**PROJECT DESCRIPTION**

**2020 SPRING/SUMMER**

<table>
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<tr>
<th>NPS UNIT: MOUNT RAINIER NATIONAL PARK</th>
<th>PD #: 2020029, 2020030</th>
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<tbody>
<tr>
<td><strong>Position Title:</strong> Geomorphology Assistant (2)</td>
<td><strong>Position Type:</strong> GIP Intern</td>
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<td><strong>Primary natural resource discipline:</strong> Geologic resources</td>
<td><strong>Location:</strong> Ashford, Washington</td>
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<td><strong>Project keywords:</strong> Geology, geomorphology, fluvial geomorphology, geohazards, water resources, risk management, infrastructure, climate science, field mapping, surveying</td>
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**PROJECT DESCRIPTION AND WORK PRODUCTS**

**Position Description:** Under the supervision of the park geology staff, the Geology/Imminent Threats Program Intern will examine river and glacier responses to climate change for the geo-hazards recognition program at Mount Rainier National Park. Specifically the scientist will assist in identifying imminent flood threats to park roads and buildings.

Project will be focused on mapping of fluvial landforms in the floodplain of multiple park rivers to relate the presence of landforms to localized hazards. Methods will include the collection of elevation and point data using survey grade GPS, updating of the park’s cross-section database to monitor aggradation of park rivers, and synthesis of all collected data to support the development of flood mitigation designs for critically threatened infrastructure.

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.

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:** Information produced by the summer work will be synthesized for use by the MORA Imminent Threats Team, and may have an accompanying report or presentation. Results will be used to advise the Park Management and Maintenance Divisions on strategies to protect park infrastructure, safely and economically, and with a minimum of environmental impacts.

**QUALIFICATIONS**

1. Background in earth sciences, geology, geomorphology, geophysics, natural resources, environmental science, hydrology, forest engineering, or related field. Applicant must either have completed an undergraduate major in the listed fields or be currently enrolled with one as their major.
2. Good physical condition with ability to hike over rough, mountain terrain and to lift up to 50 pounds on some projects.

3. Good communication skills.

4. Glacier travel and backcountry skiing experience is a plus, but not required.

5. Experience working in and near rivers is a plus.

6. Experience with surveying and electronic data collection techniques. This will include the use of ArcGIS Pro, ArcCollector, and survey grade GPS.

7. Ability to work with minimal supervision.

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 intern will be given access to a park vehicle for their work.

**A personal vehicle is RECOMMENDED but not required for this position.** A personal vehicle is recommended, but not necessary. Park housing is relatively remote, and having personal transportation is a great benefit to ones ability to get supplies and take advantage of personal time in the 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, DUls, 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.** 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. The park hosts a public Wifi network in the employee lounge but Wifi is not provided for housing units.

**INTERNSHIP DATES**

Start Date: 5/11/2020  
Number of weeks: 12 weeks  
Flexibility of dates: Yes

**LIVING ALLOWANCE**

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

**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:** 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, 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).

**Physical 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. Required field equipment includes rain gear, 30L+ field pack, warm layers, good hiking boots, sunglasses, etc. 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 interns will work with a variety of Natural Resource staff, and interact with other park Divisions, particularly Maintenance and Interpretation. Results will be presented directly to Park Management.

**Learning Goals:** The intern will practice applied geology 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 geologists, the Geologist-in-the-Park with use remotely sensed (particularly multiple LiDAR runs) and field data, and analyze watershed geomorphic and hydrologic data to assess flooding and debris flow threats.

### SUPERVISORS/MENTORS

**Primary Supervisor/Mentor:**
Scott Beason
Park Geologist
55210 238th Ave E
Ashford, WA 98304
(360) 569-6781 | scott_beason@nps.gov
[http://www.nps.gov/mora](http://www.nps.gov/mora)

**Secondary Supervisor/Mentor:**
Taylor Kenyon
Imminent Threats Technician
55210 238th Ave E
Ashford, WA 98304
(360) 569-6748 | taylor_kenyon@nps.gov
[http://www.nps.gov/mora](http://www.nps.gov/mora)