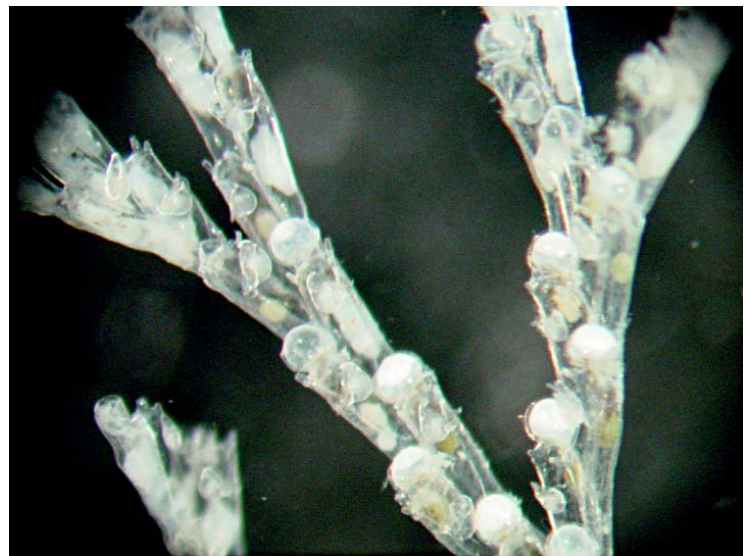
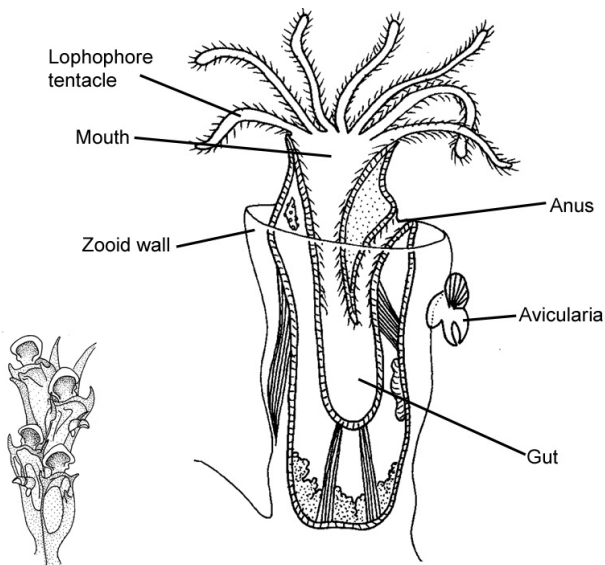


BRYOZOAN LAB ACTIVITIES

Bryozoans are colonial animals made up of tiny individuals called **zooids**. Each zooid is located in a small chamber called a **zoecium**. The zoecia are linked together to form branching colonies, as in *Bugula* (shown below), or arranged like blocks along a surface, as seen in the encrusting bryozoan species. The zooids extend their lophophore through the **aperture**, an opening in the zoecium. Encrusting species of bryozoans have an operculum that can close off the aperture when the zooid is retracted into the zoecium. The **avicularia**, named for their resemblance to the head and neck of a bird, are located at the outer corners of the zoecia. The avicularia found on *Bugula* have a pivoting **mandible**, resembling a vulture's "jaws", but most lack the stalked "neck" that emphasizes the bird-like appearance. Avicularia probably serve a protective function, preventing other small animals from attaching to and possibly fouling the colony. The white, globular structures at the distal ends of the zooids are **ovicells**, protective chambers in which an embryo develops before forming a new zooid.



Colony Morphology in *Bugula*

1. Examine different *Bugula* colonies using a dissecting microscope. Examine the distribution of avicularia (not all *Bugula* species have them), ovicells, and spines. Is there some predictability with respect to their locations, such as near or away from branching points, or at a predictable periodicity as one goes along a branch? Are there differences with respect to ovicell, avicularium, or spine positioning between old (large) and young (small) colonies? How about any differences between young individuals and second generation individuals on a large colony? (As one goes from the top of a colony to its base, one can recognize different generations by looking for zoecia containing brown bodies, which occur in groups; these separate one generation from the next as one goes from the tip to the base of a branch.)
2. Compare colonies collected from different locations. Is there evidence that differences between locations in terms of differing current velocities or sediment loads affect colony morphology? Are there differences between colonies that are subtidal and those that are intertidal in terms of the proportion of zoecia that consist of second generation feeding individuals, first generation feeding individuals, and individuals with brown bodies (intertidal colonies can't feed as much). One could also determine how many ovicells there are per number of zoecia for intertidal vs. subtidal colonies.