



## 2016 – Geoscientists-in-the-Parks Project Description



<b>NPS UNIT:</b> Grand Canyon National Park	<b>PD #:</b> 2016042
<p><b>Position Title:</b> Physical Science / Geomorphology Technician</p> <p><b>Position Type:</b> Guest Scientist</p> <p><b>Primary natural resource discipline:</b> Water resources</p> <p><b>Location:</b> Gran Canyon National Park 17 S. Entrance Rd. Grand Canyon AZ, 86023</p>	
<b>PROJECT DESCRIPTION AND WORK PRODUCTS</b>	
<p><b>Position Description:</b> Visitors to Grand Canyon's backcountry are often drawn to streams and the Colorado River. Water is needed not only for human consumption but is also valued for aesthetics, the biological diversity of stream corridors, fisheries, and the associated historical and archaeological resources from past humans attracted to the oases in the desert. The purpose of this Geoscientist in the Parks position is to continue stream bed monitoring at Shinumo and Bright Angel Creeks. Monitoring at Shinumo Creek is to determine the rate of stream recovery following an exceptional flash flood in 2014. As the stream bed recovers to a coarser deeper system the Park will be able to re-introduce humpback chub. Visitors will also be able to cool off in plunge pools that are now covered in fine gravel and will have cleaner water for consumption. Understanding this stream recovery process is critical for the visitor experience in the Shinumo Amphitheatre (Merlin, Modred, Gawain, Flint, White Creeks). Monitoring at Bright Angel Creek will be used to determine the stability of the stream and the stream's resilience to future flash floods. This information will help manage the creek into the future for the benefit of the native fishery, riparian habitat, and visitor enjoyment (especially at Phantom Ranch). The work will also benefit the TransCanyon Pipeline (TCP) scoping process by identifying areas of concern for future pipeline work and design. The individual will gain experience with related hydrologic studies of springs and seeps, sediment studies on the Colorado River, paleontological work in caves, and interdisciplinary work with other programs (especially Wildlife and Fisheries). Upon successful completion of the GIP internship, the participant is eligible for an AmeriCorps Education Award. This position is offered through the National Park Service's Geoscientists-in-the-Parks Internship Program in partnership with Environmental Stewards and The Geological Society of America.</p> <p><b>Work Products:</b> We expect that the intern will write sections of a report on fisheries habitat at Shinumo Creek, portions of a hydrologic assessment of Bright Angel Creek, and provide presentations of their results to both park staff and at a regional science conference.</p>	
<b>QUALIFICATIONS</b>	
<p>The intern should have an undergraduate degree with classroom and practical experience in fluvial geomorphology, hydrology, and geology. The individual should have experience with GIS and GPS units and should be physically fit for arduous field situations (extreme heat, long days hiking over uneven terrain, large changes in elevation throughout a day). Experience with water discharge measurements, rappelling and climbing, and swift water rafting/swimming are highly desirable.</p> <p>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. Applicant must have a valid driver’s license and a good driving record. A vehicle is not required but strongly recommended. Prior to starting this position a government security background clearance</p>	

will be required.
<b>INTERNSHIP START/END DATES</b>
<b>Start Date:</b> 3/28/2016 <b>End Date:</b> 9/30/2016 <b>Are these dates flexible?</b> Yes
<b>STIPEND PAYMENT</b>
\$7,200 for 6 months
<b>HOUSING PAYMENT</b>
\$0
<b>TRAVEL ALLOWANCE</b>
\$250
<b>HOUSING/WORK ENVIRONMENT</b>
<p><b>Housing:</b> Park housing is provided at no cost to the participant. Housing will be provided in the Grand Canyon Village at the South Rim. Housing is shared with the potential for shared bathrooms and kitchen (private bedroom). The exact details depends on the available park housing. Grand Canyon Village is a community of approximately 2,000 people who live and work at the South Rim. The village is relatively remote with basic services. Full services are available at Williams, AZ (1 hour away by car) and Flagstaff, AZ (1.5 hours).</p> <p><b>Physical/Natural Environment:</b> Grand Canyon National Park, a World Heritage Site, encompasses 1.2 million acres and lies on the Colorado Plateau in northwestern Arizona. The land is semi-arid and consists of raised plateaus, steep-walled canyons, and structural basins typical of the southwestern United States. Forests are found at higher elevations, while the lower elevations are made up of a series of desert basins. Summer temperatures can range from below freezing above the rims to well over 100 F at the bottom of the canyon. Site access typically involves extended hikes down the canyon with total elevation loss exceeding 5,000 vertical feet that then needs to be ascended. Hikes to access sites can also exceed 30 miles round trip, with daily hikes up to 16 miles. Trails and off-trail hiking also involves potential dangers including heat related injuries, physical dangers (cliffs, loose rocks, steep slopes, uneven ground), and biological dangers (rattlesnakes, scorpions, cactus, etc.).The Grand Canyon Village is a community of 2000 with a grocery store, clinic, post office, and restaurants. Full services are available at Williams and Flagstaff, both approximately an hour to an hour and a half away.</p> <p><b>Work Environment:</b> Work will be split between the field and office. Field work will involve accessing sites as described above (very arduous field work with hiking over diverse and difficult terrain). Office work will be in one of three locations: Flagstaff, the South Rim of the Grand Canyon, and The North Rim. Work schedule will be variable depending on field schedule but typically will be 40 hours per week.</p>
<b>MENTORING AND LEARNING GOALS</b>
<p><b>Mentoring:</b> The park will commit their physical science program manager to mentor the intern. The park manager has over a decade of experience in geomorphic and hydrologic studies. The intern will work alongside other interns in related hydrologic and fishery habitat studies. The intern will be trained in the field and office settings and will have opportunities to work and learn from other projects at the Grand Canyon.</p> <p><b>Learning Goals:</b> The intern will learn about bed load and suspended sediment monitoring and modeling in streams, stream morphology monitoring, water discharge and character collection techniques, and how to</p>

successfully design and complete small hydrologic and geomorphic projects.	
<b>SUPERVISORS</b>	
<b>Primary Supervisor:</b>	Ed Schenk
Supervisor's Title:	Physical Science Program Manager
Supervisor's Address:	17 S. Entrance Road Grand Canyon, AZ 86023
Supervisor's Phone number:	(928) 638-7817
Supervisor's email address:	edward_schenk@nps.gov
Park or Program Website:	<a href="http://www.nps.gov/grca/index.htm">http://www.nps.gov/grca/index.htm</a>
<b>Secondary Supervisor:</b>	Ben Tobin
Supervisor's Title:	Hydrologist
Supervisor's Address:	17 S. Entrance Rd. Grand Canyon, AZ 86023
Supervisor's Phone number:	(928) 638-7480
Supervisor's email address:	benjamin_tobin@nps.gov
Park or Program Website:	<a href="http://www.nps.gov/grca/index.htm">http://www.nps.gov/grca/index.htm</a>