Dynamic Water

(30 minute activity)

Objectives

Students will be able to:
1) List habitat components of pools, riffles, and glides
2) Describe fish use of these habitats

Materials

- ❑ Substrate in different sizes
- ❑ Sticks
- ❑ A large, sturdy, rectangular cardboard box or a small snow sled

Background

As a background, study the hydrologic cycle in *What s in That H20*, and the importance of watershed and riparian areas (*Watershed Wonders* and *Riparian Rx* portions of this curriculum).

Fish dwell in three different habitat types: **pools**, **riffles**, and **glides**. See illustrations in Figure 1.

A *pool* is generally deeper than the surrounding area with slower water flowing through it. It has a scoured out area and a *pool tail-crest* at the lower end holding the water. Pools can be created by the scour around boulders, woody debris, or other obstructions in the stream.

A *riffle* can be shallow or deep with swift water flowing over different sized *substrate*. Steeper areas produce faster flows. Rapids and cascades are types of riffles.

Glide areas are gently moving, usually over a uniform stream bottom.

Our finned friends use different parts of the river for a multitude of purposes. For example, with adequate cover, juvenile fish rest in slower side channels and pools searching for insects. Adult fish such as bull trout and redband trout may be behind boulders in *pocket pools* or undercut banks, catching food that drifts down the adjacent riffle. The faster the water, the greater the food availability. Fish conserve energy by holding in slow areas next to faster waters. They dart out into the faster water to capture food. The area downstream from the *pool tail-crest* and glides often provide excellent spawning gravel for salmon and steelhead.

Riffle, Pool, Glide

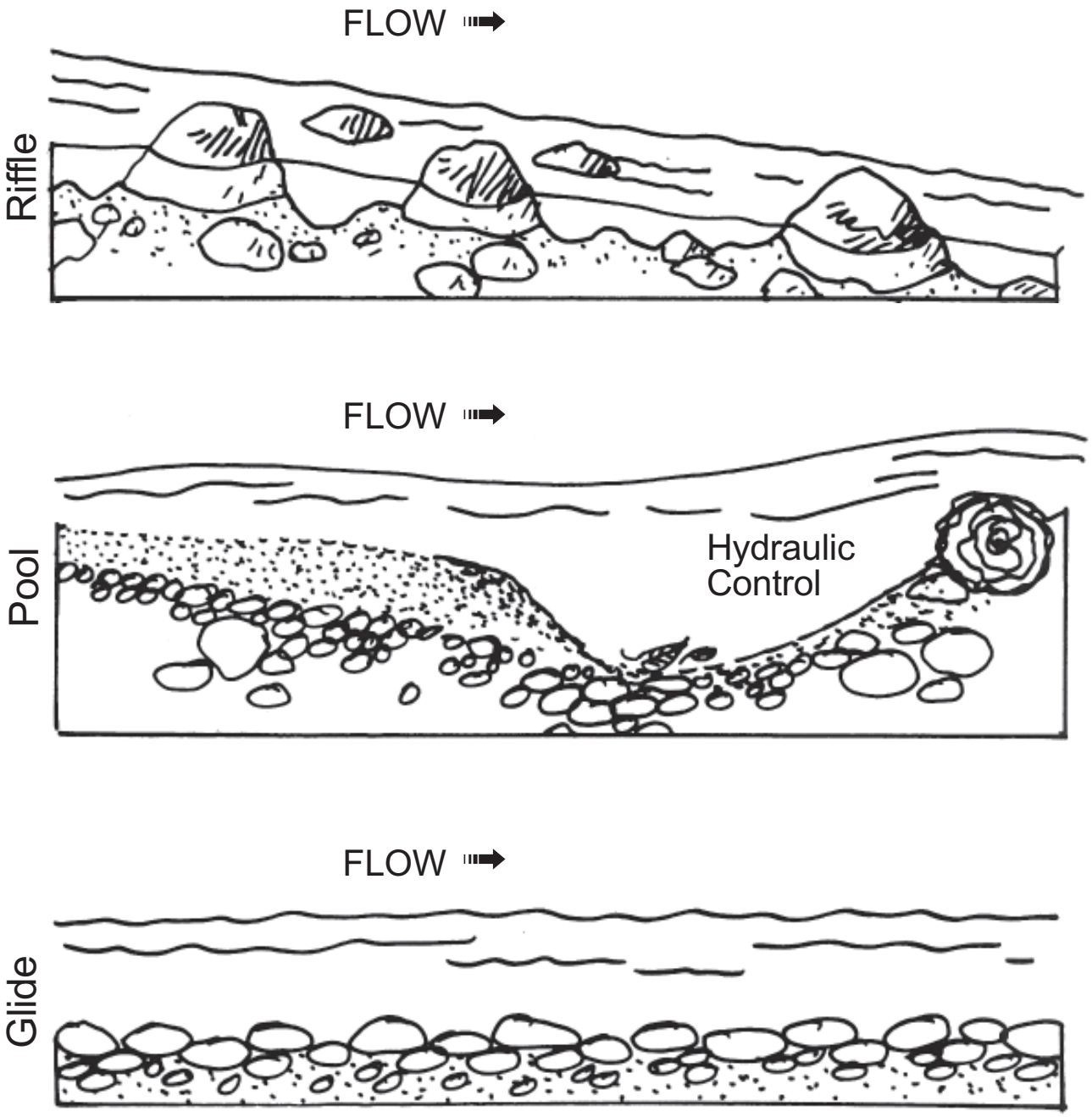

Figure 1.

Procedure

1. Toss a leaf into local creek or river. Watch it move. Does it slow behind rocks? Does it move faster in riffles or glides? Watch the current and how it flows. Imagine an aquatic insect or small fish being swept into the riffle and into a trout s mouth as it darts out of a pocket pool into the swifter water.

2. If no flowing water is nearby, create your own system with a large, sturdy, rectangular cardboard box (Figure 2). Ask students to collect rocks in a variety of sizes to fit the box. Cut a V shape in the two smaller panels at either end, allowing for the flow of water. Place rocks in sections along the bottom according to their sizes; first-gravel, then medium and larger rocks. Prop the box up on one end, creating a gradient. Pour water from the box s upper end and watch how water runs over the substrate sizes differently. Now mix all the substrate together. Add sticks and woody debris to create larger pools. Pour water again. What habitat types have been created in both scenarios? Try changing the gradient. How does the flow change?

Try arranging the rocks in a way to display examples of pools, riffles and glides.

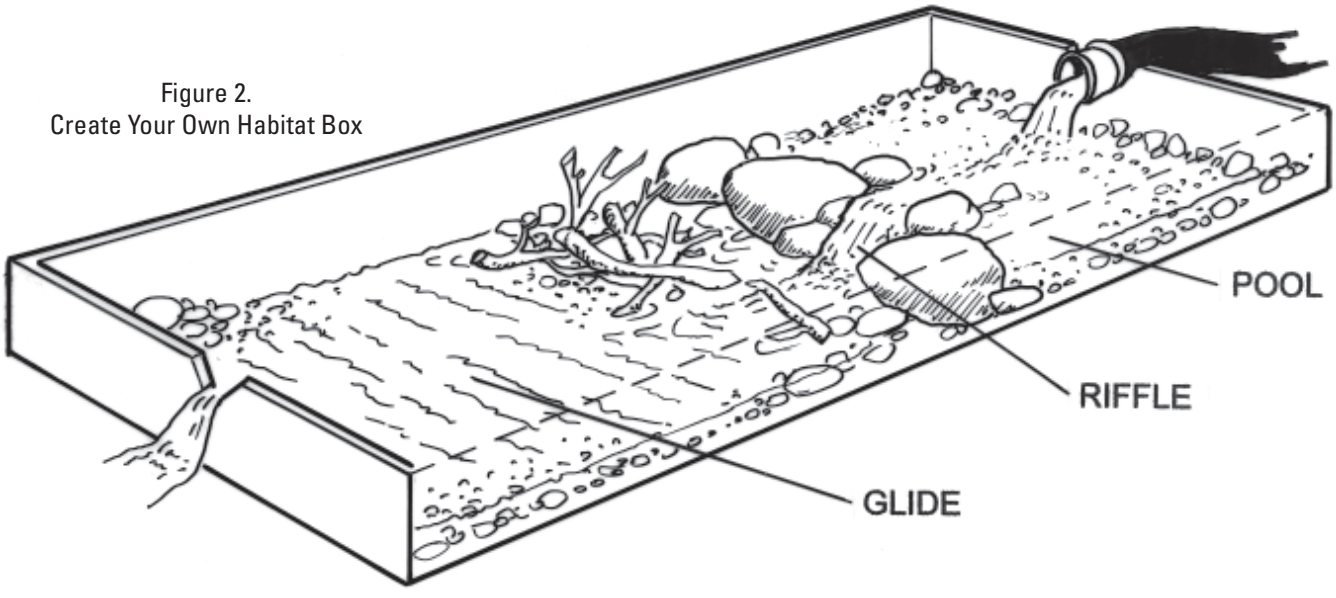

Figure 2.
Create Your Own Habitat Box

****Note**: a plastic snow sled works well for this also, because it s possible to get a longer stream and repeat the process as often as needed (no soggy box).This can be performed indoors at a sink with a long counter, if necessary, because the bottom will not leak. The flow simply must be controlled at the lower end. When the experiment is over, the materials can be returned to their source in the sled for easier cleanup.

Assessment

Have students illustrate the cross section of a river with pools, riffles, and glides. Indicate the sites where fish most likely would feed.