The Gila River Water Quality

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Our Research Question and Hypothesis

Our Question

How do the physical characteristics of the river affect the stream's chemistry?

Our Hypothesis

Our hypothesis was that deeper water contains more harmful elements and it has worse quality.

Background On Our Topic

The Gila River is the last remaining free river in the United States. We used this water to drink, wash dishes, and to swim in. We were interested in this topic because we wanted to know how sanitary the water that we were using on a daily basis was.

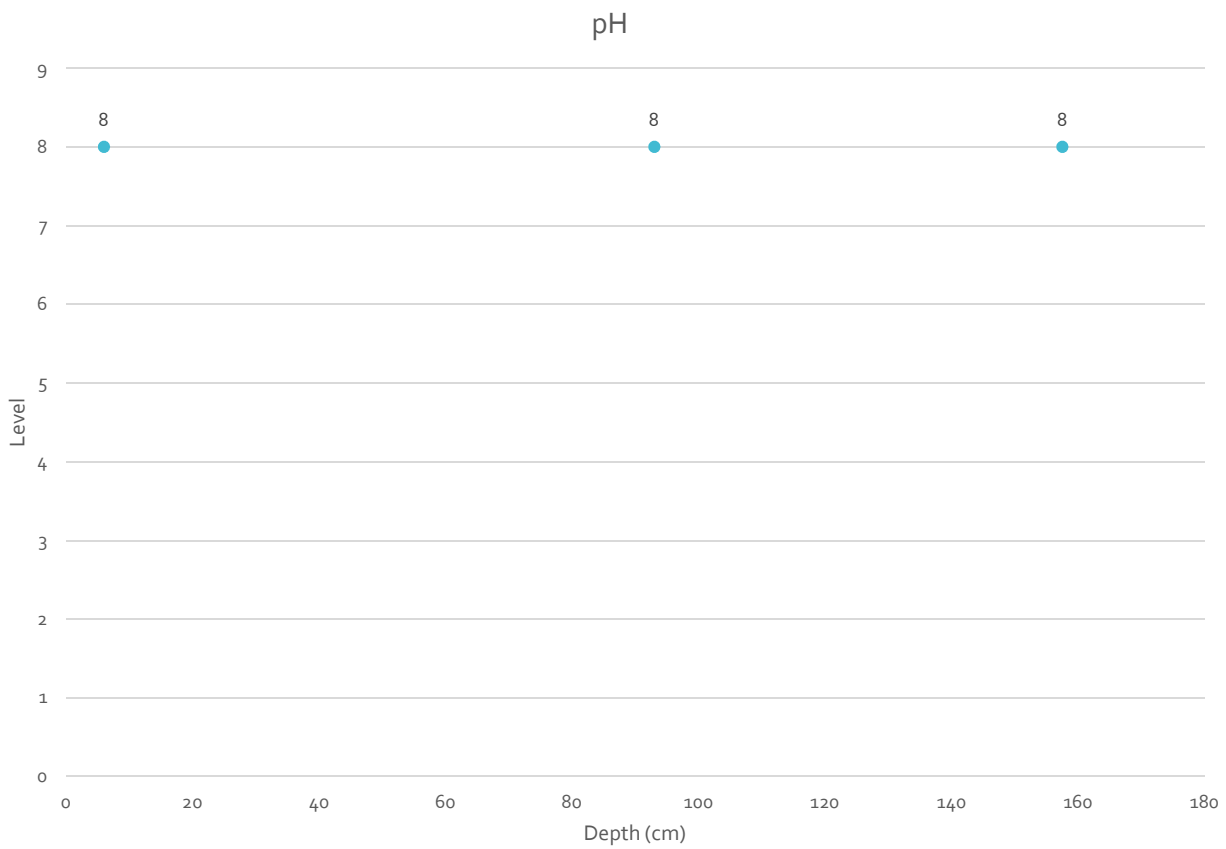
Methods

Our methods were to take samples from the deepest part of the river, the part of the river that was about 5 feet deep, and the shallowest part of the river. We measured the pH levels, the Nitrogen levels, Dissolved Oxygen levels, Phosphorous levels, Turbidity, and the Coliform levels.

Background On pH Levels And Turbidity

- According to the Water Monitoring Kit, "pH is a measurement of the acidic or basic quality of water." Living ranges, or the pH of natural water, is usually between 6.5 and 8.2.
- Turbidity is the measurement of the clarity of water. Turbidity is not to be confused with colored water, because colored water can be clear and not turbid.

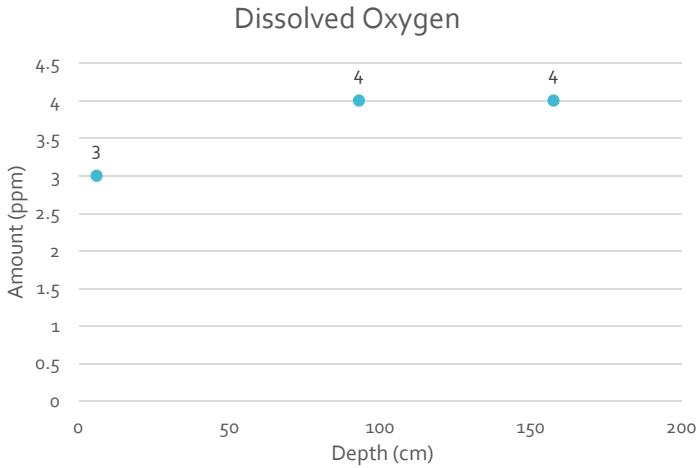
Turbidity and pH Results

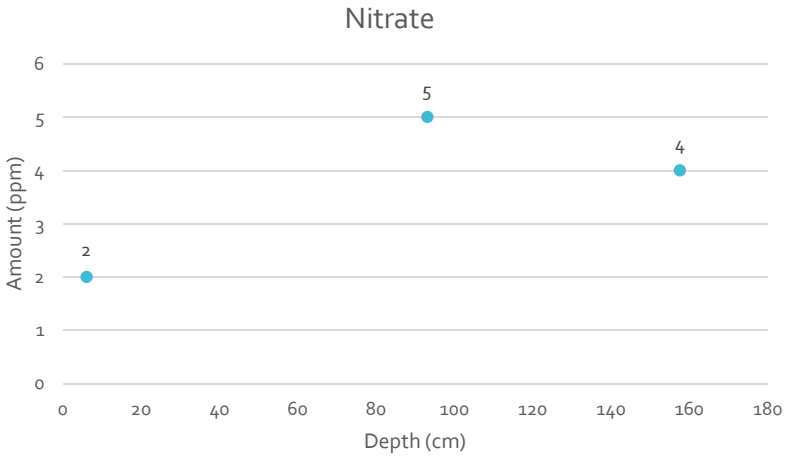


Background on Dissolved Oxygen and Nitrate

- All aquatic animals need oxygen to survive. Natural waters with consistently high dissolved oxygen levels are most likely healthy and stable environments, and are capable of supporting the diversity of aquatic organisms.
- Nitrate is a nutrient that is needed by all aquatic plants and animals to build protein. Excess nutrients like Nitrate increase plant growth and decay, promote bacterial decomposition, and decrease the amount of oxygen that is available in the water.

Dissolved Oxygen and Nitrate Results

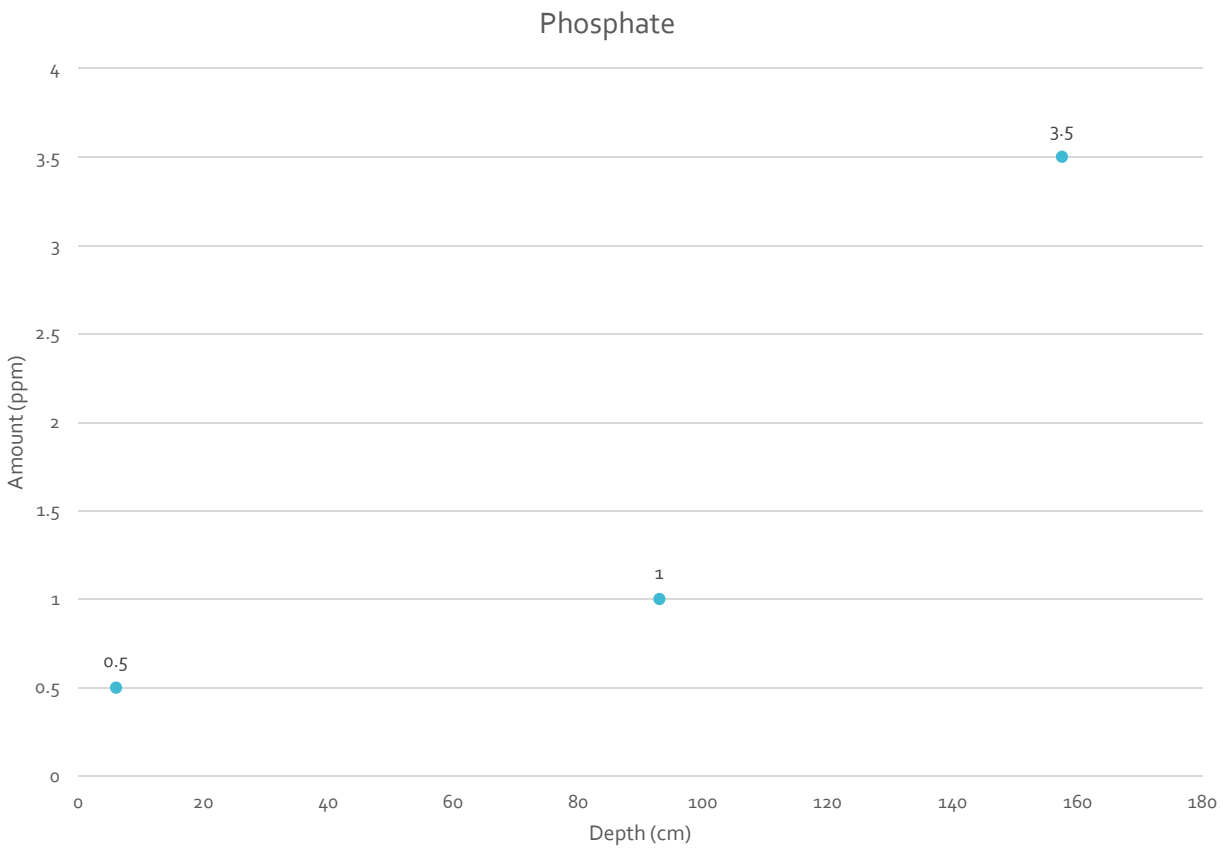




Background on Phosphate

- Phosphate is a nutrient needed for plant and animal growth and is also a fundamental element in metabolic reactions. If there is too much of this nutrient, this can lead to the overgrowth of plants, increased bacterial activity, and decreased dissolved oxygen levels.

Phosphate Results

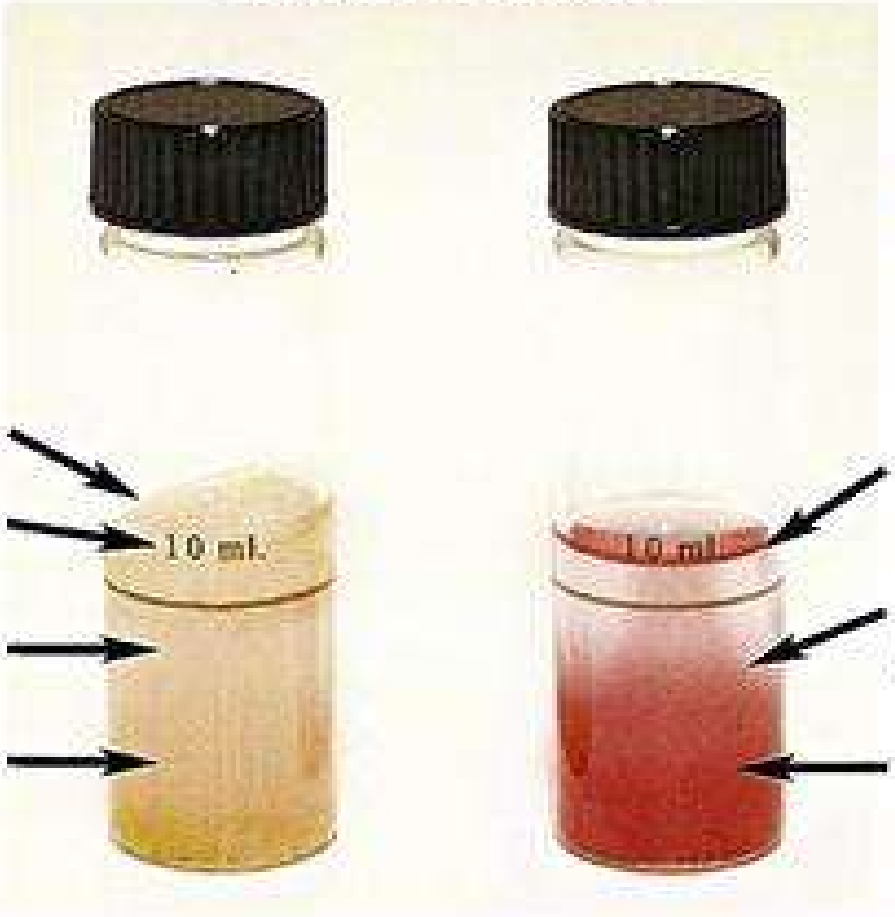


Background on Coliform Bacteria

- Fecal Coliform bacteria are naturally present in the human digestive tract but are rare or absent in unpolluted waters. It should not be found in drinking water or water wells. In short, we tested for mammal waste.

TOTAL COLIFORM INDICATOR

COLOR CHART



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Conclusion

Overall, the Gila River was completely sanitary. Turbidity was excellent. Dissolved Oxygen was also considered excellent. pH levels were good. Nitrate was better than fair. Phosphate varied from good to excellent. Even though coliform tested positive, we filtered all of our drinking water. Therefore, we will not contract any illnesses from the bacteria.