

# *Water Quality Improvement Project*



Natalie Brimeyer  
High School Biology teacher at  
Southeast Polk  
2021 extern at Jasper County  
Conservation

## *Jasper County Conservation*

History: The Jasper County Conservation Board was established in 1962. The Board's goal was to help preserve nature throughout the county.

Services: The conservation department helps educate the community about nature and conservation practices. They use tax money to manage and maintain more than 3,000 acres of land. This includes campsites, wildlife preserves, bike trails and more! The Naturalist that work for the park help maintain biodiversity and protect nature. Jasper County Conservation is not the Department of Natural Resources (DNR). The DNR manages state parks while Jasper County Conservation manages county owned parks.

## Part II: Workplace Focus

The conservation office is made up of a wide variety of job opportunities. These positions include: the director, board members, office managers, park rangers, naturalists, volunteers and more. We will mostly be focusing on the naturalist's job position but all roles are essential to the conservation office's goals.

Naturalists main job is to meet with people around the county to help educate others as well as help maintain the parks. They try to preserve, restore, maintain, and protect natural habitats.

### Part III: Introduce the Project or Problem

Iowa is a farming state. That means that farmers are constantly spraying pesticides, fertilizers, and manure on their fields. Although this helps with crop growth and yield, these applications are also one of Iowa's biggest water pollutants.

As Naturalists and conservation volunteers, our job is to find ways to improve and maintain good water quality. Specifically, we will be looking at the water quality within Mariposa Lake here in Jasper County.

## Part IV: Standards, Driving and Essential Questions

### **Standard:**

#### HS-LS2-7 Ecosystems: Interactions, Energy, and Dynamics

- *Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity*

### **Driving Questions:**

1. Using what we know, how can we improve and maintain the lakes' water quality?
  - What reasoning do you have to backup your proposal?
  - How will we know if your efforts actually worked?
  - Is your plan reasonable for Jasper County to carry out?
1. Using the data collected by Jasper county, is their water clean up project working at Mariposa?

## Part V: Extern Host Role

For this project students will eventually take a field trip out to Mariposa Recreation Area in Jasper County. This is where the lake and the floating wetland is located. Using the Naturalists help, students will collect water quality data to see if the floating wetland is helping combat water pollution.

<u>Keri Van Zante</u>	→ Director	<a href="mailto:kvanzante@jasperia.org">kvanzante@jasperia.org</a>
<u>Jade Read</u>	→ Office Manager	<a href="mailto:jread@jasperia.org">jread@jasperia.org</a>
<u>Greg Oldsen</u>	→ Naturalist	<a href="mailto:goldsen@jasperia.org">goldsen@jasperia.org</a>
<u>Katie Cantu</u>	→ Naturalist	<a href="mailto:kcantu@jasperia.org">kcantu@jasperia.org</a>

## Part VI: Design Elements Checklist

Phase 1: Students are posed the problem of water quality on slide 5. It is then their responsibility to research and use their previous knowledge to come up with solutions the conservation park could use to help clean and maintain healthy waterways. Students will then present their ideas as well as their reasoning.

Phase 2: Teacher will reveal to students what Jasper County Conservation did to help clean the water at Mariposa park including dredging, putting in wetlands/silt ponds, and creating a floating wetland device in the center of the lake. Students will synthesize how these things help maintain good water quality and minimize human impact.

Phase 3: Students will take a field trip out to Mariposa park. Here they will meet with the Jasper County Conservation Naturalists and will do some water testing. They will compare this data to the pre-wetland water data of Mariposa lake and run standard deviation tests to see if the floating wetland really has been making a difference at improving and maintaining good water quality.

Phase 4: Students will write a small report summarizing their findings and analyzing what they would do the similarly or different if they were the naturalists working in Mariposa park 3 years ago when the water restoration project began.