

Chapter 6, Reading the Stream

Use with fishing skills **READING THE WATER** and **PRESENTING THE FLY**.

New Idea

- **Reading the Stream**

Activity

Activity #14: Find the Trout, p. 60

- Handout: Find the Trout, p. 61

Introduction

Reading the stream means looking at a stream and predicting where trout will be found. Many anglers call it "thinking like a fish," and indeed, to predict where trout will be, we have to think about their needs, and how they can fulfill those needs with minimal effort. Learning to read the water teaches not only fishing lessons, but also hydrology, biology and conservation.

Teaching Tips

Use this section to emphasize the link between learning science and catching fish! Ask leading questions to help students realize that they use principles of hydrology and biology every time they fish. Thinking about their own fishing experiences will teach science lessons they didn't realize they already knew. We have not included instructions about fly placement or drift in this section, but they can and should be discussed here.

Reading the Stream

In order to catch fish, one needs to figure out where fish are and present the correct fly in a natural manner. In order to predict where fish will be, brainstorm a bit about what fish need. Trout live in a multitude of different habitats; they thrive in salt and fresh water, lakes and streams. The most basic, crucial requirements shared by all trout are water, food, and cover.

Water provides trout with food and cover. In order for a particular body of water to be appropriate habitat for trout, it must be cold and clean with certain chemical characteristics, namely

- Temperature between 40-68C
- Dissolved Oxygen (DO) above 6.5mg/l
- pH of 6-9 (relatively neutral)

Each species of trout or salmon has different specific needs, e.g. brown trout can tolerate warmer water than most, but bull trout need unusually cold water. One can make certain predictions about water quality just by looking at a stretch of water. For example, water that is fast, clean, and cold should be well-oxygenated, and a limestone creek is likely fairly resistant to pH changes.

Trout are generalist predators; they eat a number of different organisms. The fish and invertebrates that trout eat generally thrive in the same sort of habitats that are good

for trout. Being aware of invertebrate activity is an important part of reading the stream. Insects like mayflies often hatch around dawn or dusk, and every body of water has a characteristic hatch. Since trout become keyed into the **foods** they encounter most often, the flies an angler presents are determined by the things trout are already feeding on. Using a small dip net or turning over a few rocks is a good way to investigate what the trout you're after will respond to.

Cover is the last essential element of trout habitat, and thus of reading the stream. Cover is anything that shelters a fish; usually it is a stream bank or a submerged (partially or completely) log or boulder. Cover protects trout from predators, including larger fish and land animals.

When trout forage, or search for and eat their food, they balance these needs with **economy of effort**. They need to live in high-quality water and get plenty of food, but leaving cover or rising to the surface to feed introduces the risk of predation. Also, fast-moving water will have the most feeding opportunities, because invertebrates will drift past a trout at a faster rate than they would in slow water. Swimming in fast water has a cost, though; it takes energy. When anglers read different parts of a stream, they consider this balancing act to discover a trout's **lie**, or foraging site.

Friction, current seams, and depth are three features to look for in a pool, run, riffle, or curve. **Friction** is a force that resists motion. Friction can be exerted on water by the structures over which it flows. It slows water down, just as water slows you down when you try to run in the pool. Water encounters the most friction when it flows over an obstruction (e.g. a boulder) and near the bank or bottom of a stream. For this reason, big fish sometimes occupy very deep lies.

A **current seam** is a place where fast and slow-moving water meet. Seams make good lies because they allow trout to sit in the slow water with their snouts pointing upstream. This way, they see many of food items rushing past in the fast water, but they minimize their swimming effort by staying in slow water.

A submerged boulder or log is the first place most anglers learn to look for fish. The obstruction slows down water and creates an **eddy**, a slow, swirling area on the downstream side. Trout often hover in this slow water and wait for food to drift by on the seam. An eddy is also a good spot to occupy because the obstruction that forms it provides some cover.

An **undercut**, an area where the bank overhangs the water, is another good place to look for trout. The overhang provides shelter, but an undercut is also an indication of what's happening beneath the surface. Undercuts are usually formed on the outside of a **curve**, where fast-moving water cuts the channel more deeply than it does on the inside. There is usually a nice, deep lie at the bottom of the channel.

Pools are wide, deep sections of water. Trout sometimes rest in the slow water at the bottom of a pool. They tend to feed at the **head** or **tail** of the pool, because there is a constriction there to funnel food items together.

A **riffle** is an area where friction breaks up a stretch of water. Riffles are often caused by beds of small or medium-sized boulders.

Species preferences and interactions with other trout also influence where one will be. Trout are **territorial** animals, meaning that each has a specific area in which that he or she feeds. In general, a larger trout will be dominant over smaller ones. In a given stretch of water, the dominant trout gets the most productive lie, and the rest fill in the

spaces of decreasing desirability according to descending rank. Two trout feeding in the same stream would not necessarily find the same lie most desirable. If brown and rainbow trout coexist in a single pool, the brown trout will often hold on the bottom of the pool, while the rainbow prefers faster water. Also, a small trout might pass up a very productive spot for one that had better cover, whereas a less-vulnerable large trout would do better taking the more productive, dangerous lie.

An angler must also consider his presence as part of the stream environment. Trout will hide or stop foraging if they spot a predator or a fisherman. Trout might see fly line or shadows, and they can feel vibrations from careless wading or disturbed rocks. A beautifully clear, flat limestone stream is difficult to fish because trout there are easily spooked. Conversely, fishing at dusk is often productive in part because the low light makes it harder for fish to see anglers.

This is one reason that it is important to stop, look, and listen before one begins fishing a stretch of water. An angler should always approach a pool quietly and cautiously and stop some ways back from the bank. Take a few minutes to examine the scene, read the stream, and take in the scenery. Plan the order in which you will fish the different features, and then enjoy.

Activity #14: Find the Trout

Time: 20 minutes

Introduction

This quick activity gives kids a chance to practice their stream reading and fish-finding skills in a dry run, before they test them on the water.

Prep Work: collect materials

Ages: All ages

Materials (per student)

- Copy of **Find the Trout** handout, p. 61
- Pen or pencil

Procedure

Ask students to follow instructions on the **Find the Trout** handout (p. 61). Alternatively, students could draw their own pictures with colored pencils or crayons, creating a fantasy lake or stream with its own topographical features and food web. Have students return to their drawings after a fishing or field trip. What can they add?

Extensions

Discuss how to read a lake.

References

Butler, 1991
 Cooper, 1999
 Fausch, 1991
 Thorbjarnarson, 2002

Find the Trout

- Label this stretch of water with as many different features as you can.
- Circle all the trout you can find. Draw more if you think there are other places you might find them.

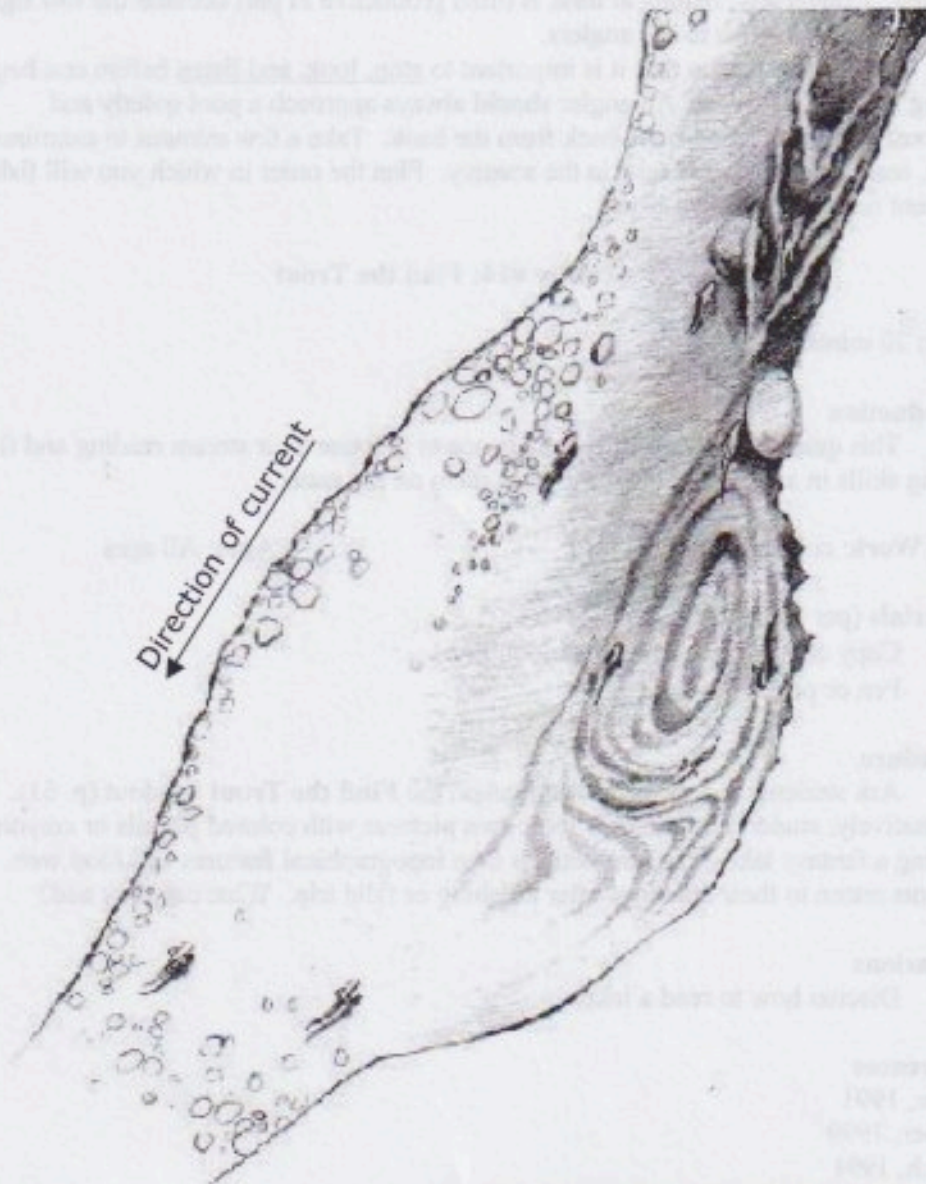


Illustration by Richard Harrington