

Observers:		Date:	Guam Community Coral Reef Monitoring Program Reef Flat Quantitative Invertebrate Survey	
Site A:		Survey area for each transect is 25m long and 1m on each side		
Site B:		Site A	Site B	
SEA CUCUMBERS (BALATE)	Holothuria atra			
	Small to medium size, black			
	Holothuria edulis			
	Medium, black with red belly			
	Stichopus chloronotus			
	Medium, greenish black, big spikes			
	Stichopus horrens			
	Small, lumpy mottled brown and tan			
	Actinopyga mauritiana			
	Medium, hard, brown/white, white anal teeth			
	Actinopyga echinites			
	Medium, hard, brown, with brown anal teeth			
SEA URCHINS	Bohadschia argus			
	Large, eye spots, spits cuverian tubules			
	Bohadschia sp. (note color)			
	Large, spits cuverian tubules			
	Synapta maculata			
	Snaky, long, soft, yellow and white			
	Holothuria leucospilota			
	Snaky, long, black			
	Tripneustes gratilla			
	Large, short spines, often covered with debris / algae			
	Toxipneustes pileolus !!!DANGER!!!			
	Large, short spines, flowery white/pink			
Echinometra mathaei				
Small, short thick spines, in grooves or holes				
Echinotrrix sp.				
Large, long spines, alternating with thick and thin				
Diadema spp.				
Thin, long thin spines all the same size				
SEA STARS	Linkia laevigata			
	Large blue seastar			
	Linckia multiflora			
	Small white and red seastar			
	Culcita novauinea			
Pillow star				
Acanthaster planci !!!DANGER!!!				
Many spined, many armed seastar				
MOLLUSKS	Trochus niloticus			
	Topshell, Alileng			
	Tridacna			
	Giant Clam			
	Lambis lambis			
Five finger shell				
Octopus cyanea				
Octopus cyanea				

Site Setup

1. Locate assigned site using GPS and mark with a float.
2. Lay a 25 meter transect in the designated direction.
3. Complete Site Data Sheet - be sure to fill in all of the fields!

Benthic Habitat Survey

1. Fill out the header information on the Benthic Habitat Datasheet.
2. Choose a side to survey (Left or Right) and place the quadrat at the 1 m mark on the transect.
3. Identify the benthic cover type under the 6 intersecting points and record on your datasheet. Be sure you have all 6 before you move on!
4. Move the quadrat to the next meter mark on the transect and repeat step 3 until you have completed 25 quadrats.

Benthic Photo Quadrats

1. Work along the same side chosen for the Benthic Habitat Survey.
2. Place the photo quadrat frame at the 1 m mark on the transect.
3. Take a photo. Verify that the photo is clear. If it is not, take another photo before moving on.
4. Continue to take photos at every meter mark until you reach 25m.

Macroinvertebrate Belt Transect Survey

1. Fill out the header information on the Macroinvertebrate Datasheet.
2. Swim slowly along one side of the 25 meter transect looking for macroinvertebrates within 1 meter of the transect (use the meter stick to verify the distance). Be sure to look under ledges, in cracks, and holes!
3. Identify each animal within 1 meter of the transect and record it on your macroinvertebrate datasheet.
4. Repeat steps 2 & 3 on the other side of the transect.



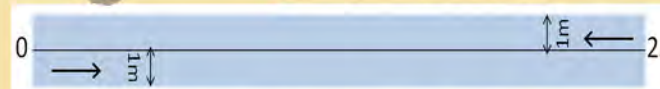
This Guide was possible due to support from the NOAA Coral Reef Conservation Program.

Materials

- Transect Tape
- Quadrat
- Meter Stick
- Photo Frame
- Clipboard & Data Sheets
- Mask, Fins, Snorkel
- GPS in Dry Bag
- Camera & Housing



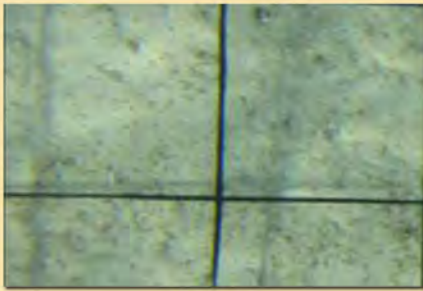
Benthic Quadrats



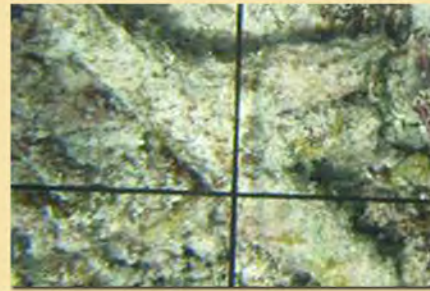
Species photos provided by Dave Burdick, for more see: <http://www.guamreeflife.com>

Benthic Cover - Substrate, Cyanobacteria, Seagrass, Green Algae

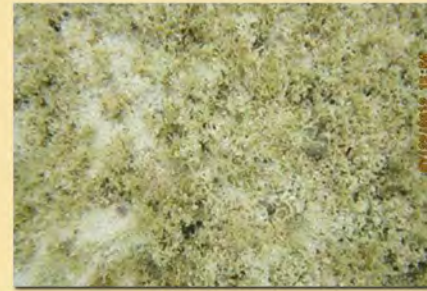
Substrate



Sand



Rubble

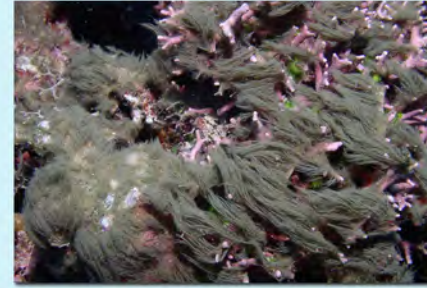
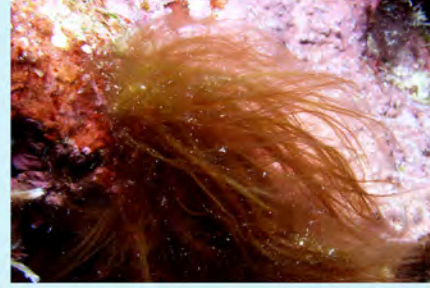
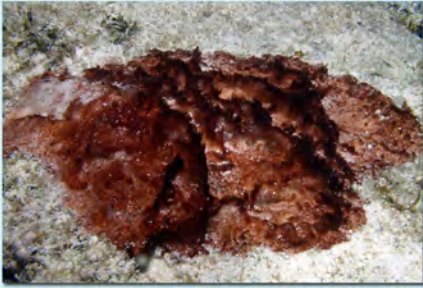


Turf Algae

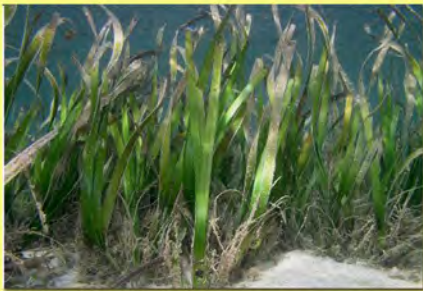


Bare Rock

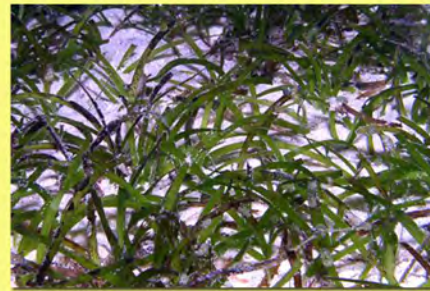
Cyanobacteria



Sea Grasses



Enhalus acoroides



Halodule uninervis



Halophila minor

Golden Algae

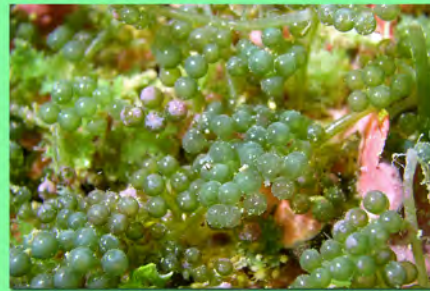


Chrysocestis fragilis

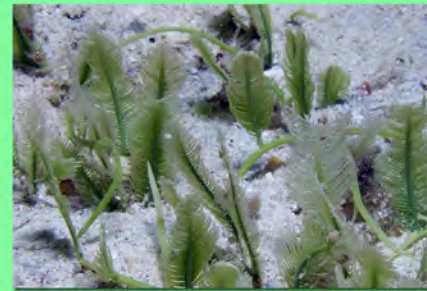
Green Algae



Halimeda



Caulerpa



Caulerpa



Boodlea



Red Algae



Acanthophora



Asparagopsis



Galaxaura



Gracilaria

Crustose Coralline



Branching Coralline



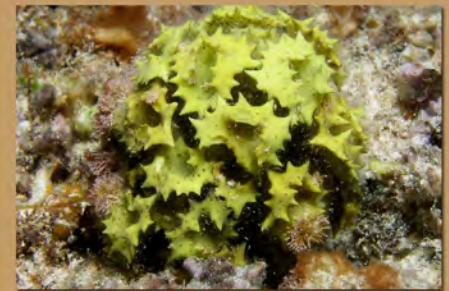
Amphiroa



Amphiroa



Liagora



Turbinaria

Brown Algae



Dictyota



Hydroclathrus



Padina



Sargassum

Benthic Cover - Red Algae, Crustose Coralline Algae, Branching Coralline Algae, Brown Algae

Benthic Cover – Hard Corals – Acropora – Leptoria

Acropora



Acropora muricata



Acropora digitifera

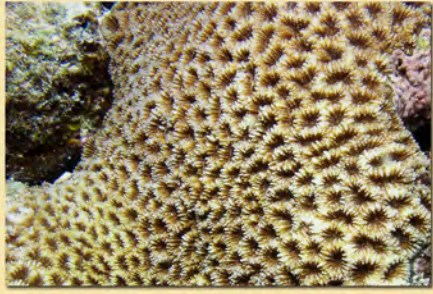


Acropora cerealis



Acropora accuminata

Favia



Favia pallida



Favia fava

Fungia



Fungia fungites



Fungia fungites

Goniastrea



Goniastrea edwardsi



Goniastrea retiformis

Goniopora



Goniopora fruticosa

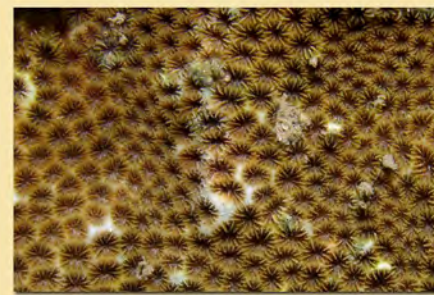


Goniopora fruticosa

Leptastrea



Leptastrea purpurea



Leptastrea purpurea

Leptoria



Leptoria phyrgia



Leptoria phyrgia

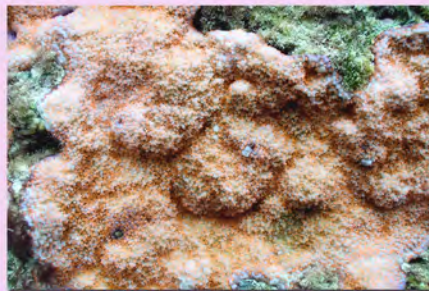
Montipora



Montipora foveolata



Montipora venosa



Montipora floweri



Montipora verrucosa

Pavona



Pavona decussata



Pavona cactus



Pavona divaricata

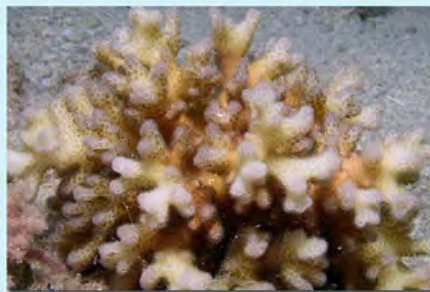


Pavona decussata

Pocillopora



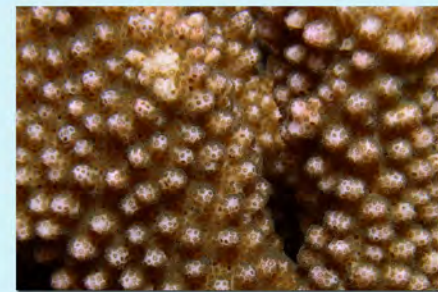
Pocillopora damicornis



Pocillopora damicornis

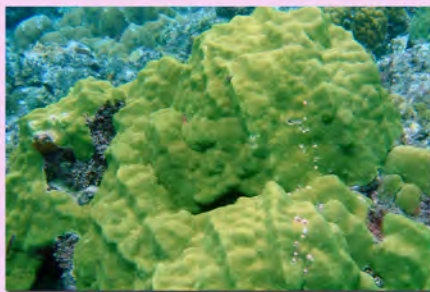


Pocillopora elegans



Pocillopora eydouxi

Porites



Porites lutea



Porites cylindrica



Porites rus



Porites australiensis

Benthic Cover - Corals - Psammocora - Soft Corals - Fine Corals - Blue Coral

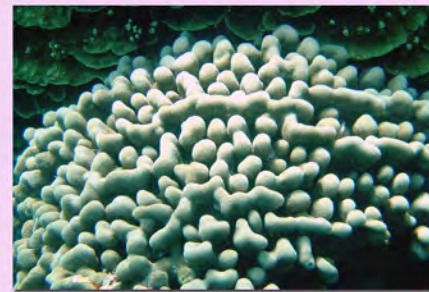
Psammocora



Psammocora contigua



Psammocora stellata



Psammocora digitata



Psammocora digitata

Soft Corals



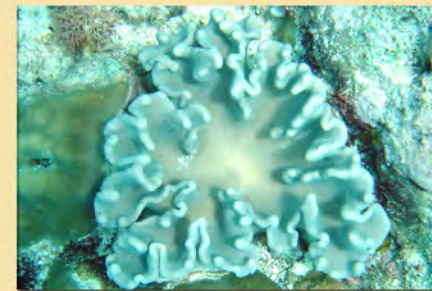
Sinularia sp.



Sinularia sp.



Sarcophyton sp.



Lobophytum sp.

Fine Corals



Millepora sp.



Millepora platyphyllia



Millepora sp.



Millepora platyphyllia

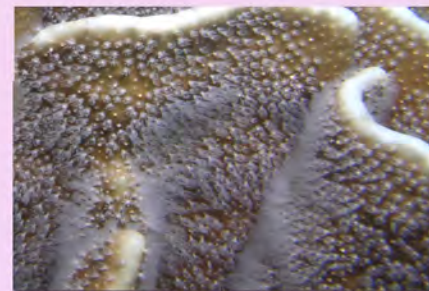
Blue Coral



Heliopora coerulea



Heliopora coerulea



Heliopora coerulea



Sea Cucumbers - Balate'



Actinopyga echinites



Bohadschia argus



Holothuria atra



Holothuria edulis



Holothuria leucospilota



Stichopus chloronotus.



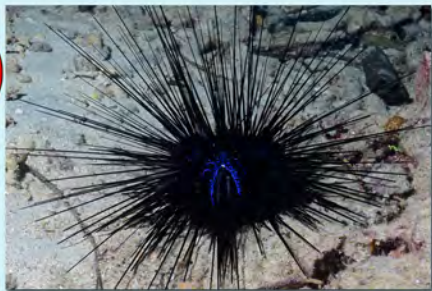
Synapta maculata



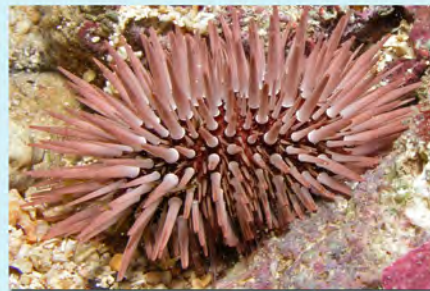
Thelanota ananas



Sea Urchins



Diadema savignyi



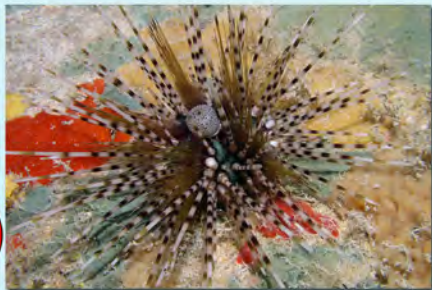
Echinometra mathaei



Echinometra sp..



Echinostrephus aciculatus



Echinothrix calamaris



Echinothrix diadema



Toxopneustes pileolus



Tripneustes gratilla

Macroinvertebrates - Echinoderms: Sea Cucumbers & Sea Urchins



it's my



to protect coral reefs

Guam Community Coral Reef Monitoring

MEMBER

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