



2019 Cooperative Summer Field Training Program

Project Title:	Aquatic Invertebrate Monitoring and Research in the Colorado River in Grand Canyon National Park
Project Scientists:	Theodore Kennedy
USGS Center:	Grand Canyon Monitoring and Research Center
Location:	Flagstaff, AZ and Grand Canyon National Park, AZ

Project Description:

Background Information:

We are a dynamic lab working to understand the effects of Glen Canyon Dam management operations on the Grand Canyon ecosystem. We are primarily focused on aquatic macroinvertebrate communities in the Colorado River and employ several sampling methods to quantify those communities. These include light traps, drift sampling, 'sticky traps,' and benthic sampling to better understand the implications of current dam management practices on the invertebrate communities in the river, such as how flow management for hydropower production is affecting the abundance and diversity of aquatic organisms.

Objectives:

To better understand the effects of Glen Canyon Dam management operations on the Colorado River in Grand Canyon. Contribute to our current lab practices so that we might become a more efficient and productive aquatic ecology team.

Intern Tasks:

Identify and quantify aquatic macroinvertebrates collected in Grand Canyon National Park. Adhere to standard operating procedures with regard to general lab work as it pertains to our research in the Canyon. Imaging, curation, and organization of our invertebrate reference collection. Sample data management and entry into our internal Access database. The student would also be expected to assist with invertebrate specimen identification and quantification. The intern would be expected to work with our collaborators at the Museum of Northern Arizona to create a digital reference collection of the specimens we collect in Grand Canyon. This would be a dynamic position that requires flexibility of the intern to adapt to the needs of the lab.

Expected Outcomes:

This internship opportunity will provide the candidate with important real-world experience that would certainly benefit the student in any future career endeavors. This includes experience with standard methods used in aquatic ecology, and more specifically working with aquatic macroinvertebrates in a large

river system. Additionally, this internship would provide the student with an opportunity to work in the field and gain essential skills needed to successfully work in aquatic ecology. Due to the dynamic nature of the work we do in our lab, the student would gain important critical thinking skills. We are a collaborative team, so the student would gain experience working independently on assigned projects and assisting other members of our group with their work. All of these aspects of the internship would help prepare the student to work in many disciplines in the biology field, and more specifically those relating to aquatic ecology. Upon successful completion of the internship, the student would receive our assistance with updating and improving their CV, as well as any recommendation letters deemed necessary for any future job seeking endeavors. At the end of the internship, the student would have a tangible body of work to cite as a testament to their suitability for many positions in the future.

Details for Matching:

Type of Project: Lab Work

Project Discipline: Ecology, Wildlife Biology, Surface Water

Project Start Date: Mon Jan 07 2019 00:00:00 GMT-0500 (EST)

Project Duration: Ongoing

Level of Physical Demand: Level 8-2: The work requires some physical exertion such as long periods of standing, walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; or recurring lifting of moderately heavy items. The work may require specific, but common, physical characteristics and abilities such as above-average agility and dexterity.

GIS Training: ESA

Special Skills and Interests: Broad interest in aquatic ecology, and more specifically aquatic macroinvertebrate community structure. Interests in many factors relating to the management, health, and study of the Colorado River in Grand Canyon National Park. Experience in macroinvertebrate identification would be preferred, but we will train the right candidate. An understanding of the methods used in aquatic ecology, such as microscope work, lab methods, and invertebrate curation would also be highly desirable.