

Laboratory Study of Marine Algae

During this period you will become better acquainted with some attached marine algae. Keep in mind that these are the producers upon which all other life in the sea depends. Read the instructions carefully, study the material available to you. Make careful sketches, answer questions and prepare mounts as required. (10 points)

1. Explain

Why green algae are green -

Why brown algae are brownish -

Why red algae are reddish -

2. Pull some of the brown algae apart. What do you observe about the substance in it? What is the consistency like? What do we humans use this for?

3. Polysiphonia

Prepare a wet mount of this small, branching filamentous form and sketch a portion as it appears with 100X magnification. Is this a green algae, a brown, or a red? Why?

Develop and then test a hypothesis for the following question.

Question: How Does cell shape change (what is the response of the cells) with change in salinity?

Hypothesis (state what you think will happen):

Test:

place a thin section of algae on a slide with a few drops of seawater. Observe it carefully, and draw what you see. Place a small piece of paper towel at one end of the coverslip to draw out the water. At the same time, replace the water with drops of distilled water at the other end of the coverslip. Wait two minutes, then observe and draw the cells again. How have they changed? (NOTE: changes may be subtle!). Repeat the process, but instead add several drops of very salty water. What happened now? Draw and describe the results below, and outline your **methods** (how you did it) next to each drawing.

Seawater:

Fresh water

Salty water

4. IDENTIFICATION AND MAJOR CHARACTERISTICS OF GREEN, RED AND BROWN ALGAE
 - A) Name (classify) and carefully sketch 2 different red, green and brown algae (6 total). Comment on where you think they live (intertidal, underwater etc.) and why. How are they adapted to live there? What specialized adaptations do they seem to have?
 - B) Be sure and include a scale (size chart) for each drawing. List the major characteristics for each one you draw (eg. Does it have air bladders?)

5. What are some common uses of algae?

