

## **POSITION ANNOUNCEMENT:**

### **FUTURE PARK LEADERS of EMERGING CHANGE**

The National Park Service (NPS) is pleased to support the *Future Park Leaders of Emerging Change* (FPL) program as a pathway for exemplary students in higher education (advanced undergraduate students and graduate students) to apply their skills and ideas to park-based challenges and solutions. The Initiative offers 12-week paid internships which allow students to gain valuable work experience, explore career options, and develop leadership skills through mentorship and guidance while helping to advance NPS efforts on emerging management issues. Successful students may be eligible for non-competitive hire into federal positions for which they qualify following completion of all academic requirements.

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### **Shoreline Change Monitoring Protocol and SOPs**

Golden Gate National Recreation Area, Division of Natural Resources  
Sausalito, CA

#### **INTERNSHIP PROJECT BACKGROUND**

Coastal parks are at an increased risk from damaging coastal storms as sea levels rise. Erosion and flooding threaten beaches and other coastal habitats, park infrastructure and recreational access. Of Golden Gate National Recreation Area's (GGNRA) 91 miles of shoreline, approximately nine miles is sandy beach. These beaches are a recreational draw, and in many cases, are backed by urban development and park services which limit the potential for landward migration. The rate and magnitude of shoreline and geomorphological change need to be understood in order to effectively manage and plan for coastal sites under rapidly changing conditions.

The most urgent need for this data is at Stinson Beach in Marin County which has been identified as one of the most vulnerable communities in the Bay Area to sea level rise and flooding associated with climate change. Stinson Beach was identified as a priority site for climate adaptation planning in the park's Climate Change Action Plan and has also been the focus of Marin County climate change adaptation planning efforts. Consistent, reliable data on the shoreline position and seasonal and annual variation in beach width would provide needed information on shoreline migration rates and coastal sediment supply critical for adaptation planning efforts.

#### **INTERNSHIP PROJECT DESCRIPTION**

The individual will review and become familiar with similar [protocols](#) and SOPs used by other parks and networks (e.g., [Northeast Coastal and Barrier Network](#)) as well as USGS scientists who are collecting similar data at California beaches, including Ocean Beach in San Francisco. They will also be responsible for testing and refining the data collection methods in the field, and documenting the steps necessary to achieve the desired data quality objectives. The resulting monitoring protocol and SOPs will be used by park staff who have already initiated the monitoring and begun collecting shoreline data, but who have

not had the time to complete the thorough and involved work of documenting each step in the data collection and data management process to ensure consistent, reliable data. The resulting dataset will be shared with park management, county and local planners, and coastal scientists. Park staff will train the selected intern on the use of the equipment, but the intern will be expected to research and learn the appropriate data management software for data processing.

In order to complete this assignment, the intern will be expected to reach out to scientists in other parks and regions familiar with similar protocols. They will also coordinate with Marin County staff to ensure that data collection methods meet both NPS and County planning needs. The mentor will help to facilitate introductions to NPS Geologic Resources Division staff and regional office staff most familiar with other park efforts. They will also be expected to reach out to USGS scientists in the area for guidance and review of methods to ensure consistency with similar programs in the area, and to identify opportunities where data collection may be tailored to contribute to regional data needs. They will also have the opportunity to network with other coastal scientists through attendance at monthly meetings of regional coastal sediment managers.

#### **Tasks Include:**

- Review and understand regional Sea Level Rise (SLR) and coastal erosion adaptation tools and current research approaches for California and the Pacific coast. Become familiar with local SLR adaptation planning efforts.
- Review existing park data and draft protocols for monitoring beach dynamics
- Learn and become proficient in all aspects of data collection using RTK-GPS (Trimble R10™ GNSS) and robotic total station data and all relevant data processing software (e.g., ESRI ArcMap, Trimble Business Center, Micro Survey STAR\*NET 9 or similar)
- Complete Shoreline Change data collection protocol and SOPs for data management workflow
- Coordinate review of protocol and SOPs with park staff as well as USGS scientists, and other scientists active in the region
- Provide prioritized list of recommendations for follow-up studies and beaches for ongoing monitoring.

#### **Products Include:**

- Shoreline Change Analysis Monitoring Protocol
- Detailed SOPs for data collection and data management and mission planning
- Pilot data for Stinson Beach
- Processed pilot data, including ArcGIS project for Stinson Beach

#### **QUALIFICATIONS**

- Minimum requirements include a student working toward a bachelor's degree with a preference for graduate-level student with background in physical sciences, coastal science, hydrology, oceanography, geology, or similar.
- Strong quantitative skills and ability to learn and master complex technological field equipment and software.
- To be successful, applicant must be highly motivated, and able to work independently and with persistence.

- Proficient in use of ArcGIS or ArcPro preferred; experience with MATLAB and Python desirable.
- Experience with survey-grade GPS equipment desirable.
- Highly organized with strong attention to detail.
- Communicates effectively, both orally and in writing.
- Demonstrated ability to work well independently and as a member of a team.
- Must possess a valid state driver's license.

## **LEADERSHIP DEVELOPMENT**

The success of this project will depend a great deal upon successful development and use of leadership skills in the areas of:

1. **Communication:** Strong oral and written communication skills will be essential to successful completion of this internship. A primary task of the internship will be to develop written protocols and standard operating procedures requiring both clarity and technical accuracy. Additionally, the intern will be invited to present to the park's senior leadership team at both the beginning and end of their internship to provide an overview of their goals for the internship, and at the end to provide a presentation on their completed work.
2. **Peer Networking:** The intern will be introduced to other park staff involved in coastal adaptation planning and sea level rise science as well as park partners who are active in climate adaptation planning, coastal sediment management, and shoreline change monitoring. These contacts will help build professional connections, and strengthen the final product.
3. **Problem-Solving:** The intern will need to be a creative problem solver and maintain persistence and motivation to complete challenging tasks and master complex technical equipment.

## **DATES OF POSITION**

The preferred starting date for this position is mid to late May 2019 however dates of the position are flexible, depending on availability. Ideally the intern will work 480 hours between mid-May and mid-August.

## **COMPENSATION**

This initiative supports one student at \$16/hour for 12 weeks, or 480 hours. Travel and relocation costs are not provided.

## **HOUSING**

Shared government housing will be provided in the Marin Headlands in Sausalito, CA, within walking or biking distance from the office. Housing may be in either a shared household with 1-3 roommates (approximately 3 miles from the office), or in a dormitory style building a short walk from the office. Because the location is not easily accessible by public transportation, and there are no services or groceries in the Marin Headlands, a personal vehicle is recommended. Although the Marin Headlands feels remote, it is a short drive (~5 miles) to San Francisco and Sausalito. The location provides ample opportunities for surfing, biking, hiking, and other outdoor activities.

**WORK ENVIRONMENT**

Position is approximately 75% office, 25% field. The office environment will include a dedicated desk space and computer within the Natural Resources Division office of GGNRA at Fort Cronkhite in the Marin Headlands. The office space is within walking or biking distance of the housing. Field work will include some local travel to beach locations including both Marin and San Francisco County. A government vehicle will be available for work use.

**CONTACT INFORMATION**

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