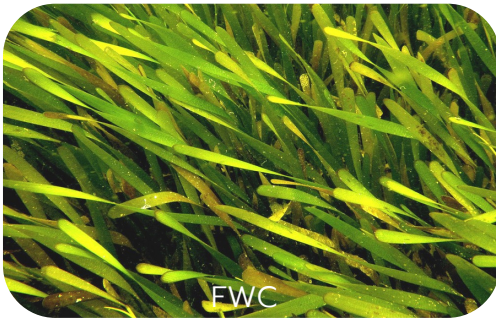


SEAGRASSES OF SOUTHWEST FLORIDA

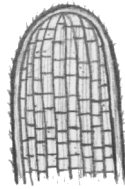
Katherine Rose, UF/IFAS Extension Florida Sea Grant Charlotte County
Betty Staugler, NOAA Harmful Algal Bloom Liason

TURTLE GRASS *Thalassia Testudinum*

- Broad, flat leaf blades
- Rounded blade tip
- 2-5 blades per shoot
- Low tolerance for freshwater
- Blades often covered with algae/barnacles
- Tends forms extensive meadows



Leaf tip



Graphics:
Shannon Alexander

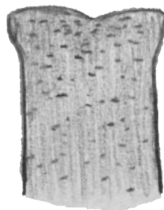


SHOAL GRASS *Halodule wrightii*

- Leaf tip is notched or "dentate"
- Very fine, thin and flat leaf blades
- Often found close to shore or in deeper water
- High tolerance for freshwater
- May be exposed to air at low tides



Leaf tip

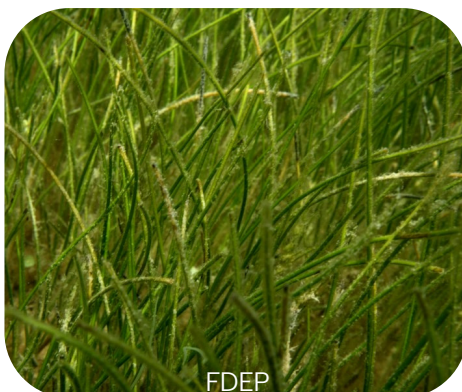


Graphics:
Shannon Alexander



MANATEE GRASS *Syringodium filiforme*

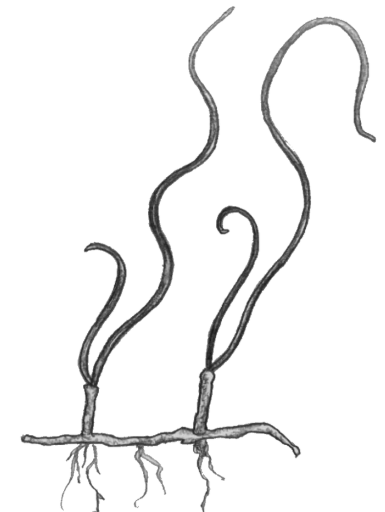
- Round or cylindrical leaf blade (rolls through finger tips to check)
- Prefer saltier water and deeper habitat (>1 meter/3 ft)
- Blade length can reach 50cm/20 inches



Leaf tip

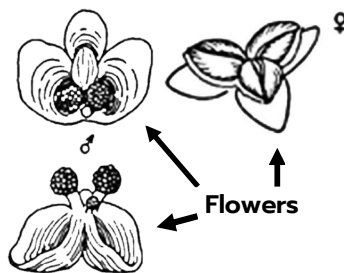


Shannon Alexander

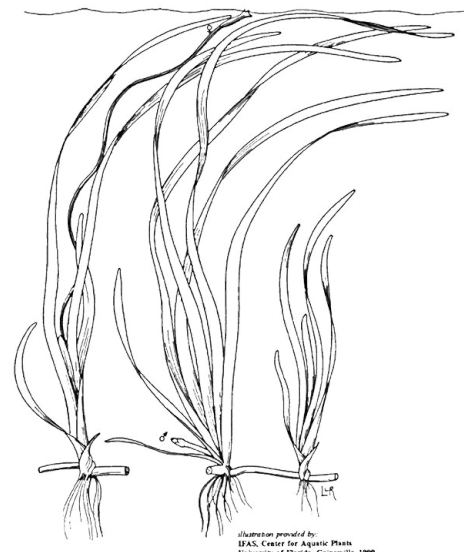


TAPE OR EEL GRASS *Vallisneria americana*

- Similar appearance to Turtle Grass
 - Except it's found *exclusively* in freshwater
- Long, ribbon like blades that sometimes reach the surface
- Rounded leaf tips
- May have white flowers present on tall stalks



Leaf tip

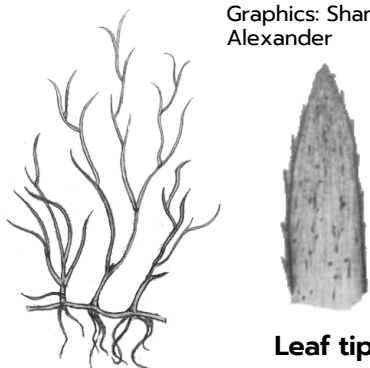


SEAGRASS SPECIES LESS COMMONLY FOUND IN SOUTHWEST FLORIDA

WIDGEON GRASS

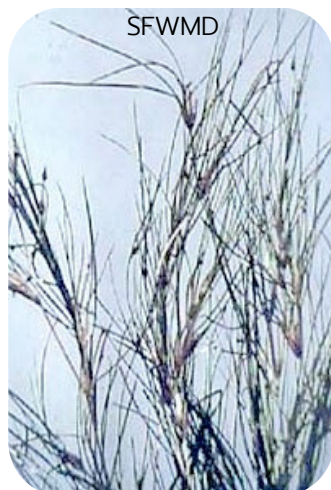
Ruppia maritima

Graphics: Shannon Alexander



Leaf tip

- Similar appearance to Shoal Grass
- Pointed leaf tip
- May have branching blades
- Thrives in freshwater but tolerates saltwater



PADDLE GRASS

Halophila decipiens

Shannon Alexander



- Oval shaped leaves that grow in pairs
- Leaf tip is rounded
- Finely serrated edge
- Often found in deeper and darker waters



STAR GRASS

Halophila engelmannii

Shannon Alexander



- Flower-like clusters of leaves (4-8 per cluster)
- Small, flat leaves with saw-like edges
- Often found in deeper and darker waters



COMMON SEAWEEDS OF SOUTHWEST FLORIDA

Katherine Rose, UF/IFAS Extension Florida Sea Grant Charlotte County
 Betty Staugler, NOAA Harmful Algal Bloom Liason

GREEN ALGAE Chlorophyta

- Green unless bleached by the sun

Even closely related algae species can look drastically different.
 Note the differences between species in the genus *Ulva* or *Caluerpa*!

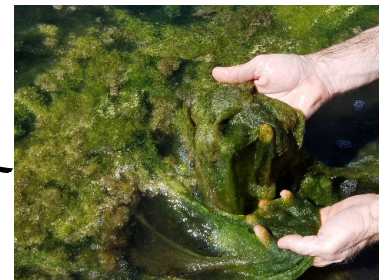


Ulva sp.

Codium sp.



Cladophora sp.



Caluerpa sp.

BROWN ALGAE Phaeophyta

- Brown in color
- Often possess large leafy looking fronds & gas bubbles



Sargassum sp.



Rosenvingea sp.

Cyanobacteria Images in this section are from Berthold et al 2020

- Single-celled organisms that form mucus-like mats which can float or cover a variety of aquatic surfaces
- Wide range of colors: brown, grey, blue-green, emerald

Floating Cyanobacteria mats



Covering mangrove roots



RED ALGAE *Rhodophyta*

- Wide range of colors: Yellow-green, red, maroon, brown, or black
- Most species are branching without noticeable fronds



Gracillaria sp.



Hypnea sp.



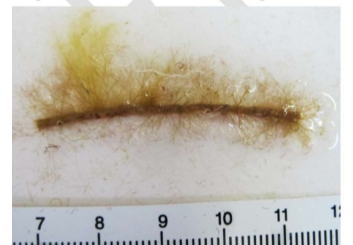
Halymenia sp.



Laurencia sp.



Acanthophora sp.



Polysiphonia sp.

EPIBIOTA

The prefix "epi-" means "upon". So, an epibioter is something that lives on another living thing. There is such thing as epi-PHYTES, which are plants that live on other living things and epi-FAUNA, which are animals that live on other living things. Since it can be hard to tell the difference in aquatic environments, epibioters are often categorized as "fleshy" or "encrusting".

FLESHY



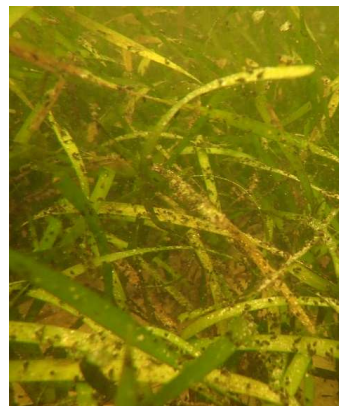
The fuzzy appearance of the grass is caused by small plants



Tunicates are soft and fleshy

ENCrustING

Snails stick to seagrass blades



You would have to scrape off the plants growing the grass blades above, or barnacles!

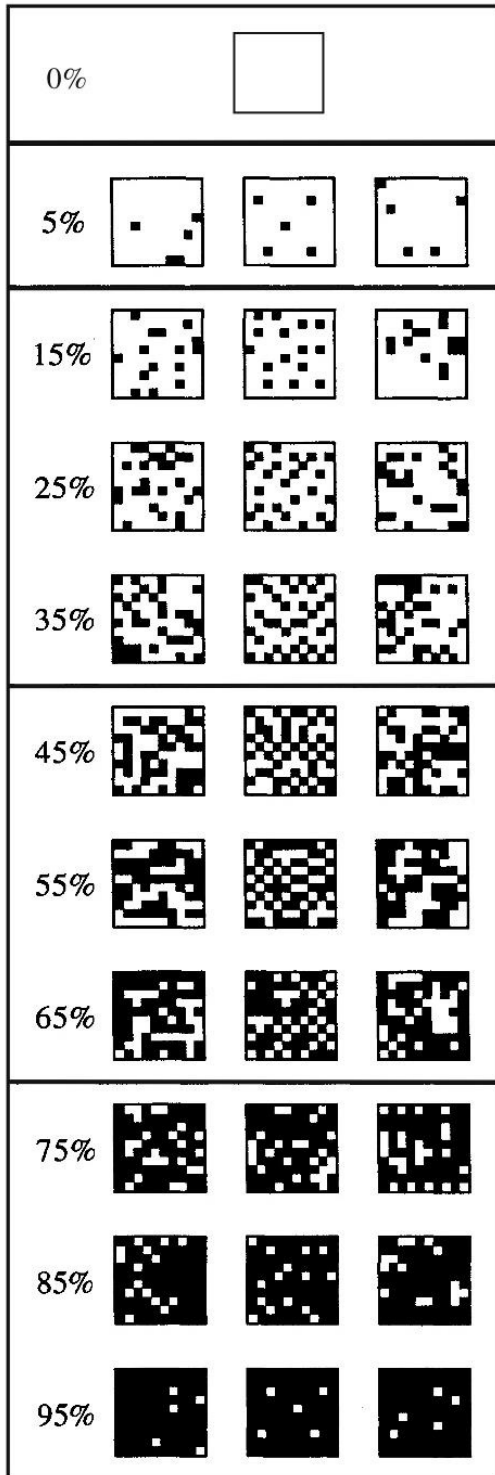


Unless otherwise noted, images in this document were provided by Betty Staugler (NOAA Harmful Algal Bloom Liason), Eric Millbrandt (Sanibel Captiva Conservation Foundation), and the Florida Department of Environmental Protection

ESTIMATING PERCENT COVER

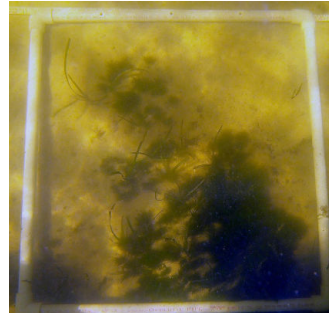
Katherine Rose, UF/IFAS Extension Florida Sea Grant Charlotte County
 Betty Staugler, NOAA Harmful Algal Bloom Liason

PERCENT COVER



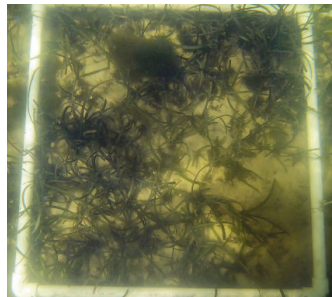
Estimating Percent Cover is, by nature, subjective. Have each member of your team estimate percent cover and come to a consensus. A 5% difference among teammates is small. Talk it through if your estimates are more than 20% different.

According to Seagrass Biologists...



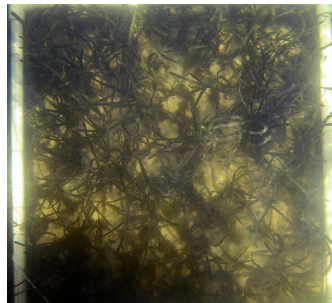
25% algae

5% seagrass



5% algae

45% seagrass



0-5% algae

60-70% seagrass*



0-5% algae

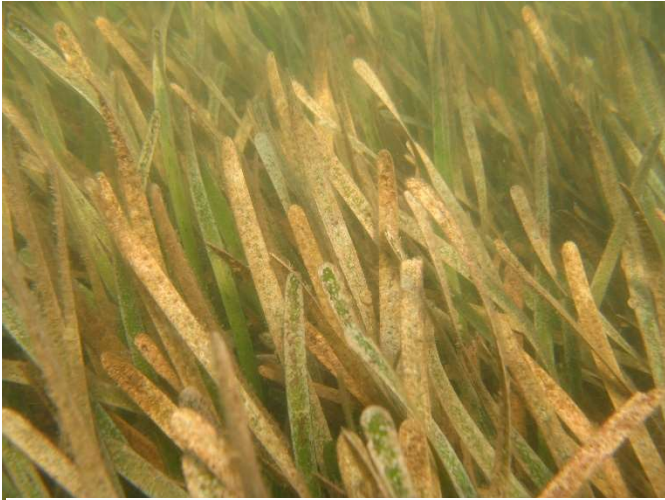
60-70% seagrass*

Roger Williams, 2010.
 Simply Science: Biomass Survey.

*Some might estimate higher percent cover in these quadrats. Note that sand is still visible through the seagrass.

SEAGRASS EPIBIOTA

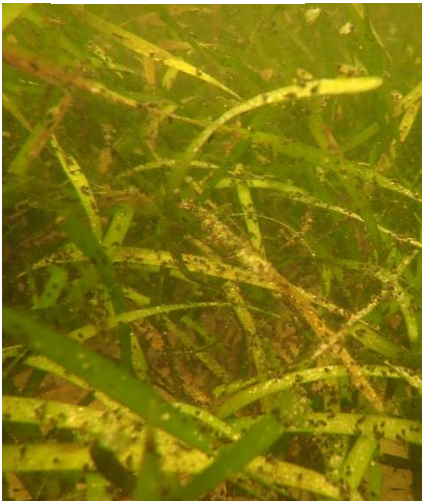
EPIPHYTES (PLANT GROWTH)



FDEP Biscayne Bay Aquatic Preserve photo

EPIFAUNA (ANIMAL GROWTH)

Snails



Barnacles

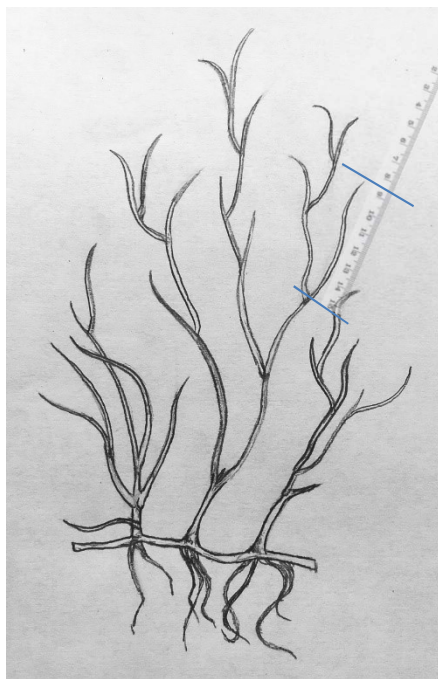
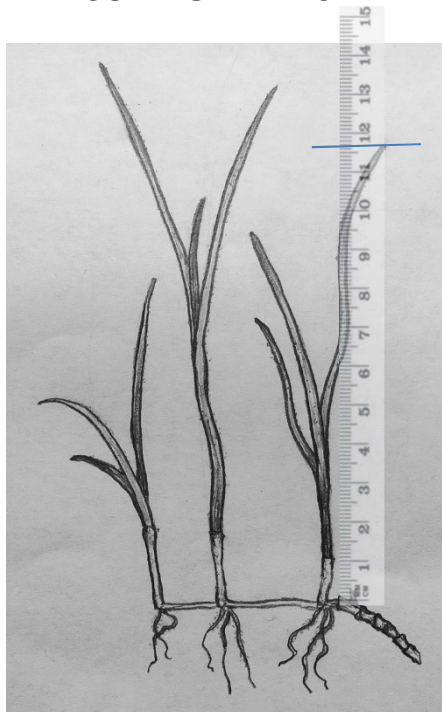


Tunicates



Photo: FDEP Charlotte Harbor Aquatic Preserves

MEASURING BLADES



Measure entire blade from shoot to tip. For branching *Ruppia*, measure from a node to tip of blade. No need to measure either *Halophila* species.

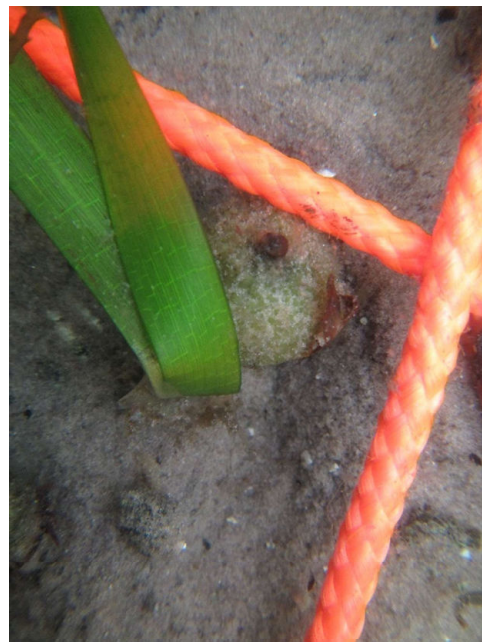
LOOK FOR FLOWERS AND FRUIT – May be flowering in April

Thalassia Flower



Photos: FDEP Charlotte Harbor Aquatic Preserves

Thalassia Fruit



Staugler, UF/IFAS Extension, Charlotte County

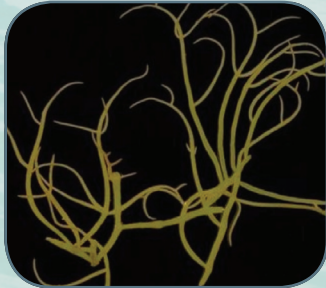
17. *Hypnea musciformis*

Red, red-brown, orange-brown, often tangled. Branches sparse, wiry, with curved, hook-like tips. The hook tips are flattened while the branches are rounded.



18. *Lomentaria baileyana*

Pink-red, green, to red-purple, tangled and soft. Branches sparse, delicate, uneven, rounded, with tapering, blunt tips.



19. *Sargassum filipendula*

Green, brown-green, to tan. The tough, wiry, stem has few branches, but has regularly spaced long narrow blade-like "leaves" and grape-like, air filled vesicles.



20. *Ulva lactuca*

Green to bright or neon green, soft, and slippery. The lettuce-like structure is thin, ruffled, and delicate. Often occurring in lettuce head-like clumps but can occur as single ruffled layer.



The works of Dawes, Mathieson, and the Littlers were used as references for the algal descriptions. Sources: Dawes C. J, Mathieson C. 2008. The seaweeds of Florida. Gainesville: University Florida Press. 591 p. Littler D. S, Littler M. M, 2000. Caribbean reef plants. Washington D.C.: Offshore Graphics. 541 p.

SEA GRASSES IDENTIFICATION GUIDE

Sea grasses are grass-like flowering plants that live completely submerged in marine and estuary waters. Sea grasses occur in protected bays and lagoons and also in deeper waters along the continental shelf of Florida.

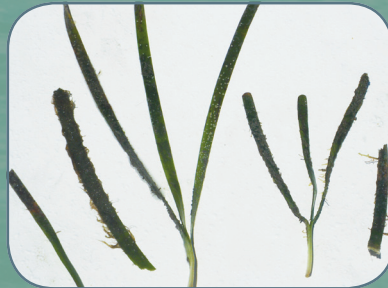
A. *Syringodium filiforme* Manatee Grass

Elongated, cylindrical leaves. Similar to spaghetti.



B. *Thalassia testudinum* Turtle Grass

Elongated, flat blade leaves. Similar to fettuccini pasta.



C. *Halodule wrightii* Shoal Grass

Length usually less than 6", thin, flat blades. Can be distinguished from Manatee Grass by having flat versus cylindrical blades.



Halophila engelmannii Stargrass

These are smaller, more fragile sea grasses. Only limited information about them exists, although surveys are underway to define their ecological role.



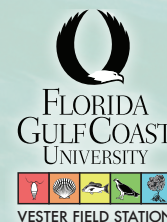
What is algae and why is it important?

- Algae are not true plants, but a large and diverse group of eukaryotic (complex-celled) photosynthetic organisms. They provide food and shelter for many aquatic animals including small fish, crabs and shrimp.
- Algae drifting and washing ashore is a natural process.
- Seagrasses are plants and not algae.

How to report an algae event:

- Call 239-745-3052 to report large mats of algae that have washed ashore.
- On the phone recording, report the following information:
 - Where did you find the algae? You may report a close public beach access, address or description of location.
 - Day and time:
 - How much?
 - How large an area is covered by algae?
 - How deep is the algal mat?
- Based on this FGCU Seaweed Identification Guide, state which algae number located next to its photo you believe it to be. You are welcome to offer 2 or 3 best guesses if it helps!!! Please note, sometimes colorful algae will sun bleach to white or opaque.

The content of this guide was created with the help of FGCU's Bob Wasno, Katie McFarland & Taylor Walker Cover photo and brochure design by FGCU's James Greco



Florida Gulf Coast University
10501 FGCU Blvd, S., Fort Myers, FL 33965-6565
www.fgcu.edu/vestermarine
www.fgcu.edu/cwi
Funding provided by West Coast Inland Navigation District www.wcind.net

ALGAE IDENTIFICATION GUIDE



FLORIDA GULF COAST UNIVERSITY



VESTER FIELD STATION

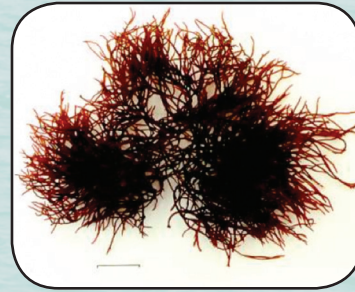
1. *Agardhiella subulata*

Deep red in color, stems are round, slippery, and firm. Branches are pinched or tapered at base and pointed at the tips.



5. *Solieria filiformis*

Pink-red to deep red, bushy, and densely branched. Branches are fleshy, pointed at the tips, and sharply tapered at the base.



9. *Gracilaria mammillaris*

Dark red to red-brown, bushy and tough. The main branches are flattened and strap-like, with tips divided into two or more hornlike sections.



13. *Champia parvula*

Red, red-brown, to brown, delicate, jelly-like, and slippery. The branches are short, slightly flattened or rounded, and covered in band-like constrictions.



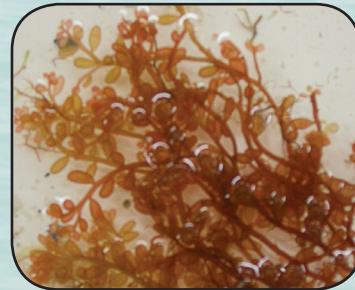
2. *Agardhiella ramosissima*

Plant pinkish-red to brown, with very flat, strap-like stems and branches. The smallest branches are rounded and not flattened.



6. *Botryocladia occidentalis*

Red to orange-brown, main stem tough and wiry. Branches covered with oblong, oval shaped, grape like clusters that appear to be filled with air.



10. *Gracilaria tikvahiae*

Red, red-brown, or green-brown with many rounded to partially flattened branches. Branches are delicate, slippery and sharply pointed.



14. *Caulerpa racemosa*

Commonly called "sea grapes". Green in color, distinguished by spherical branchlets ("grapes") arising from a horizontal runner (stolon).



3. *Gracilaria blodgettii*

Red to brownish, with many, rounded, tough, slippery branches. The tips of branches are often very tapered and pointed; older specimen may have blunt tips.



7. *Dasya ramosissima*

Red to red-brown, bushy, fluffy, and soft. Branches are dense, very delicate, and covered with many fine feathery hair like filaments.



11. *Caulerpa sertularioides*

Fern-like, green to light green, branches feather or fern-shaped, and sparse. The main stem of the algae is darker colored, wiry, and tough. The branches are more stretched out and elongated than the *Caulerpa mexicana* variety.



15. *Dictyota cervicornis*

Light green to olive green, densely branched. Branches extend at wide angles from the main stem, are flattened, spiraled, and have branching antler-like tips.



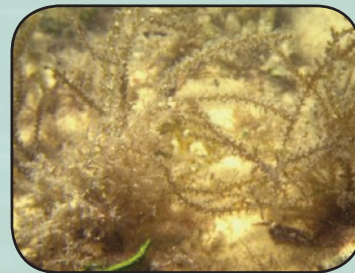
4. *Eucheuma isiforme*

Gold, red, or red-brown. Branches are sparse, tough, firm and cartilaginous. The main stem of the plant is often wider or swollen at the base.



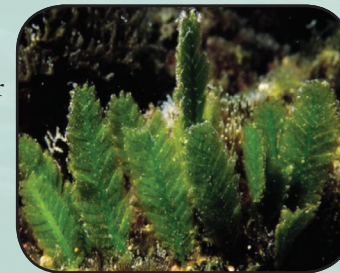
8. *Acanthophora spicifera*

Sandy to red-brown with few branches. Branches are rounded and covered with spiny, spur-like projections.



12. *Caulerpa mexicana*

Green to light green, delicate, creeping plant. Branches fern or feather-shaped shorter and more compressed than *Caulerpa sertularioides*.



16. *Hincksia mitchelliae*

Deep red in color, stems are round, slippery, and firm. Branches are pinched or tapered at base and pointed at the tips



If you have any information about algae washing up on the beach, call this number: 239-745-3052. Please report the types of algae seen, (according to this guide) as well as, date, time, general location, and approximate size of the algae event.

What's the Deal with *Dapis*?

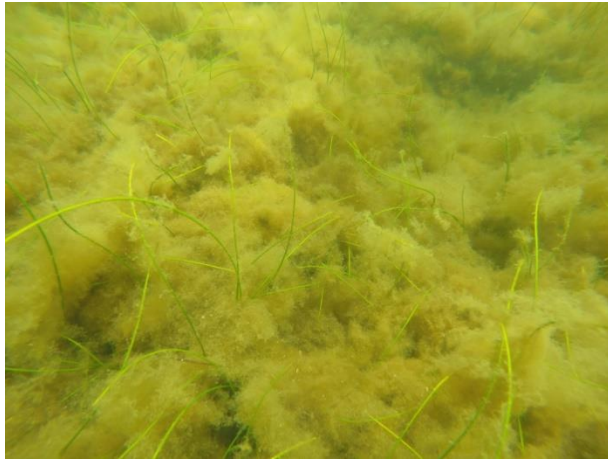
Dapis pleousa (aka *lyngbya* or gumbo) is a type of cyanobacteria that can proliferate if given the right conditions of warm water + nutrients + sunlight. It originates on the bay bottom, often attached to seagrass, oysters, or other substrates, and then floats to the surface creating mats of sometimes smelly decaying matter.



How do we categorize *Dapis*?

Depending on where it is in its life cycle, *Dapis* can either be counted as an:

Epiphyte – if you see *Dapis* covering the bay bottom and still ATTACHED to seagrass, count it as part of epibiota density and note that it was due to *Dapis*.



Dapis attached to seagrass = high epibiota density



Macroalgae – if *Dapis* is NOT ATTACHED to seagrass and is floating above the sediment in your quadrat, or if you can brush it aside like you can with macroalgae, count it as part of the macroalgae % cover.



Dapis unattached and/or floating above bay floor = part of macroalgae % cover