



Water Qualities in Okmulgee County

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• Deep Fork Lake

Abstract

Water is life. Considering the critical reliance that the earth has on water, the water qualities influence the human population, plants, and animals. Water quality is defined as being within the standard of federal and state regulations. One major source for water and nutrients is Deep Fork Refuge which provides shelter and food to over three hundred species of animals. Historically, Deep Fork has been known to be a site for human pollution. The Deep Fork Refuge pollutants could inflow to different Oklahoma water systems. Consequently animals may consume any pollution found at the refuge. Other sites such as Nichols Lake and Jim Hall Lake are water sources for a municipality and public recreational activities.

Hypothesis and Observation

- Hypothesis: How clean are the local drinking systems? Does the water have an abundance amount of a certain mineral? Is this water safe to drink? Is the water polluted with materials from humans?
- Observation: Most of the water systems are clean and safe to drink. These water sources have the standard level of minerals found in the water and are not that harmful to any organism that consumes it.

Introduction

One of the water sites historically have been documented for the presence of human decomposition. Human interactions with the water systems can be a heavy influencer on area water quality. The municipality that receives its water from this source has not provided the correct environmental clean-up procedure nor have they informed the citizens about it. The water quality tests were important because these could have shown the potential health risks and issues with using this water. If these tests had come back with elevated concentrations, certain precautions would need to be taken among state and federal departments.



• Jim Hall's Lake



• Nichols Lake

Salinity Test: Tests for concentration of dissolved salt in the water.



Water Samples: These are local water samples.



Results

| Water Testing Results | | |
|-----------------------|----------|-----------|
| Water Source | Test | Results |
| Deep Fork | Salinity | 0.22 ppm |
| | DEHA Kit | 0.05 ppm |
| | Copper | 0 ppm |
| | Lead | Negative |
| Deep Fork Boardwalk | Salinity | 0.5 ppm |
| | DEHA Kit | 0.05 ppm |
| | Copper | 0.05 ppm |
| Montezuma Creek | DEHA Kit | 0.05 ppm |
| | Copper | 0 ppm |
| Nichols Lake | DEHA Kit | 0.2 ppm |
| | Copper | 0 ppm |
| | Lead | Negative |
| Jim Hall's Lake | DEHA Kit | 0.1 ppm |
| | Copper | 0.075 ppm |
| | Lead | Negative |



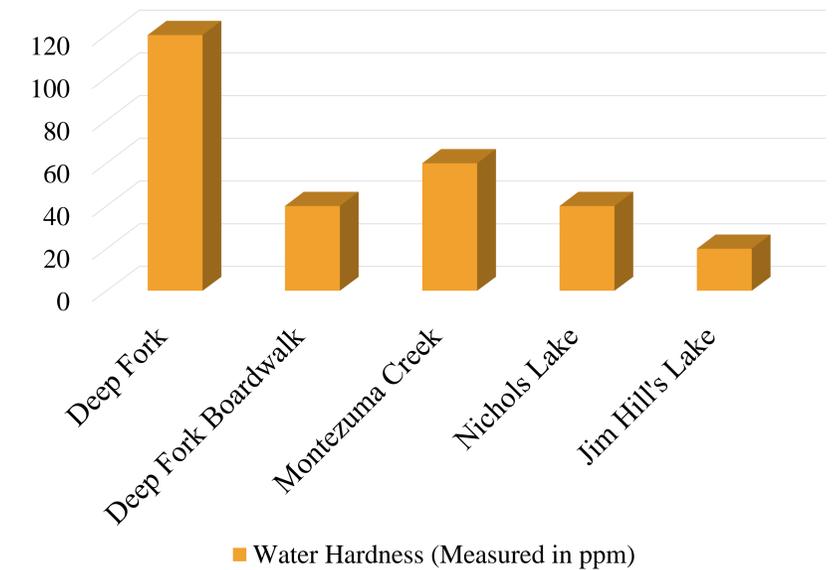
Deep Fork Boardwalk: It has sign that identifies the different types of birds most likely present in the boardwalk area.



Methods and Materials

- Materials
 - Sample water from the following areas:
 - Nichols Lake (Sample taken after it rained for two days.)
 - Jim Hall's Lake (Sample taken after it rained for two days.)
 - Montezuma Creek
 - Deep Fork
 - Deep Fork Boardwalk
 - The following tests were used:
 - Salinity Test (used on Deep Fork and Deep Fork Boardwalk)
 - Lead (used on Nichols Lake, Jim Hall's Lake, and Deep Fork)
 - DEHA Kit (Detergent/Soap found in the water.)
 - Water Hardness of Okmulgee County

Water Hardness



Conclusions

The water samples also had trace mineral concentrations. Based on the findings, human impact induced the presence of both trace minerals and some pollutants. The DEHA and the Salinity tests were significant in concentration. These were not insignificant concentrations to classify the water system as hindered or an unhealthy water source. Such results would not have a negative impact on the aquatic organisms.

Reference: Deep Fork National Wildlife Refuge. U.S. Fish and Wildlife Service, 05 Feb. 2019, https://www.fws.gov/refuge/Deep_Fork/about.html.

