



## Abigail C. Jefferson

Hydrologist



**Progressive Water Resources**

Integrated Water Resource Consultants

### Areas of Expertise

Hydrology • Structural Geology • Water Use Permitting • Geologic Mapping • Data Collection • Groundwater Flow Modeling • Aquifer and Well Testing • Wetland Delineation

### Education

B.S., Earth Science: Geology,  
University of Northern Colorado, 2019

## Project Experience

**OVERVIEW** – Ms. Abigail Jefferson holds a Bachelor of Science Degree in Earth Science, with a concentration in Geology, a minor in Biological Sciences, and an Emphasis in Mathematics from the University of Northern Colorado. Ms. Jefferson has both academic and applied experience in geology, structural geology, mineralogy, sedimentology and stratigraphy, volcanology, igneous and metamorphic petrology, paleontology, hydrogeology, and hydrology. Her technical skill set is extremely diverse and includes proficiency in ArcGIS and R Statistics, geologic mapping and map interpretation, analytical writing, collection of scientific data in both laboratory and field settings and organization and statistical processing of multivariable data sets.

Ms. Jefferson's field experience includes geologic mapping and creation of associated stratigraphic columns, interpretation of geologic history, interpretation of depositional environments, interpretation of paleocurrent data, aquifer performance testing, water quality sampling, wellfield mapping and creation of associated inventories, groundwater modeling, and wetland delineation. During her academic training, Ms. Jefferson also completed numerous field studies through the University of Northern Colorado involving hydrogeology in Ecuador, as well as geologic mapping and historic interpretation of intricate structural environments in Utah, Colorado, and Wyoming.

### **Six Mile Fold & Structural Geology Fold Analysis, CO**

Ms. Jefferson conducted an analysis of fold wavelengths based on unit layer thickness using a squeeze-box experiment. She used mathematical theories developed by Biot and Ramberg to predict the dominant wavelength given the thickness of unit and the viscosity of the mediums used. Ms. Jefferson also reconstructed the series of

metamorphic events that formed the "Six Mile Fold", an anticline and syncline fold system near Boulder, Colorado.

### **Canyonlands National Park & Arches National Park, UT**

In 2018, while attending the University of Northern Colorado, Ms. Jefferson received extensive training in the interpretation of geologic history and the interpretation of depositional conditions. This knowledge was then applied when she participated in a five-day field camp to Canyonlands National Park and Arches National Park in Utah. The students on this trip interpreted the geologic history of the Ancestral Rockies and the depositional conditions resulting in the rocks of the Permian Cutler Group. Ms. Jefferson used paleocurrent data, fossil information, and observed lithologies, collected in the field, to produce a detailed stratigraphic column.

### **Restoration & Functional Plant Traits, CO**

Ms. Jefferson was part of a Biology Research Team at the University of Northern Colorado. She assisted her professor and a graduate student with their research in functional traits in plants. Ms. Jefferson and her colleagues attempted to define appropriate ecosystem restoration goals in order to use restoration funds wisely and achieve high success rates. This was accomplished by the examination of the functional diversity of sagebrush across a complex environmental gradient. Research such as this is applicable when restoring wetlands and defining different ecosystem communities.

### **Cotopaxi Volcano, Quilotoa Volcano Crater, and the Amazon Rainforest – Ecuador**

Ms. Jefferson traveled to Ecuador with a group of fellow students in order to research water resources and the availability of these resources across the vast array of ecosystems and cultures in Ecuador. She hiked to the top

of Cotopaxi Volcano and marched to the bottom of the Quilotoa Volcano Crater in order to talk to the locals about water availability.

**In-Situ Incorporated Water Treatment Facility, CO**

Ms. Jefferson assisted with calculating the recovery rate of a well for a water treatment facility in Fort Collins, Colorado. She and her colleagues used mathematical and technical skills to evaluate the pump capacity and aquifer characteristics near this treatment facility. Ms. Jefferson also assisted with technical report documents for the project.

**Kremmling Ammonite Fossil Site, CO**

Ms. Jefferson provided insight regarding the ancient depositional environment of a fossil site located near Kremmling, Colorado. She used her knowledge of Paleontology to determine the types of fossils found in the area. This data was then analyzed to reconstruct historical geologic events.

**San Juan Volcanic Field, CO & Yellowstone National Park, WY**

While attending the University of Northern Colorado, Ms. Jefferson traveled to the San Juan Volcanic Field in southern Colorado and to Yellowstone National Park in Wyoming. Ms. Jefferson was asked to interpret the distribution of the historic volcanic events that formed the two large volcanic fields. She gathered field data over the course of ten days and then analyzed the data using geophysical concepts to reconstruct the historic events that occurred in both locations.