

## **Wilderness Watershed Adventure: Exploring Environmental Science**

*A week-long immersive, intergenerational camping experience for high school students in the  
Lake James Watershed  
August 4th-9th, 2024*

This is a FREE environmental science and outdoor adventure program for high school students (age 15-19). Students will spend 5 days and 4 nights together studying watershed and riverine science, riparian health, lake ecology, and shoreline habitat and management in the Lake James Watershed. Led by adults in the environmental field and college student mentors, participants will work in intergenerational teams to collect, analyze, and summarize environmental data from Lake James and the Linville River. Potential activities and a sample itinerary are listed below.

### **Students arrive at Visitors Center by 3 PM on Sunday**

- Icebreaker Activity
- Orientation and Gear Prep

### **LINVILLE GORGE (First 2 nights)**

#### **History of the Gorge/Fonta Flora**

A discussion of the history of the land that the students are camping on. Will include a discussion of the communities, major historical events in the vicinity, and the interaction of land and people throughout time.

#### **Macroinvertebrates and the NCBI**

This activity is an extension of LJEAs Kids-in-the-Creek program. We will go into greater depth concerning the use of macroinvertebrates to determine the quality of the aquatic habitat and water quality. Students will collect samples, using LJEAs protocols, and use magnifying glasses and taxonomy guides to identify. Each team of students will “grade” the stream based on their sample and then the sample results will be aggregated to produce a composite grade. The differences in scores will be discussed. Prior LJEAs sampling data and scores will be presented. Sources of error and the natural variability of results (seasonal and otherwise) will be discussed.

#### **Stream Assessment & Chemical monitoring**

The basis of this activity is the NCDEQ/Division of Water Resources Stream Assessment procedure and forms. Students will be trained in the purpose, basis, procedures and DWR forms and then the student teams will perform an assessment on a common reach of the Linville river. The results will be discussed with an emphasis on the problems and value of such subjective observations. Water quality probes and simple test kits will be used to look at the physical and chemical properties of the water in the river. Students will be provided a summary of LJEAs long-term water quality monitoring data for the river. They will be asked to reflect upon the variation and significance of results.

#### **Wildlife Lands Management & Wildlife of the Gorge and Lake**

Staff from the NC Wildlife Resources Commission will discuss the use, management, and value of the State Wildlife lands immediately across the river (with comments about the USFS lands

that they are camping on). The diversity of wildlife (terrestrial and aquatic) on the lands and of the Lake James area will be discussed. As time allows, the purpose and expected impacts of the timber harvesting and prescribed burning of NCWRC land will be presented.

## **Fauna and Flora Hike**

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### **LAKE JAMES STATE PARK (2 nights)**

#### **Hike to Rock Hill Cemetery (Evening)**

#### **Wetlands, Amphibians and Herpetology of the Lake James area (day time)**

Discussion of research in the wetlands and riparian areas around Lake James.

Explanation/demonstration of field techniques, including conservation trapping and release.

Academic requirements and careers available in this field.

#### **Understanding the History and Limnology of Lake James - Water Quality Sampling**

The focus is on getting on Lake James to perform water quality sampling while having discussions of the Lake: its history, limnology, current conditions and issues such as invasive species, and how the lake is managed. Students will be provided data from prior Lake water quality sampling (including vertical profiles of Temp, pH, DO, conductivity) and challenged to interpret those data as it relates to the structure and condition of the Lake.

#### **LJSP Multipurpose Use and Management (evening)**

LJSP staff will host an around-the-campfire discussion of the purpose, use, and management of the Park.

#### **Possible Public Service Projects**

- Installing salamander habitats
- Picking up trash - make collage and talk about different types of trash
- Livestaking a streambank

#### **Streambank & Shoreline Erosion**

Students will be transported by pontoon boat along the shoreline of Lake James observing shoreline erosion and discussing its causes, consequences, and methods of mitigating.

#### **Lake Wildlife: Birds of Prey & Lake James Eagle Watch**

Discussion and observation regarding birds of prey and LJEAs' Eagle Watch program.

#### **Night Walk (after dark)**

Observe and learn about amphibians and other "creatures of the night" accompanied by expert guides.

#### **Thursday 3 PM Presentations at the Visitors Center**

## **SAMPLE DAY ITINERARY**

Wake up 7:30 AM

Breakfast 8 AM

Short Warm up Activity

Morning Field Activity (9:30-11:30)

Lunch

30 Min Down time then Warm Up Activity

Afternoon Field Activity (1- 3)

Adventure Time or Downtime (3:30- 5:30)

Dinner 6 PM

After Dinner Activity

Bed 9:30