

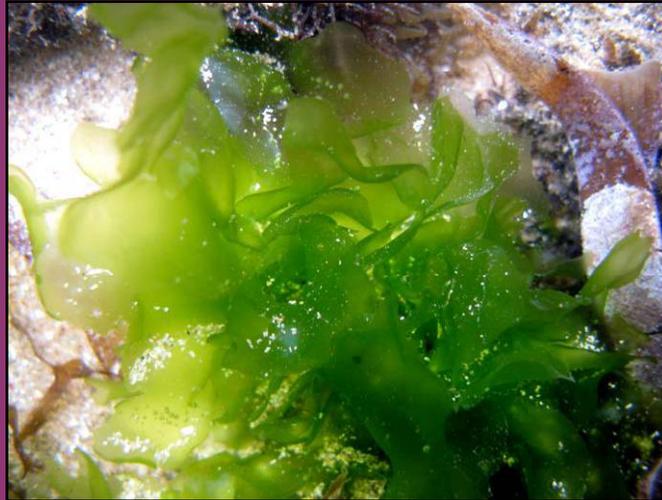


Seaweeds



Seaweeds come in 3 groups

Green
(Chlorophyta)



\pm 4038 species
in the world

Brown
(Phaeophyta)

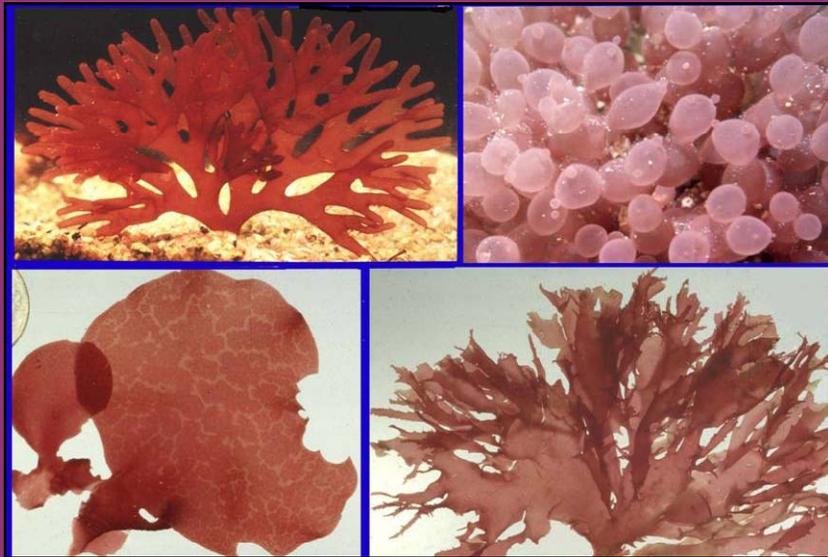


\pm 3054 species
in the world

And....

....and red (Rhodophyta)

Red



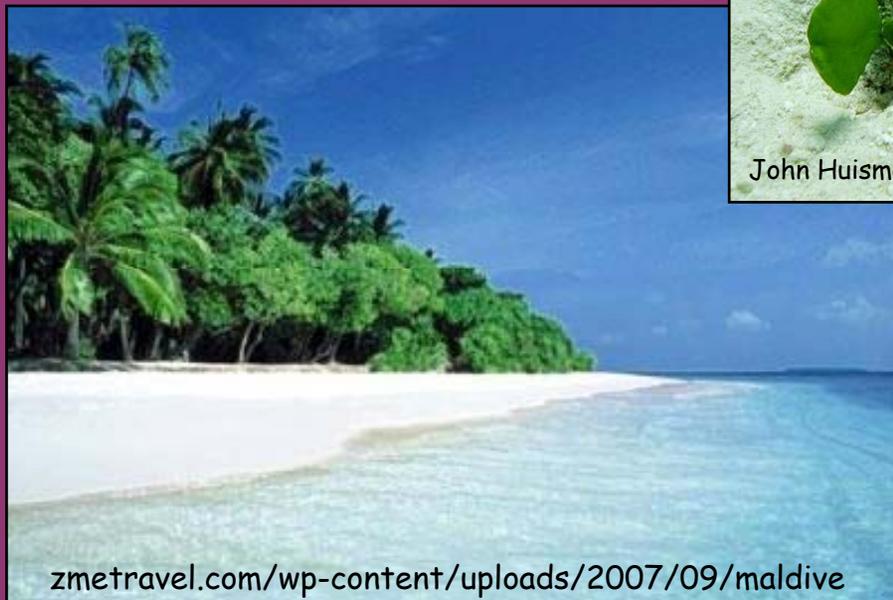
± 6110 species
in the world

Red algae are not always red,
they might be green, purple
or brown.



Seaweeds make beach sand

Many tropical seaweeds have a hard skeleton made of calcium carbonate.



zmetravel.com/wp-content/uploads/2007/09/maldives

When the seaweed dies or the fronds fall off, the skeleton breaks down. This can make as much as 44% of the components of reef sediments or sand on some beaches.

Other seaweed facts

Seaweeds can grow very fast...

Some kelps can grow up to one foot per day.



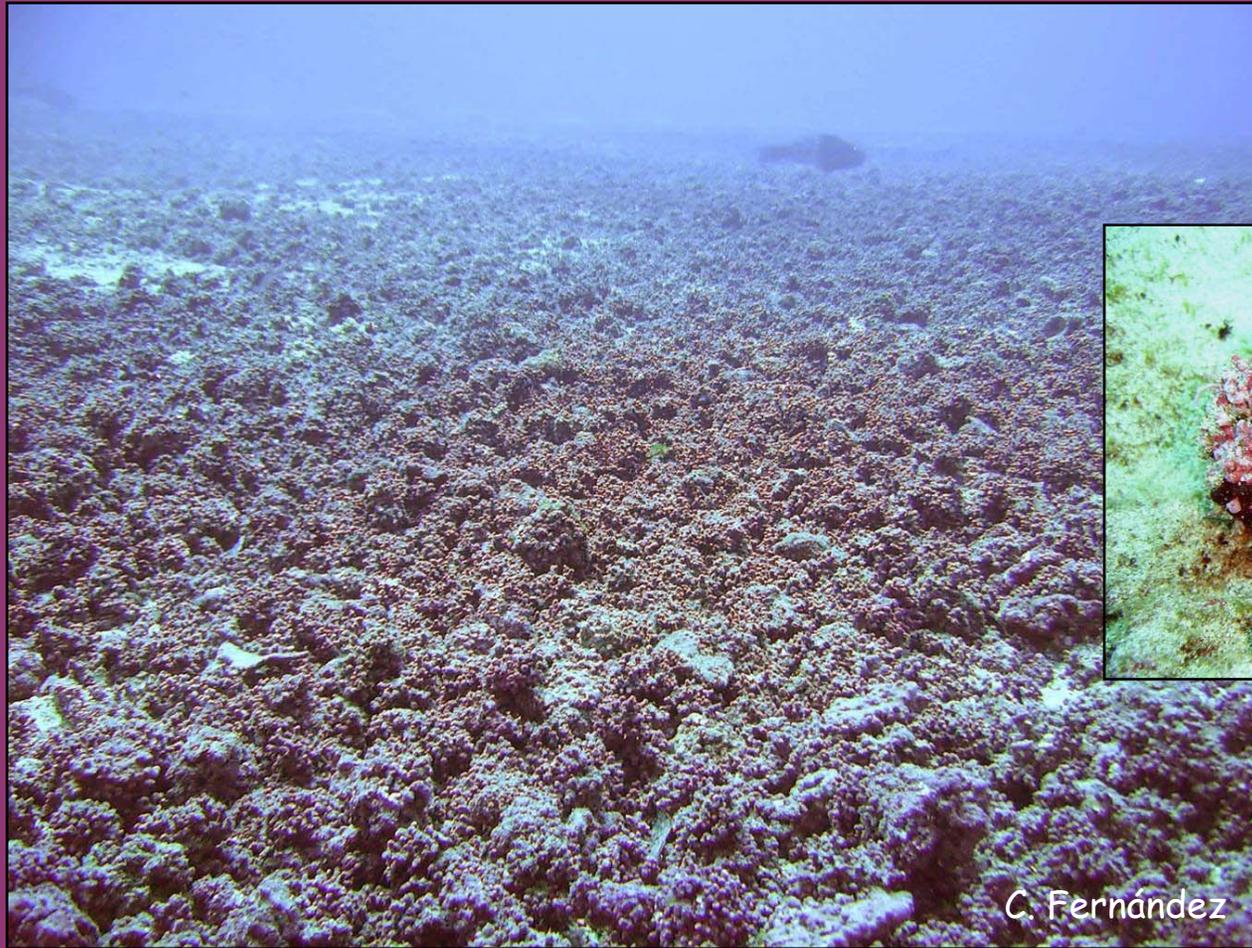
A. Suárez-Castillo

....And some grow very slowly

Some crustose coralline algae grow very slowly. These crusts can expand as fast as 3 mm per month and grown in height only 2 mm per year.



Some seaweeds look like rocks



These red algae, called rhodoliths, bring refuge to juveniles of commercial importance species.

Blooms of algae



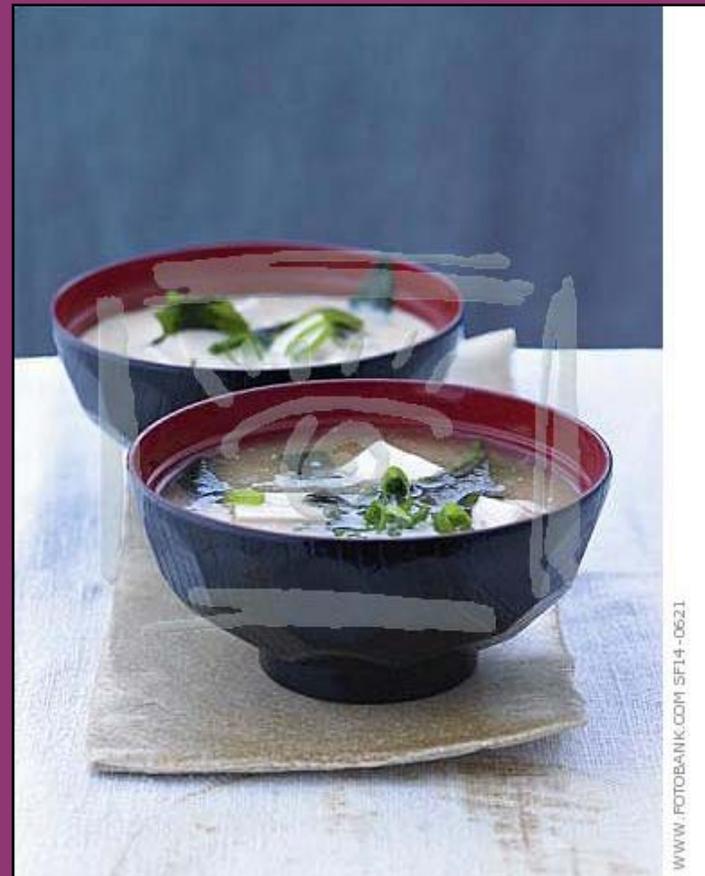
Algae are considered bioindicators of sites with contamination or high concentration of nutrients

People eat seaweed

Seaweed salads and soups are popular in Asian food.



In Japan edible seaweed crops have an annual value of over half a billion dollars and seaweeds are the world's 6th largest aquatic crop.



...You eat seaweed even if you have never tried these exotic dishes....



Seaweeds are in a lot of products in a typical US grocery store; They are included in things you use everyday, like toothpaste as well as treats like ice cream and yogurt.

Seaweeds have a long history of helping people

Seaweed has been used as a soil improver for centuries, particularly in coastal areas



G. Blunden © G. Blunden

Iles de Glenán, Brittany, France; maerl for agricultural purposes 10 Jun 1972.



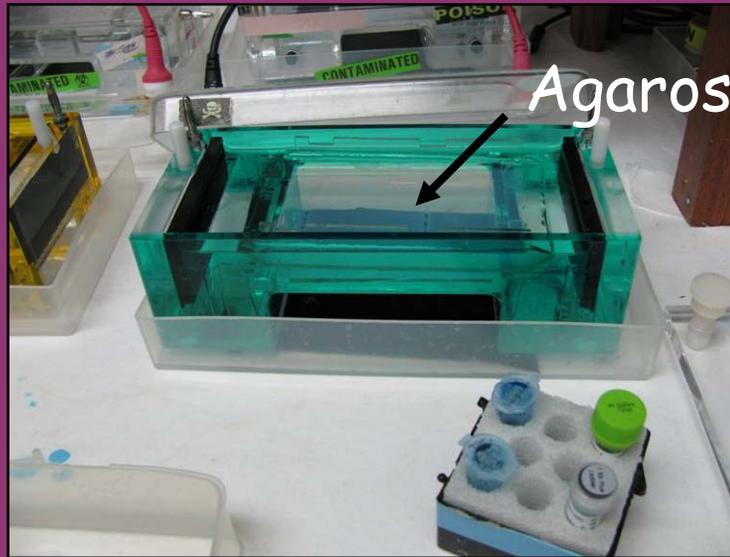
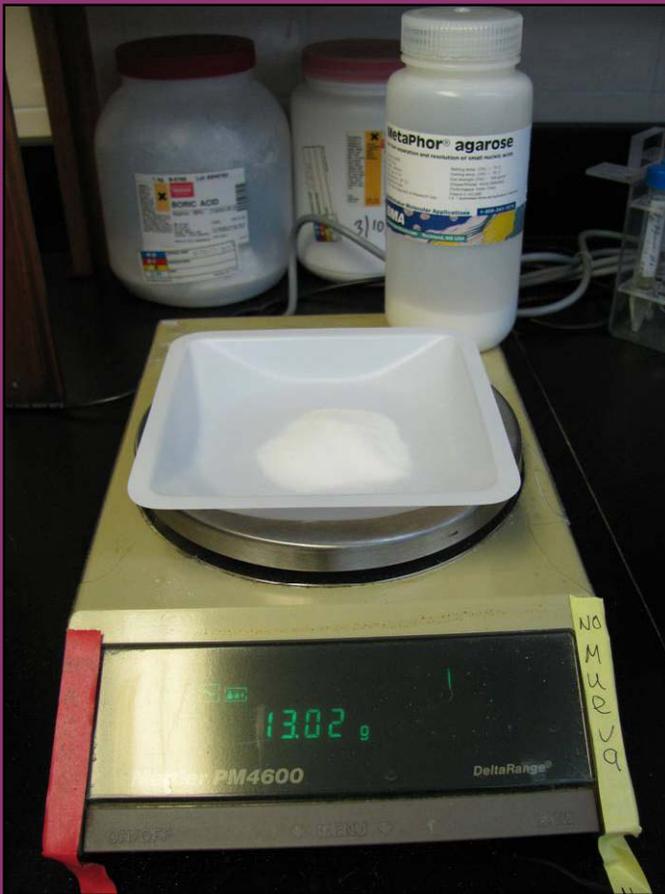
M.D. Guiry © M.D. Guiry

Phymatolithon calcareum, algae used as fertilizer

Seaweed was also used as fodder for livestock and as natural fertilizer for crops owing to their high potassium content.

Seaweeds are vital for biotech

Agar comes from some species of red algae and is used in deserts as vegetable gelatin Without agar biomedical researchers could not grow bacteria or do genetic analysis.



Agarose Gel

Bacteria grown on agar plates are vital for research in many disease as well as tests for antimicrobial drugs.



Other seaweed facts

Toyota wants to make a car out of seaweed.



Using Kelp-based
Bioplastics for
Future Hybrid Cars

<http://www.toyota.com.au/HybridSynergyDrive/news/160209.html>

Seaweeds are important to tropical ecosystems

Seaweeds are eaten by many animals. These include sea slugs, fishes and turtles.



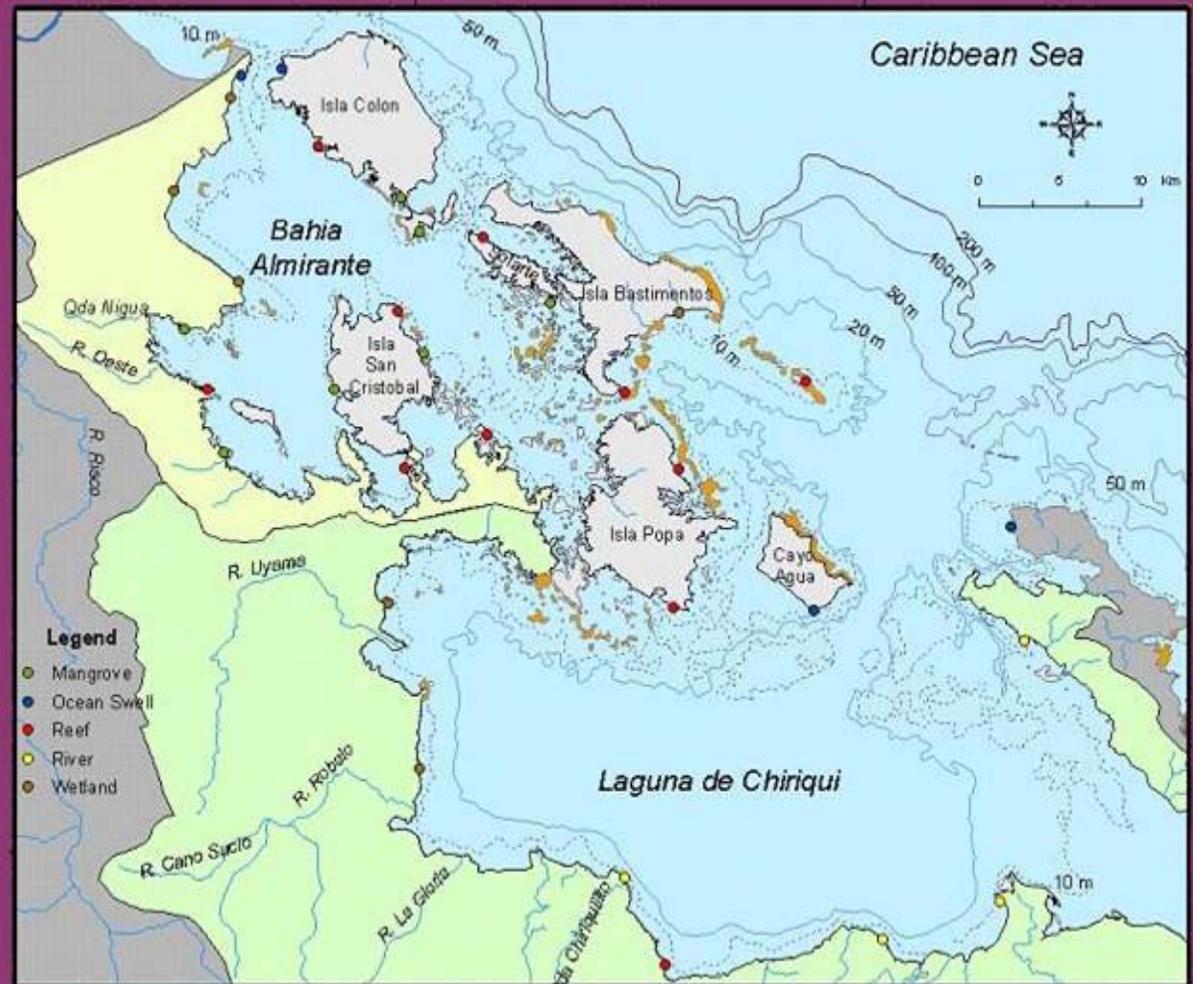
Seaweed provide shelter for many small animals that hide among their fronds.



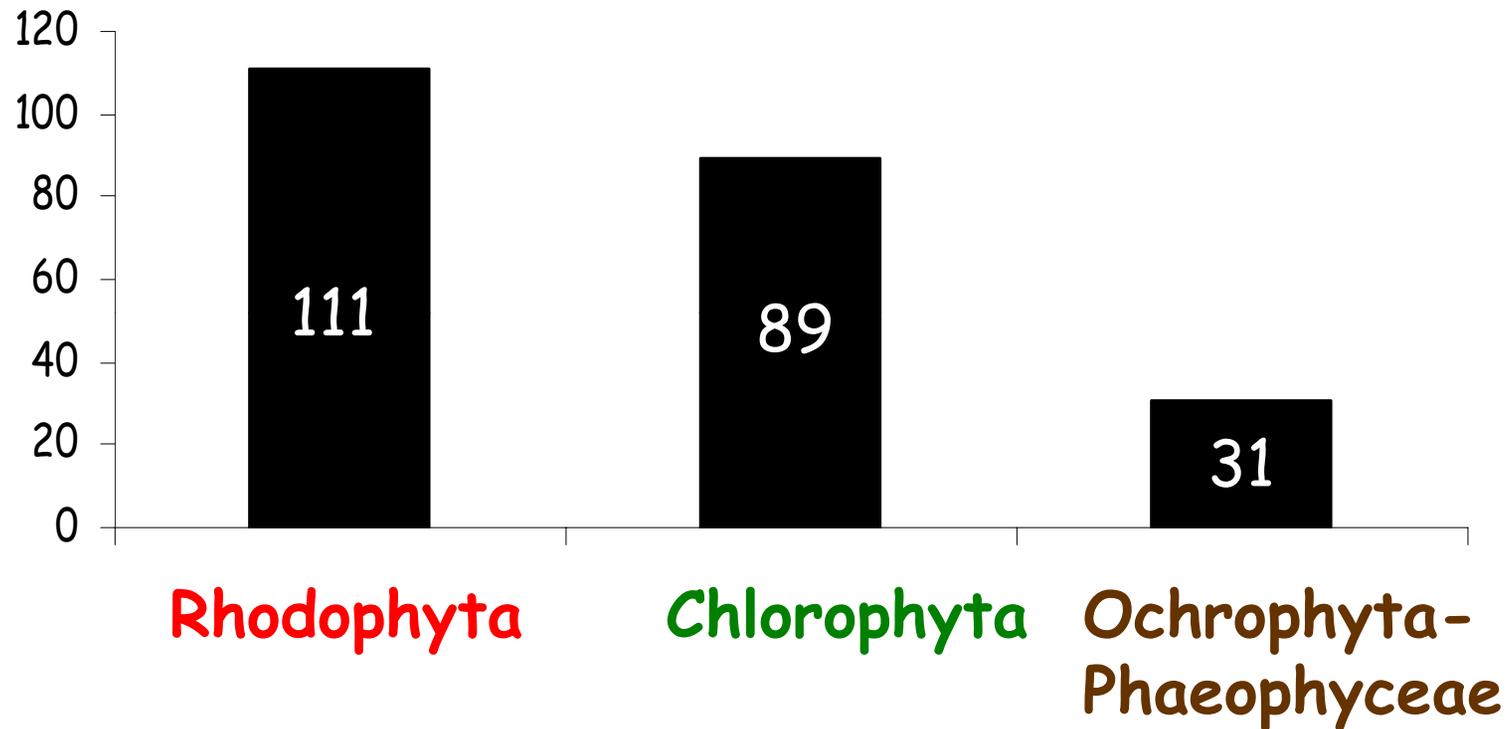
Bocas del Toro, Panamá seaweeds



There are 231 species recorded in Bocas del Toro, Panama



Bocas del Toro, Panama



Total = 231 spp.

(Wysor & Kooistra Sep. 1999, Wysor & Freshwater, Jan. 2007)

We are training Seaweed biologists



With the help of the US National Science Foundation and Panama's SENACYT, STRI's Bocas del Toro Research Station held a workshop to train 20 seaweed scientists from 16 countries.

Acknowledgments

Photos by:

- Tropical Phycology Course 2008:

http://striweb.si.edu/taxonomy_training/past_courses/2008/2008_phycology.html

- Cindy Fernández G.

- Algae Base

- Various internet sources

