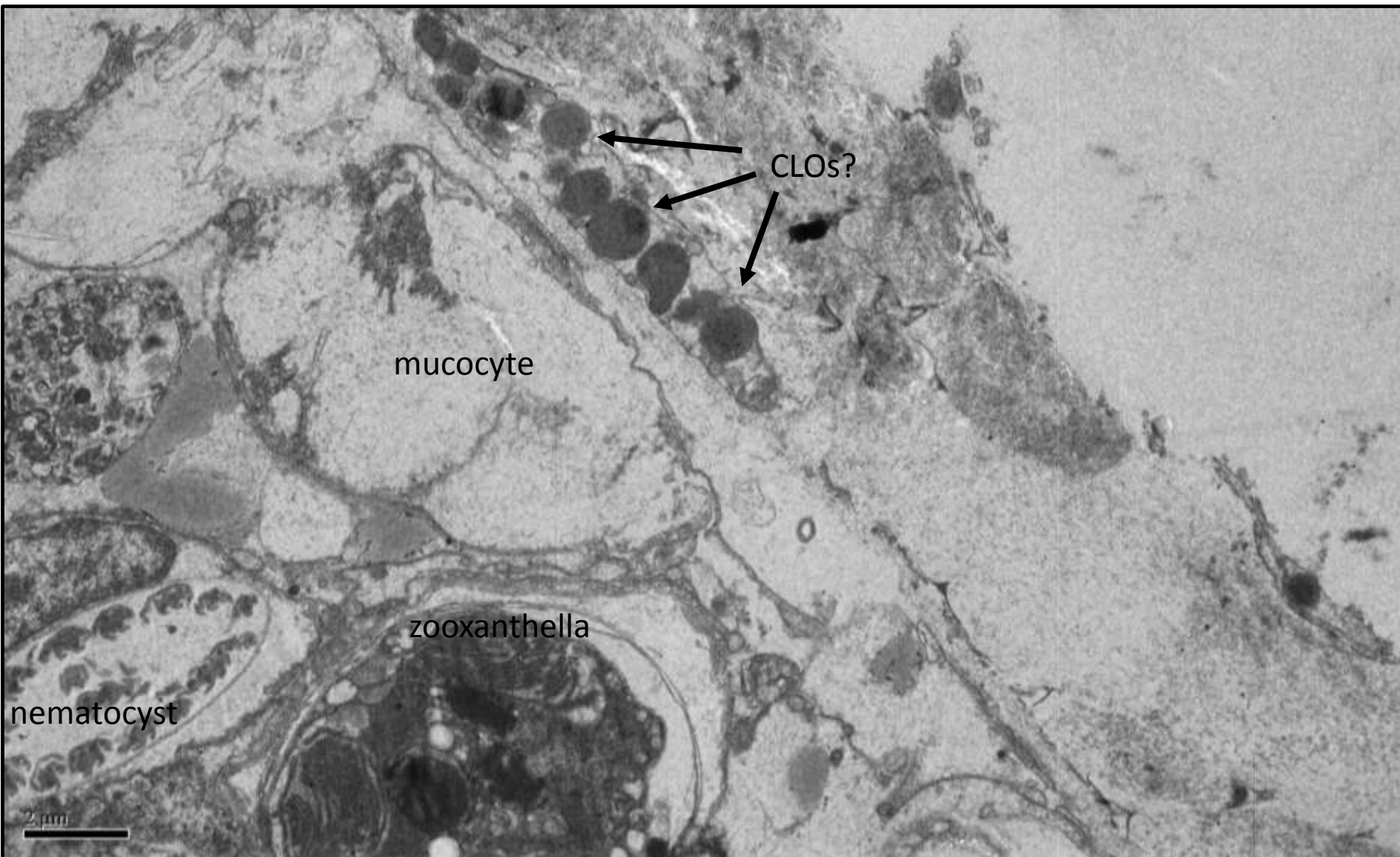
SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, unaffected sample, TEM



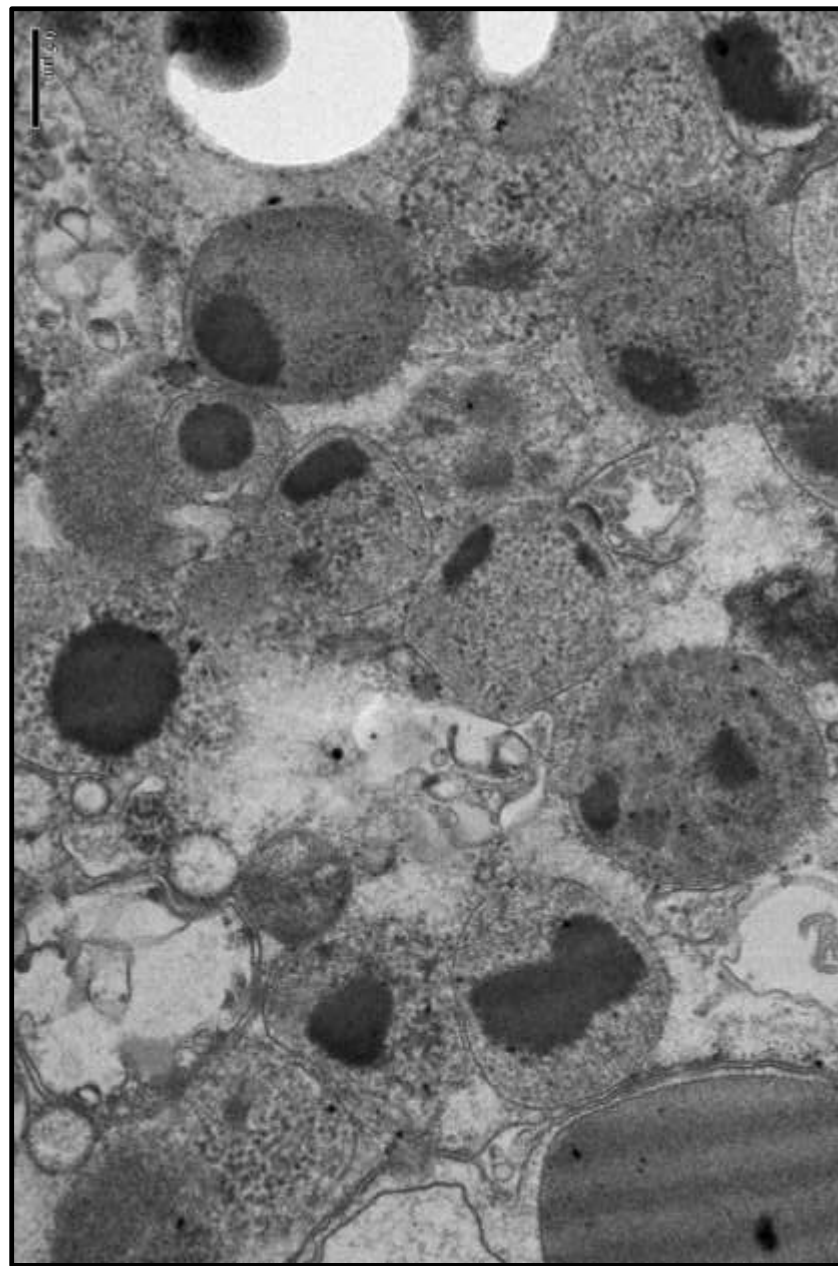
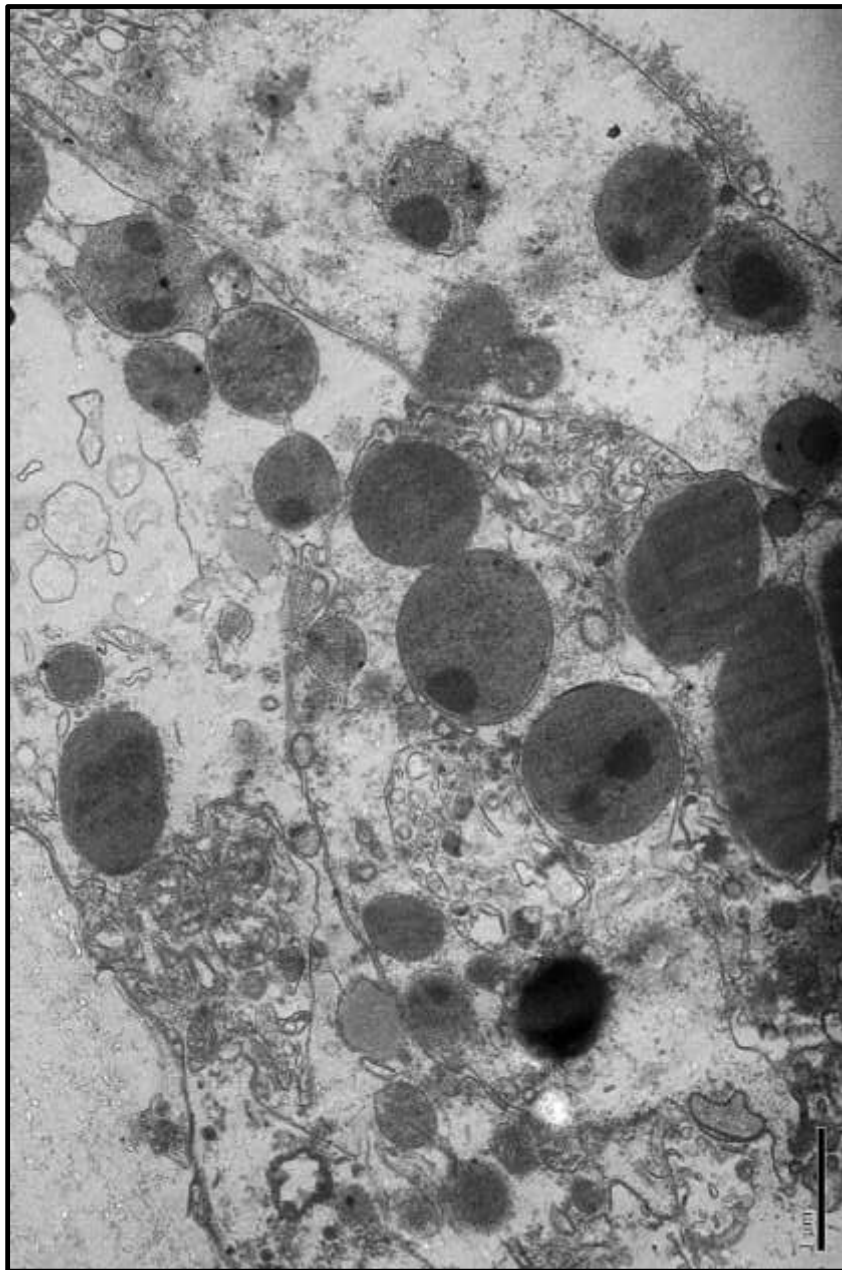
SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, unaffected sample, TEM



SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, unaffected sample, TEM



SSID #19, *Siderastrea siderea*, 072216, Grecian Rocks, unaffected sample, TEM





putative chlamydia-like organisms, mostly reticulate bodies and dividing?

MCAV #12, *Montastrea cavernosa*, 072116, Grecian Rocks



Photo: Vanessa Brinkhuis (FWRI/FWC)

diseased sample

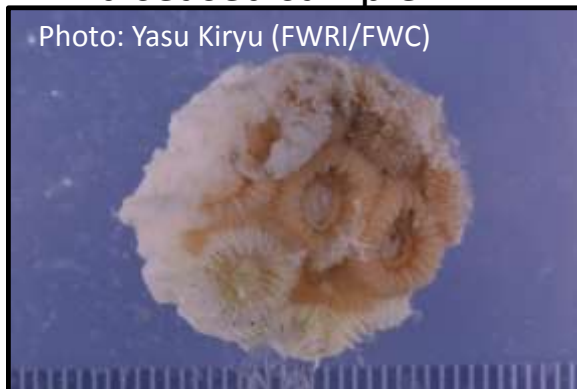


Photo: Yasu Kiryu (FWRI/FWC)



Photo: Vanessa Brinkhuis (FWRI/FWC)

unaffected sample

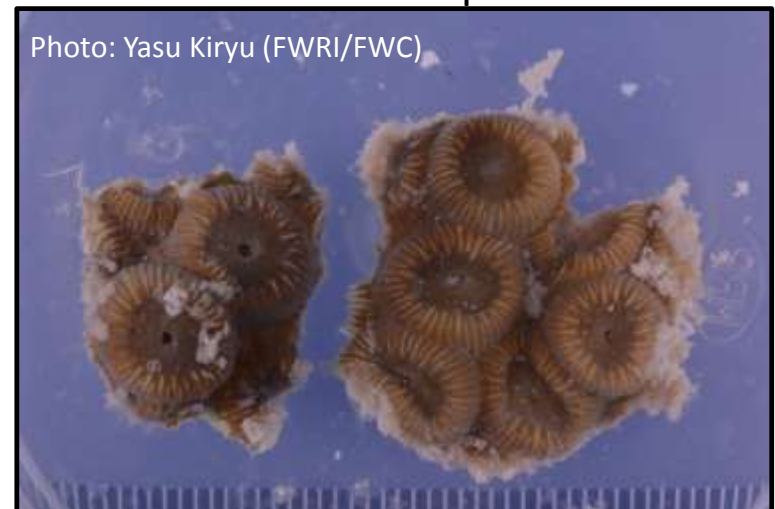
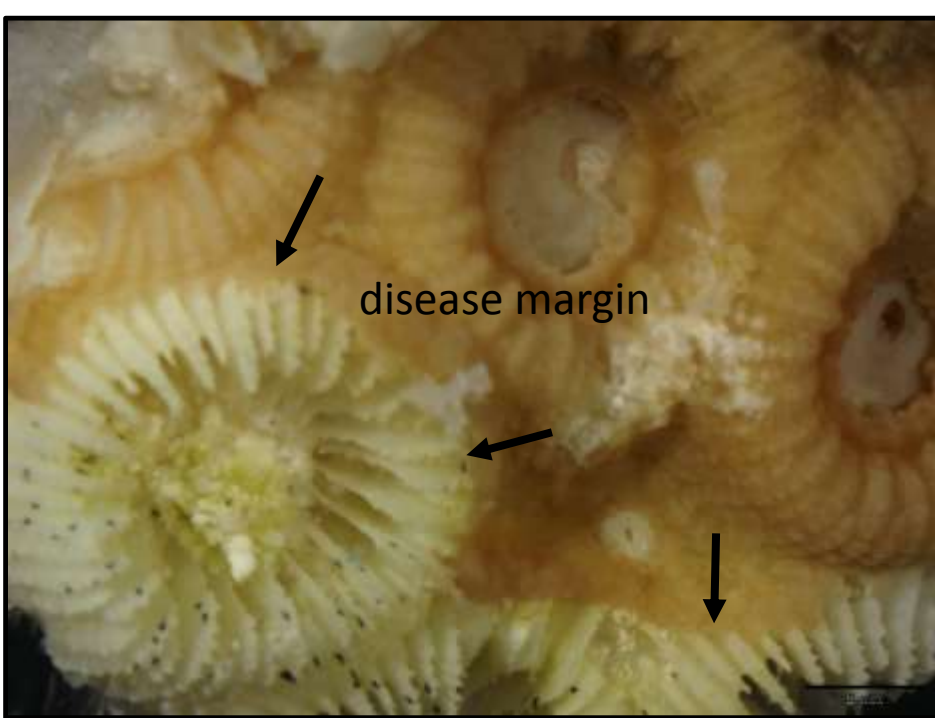


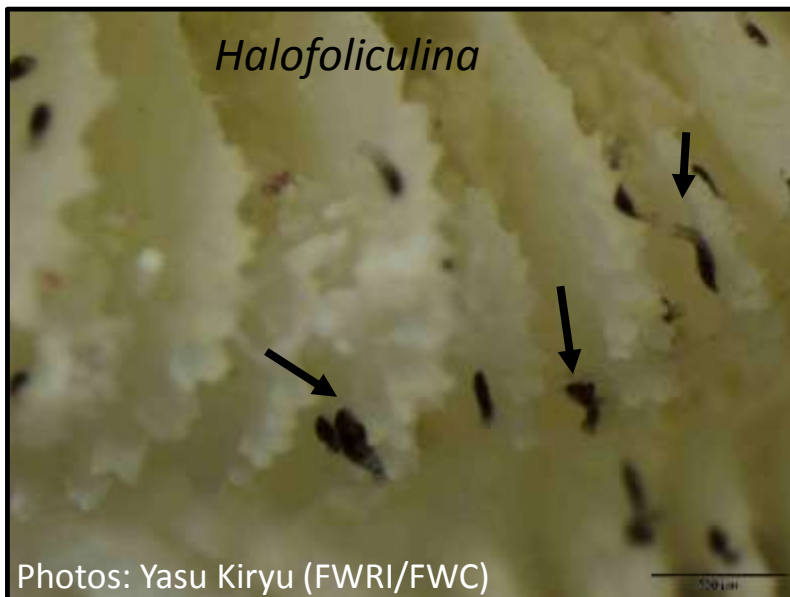
Photo: Yasu Kiryu (FWRI/FWC)

MCAV #12, *Montastrea cavernosa*, 072116, Grecian Rocks



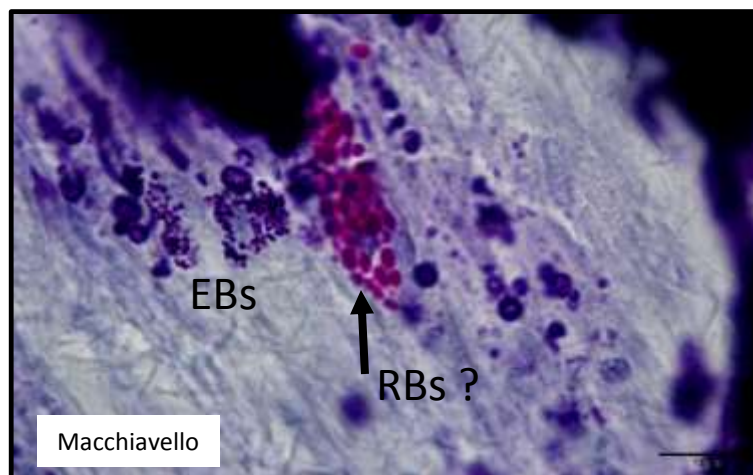
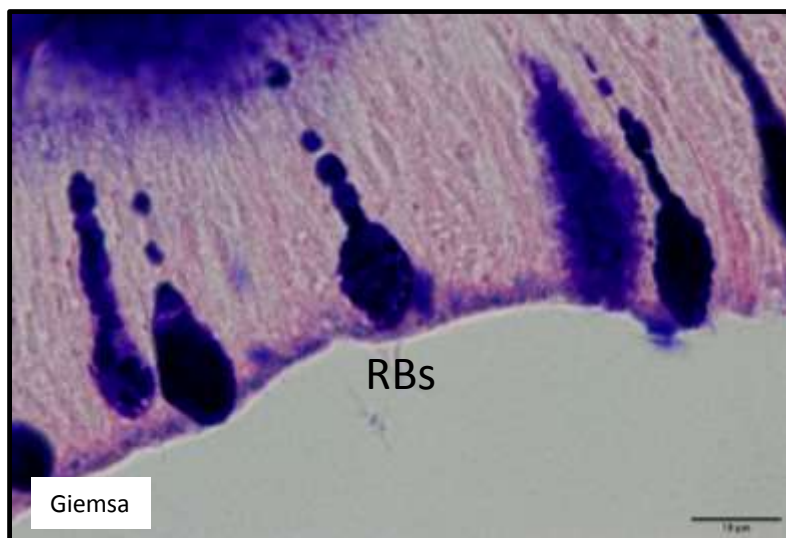
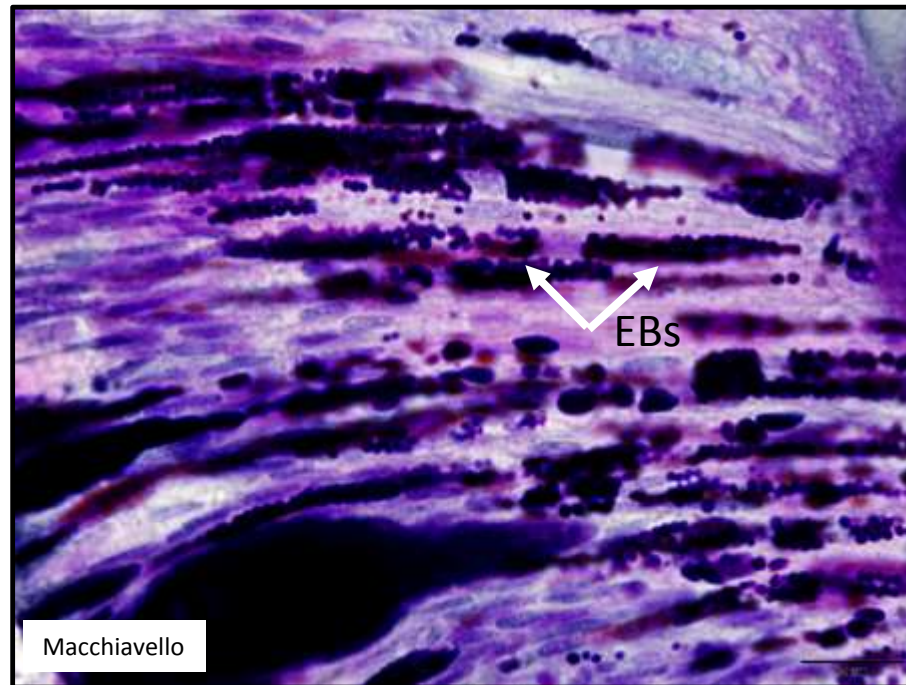
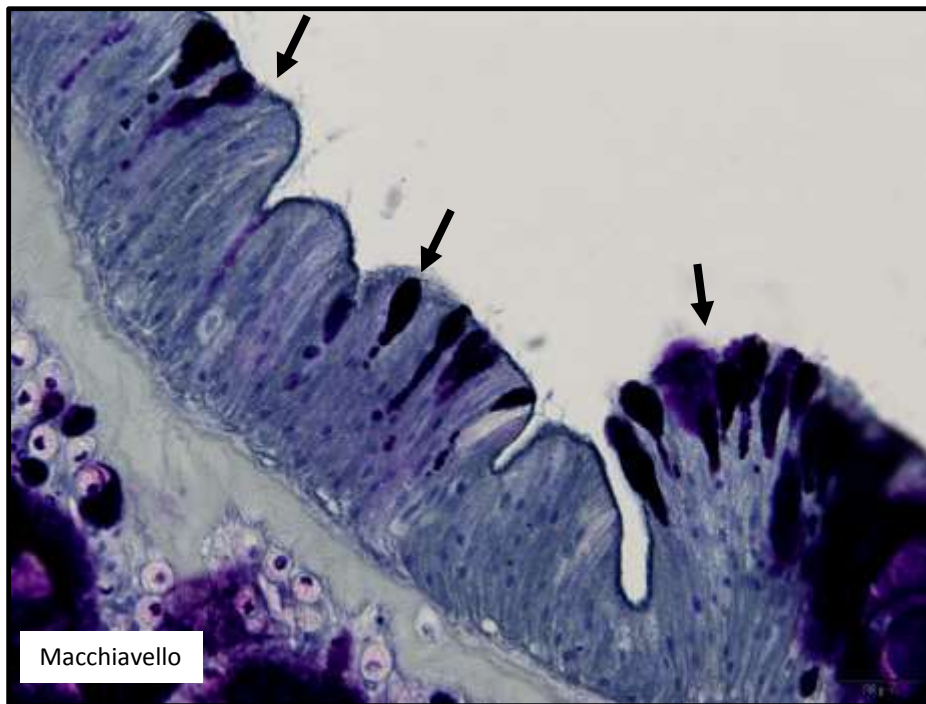
diseased
sample

unaffected sample



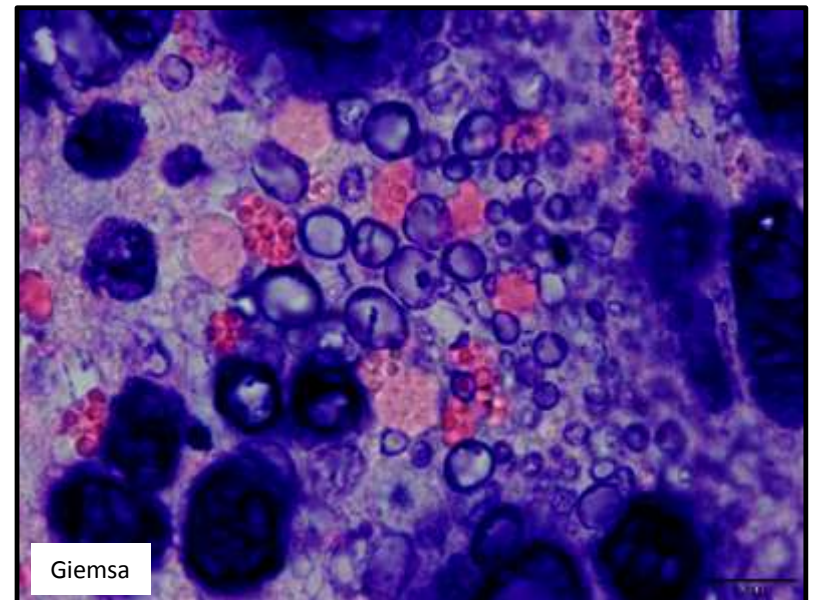
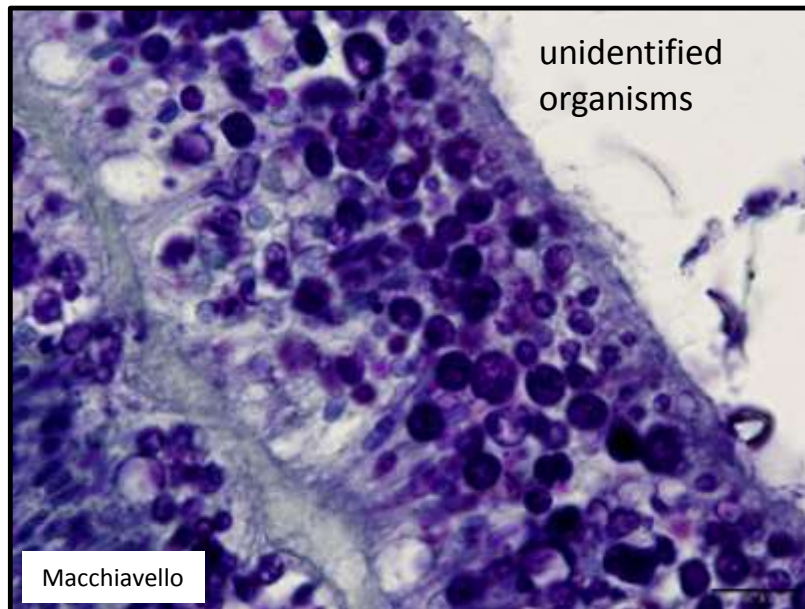
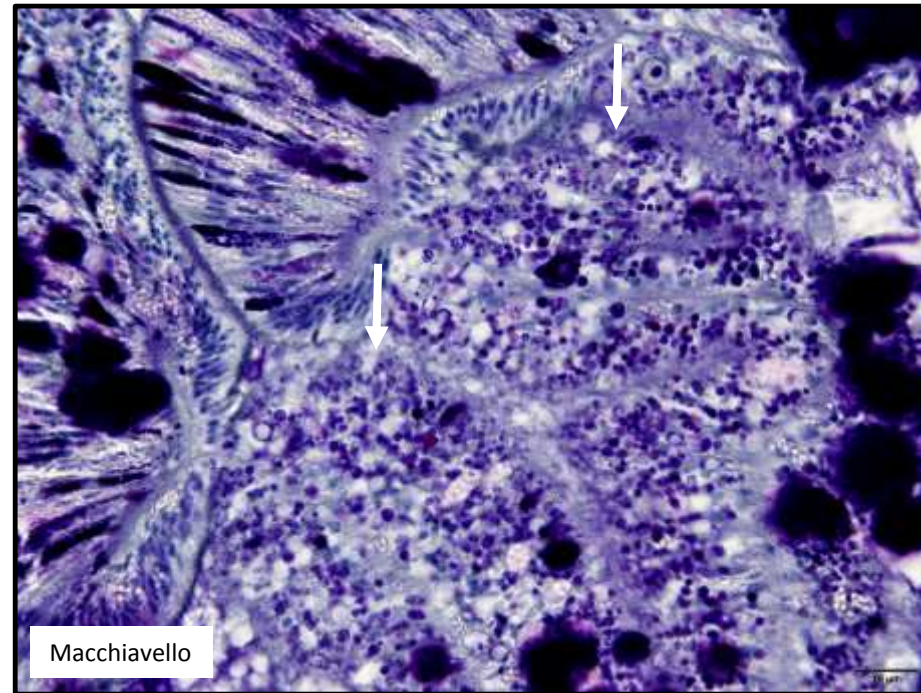
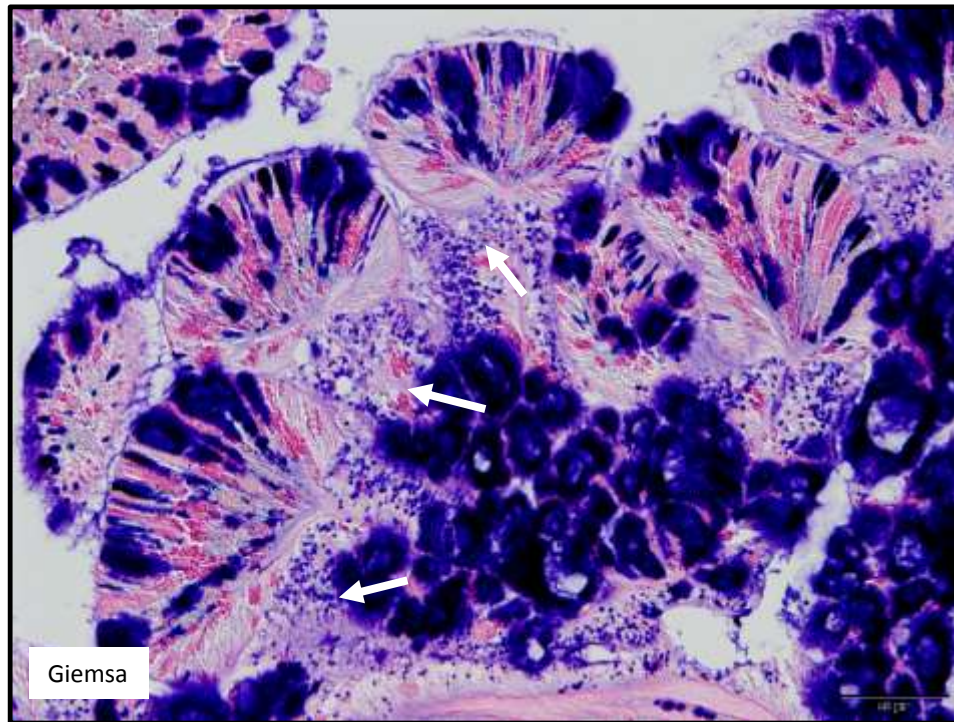
Photos: Yasu Kiryu (FWRI/FWC)

MCAV #12, *Montastrea cavernosa*, 072116, Grecian Rocks, unaffected sample

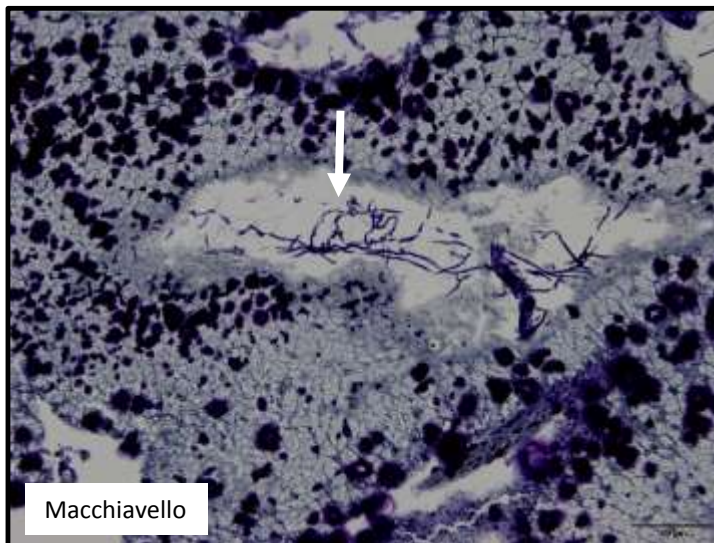
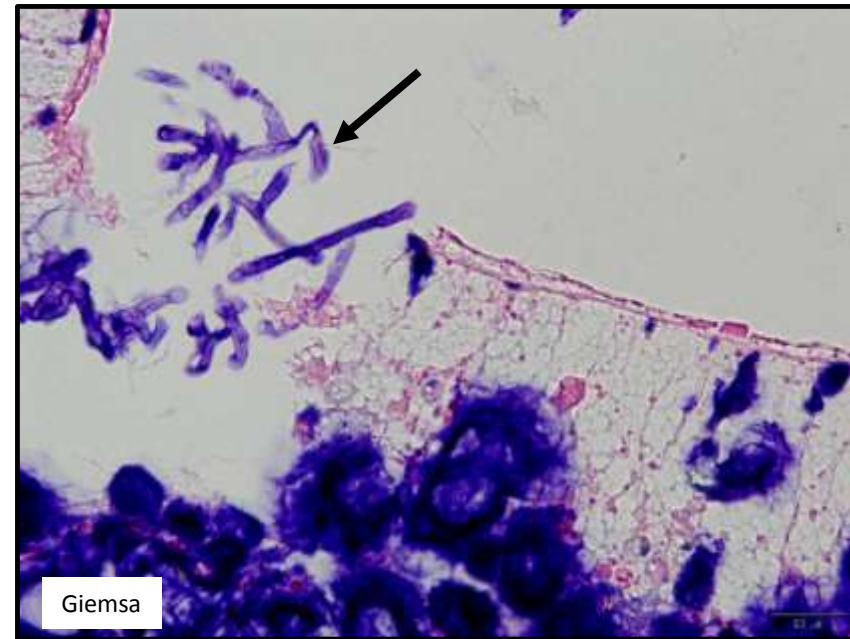
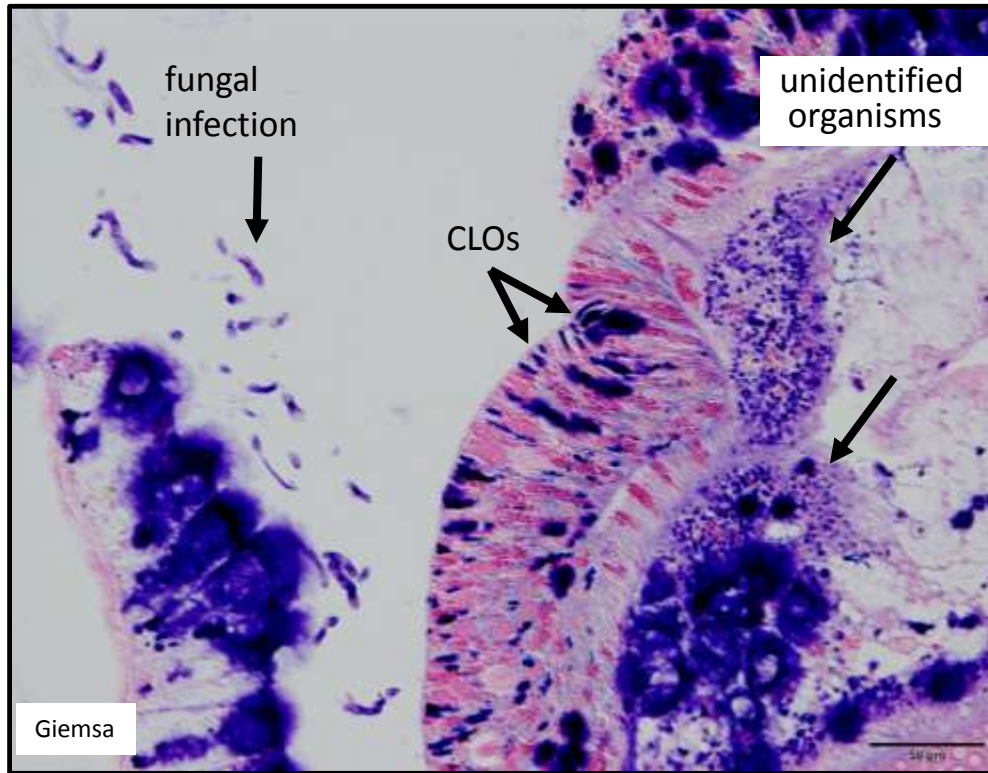


putative
elementary (EB)
and reticulate
bodies (RB)
of CLOs

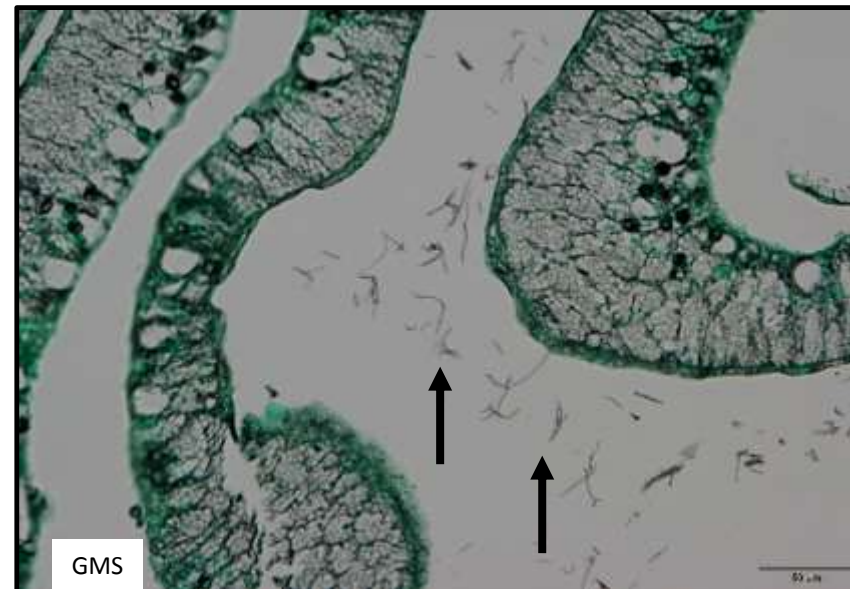
MCAV #12, *Montastrea cavernosa*, 072116, Grecian Rocks, unaffected sample



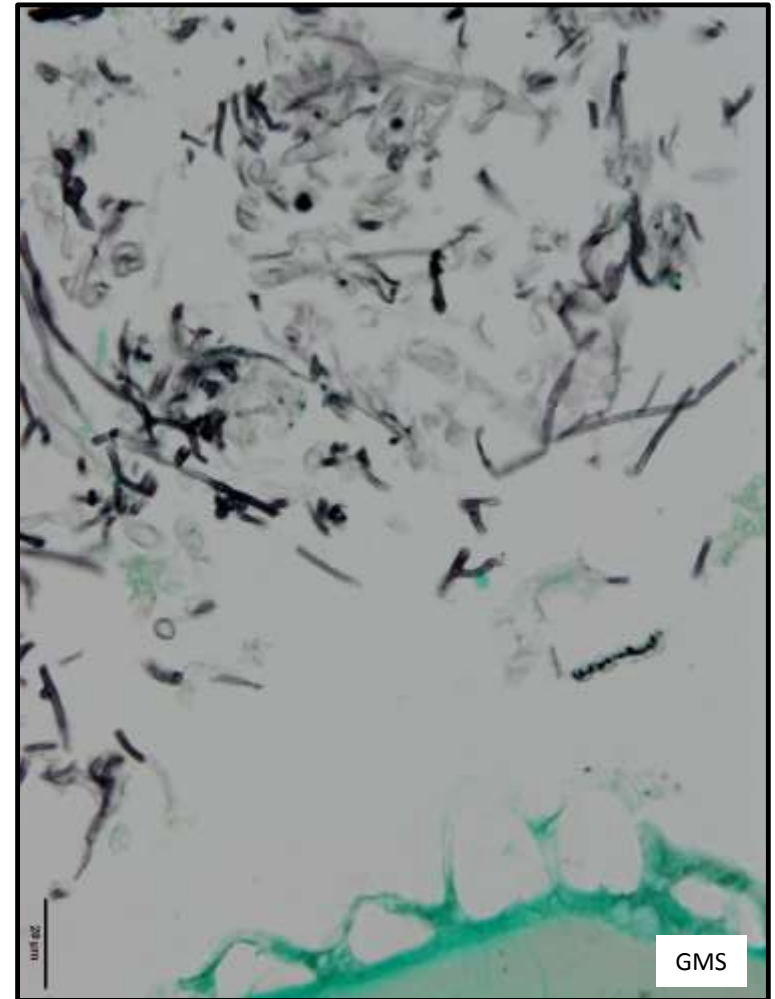
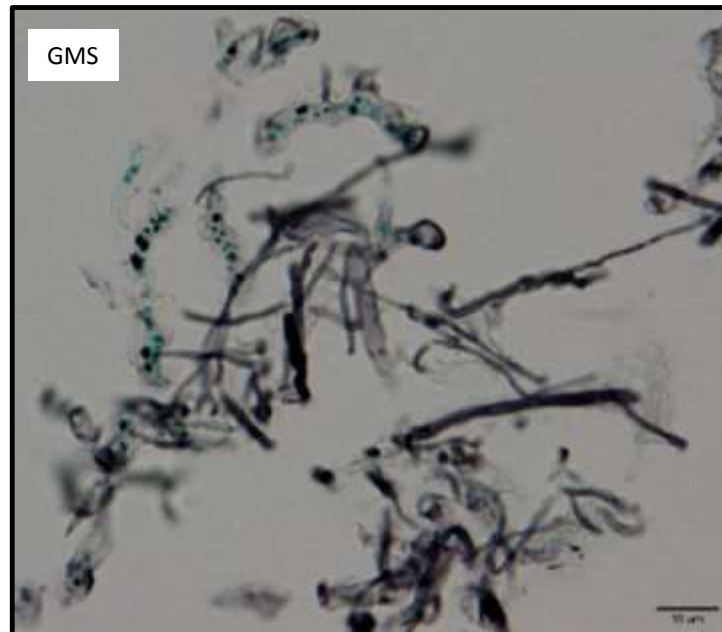
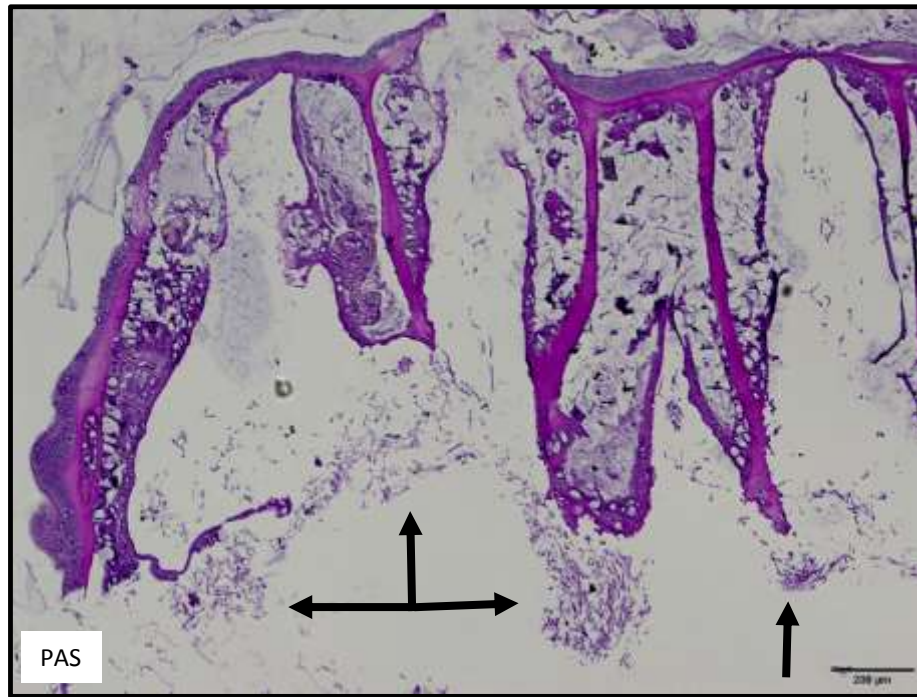
MCAV #12, *Montastrea cavernosa*, 072116, Grecian Rocks, unaffected sample



fungal
infection
in skeleton



MCAV #12, *Montastrea cavernosa*, 072116, Grecian Rocks, diseased sample



fungal infection in skeleton

CNAT #15, *Colpophyllia natans*, 072216, Grecian Rocks



Photo: Vanessa Brinkhuis (FWRI/FWC)



Photo: Vanessa Brinkhuis (FWRI/FWC)



Photo: Vanessa Brinkhuis (FWRI/FWC)

unaffected sample

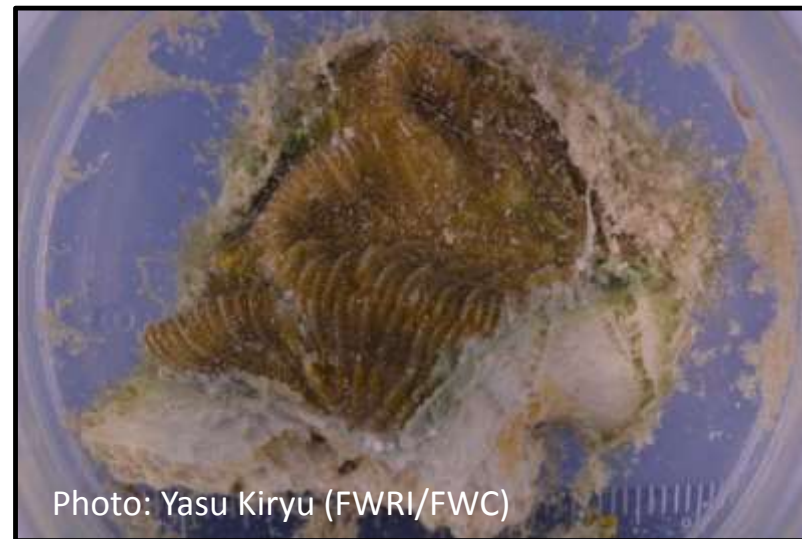
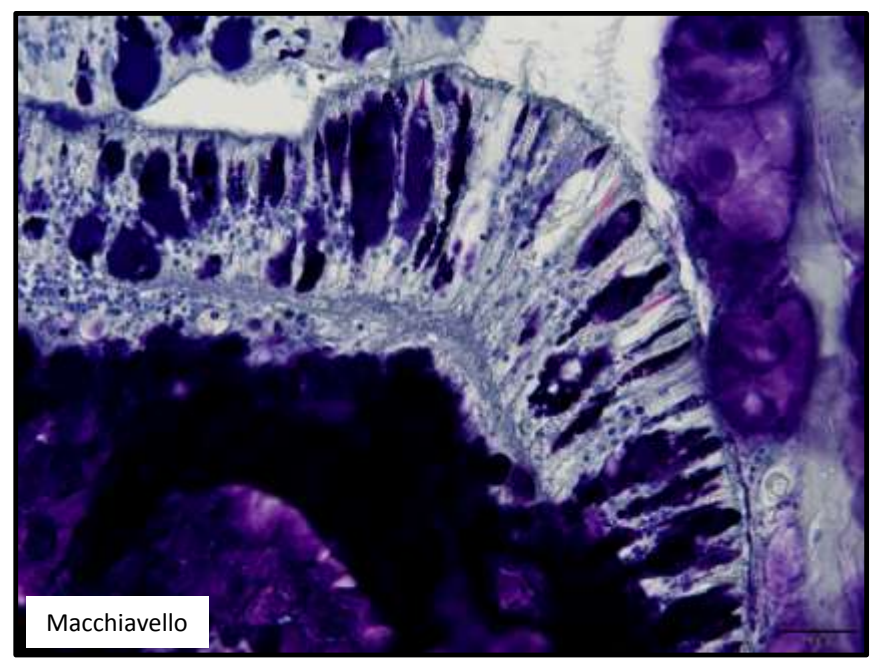
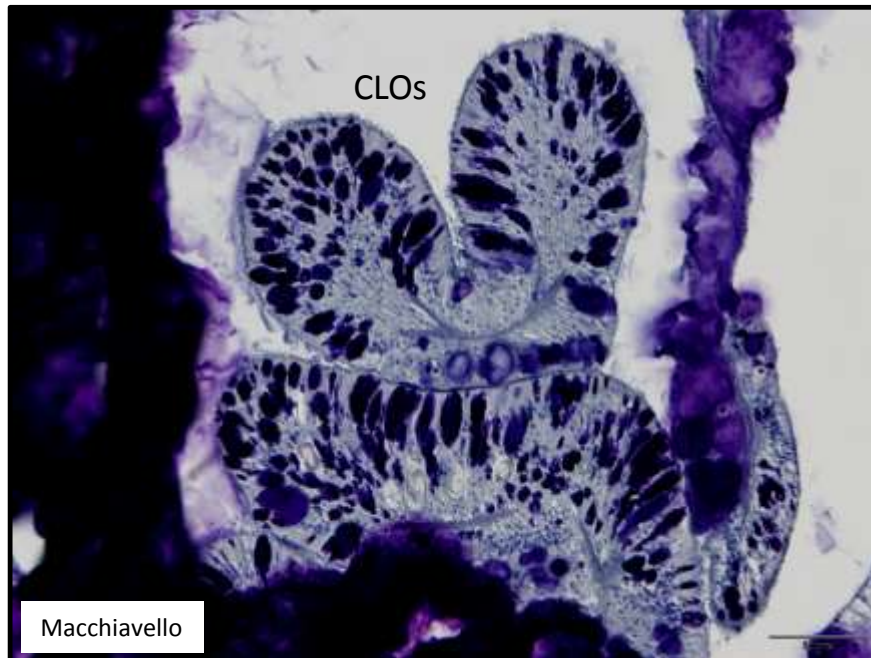
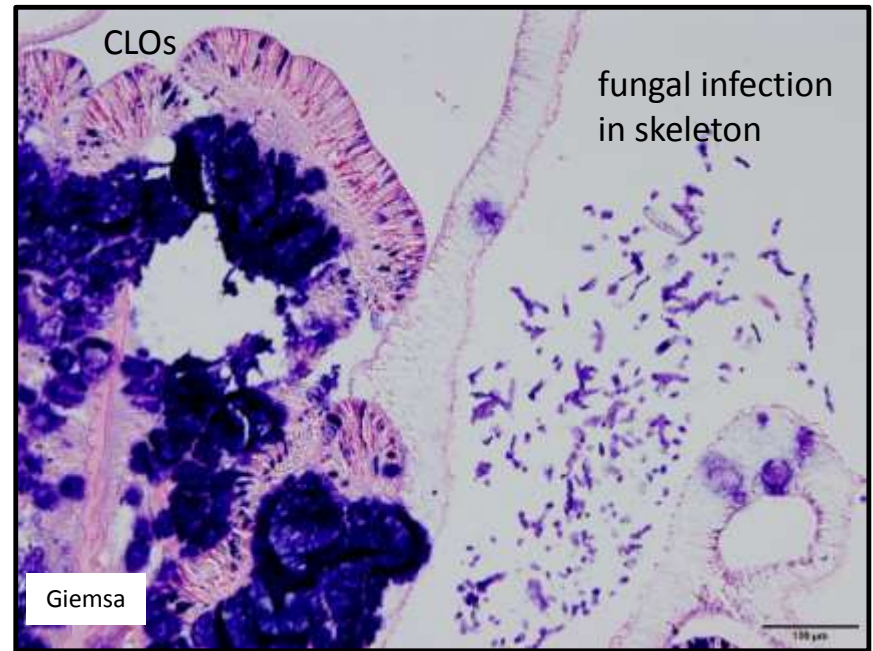


Photo: Yasu Kiryu (FWRI/FWC)

CNAT #15, *Colpophyllia natans*, 072216, Grecian Rocks, unaffected sample



Summary

DRAFT

- CLO/RLO (chlamydia-like/rickettsia-like organisms) appear to be present in diseased and unaffected areas of the same colonies in multiple coral species. Not quantified, subjective observation only. Samples from healthy specimens not yet examined.
- CLOs/RLOs need molecular identification
- Are located more commonly in cnidoglandular band epithelium and in the epidermis
- Additional unidentified organisms (stages?) also observed in some MCAV. Relationship (if any) to CLO/RLOs or fungus unknown. Note other pathologies, parasites, pathogens not reported.
- Fungal infections commonly present in the skeleton of multiple coral species. Not quantified, subjective observation only.

Note these data and interpretations are preliminary and subject to change. They are provided as a timely source of information to aid in the investigation of the coral disease outbreak and to facilitate communications and discussions between scientists and managers. Consultation on preliminary results with, and additional diagnostic support from, experts to follow.

MMEA #4, *Meandrina meandrites*, 100215, BH Mit-Boulders

