

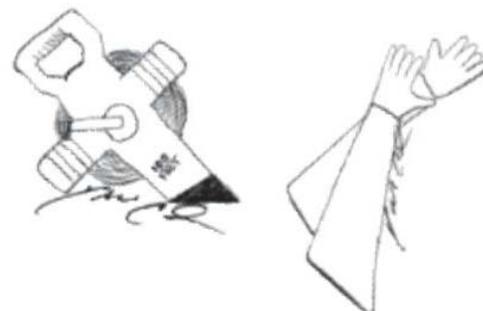
# Resource Specialist

## *Equipment & Procedure Guide*

1. Review the “*Tips and Tricks for Resource Specialists*” PDF document.
2. Explore the *Habitat Sense* materials in the “**Teachers**” section to become familiar with the pre-work. Then you will have an idea of what the student knows. Always praise the classroom teacher for prepared and attentive students!

3. **Checklist of equipment necessary for this station:**

- Three 100 ft./meter measuring tapes
- Bright flagging to indicate 3 reaches to be studied
- 3-5’ measuring stick for depth
- Popcorn and/or potassium permanganate solution to indicate flow
- 2 Long rubber gloves to handle substrate (optional)
- Student field worksheets (provided by the teacher; you might have extra worksheets for the survey and blank paper for the mapping exercise using write-in-the rain paper just in case).
- Waders for yourself and students (you are only responsible for providing your own).
- Thermometer
- Metric rulers for pebble count



4. **Procedure**

Gather students and ask:

- Predict what fish live in the nearby creek?
- What habitat features would a fish need to live there?
- What habitat types do you see before you?
- What is the valley type? What type of channel do fish prefer?  
(B or C: Refer to the Rosgen Chart of Major Stream Types in *Riparian Rx*)
- How do stream gradient and elevation affect fish populations?
- Tell them they are going to become fish and to station themselves in the water where fish would likely be feeding. Pour the potassium permanganate in a line across the stream so they can see how the current moves in the pools, riffles, and glides. Throw the popcorn and see who the most successful feeder is! Ask students about the stream velocity where they are located as indicated by the potassium permanganate or popcorn movement. How much energy would a fish need to maintain its position there? How does a fish optimize its holding position and feeding efficiency?

## 5. Habitat Measuring

- Find a stream reach with a pool, riffle, and glide.
  - Divide students into three equal groups. Each group goes to a pool, riffle, or glide (if they are available). Make certain each group has a different habitat.
  - One specialist accompanies each group.
  - Have students estimate dimensions *before* measuring.
  - Ask student leaders to assign a recorder for the *Stream Habitat Inventory Form*, those analyzing the habitats. Students may take turns at different tasks.
  - Distribute equipment. *Set the students loose on the tasks!* In student directed learning, you are not the informer, but rather the guide. Be there to answer questions. One sure to be asked is about the pool tail-crest. Remind students that their worksheets must return to school with them for use back in the classroom.
  - After filling out the form, students sketch a map of the stream reach containing the habitats they and other teams measured.
6. **Teachable moments to share:** Point out fish or other wildlife or if a reach has something they may not notice. Discuss that there may be special species living there. Bull trout are listed as threatened, spring Chinook salmon and summer steelhead are now listed as endangered, and a petition has been filed for the westslope cutthroat trout.
7. **Reconvene the group in the final 15 minutes.** Students report findings and compare habitats. Discuss the habitat use by different age classes of fish and species. Link to the *Riparian Rx* section about the cover riparian provides, to *Invert Investigator* about specific insects fish prefer, and with *What's in That H<sub>2</sub>O* about fish tolerance/intolerance to water quality changes.

Ask why some fish species are listed or proposed as threatened or endangered in this area. Look around and point out evidence of human influences on habitat, if any are visible. Time permitting, if you have an authentic survey form from a previous survey to share, please do! They will feel like real scientists!

