Habitat Investigation Activity

Facilitation Guide

NOOKSACK SALMON ENHANCEMENT ASSOCIATION

The student Habitat Investigation activity provides materials to explore a local waterway and make observations of the characteristics that impact salmon. We encourage you to create a discussion about the health of your waterway and how these observations can inform a hypothesis and conclusion.

Step 1: Use Page 1 to find a local salmon bearing stream near you. Included are nearby parks and waterways based on the school the child attends. Walking to the stream can create a local connection to your watershed, encourage activity, and reduce transportation pollution.

Step 2: When at the Park, choose a safe location where you can see or hear the waterway, keeping in mind that the water flow is often fast and dangerous.

Step 3: Introduce the Salmon Habitat Assessment on Page 2. This comes from our Students for Salmon Program, offered to all 4th graders in Whatcom County. Fill out the location, date, time of day, and weather observations. Question (what are we here to find out today?): "Is (name of waterway) healthy habitat for salmon?". Make observations about the stream habitat by going through each item one by one, discussing how each one might help or harm salmon.

- Large woody debris (downed trees or logs): This creates calm pools and hiding places for juvenile salmon.
- Gravel at the bottom of a stream: The adult salmon lay their eggs in the gravel, in a nest called a redd.
- Garbage: Garbage doesn't necessarily have to be *IN* the stream to be harmful.
- Plants along the stream: These provide shade to keep the water cool. The roots hold soil in place and prevents erosion. Plants also act as a buffer zone/natural barrier keeping impurities or pollutants from getting into the stream.
- Foam (Eutrophication): This indicates large amounts of nutrients (sometimes from fertilizers) that drain into the stream and can create a lot of plant (and algae) growth. This results in less oxygen available for salmon.
- Shade: Shade keeps water cold, and salmon need cold water to survive! You can ask what is making the shade – clouds? Trees? Buildings?
- Roads or buildings: If these are near a stream, they can increase the amount of harmful runoff and pollutants that can get into the stream.
- Animals: Can you see or hear birds? Are there any signs of animal life around, like footprints, feathers or beaver chewed trees? Some animals are an indication of habitat health.
- Cars: Gas powered vehicles emit pollutants into the air and can leak oil onto the roads that can then possibly get into streams in the form of runoff.
- Moving water: Moving water means more oxygen mixing into the water for salmon, and also means colder water, which salmon like. Moving water can prevent pollutants from building up in a section of a stream too.
- Erosion: This is an area of the stream bank that has fallen or slid into the stream, or an area that has been cut away by the stream. Erosion creates increased sediment suspended in the water

reducing visibility for fish, difficulty in access oxygen from the water and can suffocate egg nests (redds) once settled.

Once all observations have been recorded, formulate a hypothesis. A hypothesis is an educated guess, and begins with the words "I think". Give one reason why you think this stream is excellent, fair, or poor salmon habitat based on your observations.

Step 4: The last page is a plant exploration activity. For guidance, you can refer to the Plants in my Park Identification Guide. It might be helpful to have this booklet on a device rather than printed out, for portability and durability. Using the photos and facts, choose a few plants that you see are abundant in your park and fill out the Plants in my Park worksheet. Include a drawing and write down some details or fun facts that you learn about each plant. There is a section for circling whether the plant is native or invasive. You can choose to discuss this further.

- Native plants were here before European colonization and are adapted to our environment. They co-exist with one another, and provide benefits to overall stream health.
- Invasive plants are non-native (or alien) to the ecosystem. Often these plants were introduced, and have no natural competitors to keep them in check, which causes them to get out of control. Explain the problems that invasive plants pose for the health of the stream – lack of shade, lack of root stabilization, and outcompete native plants which provide benefits.

Step 5: Make a conclusion about the plant life in your park. Is the plant life excellent, fair, or poor? The answer could be determined by the ratio of native to invasive plants you found, or the diversity (assortment) of native plants.

Step 6: Make an overall conclusion about the health of the habitat along your local waterway. Using all the activities you did, readdress your hypothesis and see if it was right. The conclusion should include a reason why that decision was made. For example: "We found that Padden Creek was excellent habitat for salmon because we saw no garbage, and most of the plants were native species."

Step 7: Consider talking about what improvements could be made to make a healthier habitat. Some ideas include removing invasive species, picking up waste, or planting native trees.

Step 8: Stay in touch! Share your results with us by following us on Facebook @NooksackSalmon or Instagram @nooksack.salmon, emailing nzabel@n-sea.org, or bring your completed Investigation sheet to a future NSEA event. You can visit www.n-sea.org for more activities and ways to get involved.