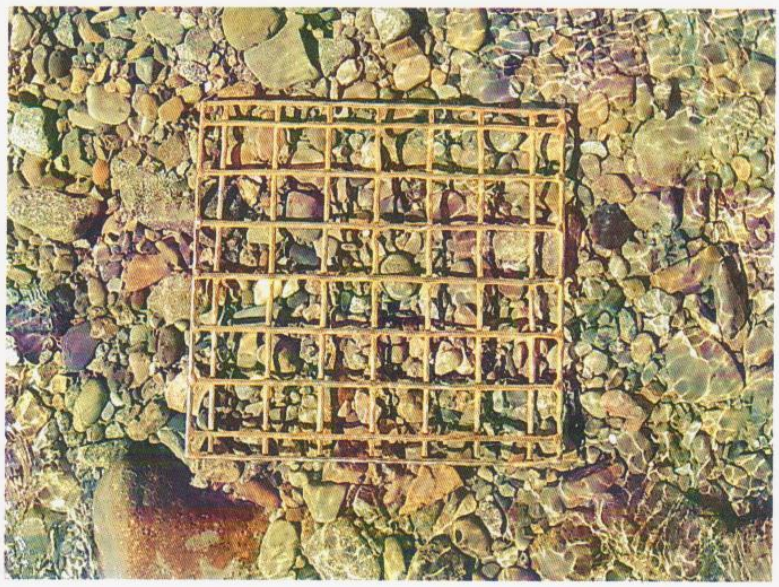
To assess the percent of fine sediment <6.35 mm, count how many intersections of the grid "cover" (or intersect with) particles <6.35 mm. The standard size of a grid is 12" x 12" and the intersection size is approximately 6 mm. There are 49 "internal" intersections; do not count intersections along the edge of the grid.

Examples of Appropriate Sized Spawning Gravels for Fish Approximately 5 and 15 Inches, Respectively:



Turbidity Measurement with Secchi Tube

1. Turbidity measurements should be taken as quickly as possible to get the measurement before particles settle out and make the sample less turbid.

2. The secchi tube should be filled with water from the active portion of flow, making sure there is no upstream disturbance taking place.

3. The tube should be filled all the way to the zero line near the top which may require adding additional water from the stream with a bucket.

4. Measurements are taken by standing over the secchi tube and looking straight down the tube.

5. Stand with your back to the sun so the tube is in your shadow and remove sunglasses before taking a reading.

6. Lower the secchi disk in the tube until it disappears. Pinch the cord against the tube to hold it in place and look through the side of the tube to determine the depth of the disk in the tube.

7. If the disk is visible at the bottom of the tube, the reading is recorded as greater than the depth of the tube. This means the water is too clear to measure with this tube.

8. Record the measurements (in centimeters) on the datasheet.

9. Repeats steps 2 through 7 twice more, record each reading on the datasheet, and calculate the average of the 3 readings.

Watershed Education Network Staff

Kitty Galloway, Program Director

Kitty Galloway started working with students outdoors when she was eighteen and hasn't given it up since. She grew up in the Pacific Northwest spending most of her time exploring the ocean and forests, and has discovered her passion is to share with people of all ages the beauty and importance of preserving our natural resources. Kitty self-designed her major of Sustainable Agriculture and Environmental Education at Huxley College in Bellingham, WA, after transferring from Bates College in Maine. She took lots of time along the way to travel and learn more about rivers and streams around the world, which led her to believe that experiential learning and teaching is often the most valuable kind. Kitty made Missoula her home three years ago, after spending a summer walking here from Washington state, and is grateful to live in a community so full of positive, conscientious people. She constantly strives to integrate more inquiry-based teaching styles into WEN programming, and feels that she learns from the students she works with just as much as they learn from her. When Kitty isn't teaching or hanging out on rivers, she is most likely skiing, exploring the beautiful mountains of Montana by foot, entrenched in gardening or canning projects, or enjoying time with her wonderful friends and dog.

Shelby Marshall, Stream Team Coordinator: Big Sky Watershed Corps Member

Shelby Marshall grew up in a place where water was often in short supply- Dallas, Texas. However, that never stopped her from spending time in the great outdoors. Through sports, camping, and exploring, she came to appreciate fresh air and sunshine which translated into a love for the environment as a teenager. Shelby attended the University of North Carolina at Chapel Hill and studied Environmental Science. During a semester spent on the Carolina coast, she was inspired while learning about the complex and diverse estuarine systems and she's been driven to work with water ever since. Shelby came to WEN as a Big Sky Watershed Corps member and is eager to engage with students and volunteers in hands-on learning and interaction about Montana's natural rivers and streams**.** Shelby assists with volunteer recruitment and programming, as well as managing WEN's citizen science volunteer water monitoring group, Stream Team.

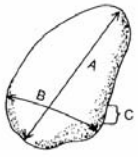
Wolman Pebble Count

Various publications describe the Wolman Pebble Count procedure. This technique requires the observer to measure sizes of random particles using a gravelometer. Particles smaller than 2 mm are placed in a category of <2mm. A step-toe procedure is frequently used to randomly select particles for quantification.

Size Class	Size Range (mm)
Sand	<2
Very Fine Gravel	2-4
Fine Gravel	4-6
Fine Gravel	6-8
Medium Gravel	8-11
Medium Gravel	11-16
Coarse Gravel	16-22
Coarse Gravel	22-32
Very Coarse Gravel	32-45
Very Coarse Gravel	45-64
Small Cobble	64-90
Medium Cobble	90-128
Large Cobble	128-180
Very Large Cobble	180-256
Small Boulder	256-512
Medium Boulder	512-1024
Large Boulder	1024-2048
Very Large Boulder	2048-4096

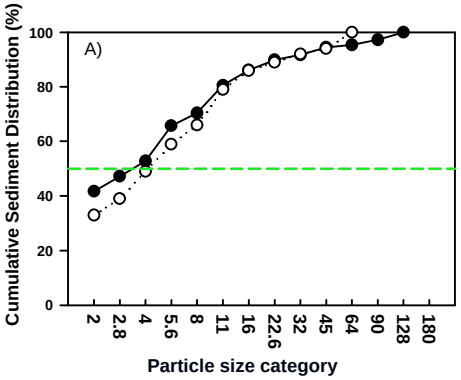
Wolman Pebble Count Procedure

1. Select a reach for sediment particle size distribution quantification. For stream characterization, sample pools and riffles at the same proportion the occur in the stream reach.
2. Start transect at a randomly selected point (throw a pebble) along the edge of stream. Take one step into the water perpendicular to flow and, while averting your eyes, pick up the first pebble touching your index finger next to your big toe.
3. Measure the b-axis by determining which hole the pebble fits through in the gravelometer and record in data book. For embedded pebbles or those that are too large to move, measure the shortest axis visible.
4. Take another step across the stream and repeat the previous steps until you reach the opposite side. Establish a new transect and begin the process over again. If your stream reach is relatively narrow (<2 m), you can modify the method by walking upstream in a zig-zag pattern instead of perpendicular to flow. In general, you will need to collect 100 measurements in order to accurately quantify pebble distributions.



A = LONGEST AXIS (LENGTH)
B = INTERMEDIATE AXIS (WIDTH)
C = SHORTEST AXIS (THICKNESS)

5. After data is collected, plot data by size class ($\log_2$ scale) and frequency to determine distributions. For example the D_{50} is the particle size that 50% of the samples are equal to or smaller than.



Sample sites currently used by WEN Strean Team

Site Name	Longitude	Latitude
Lost Park Creek	N 46.67967	W 114.48993
East Fork Bridge Site	N 46.68608	W 114.48864
Granite Creek- Upstream Site	N 46.73208	W 114.54088
Lee Creek- Bridge Site	N 46.70032	W 114.53297
Granite Creek - Downstream Site	N 46.73207	W 114.54018
Lower Main Channel West Fork Lolo Site	N 46.69812	W 114.54212
West Fork Lolo Creek- Upstream of Bridge	N 46.68767	W 114.55706
West Fork Lolo Creek- Downstream of Bridge	N 46.68791	W 114.55625
Lolo Creek Headwaters	N 46.63186	W 114.59859
Lower West Fork Lolo- Pulloff #2	N 46.76691	W 114.45
Lower West Fork Lolo- Pulloff #1	N 46.8	W 114.5
South Fork Lolo Creek- Downstream Bridge	N 46.74044	W 114.29467
West Fork Butte	N 46.74671	W 114.31421
Lolo Creek Campground	N 46.74620	W 114.13547
Ft Fizzle Downstream site	N 46.74537	W 114.17099
Ft Fizzle Upstream Site	N 46.74430	W 114.17282
Lanquist Propert	N 46.75486	W 114.10885