**BIOL 112 Lab Questions – 14b – At the Aquarium**

*Adapted from Biology Department Lab Handout*

The South Carolina Aquarium features aquatic organisms from all ecological regions of the state. Upstairs are exhibits representing the aquatic habitats found in the Mountains, Piedmont, Inner Coastal Plain and Outer Coastal Plain. Note that most of these exhibits specifically include the plant communities that are associated with these aquatic ecosystems. Be sure to comment on these in your report. The large tank in the center represents the off-shore eco-region. There are additional, changing, exhibits that feature other interesting eco-regions, some from outside South Carolina.

Our visit to the aquarium is designed to introduce you to the major groups of animals and some of their adaptations to different environment. This is possible because members of all major animal groups occur in aquatic environments (although not all are represented at the aquarium).

As we walk through the aquarium, make notes on the tables below so that you are able to discuss structure-function relationships and important adaptations. This will require observing and reading about the exhibits, and discussing the animals and associated plants with your classmates. As you type your notes into the table while preparing your report, the rows should expand in height – don’t change the width of the columns or your table will run off the page!

**As we walk through the exhibits, also make notes to answer these questions:**

1. What are the differences in structure between a fish that lives on the bottom and one that lives in the water column?
2. What adaptations allow animals to move quickly through the water?
3. How do animals make a living if they do not move (e.g. sponges or corals)?
4. Discuss at least one adaptation to water that has evolved multiple times in animals.
5. What groups did you find that have this adaptation?
6. Which eco-regions of South Carolina (see above) have the greatest and the least diversity of animal phyla?
7. Which eco-region of South Carolina have the greatest and the least diversity of plant life, as best you can tell from these exhibits?
8. What explanation do you propose for these differences?
9. What are some of the adaptations to wet environments that you can observe in the plants found in these exhibits?
10. What were the most interesting animals and plants to you? Why?
11. Write an overview of our activities today, and evaluate whether they helped you to cement your understanding of plant and animal diversity, structure, function and adaptations, and whether they improved your understanding of evolutionary processes. Remember, I expect this to be your most synthetic and analytical lab report!

Here’s a basic phylogeny of the major phyla of extant organisms:

<http://biology.unm.edu/ccouncil/Biology_203/Summaries/Phylogeny.htm>

Scroll down until you find the phylogeny that is printed on your handout.

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| Animal Group | **Example in the aquarium** | **Body symmetry (asymmetric, radial symmetry, bilateral symmetry)** | **Habitat** | **Mechanism of movement** | **Appendages (what kind, how many)** | **Adaptations** |
| Phylum Porifera (sponges)  (only as models in tanks) |  |  |  |  |  |  |
| Phylum Cnidaria (corals, anemones, jellyfish) |  |  |  |  |  |  |
| Phylum Ctenophora (combjellies) |  |  |  |  |  |  |
| Phylum Annelida (segmented worms) (only as model in exhibit) |  |  |  |  |  |  |
| Phylum Mollusca (snails, clams, octopus) |  |  |  |  |  |  |
| Phylum Arthropoda (insects, spiders, crustaceans) |  |  |  |  |  |  |
| Phylum Echinodermata (starfish, urchins) |  |  |  |  |  |  |

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| Animal Group | **Example in the aquarium** | **Body symmetry (asymmetric, radial symmetry, bilateral symmetry)** | **Habitat** | **Mechanism of movement** | **Appendages (what kind, how many)** | **Adaptations** |
| Phylum Chordata (chordates) |  |  |  |  |  |  |
| Class Osteichthyes (bony fish) |  |  |  |  |  |  |
| Class Chondrichthyes (sharks, rays) |  |  |  |  |  |  |
| Class Amphibia (frogs, salamanders, toads) |  |  |  |  |  |  |
| Class Reptilia (snakes, lizards, turtles, alligators) |  |  |  |  |  |  |
| Class Aves (birds) |  |  |  |  |  |  |
| Class Mammalia (mammals) |  |  |  |  |  |  |

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| **Plant Group** | **Example in the aquarium or on our plant walk** | **Habit** | **Habitat** | **What animals are supported?** | **Reproductive parts** | **Adaptations** |
| Mosses, liverworts, hornworts |  |  |  |  |  |  |
| Ferns, horsetails |  |  |  |  |  |  |
| Gymnosperms |  |  |  |  |  |  |
| Angiosperm Monocots |  |  |  |  |  |  |
| Angiosperm Eudicots |  |  |  |  |  |  |