

**14. Lophophorate phyla (Ph. PHORONIDA, Ph. BRYOZOA, Ph. BRACHIOPODA)
and Ph. KAMPTOZOA**

"They have crowns, but no heads to set them on."--Paul Illg

MAJOR TAXA

The lophophorate ("crest-bearing") phyla

- Ph. Phoronida (15 spp)
- Ph. Bryozoa (4500 spp)

- Ph. Brachiopoda (350 spp, 20,000 fossil)

Cl. Articulata

Cl. Inarticulata

Ph. Kamptozoa (150 spp)

Recap: Urochordates: the ultimate (deuterostome) filter-feeding machines

TOP TEN areas to explore and appreciate about the lophophorate phyla

9. What's a lophophore?
8. Multiple coelomic spaces in lophophorate body plans
7. U-shaped guts of phoronids and brachiopods, and incomplete guts of brachiopods
6. Body orientation and mechanism of shell opening in the two-valved articulate brachiopod
5. Mechanisms of bryozoan zooid extension
4. Coloniality and zooid specialization in bryozoan colonies
3. Varying strategies for increasing feeding capacity among different lophophorate phyla
2. Convergence of a tentacled crown in the non-lophophorate kamptozoans
1. Patterns of water flow/defecation in kamptozoans (entoprocts) vs. bryozoans (ectoprocts)

GOALS

After studying from lecture notes and the associated reading, you should be able to:

- Describe general similarities and differences among the lophophorate phyla
- Describe features of the lophophorate body plan, including the lophophore, the position of the mouth and anus, the U-shaped gut, and coelomic compartments
- Explain three different ways that lophophorate phyla are able to increase the size of the feeding structure as individuals grow larger in size
- Explain how muscles are used in the extension and retraction of the lophophore in different bryozoan zooids
- Describe four different ways that zooids can become specialized for different functions within bryozoan colonies
- Explain how body orientation within the shell and mechanisms of shell opening and closing differ between brachiopods and other two-shelled invertebrates (bivalve molluscs, ostracod arthropods)
- Trace patterns of water flow through the lophophore for each of the lophophorate phyla, and describe how this differs from water flow in kamptozoans
- Describe differences between bryozoans and kamptozoans in body form, water circulation, internal body cavities, and the location of the anus, and explain the meaning of the alternate phylum names "Ectoprocta" and "Entoprocta"