Cnidaria cont.

1. Ctenophores are here. Make these the stars of your lab. Obtain a short video of a Ctenophore light show if you can. The trick to obtaining a good light show is to use low overhead lighting against a dark background. If that does not work try just low lightening from below. You need the light to bounce off those ctenes and so the just the “right “ angle to see it refracted back at you in colors.

Feed your Ctenophores some brine shrimp. Try to obtain a video of them feeding. Shrimp “caught” on the body or tentacles will be moved toward the mouth and into the digestive tract.

They sent us a limited number of Ctenophores so please go ahead and share your observations with other students if you are lucky enough to have lighting at the right angle or a specimen who feeds for you.

If you can’t get videos, please at least obtain photographs with ctenes and tentacles labeled.

1. Observe *Aiptasia* feed and examine nematocysts. Record your observations in your journal.
2. View other Anthozoa, a group that does not have medusa in its life cycle.

We have one specimen of true (hard) coral and then a few others representative soft corals or octocorals. Although these superficially look like Hydroid colonies on close examination they reveal their “anemone” nature. **Please obtain a photograph of a polyp that allows you to see their 8-fold symmetry**. Note how complex colonies can become by viewing the sea pansy. Sea pansies sometimes cooperate and feed. Try brine shrimp.

Sea pansies can become bioluminescent when they are disturbed, such as when touched. Green Fluorescent Protein (GFP) causes this bioluminescence. This protein generates green waves of light that pulse outward.

When we could get more individual colonies we were able to take the pansies into a dark room and get them to deposit some protein on an instructor’s or students’ gloves. Unfortunately, once disturbed, the colony of course will not feed and polyps retract for days, making one lab’s experience interesting and the other’s not so much.

4. We also have a mystery organism. We have colonies of Bryozoans, a clade we will examine later in the course. They are a summer breeder and so often not available as viable colonies later. Please obtain photograph of the lophophore or feeding organ. Superficially these organs look like hydroid tentacle when extended. The also obtain photographs of as much of the internal anatomy as you can. At this point all you will notice an organism that looks superficially like a hydroid but has a lot more insides or a complex internal anatomy. You will use the photographs later in the course.

These guys are small and shy. It’s a matter of viewing under dim light under the highest power until you can see lophophores are extended. Then slowly adjust light so you can obtain a decent shot or video of some individuals. They will feed on any algae suspension available. It’s hard to imagine but colonies consisting of several thousands of individuals can get big enough to block water lines.

A hydroid colony should be available so you can compare polyps to zooids in your journal. How about trying if time permits to obtain a side-by-side shot. Get a very small petri dish or watch glass. Add seawater. Cut a piece (one inch or so) of bryozoan colony off with scissors. Do the same for the hydrozoan colony. Place them next to each other, view under the microscope and wait for extension of lophophores or tentacles.

PRODUCTS

At the end of this lab, you should have videos of Ctenophore movement and perhaps feeding.

Photographs should be taken of *Aiptasia* symbionts and discharged nematocysts. Please obtain videos of specimens feeding if possible.

Please take photographs of soft coral or octocoral polyp external anatomy showing their 8-fold symmetry. Extra points will be awarded for good films of feeding.

Please obtain photographs of Bryozoan anatomy showing the extended lophophore and internal anatomy. These will be used later in the course.

Note:

Zooids and polyps are interchangeable terms for most clades. However, the term polyp is often used in texts treating Cnidarians. Yet most papers, etc. treating other clades, such as Bryozoans use zooids for members of an individual colony. Why, I don’t know. Perhaps “TRADITION” ?