

Kokanee Karnival Youth Education Program



Part 3 – Comforts of Home

Introduction

Goals: To learn *five essential elements* of salmonid habitat.: Comfort of Home Cards used here.

Definition: Salmonid habitat is the place that trout and kokanee call home.

- **Salmonid (trout and salmon) fish need shelter from fast currents.**
 - Fish can only swim fast for a few minutes at a time.
 - Fish spend most of the time resting in a “holding station”
 - Fast water is slowed to make holding stations by:
 - Boulders, logs, stumps, a rocky bottom, pockets, brush, roots, grass, curves in the shoreline, ledges and many other things.
 - Fish “hold” in pockets of slow water next to fast water.

- **Salmonid fish need protection from predators.**
 - *Birds* catch fish: osprey, eagles, kingfishers and others.
 - *Bigger Fish*: big fish eat little fish.
 - *Animals* catch fish: otters, minks, bears and others.
 - *Anglers* would *like* to catch salmonids (and release them to catch them again)!

- Protection from predators can come from many sources:
 - Rocks, ledges and logs offer protection from above.
 - Brush or grass along a bank can hide a fish.
 - Rough, rapid water is hard for predators to see through.
 - Shade can help the fish hide: salmonids are camouflaged.
 - Deep water in pools is the best protection

- **Salmonid fish need cold water, which carries lots of dissolved oxygen.**
 - The colder the water, the more oxygen it can hold:
 - Salmonids can live in (running) water that is at 32 degrees (F).
 - The best temperature for salmonids is from 45 to 65 degrees (F).
 - Salmonids begin to die at temperatures above 70 degrees (F).
 - Water is *cooled* by: shade from trees, willows, grasses, depth, springs, snowpack and flow.
 - Water is *warmed* by: lack of shade, silt, shallow depth, and low flow.
 - We measure water temperature with a thermometer.
 - *Cold water is a most important quality of salmonid habitat!!*
 - We measure oxygen dissolved in water in *parts per million (ppm)*: 15 to 1,000,000!!!

- Dissolved oxygen is affected by: altitude, agitation of the water, temperature, plants growing in the water, and impaired light due to dissolved solids such as river bank silt.



▪ **Salmonid fish need a good supply of food (all about this at Nature's Restaurant!)**

- Food must provide more calories than it costs to take.
- Bigger fish need bigger food supplies.
- Fast water brings food to fish lying in their holding stations.
- *Trout* catch insects, and lots of other tidbits.
- *Kokanee* strain tiny zooplankton from the water.

▪ **Fish need a territory large enough to include the Comforts of Home.**

- Larger fish will try to defend a good territory from other fish.
- What Five Essential elements make a good fish territory?
- Start back at the top!

THIS IS WHERE INSTRUCTORS CAN CHOOSE ACTIVITY FOR LAST 10 MINUTES -

Testing water quality (thermometers and litmus paper provided, dissolved oxygen kit)

Cold water with lots of dissolved oxygen – test for temperature and oxygen.

- Talk about temperature. What temperature is freezing? What temperature is comfortable for people? What temperature is too hot for people? (draw a thermometer on the board). What temperature in Fahrenheit is freezing? (32°)
 - At what temperature are kokanee and trout comfortable? Can tolerate 32 to almost 70 (eastern RBT), but most like 45 – 65° F
 - What happens to you when you are too cold or too hot? STRESS!!! Same thing happens to fish.
 - Let's test the water and see what the temperature is? Write down some guesses from the audience and see who is the closest.
- Give a thermometer to each student and test water in river, or from a bucket of stream water.

Testing pH of the creek and other samples.

What does pH mean? – test for pH

- Refers to the acid – basic balance of water scale 1 to 14 – refer to chart on next page
- Most salmon and insects are “OK” @ pH between 6.0 – 8.0 (neutral). Draw pH scale on the board
- Let's test some liquids (water from the creek, lemon juice, baking soda, Coca-Cola) Hand out cups of samples and pH paper. Mark the kid's results on the pH scale
- What would cause pH to change in a stream (fertilizer run off, acid rain, decaying plants)?

