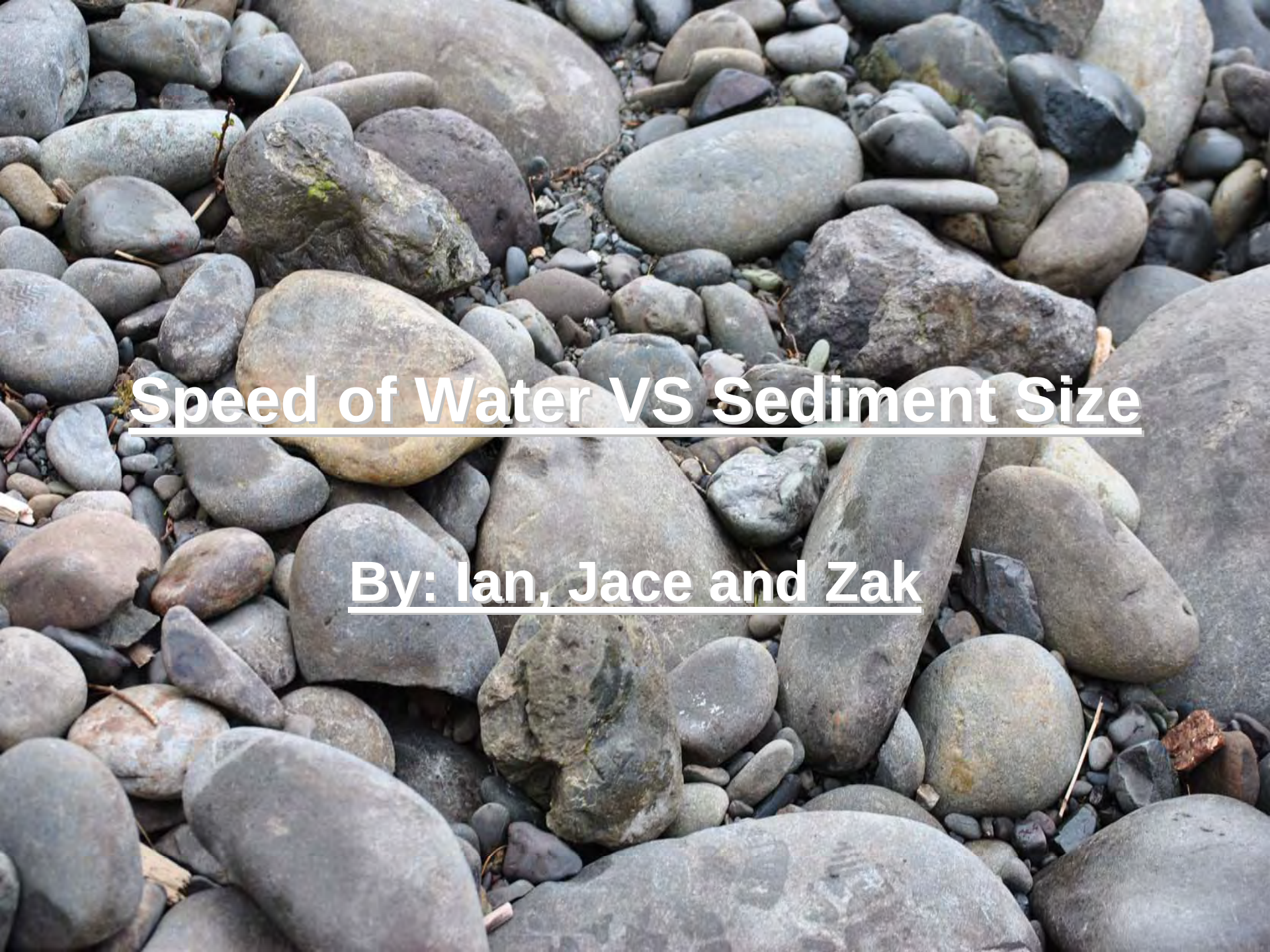


Speed of Water VS Sediment Size

By: Ian, Jace and Zak

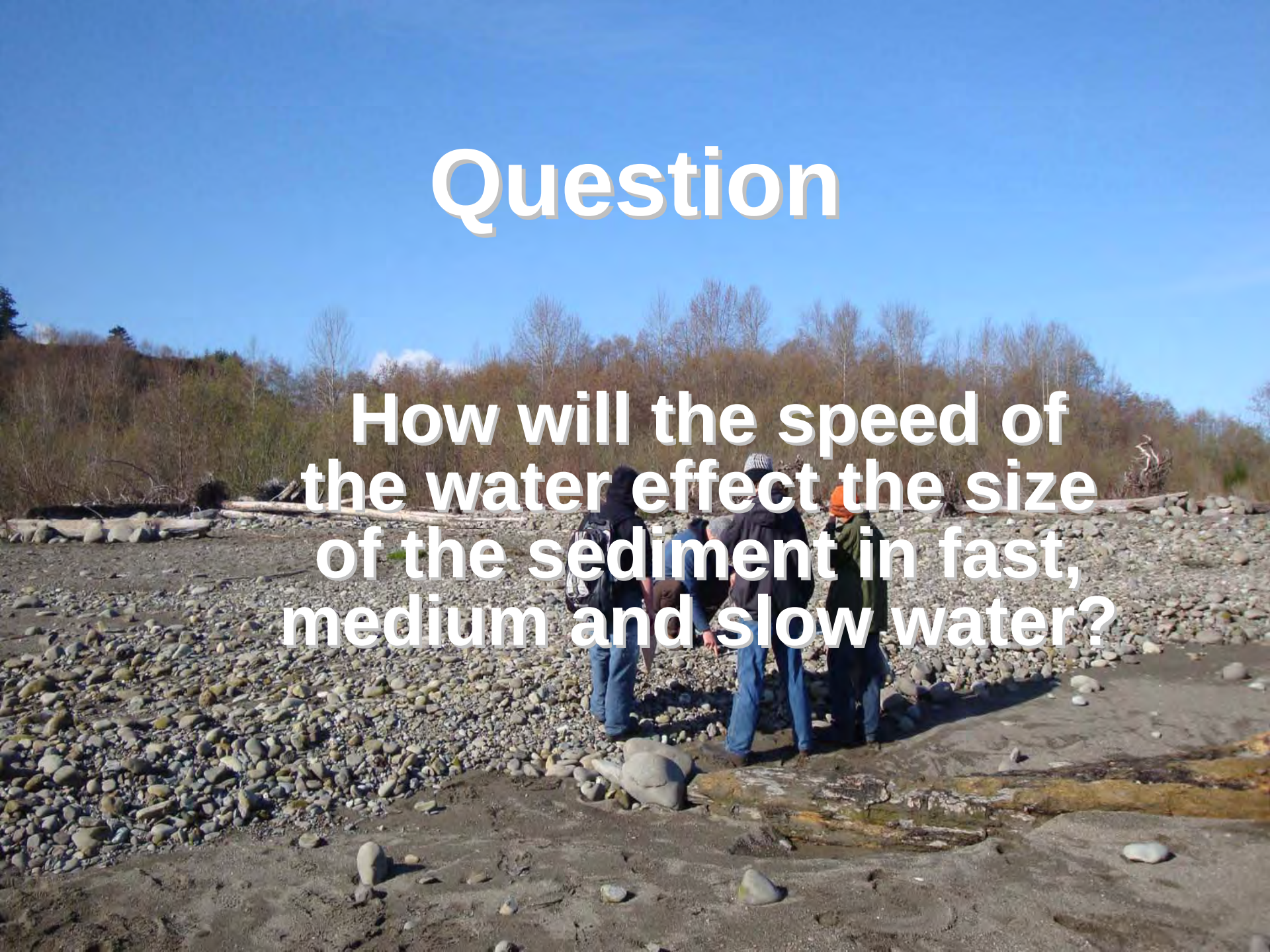
Background Research

- In 2011 the Elwha dams will be removed. It will be the largest dam removal in the history of the U.S.
- To remove the lower dam they will create a diversion channel.
- Next they will divert the water and take out one half of the dam.
- After one half of the dam is removed they will redirect the river and take out the rest of the dam.

Background continued

- To remove the upper dam they will drop the water level using an outlet pipe.
- Next demolition crews will begin to remove 7.5 foot sections of the dam.
- Finally they will use a controlled blast to remove the remainder of the dam that is attached to the bedrock.

Question



How will the speed of the water effect the size of the sediment in fast, medium and slow water?

Hypothesis

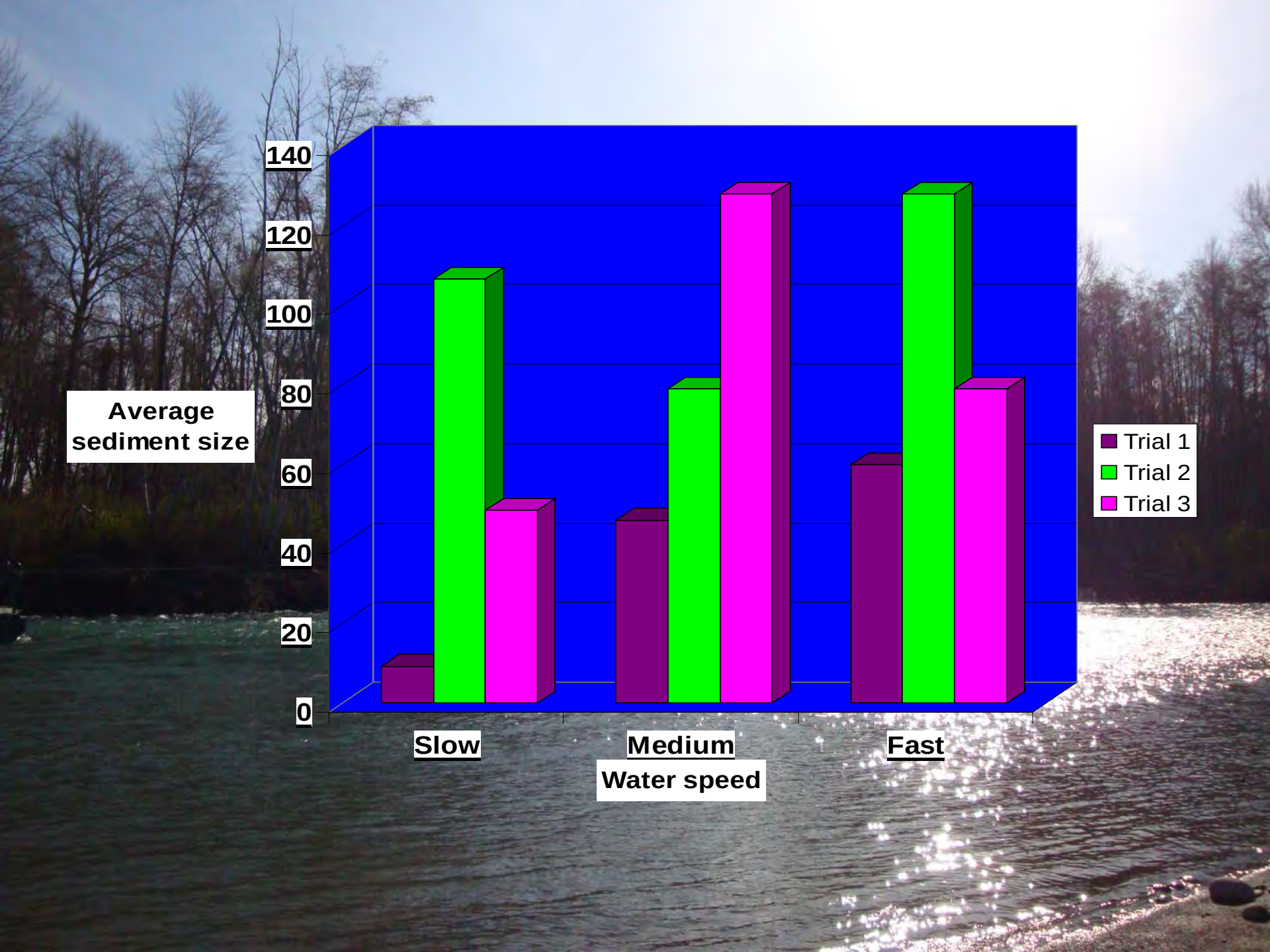
If we test the sediment size in 3 different areas, the location with the fastest water will have the biggest rocks, because the fast water takes away the smaller sediment.

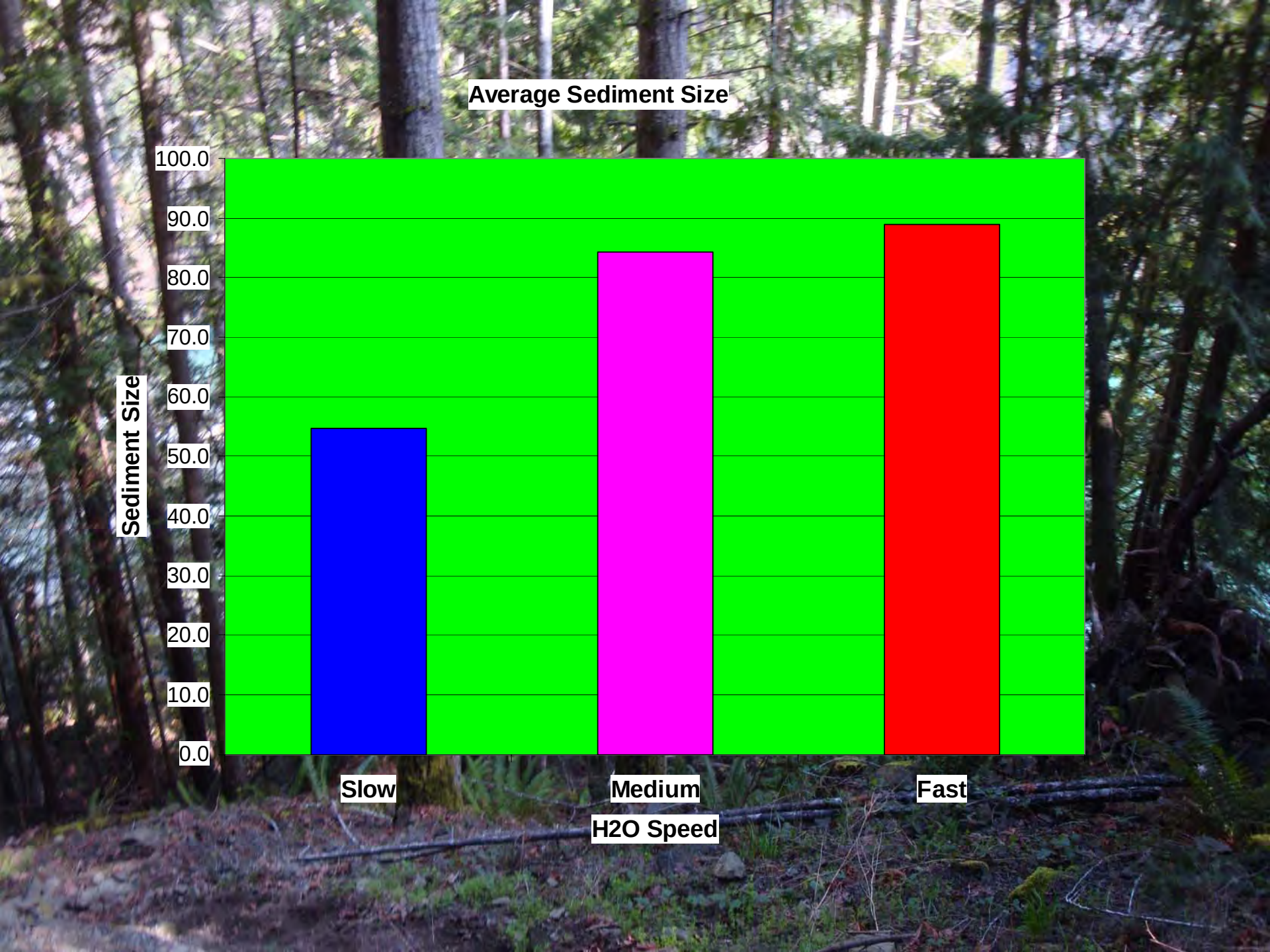
Procedure

1. Gather and check materials.
2. Estimate slow portion of river.
3. Stretch the measuring tape 10 meters long, half a meter from waters edge.
4. Pick sediment at 3, 6, and 9 meters.
5. Measure and record sediment size.
6. Repeat steps 1-5 for medium and fast water.
7. Go to next two location and repeat steps 1-6.

Data Table

	Average rock size		
Speed of H2O	Slow	Medium	Fast
Trial 1	9.3	46	60
Trial 2	106.6	79	128
Trial 3	48.5	128	79


Average sediment size
140
120
100
80
60
40
20
0
Slow
Medium
Fast
Water speed
Trial 1
Trial 2
Trial 3

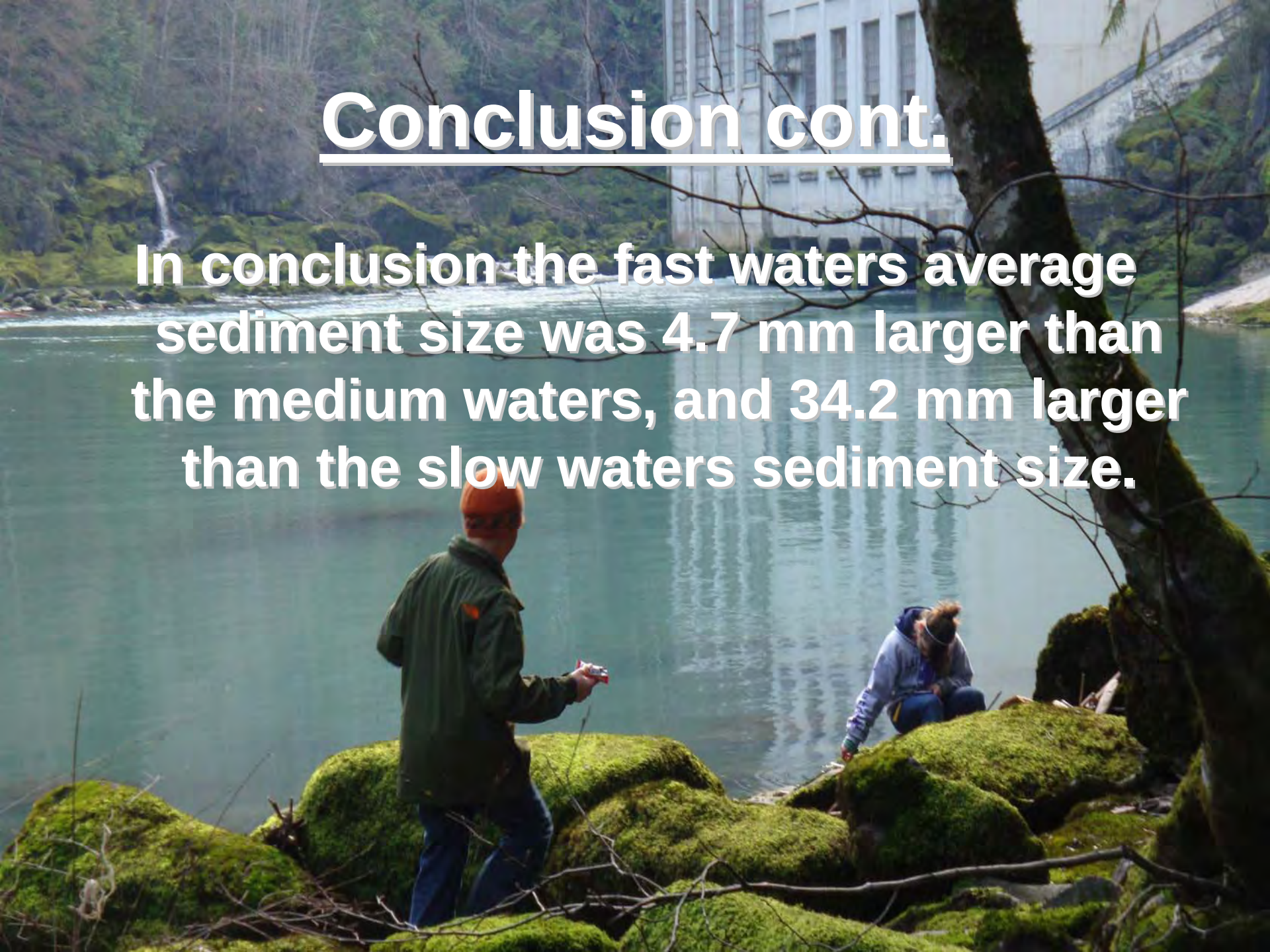

Average Sediment Size
Sediment Size
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Slow
Medium
Fast
H2O Speed

Conclusion

Our hypothesis was correct, fast water (with more than 2 in. rapids) had the largest sediment size, which was 89 mm. The locations with medium water (water with rapids less than 2 in.) had an average sediment size of 84.3 mm, the locations with the slowest water (water with no rapids) had an average sediment size of 54.8 mm.

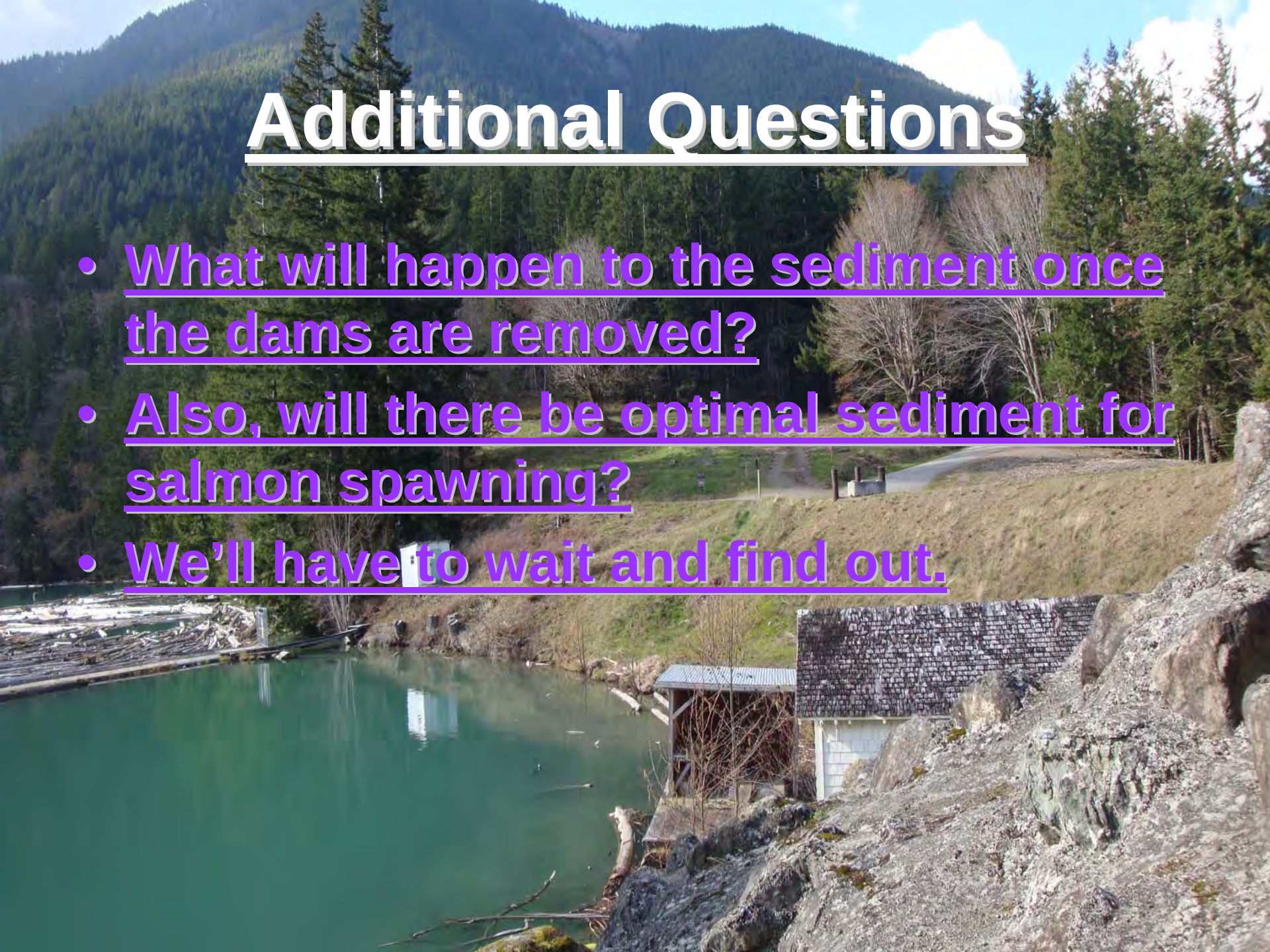
Conclusion cont.

In conclusion the fast waters average sediment size was 4.7 mm larger than the medium waters, and 34.2 mm larger than the slow waters sediment size.



Causes of Error

- One cause of error could have been that the dams stopped some of the sediment from coming down to the lower parts of the river.
- Another could have been we didn't make enough trials.
- It would've been more reliable if we had done experiments over several days.



Additional Questions

- What will happen to the sediment once the dams are removed?
- Also, will there be optimal sediment for salmon spawning?
- We'll have to wait and find out.