

**ZOOL 320L Aquarium Field Trip**

Name: \_\_\_\_\_

1. What are the defining shared derived characters possessed by vertebrates that are not possessed by invertebrates (such as corals).

- A.
- B.
- C.
- D.

2A. What is the least inclusive taxon to which both vertebrates and sea urchins belong? (Hint: Animalia is too inclusive)

B. The frogfishes are an actinopterygian clade that has secondarily evolved superficially lobed fins. What is the taxon of ancestrally lobe-finned fishes that gave rise to the tetrapods?

3. What anatomical feature contributes to neutral buoyancy in the great barracuda (a teleost osteichthyan)?

4A. Which fins does the stripebelly puffer use in forward propulsion of the body?

B. Which fins does the wrasse use in forward propulsion of the body?

5. Which fins typically possessed by teleost osteichthyans have been lost by the moray eels?

6. Based on the relative sizes of its dorsal and ventral lobes, what type of caudal fin does the zebra shark have?

7A. What adaptation allows for internal fertilization in chondrichthyans?

B. Observe the zebra shark in the pelagic tank; based on the presence of absence of the feature in 8A, what sex is the zebra shark?

8. Name three anatomical differences between chondrichthyans and teleost osteichthyans.

- A.
- B.
- C.

9. How are the pectoral and pelvic girdles in chondrichthyans different from those in osteichthyans?

- A.
- B.

10. Based on the anatomy and behavior of the arowana, from what part of the environment does this fish take its prey?

11A. Which fins do seahorses use in forward propulsion of the body?

B. What is the caudal fin of the seahorse used for?

12A. Observe the monk seal. It is a mammal that is adapted to a mostly aquatic lifestyle. Its forelimbs and hind limbs are flattened and used for swimming. Are these flattened seal fins homologous or analogous to fish fins?

B. Consider the skeletal features that support the flattened monk seal's limbs. Are these skeletal features homologous or analogous to those of osteichthyans?