

Station 2: Riparian Ecology

OVERVIEW

Students use scientific tools and their own observations to learn about stream health, and the connections between living and non-living things in a watershed.

LEARNING GOALS

- Students will understand that interactions between fish and forests are complex and changing.
- Students will appreciate the importance of healthy forests for healthy salmon populations, and vice-versa.
- Students will learn how riparian areas provide functions or 'jobs' in the watershed, but only if they are healthy.

VOCABULARY

Riparian, ecology, erosion, stream bank, survey, runoff, canopy, riffle, pool, run

WAYS TO PREPARE YOUR STUDENTS

- Watch Video: [How forests, rivers, and salmon were meant to be together](#) (4 mins)
- Explore the [Salmon River 360: Virtual Tour](#)
- Watch Video: [Welcome to the Riparian Zone](#) (3 mins)

MORE LEARNING RESOURCES

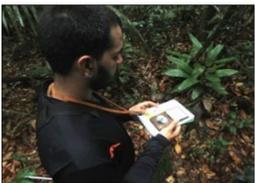
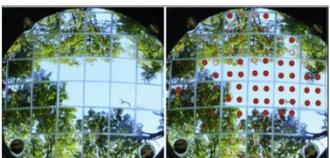
- [Measuring Stream Canopy Closure using a Spherical Densimeter](#) (Video)
- [Introduction to Riparian Areas](#) (World Salmon Council)
- [What are riparian ecosystems?](#)



RIPARIAN ECOLOGY: SHADE SURVEY

The shade provided by overhanging trees and bushes along a stream provide very important benefits for fish and other riparian animals. Shade helps to keep the water cool and provides dark places for young salmon to hide. Insects also tend to fall off leaves into the water, providing a tasty snack for young salmon!

A densimeter is a tool that scientists use to measure the amount of shade in an area. This tool has a mirror with boxes drawn on it (24 boxes total). When you hold the densimeter out in front of you, it reflects the tree canopy overhead. The number of boxes in the mirror that have shade in them is used to determine the percentage of canopy cover.

RIPARIAN ECOLOGY: STREAM SURVEY

All rivers and streams need a lot of different features and shapes in order to create healthy habitat for the fish and other animals that live in them. Three main types of stream features that you will be looking for are:

RIFPLES: shallow, fast-moving water with bubbles or white waves, also sometimes called rapids.

POOLS: deep holes of still or slow-moving water with a flat surface.

RUNS: stretches of fast-moving water where the river is straight and not blocked by rocks or logs.

Study the pictures on the back of this sheet to learn how to recognize these features.

INSTRUCTIONS

1. As a team, use the measuring tape to measure 100 feet along the stream. Mark both ends with an orange cone. This will be your study site.
2. Within your study site, discuss how many riffles, pools, and runs each of you sees. When you think you have a group agreement, record these numbers in the chart below.

STREAM FEATURE	NUMBER OBSERVED WITHIN STUDY SITE
Riffles	
Pools	
Runs	
Total number of features	

3. As a group answer the following questions:
 - Which type of stream feature did we see the most of? _____
 - Do we have about an equal number of pools and riffles? _____
 - Can we observe other healthy habitat features such as logs, rocks, or floating leaves? _____
4. Use your **total number of stream features** from your chart above to determine your site's Stream Health Score. **Add 1 point each for other features like logs, rocks, and leaves.**

FINAL SCORE KEY (circle your result)

8-10 Healthy	4-7 Somewhat healthy	0-3 Needs improvement
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RIPARIAN ECOLOGY: FLORA AND FAUNA SURVEY

A healthy riparian zone needs lots of different types of flora (plants and trees) and fauna (animals such as insects, birds, deer, etc.). A riparian area with high biodiversity (variety of living things) can indicate a healthy forest and river. But, some invasive species and human impacts can have negative impacts on riparian health.

Use this guide to check off items as you find them. Then, answer the questions on the back side to determine the health of this riparian area.

NATIVE PLANTS (+1 EACH)				
ANIMALS AND INSECTS (+1 EACH)				
OTHER (+1 EACH)				
INVASIVE PLANTS (-1 each)				
HUMAN IMPACTS (-1 each)				