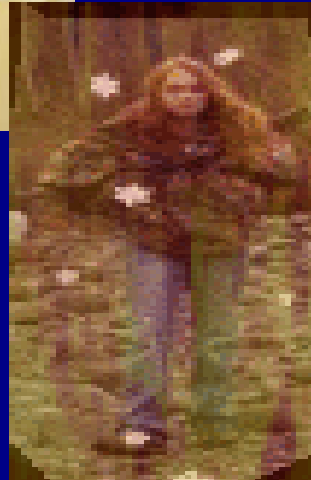


**pH level:**  
**By: Jade Blazek, Alexis**  
**Huether, Odessia Cargo and**  
**Haley Holgerson**



# Presentation Outline

- Introduction: Preliminary research that led up to my hypothesis.
- Methods: The materials and steps I used in my experiment.
- Results: my Data table and graph.
- Discussion: why I got my results.

# Library Research

- Salt water has a higher pH level because of the salt.
- pH is affected by the soil around it.
- If the pH in a lake is higher than 8.0 the fish will die.
- If the pH is lower than 4.0 then the fish will die.




# Benefits of Topic

- When the dam comes down, chances are there will be more fish. I wanted to know if they would be able to survive in the water, as far as the pH level goes.

# Research Question

- Is there a higher pH Level at the mouth of the river or at Lake Mills?



| pH Chart  |     |  |
|---|-----|--|
| <br><b>Alkaline pH</b><br><br><b>SAKA WATER</b> | 10  | High Alkaline<br>Spinach<br>Broccoli<br>Olive Oil<br>Green Tea<br>Lettuce<br>Celery      |
|   | 9.0 | Apples<br>Almonds<br>Carrots<br>Cabbage  |
|   | 8.0 | <b>Saka 8.22pH</b>   |
| <b>Neutral pH</b>   | 7.0 | Most Tap Water   |
|   | 6.0 | Fruit Juices   |
|   | 5.0 | Eggs<br>Tea  |
| <b>Acidic pH</b>  | 4.0 | Beer<br>Sugar  |
|   | 3.0 | Reverse Osmosis<br>Most Bottled Water  |
|   | 2.0 | Coffee<br>White Bread<br>Beef<br>Shellfish<br>Pastries<br>Pasta<br>Cheese<br>Soft Drinks |
|   | 1.0 | Lemon Juice<br>Hydrochloric acid   |
|   | 0   | Battery acid   |
|    |     |  |

Snails,  
Rainbow  
Trout Die  
Frogs,  
Crayfish  
Die

All fish die

# Hypothesis

**I think that there will be a higher pH at Mouth and a lower pH at the Lake Mills.**

## Null Hypothesis

**There was no significant difference between the two averages. So I can not reject my null hypothesis.**

# Materials

- Sample water, randomly chosen area, about a half a tube
- Two small tubes to put example water in.
- Experiment place (flat rock will work).
- pH graph
- pH graph holder to put graph and solution in.
- 6 drops of pH solution.



## Methods:

1. Go to the mouth of the river. Take 1 tube and fill it with sample water. Place in holder on experiment place.
2. Take the other tube and fill it half way full and put it in the inner slot away from the graph.
3. Put 6 drops of pH solution in the inner tube. Keep tube behind graph blank. Shake tube with solution well. Match tube with solution to graph.



## Methods, cont.

4. Repeat steps 1-3 four more times moving down 4 meters per test.
5. Go to Lake Mills, randomly choose starting point by closing your eyes and pointing at a random spot. Repeat steps 1-4 four more times.

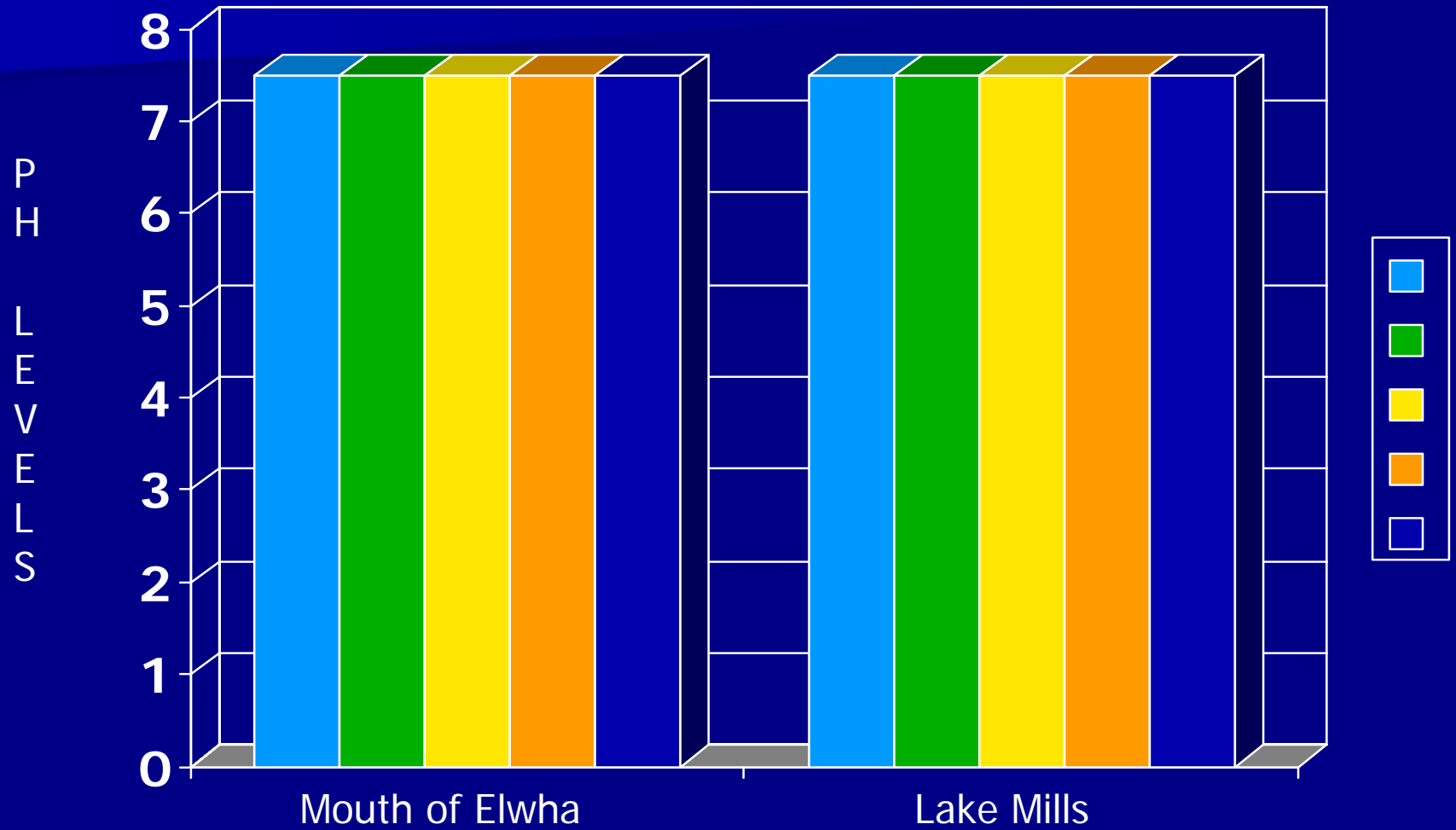
| Test    | pH at the Mouth | pH at Lake Mills |
|---------|-----------------|------------------|
| 1       | 7.5             | 7.5              |
| 2       | 7.5             | 7.5              |
| 3       | 7.5             | 7.5              |
| 4       | 7.5             | 7.5              |
| 5       | 7.5             | 7.5              |
| Average | 7.5             | 7.5              |

## Results:

**The range of my treatment types is zero.**

Range: 0

# GRAPH



# STATISTICAL DATA

- P-Value  $\geq 50\%$

There is  $\geq 50\%$  chance of seeing data like these if the null hypothesis is true.

I can not reject the null hypothesis.

# Discussion

There is no difference between the pH level in Lake Mills verses the Mouth.

I think that I got these results because:

- They both had pretty much the same types of rocks around, rocks determine the pH.
- Limestone neutralizes, and granite does basically nothing.
- There was no salt in the water I sampled by the mouth.

# Next Step

What I would do next to change the research is...

- I would take more tests closer to the strait so I had more salt water in the experiment to see if it would effect pH.
- I would also test the old camp ground to see if there was a difference in pH there.
- I would have changed how my testing strategy and test farther down each time instead of 5 meters I would walk 10 meters each time to get different spots.

easy. The normal pH level in water is very totally neutral. The pH level is important because it is to high or to low, the fish would not be able to survive. The pH affects the lake because the warmer the water is the more pH there is. Plants are a big clue to figure out how much pH is in the lake because if there is a lot of pH in the lake the plants will grow big and healthy. The alkaline in the ocean helps maintain the pH level. The ranging for the pH in the ocean is the same as in a lake the range is 7.0-7.5. When I measured the pH in the mouth and in the lower dam, they were the same, which leads up to my project "is there more pH in the mouth or Lake Aldwell"? So, is the pH level greater in Lake Aldwell or the mouth? I am thinking that the mouth might have a greater pH level because of the salt in the straight can effect it. I also think that the dam might have a good amount of pH too because there are a lot of healthy plants around it.

## MATERIALS

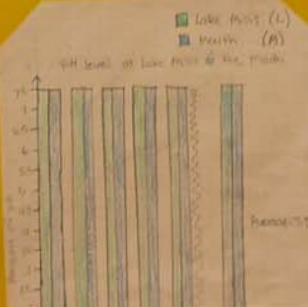
- Sample water from a randomly chosen area, about a full tube.
- 2 small tubes to put example water in.
- Experiment place (flat rock will work).
- pH graph.
- pH graph holder to put tubes and graph in.

## METHODS

1. Make sure you have all the materials and go to the mouth of the river. Randomly choose starting point by closing your eyes and pointing at a random spot.
2. Take 1 tube and fill it with sample water. Place in holder on experiment place.
3. Take the other tube and fill it half way to full and put it in the inner slot away from the graph.
4. Put a drop of pH solution in the inner tube.
5. Keep tube behind graph.
6. Blow.

## What is the pH in the Mouth of the Elwha River and Lake Mills?

| pH of Elwha River |                |            |
|-------------------|----------------|------------|
| Trial             | Mouth of river | Lake Mills |
| 1                 | 7.5            | 7.5        |
| 2                 | 7.5            | 7.5        |
| 3                 | 7.5            | 7.5        |
| 4                 | 7.5            | 7.5        |
| 5                 | 7.5            | 7.5        |
| Average           | 7.5            | 7.5        |



**HYPOTHESIS:** There will be a higher pH level at the mouth of the river and Lake Mills will have a lower pH level.

## TESTING SITES:



**Results Paragraph**  
Our range of treatment types were 0 for the mouth of the river and 0 for Lake Mills. The average for both spots was 7.5 pH. There were no usual situations encountered during the data collection. Our p-value is over 50% which means that there is no significant difference in our data averages. The only pattern we found doing the graph was a straight line because all the measurements are the same.

## CONCLUSION PARAGRAPH

There is the same amount of pH at Lake Mills as there is at the Mouth of the Elwha River. Our results are that there was the same amount of Ph in both of the places. pH can be determine from what kinds of rocks are in the area for example some limestone can, to an extent, neutralize the acid while others, such as granite, have virtually no effect on pH.