



## GEOSCIENTISTS-IN-THE-PARKS Internship Program

### 2019 – PROJECT DESCRIPTION

<b>NPS UNIT: MOUNT RAINIER NATIONAL PARK</b>	<b>PD #: 2019075 &amp; 2019076</b>
<p><b>Position Title:</b> Geomorphology Assistant (2 positions)</p> <p><b>Position Type:</b> GIP Intern</p> <p><b>Primary natural resource discipline:</b> Geologic resources</p> <p><b>Project keywords:</b> Geohazard mitigation, geologic assessments, imminent threats, condition assessments</p> <p><b>Location:</b> Longmire, Washington</p>	
<b>PROJECT DESCRIPTION AND WORK PRODUCTS</b>	
<p><b>Position Description:</b> Under the supervision of the park geomorphology staff, the GIP will examine river and glacier responses to climate change, for the geohazards recognition program at Mount Rainier National Park. Specifically the scientist will assist in identifying and mitigating imminent flood threats to park roads and buildings. The GIP will help develop conceptual designs and facilitate implementation of flood protection structures to protect popular park roads and trails, now threatened, damaged, or closed due climate change related damage.</p> <p>Because of climate change, Mount Rainier’s glaciers are retreating, but they are not going quietly into the night. They are spawning catastrophic debris flows and glacier outburst floods (jökulhaups), and choking downstream rivers with excess sediment. The rivers are responding by aggrading (where the active river channel is up to 20 feet above adjacent floodplains and forests), flooding nearby roads, and suddenly shifting positions (avulsions), often killing acres of old growth forest. For basic planning and safety, it is necessary for the park to understand the glacier and river responses to climate change.</p> <p>This position informs management about changing hydrology and geologic hazards, the data from which directly informs future park planning. This internship is a critical component of the park's Imminent Threats Flood program and contributes to the overarching goals of the NPS mission in developing sustainable roads and trails in the park.</p> <p>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).</p> <p><b>Work Products:</b> Information produced by the summer work will be codified in a brief report or PowerPoint. Results will be used to advise Park Management, and the Maintenance Division, on strategies to protect park infrastructure, safely and economically, and with a minimum of aquatic impacts. If time allows, the geoscientist will also help design structures, and possibly oversee the field installation of the protections.</p>	
<b>QUALIFICATIONS</b>	
<ol style="list-style-type: none"> <li>1. Interest in earth sciences, geology, geomorphology, geophysics, natural resources; environmental science; hydrology; forest engineering; or related field;</li> <li>2. Good physical condition with ability to hike over rough, mountain terrain and to lift up to 50 pounds on some projects;</li> </ol>	

3. Good communication skills;
4. Glacier travel is a plus, but not required.
5. Experience working in and near rivers is a plus.
6. Ability to work with minimal supervision;
7. Proper clothing for either fair or foul weather; sturdy boots; gloves; sunglasses; sunscreen; bring lunch and water bottle; small day pack is desirable.

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'S LICENSE REQUIREMENTS**

Applicant must have a valid driver's license and a good driving record. A personal vehicle is recommended, but not necessary. The intern will need to drive an NPS vehicle while on duty.

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 provided at no cost to the participant. Park housing is a private or semi-private room with shared kitchen, bath, and laundry facilities. Cookware and dishes are not supplied. Housing may be located either within the park at Longmire, or nine miles outside the park at Tahoma Woods. Cell phone reception may be poor or nonexistent in most areas of the park.

#### **2 POSITIONS**

#### **INTERNSHIP START/END DATES**

**Start Date:** 5/13/2019

**Number of weeks:** 12 weeks

**Flexibility of dates:** Yes

**Start Date:** 5/13/2019

**Number of weeks:** 20 weeks

**Flexibility of dates:** Yes

#### **LIVING ALLOWANCE**

12 weeks (\$350/week = \$4,200)

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

#### **TRAVEL ALLOWANCE**

\$250

\$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 travel/housing allowance.

Upon successful completion of the GIP position, the GIPs (AmeriCorps members) are eligible for a \$1,612 - \$6,095 pre-tax education 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, he/she will not be eligible to apply for an additional GIP position.

## PHYSICAL/NATURAL & WORK ENVIRONMENT

**Physical/Natural Environment:** Mount Rainier is an active volcano blanketed with more than a cubic mile of glacial ice and permanent snow. It presents significant hazards for the Puget Sound communities downstream, in the form of outburst floods, lahars, and debris flows. The processes that created and re-create this inspiring beauty continue today. The geologic story of Mount Rainier is the source of its striking scenery, diverse flora and fauna and life zones, weather patterns, and recreation. The mountain was set aside as a national park in 1899 as an outstanding example of volcanic and alpine scenery and processes. For more information, visit the park's website at [www.nps.gov/mora](http://www.nps.gov/mora).

**Work Environment:** Involves considerable field work, in wilderness terrain, walking over rough and uneven surfaces, and exposure to sun, wind, rain, snow cold and other environmental hazards. The trails are steep or non-existent in many places. Specialized river and glacier training will be provided. The offices are simple, but provide the essentials of a work environment. Cell phone reception is poor or non-existent in most areas of the park.

## MENTORING AND LEARNING GOALS

**Mentoring:** All interns receive several weeks of training, including first aid, radio use, equipment use, river crossing safety, operational leadership principles, division training, and all-park training. The technician will work with a variety of Natural Resource staff, and interact with other park Divisions, particularly Maintenance and Trails. Results will be presented directly to Park Management. The intern will work on a high visibility project, and have access to all involved park personnel.

**Learning Goals:** The intern will practice applied geomorphology to help solve real-world, high visibility projects with strong connections to park visitor access and enjoyment. Experiences will run the gamut from field surveys and analyses of geomorphology data, to presenting results and recommendations to the park Management Team, in a policy context. Working under experienced geomorphologists, the Geologist-in-the-Park will use remotely sensed (particularly multiple LiDAR runs) and field data, and analyze watershed geomorphic and hydrologic data, to assess flooding and debris flow threats, and to develop workable, creative, low cost, self-mitigating flood protection strategies to mitigate these threats. The intern may also be involved with the construction of the flood protection structures.

## SUPERVISORS

<b>Primary Supervisor:</b> Scott Beason	<b>Secondary Supervisor:</b> Paul Kennard
<b>Title:</b> Park Geologist	<b>Title:</b> Region Geomorphologist
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<b>Park or Program Website:</b> <a href="http://www.nps.gov/mora">http://www.nps.gov/mora</a>	<b>Park or Program Website:</b> <a href="http://www.nps.gov/mora">http://www.nps.gov/mora</a>