**How Are Fish Adapted To Their Environment?**

**I. Introduction**

Fish are vertebrates. Vertebrates are animals with backbones. In addition to fish, other organisms that are vertebrates are amphibians, reptiles, birds, and mammals.

Fish are the most diverse group of vertebrates. They include over 30 000 known species. Fish occupy almost every type of aquatic habitat on Earth. Some are adapted for saltwater and others for freshwater. Fish inhabit a wide variety of habitats, including wide-open seas, dense beds of aquatic plants, coral reefs, and rocky areas.

The diversity of fish is reflected in their large variety of body forms and means of locomotion they possess. Much can be learned about the ecology of individual fish species by examining its body shape and external anatomy.

Most fish species possess body forms adapted to one of seven types of habitats and ways of obtaining food: rover predators, lie-in-wait predators, surface-oriented fish, bottom-oriented fish, deep-bodied fish, flatfish, and eel-like fish.

In this Virtual Lab you will investigate the diversity of fish body forms and relate the shape and structure of each fish to the habitat and ecological niche of its species. By examining body shape and appearance and positions of fins, you will identify the body forms of various species of fish.

**II. Procedure**

1. Start the activity by going to the following website :

<http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS15/LS15.html> .

NOTE : The fish you will be examining are not shown to scale. In order to facilitate examination

of external characteristics, all fish have been rendered as large as possible.

1. Carefully examine the fish shown in the tank. Pay particular attention to the shape of the

fish’s body and the size, shape, and location of its fins.

2. Click the Fish Reference Guide to get information about each of the seven major fish body

forms. The Fish Reference Guide opens to the Table of Contents page.

3. Use the Table of Contents choices and the fingers pointing left and right to move between

pages of the Fish Reference Guide. There are seven sections in the guide, one for each fish

body form. Each section has two pages. The first page describes the characteristics of the

body form. The second page shows a typical fish with that body form. Move the cursor over

the fish to see labels and short descriptions of the its types of fins. Click a fin to hear its

name.

4. As you examine the fish in the tank, record information about its physical characteristics. Use

your own words or terminology from the Fish Reference Guide to fill in the Table.

5. Based on your examination of the fish and your review of the Fish Reference Guide,

determine which body form the fish in the tank possesses. Click the appropriate Body Form

button.

6. Click the Check button.

- If you correctly determined the fish’s body form, its common name will appear. Record

in the Table the body form and common name of the fish.

- If you incorrectly determined the fish’s body form, reexamine the fish, review the Fish

Reference Guide, and try again.

7. Click Reset to see a different fish in the tank.

8. Repeat the steps above until you have correctly identified the body forms of five fish species.

**III. Data**

1. Record your data in Table below.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Shape**  **Of**  **Body** | **Shape**  **Of**  **Caudal**  **Fin** | **Shape /**  **Location**  **Of**  **Pectoral**  **Fin** | **Number /**  **Location**  **Of**  **Dorsal**  **Fin(s)** | **Location**  **Of**  **Pelvic**  **Fin** | **Body**  **Form** | **Common**  **Name** |
| Fish 1 |  |  |  |  |  |  |  |
| Fish 2 |  |  |  |  |  |  |  |
| Fish 3 |  |  |  |  |  |  |  |
| Fish 4 |  |  |  |  |  |  |  |
| Fish 5 |  |  |  |  |  |  |  |

**IV. Analysis & Conclusions**

**1. List the seven major fish body forms. For three of the seven body forms, briefly**

**describe how physical characteristics are related to the habitat and the niche of fish**

**species in that category.**

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**2. Explain why forked caudal fins are important adaptations for rover-predators and lie-**

**in-wait predators.**

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**3. Deep-bodied fish are common in coral reefs where species have to make quick turns in**

**very tight quarters. Explain how body shape and fin arrangement in these species are**

**related to movement in this type of habitat.**

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**4. Bottom-oriented fish have large, broad pectoral fins and depressed( flattened top-to-**

**bottom) body shapes. Explain how these adaptations are well suited for life at the**

**bottom of a body of water.**

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