



## GEOSCIENTISTS-IN-THE-PARKS Internship Program

### PROJECT DESCRIPTION 2020 SPRING/SUMMER

<b>NPS UNIT: BUFFALO NATIONAL RIVER</b>	<b>PD #: 2020063</b>
<p><b>Position Title:</b> Hydrology Assistant (1)  <b>Position Type:</b> GIP Intern  <b>Primary natural resource discipline:</b> Water resources  <b>Project keywords:</b> karst, hydrology, GIS, water quality, air quality  <b>Location:</b> Harrison, Arkansas</p>	
<b>PROJECT DESCRIPTION AND WORK PRODUCTS</b>	
<p><b>Position Description:</b> Buffalo National River is searching for a well-rounded individual who is interested in being part of an interdisciplinary team of natural resource scientists working to solve real-world water quality issues in a complex and interconnected karst geology environment. The primary duties of the Hydrology Assistant will be working alongside natural resource staff to conduct routine water quality monitoring and special investigations within the Buffalo River Watershed to contribute to one of the National Park Service’s oldest and most continuously running water quality databases for a national river. Data collected, in part, by the intern will be used in park management decisions and by the Arkansas Department of Environmental Quality to better inform state water quality standards and 303d impaired waterbody listings pursuant to the Clean Water Act. The intern will routinely calibrate multiparameter sondes for pH, dissolved oxygen, and conductivity and learn to analyze water samples for E. coli and turbidity using standardized protocols and specialized equipment in the park’s EPA-certified laboratory under the supervision of the Lab Operator. Routine water quality monitoring for nutrients, E. coli, and turbidity will be conducted at 9 sites along the 153-mile long Buffalo River, 20 tributary sites, and 3 spring sites. Other water quality monitoring opportunities will include collecting emerging contaminant water samples in collaboration with the Environmental Protection Agency; monitoring, recording, and collecting samples from reported algal blooms; and additional water quality monitoring for special projects that arise. The intern may assist with database management and GIS analysis of some aquatics data, if time allows.</p> <p>The intern will be integral to the park’s continuous dissolved oxygen monitoring program by assisting the park’s Biological Science Technician with calibrating, deploying, and downloading and analyzing data from Onset HOBO Dissolved Oxygen Data Loggers that will be placed in tributaries of the Buffalo River. The intern will become familiar with the National Atmospheric Deposition Program (NADP) and be trained as a site back up operator for the park’s NADP weather station. Secondary duties may include working with the park’s interpretive staff to develop educational material about natural resources and to develop and present interpretive programs throughout the park, helping to develop and prepare for S.T.E.M. learning events at the park’s two research learning centers in collaboration with local volunteer organizations and colleges. The intern will have ample opportunities to meet and collaborate with staff from the Arkansas Department of Environmental Quality, Arkansas Game and Fish Commission, U.S. Geological Survey, and other federal and state agencies.</p> <p>Buffalo National River was established in 1972, in large part, to conserve the high quality waters and the scenic and scientific features which are dependent upon those high quality waters. As an Outstanding National Resource Waterbody, high quality water is very important. Eleven percent of the watershed is</p>	

under NPS control, and 29% is under US Forest Service ownership. The remaining 60% is under either private or state ownership. Changing land uses on private land may threaten water quality within the park. To make matters even more difficult, the Buffalo River pirates water from the Crooked Creek watershed to the north due to the high amount of karst geology in the area. The areas of piracy in the Crooked Creek watershed are heavily modified by agricultural practices.

The GIP will help the park gain a better understanding of the impacts from outside the park boundary as well as impacts from areas outside the topographic watershed.

This internship ties directly to the National Park Service mission of "preserving unimpaired the natural...resources...of the National Park System..." by contributing to the continued monitoring of our Nation's first national river and associated waterbodies, such as tributaries and springs. The GIP's work will assist park managers in making informed decisions about natural resources in the park based on sound science. Data collected during this internship will assist with future project development to better understand the Buffalo River ecosystem as a whole.

This position is offered through the National Park Service's Geoscientists-in-the-Parks (GIP) Internship Program in partnership with Stewards Individual Placement Program (Stewards) and The Geological Society of America (GSA).

**Work Products:**

- Complete and accurate field data sheets and record keeping
- GIS layers and analysis (if applicable)
- Final presentation to park staff summarizing internship accomplishments and potential data results

Other potential deliverables may include:

- Natural resource-related educational material (to be developed in coordination with the park's interpretive staff)
- Natural resource-related interpretive program and corresponding material (e.g. slideshow presentation and props)

**QUALIFICATIONS**

The best qualified applicants will have or be pursuing an undergraduate or graduate degree in the natural sciences, such as biology, environmental science, ecology, geology, or hydrology. Field and laboratory experience, as well as data management and entry skills, are desirable, particularly related to aquatic sampling. The ability to work as part of a team is a must. The individual selected for this position should possess the physical ability to hike in relatively steep terrain over long distances. Strong oral and written communication skills are also desired.

The applicant must be a U.S. citizen or U.S. permanent legal resident ("green-card-holder") between the ages of 18 and 35 years old. Prior to starting this position a government security background clearance will be required.

**VEHICLE/DRIVER LICENSE REQUIREMENTS**

**Applicant must have a valid driver license and a good driving record.** The interns may be required to drive a government vehicle to and from field sites.

**A personal vehicle is REQUIRED for this position.** The intern will be staying in park housing, which is more than 5 miles away from the nearest town. Public transportation is very limited in the local area.

If the GIP is required to drive a park vehicle for their position, Stewards will perform a driving records search, and the GIP's ability to drive a park vehicle during work hours will be contingent upon the results. GIPs will have to have had their license for 3 years or be over the age of 21 to be insured as drivers under Stewards insurance policy. Examples of things that will preclude a GIP from driving a park vehicle include:

GIP under the age of 21 years old that has been licensed less than three years, DUIs, multiple moving vehicle violations, suspended or revoked license, or three or more accidents (regardless of fault) in the last 3 years. If the driver's search is favorable, Stewards will provide driver's liability insurance while the intern is driving a NPS vehicle for their GIP position. If the GIP is denied coverage by Stewards, they will not be permitted to drive during work hours.

**HOUSING**

**Park housing is available and will be provided at no cost to the participant.** In-park housing will be available. Specifically, the housing will likely be located near the Ozark Campground. The intern will share a furnished single-family home with seasonal park staff members and/or other interns, but will have access to their own private lockable bedroom. The kitchen, bathroom, and living room will be shared between house occupants. The intern will need to bring kitchen, bathroom, and bed linens. Some dishes and utensils will be available, but the intern may wish to bring additional kitchen items. Driving to the nearest grocery store in Jasper, AR takes approximately 13 minutes (6 miles), and the park headquarters is approximately a 30 minute (17 miles) drive from the park housing.

**INTERNSHIP DATES**

**Start Date:** 5/11/2020

**Number of weeks:** 20 weeks

**Flexibility of dates:** Yes

**LIVING ALLOWANCE**

20 weeks (\$350/week = \$7,000)

**RELOCATION ALLOWANCE**

\$250

**AMERICORPS PROGRAM**



AmeriCorps is a program that engages individuals in intensive community service work with the goal of "helping others and meeting critical needs in the community". The GIP Program is supported through AmeriCorps by providing a Segal Education Award in addition to the GIP's living stipend and relocation allowance.

Upon successful completion of the GIP position, the GIPs (AmeriCorps members) are eligible for a \$1,638 - \$6,195 pre-tax education award that can be used for paying back student loans or for continuing their education. The amount of the education award is based on the length of the position.

AmeriCorps limits the number of terms an individual can serve to 4 terms. If an applicant has previously completed 4 GIP or other AmeriCorps positions, they will not be eligible to apply for an additional GIP position.

## NATURAL & PHYSICAL WORK ENVIRONMENT

**Natural Environment:** Originating in the Boston Mountains of the Ozark Plateau, the river generally flows in an easterly direction to its confluence with the White River. Flanking the river are multi-colored bluffs of eroded sandstone, limestone and dolomite that tower in some places to heights over 400 feet. The karst geology of the region is reflected in a landscape marked by numerous caves, cliffs, sinkholes, waterfalls, springs, and rock formations.

A wide variety of plant and animal species are supported by the diversity of habitats found along the river, influenced by varied elevations, soil types, moisture levels and exposure. Hunting and fishing are allowed in the national river under state and NPS regulations. A diverse range of cultural resources and historic sites are protected within the national river, including prehistoric village and shelter sites, historic farmsteads, mining sites, and Civilian Conservation Corps structures.

The park's 94,293 acres (a total of 95,730 acres are legislated) are divided into three management districts. Park headquarters are located in Harrison (Boone County), Arkansas. Park visitation has averaged more than 800,000 visitors a year. In addition to visitor water-based activities with multiple launch points along the river, the park offers more than 100 miles of hiking trails and designated trails for horseback riding. Three designated wilderness areas are included in the park boundaries (the Upper Buffalo Wilderness Area, the Ponca Wilderness Area, and the Lower Buffalo Wilderness Area). Because there are few roads which parallel the river and few accessible overlooks, river and trail trips are among the best ways to experience the park. Access to Buffalo National River can be found at various points throughout the length of the river.

**Physical Work Environment:** The intern's main duty location will be at Buffalo National River Headquarters in Harrison, AR. The intern will be provided a desk and computer in the shared natural resource office space. The intern should be prepared to work outdoors (i.e. wear proper warm weather clothing and bring water) in summer weather, which is generally warm and humid. Footwear appropriate for hiking should be worn while in the field. The intern may wish to wear clothing that will dry quickly, as they will likely get wet while collecting water samples.

The individual selected for this position should possess the physical ability to hike in relatively steep terrain over long distances. The intern should be prepared to encounter ticks, biting insects, and possibly venomous snakes.

## MENTORING AND LEARNING GOALS

**Mentoring:** After initially arriving at Buffalo National River, the intern will be orientated to the National Park Service, Buffalo National River, park staff, and the park's resources and challenges. Throughout the internship, they will work closely with and be mentored and trained by the park's Aquatic Ecologist and Biological Science Technician, among other natural resource staff. The intern will have opportunities to interact with park seasonal and permanent staff during work hours and more casually outside of work hours. They will also have ample opportunity for professional development with staff from the Arkansas Department of Environmental Quality, Arkansas Game and Fish Commission, U.S. Geological Survey, and other federal and state agencies who are actively working within the park.

**Learning Goals:** The Hydrology Assistant will be exposed to a range of real-world natural resource challenges faced by natural resource managers and learn how scientists collect, process, and interpret natural resource data, particularly related to water resources, for informing better park management practices and policies. The intern will gain hands-on technical experience by collecting, processing, and analyzing environmental data and working in an EPA-certified laboratory. The intern will learn about federal and state employment opportunities and the many career options available in the federal government and will be mentored by seasoned and developing park staff members who come from a myriad of backgrounds with diverse experiences. The intern will be encouraged to pursue professional development opportunities

and given opportunities to shadow park staff from other divisions. Skills that may be improved or gained include analytical and technical skills, critical thinking skills, interpersonal skills, interpretive material and programming development skills, and public speaking skills.

**SUPERVISORS/MENTORS**

**Primary Supervisor/Mentor:**

Shawn Hodges  
Aquatic Ecologist  
402 N. Walnut, Suite 136  
Harrison, AR 72601  
(870) 365-2778 | shawn\_hodges@nps.gov  
[www.nps.gov/buff](http://www.nps.gov/buff)

**Secondary Supervisor/Mentor:**

Ashley Rodman  
Biological Science Technician  
402 N. Walnut, Suite 136  
Harrison, AR 72601  
(870) 365-2794 | ashley\_rodman@nps.gov  
[www.nps.gov/buff](http://www.nps.gov/buff)