



GEOSCIENTISTS-IN-THE-PARKS 2017 –PROJECT DESCRIPTION

NPS UNIT: SOUTHWEST ALASKA NETWORK – INVENTORY & MONITORING PROGRAM	PD #: 2017631
<p>Position Title: Water Quality Analyst Position Type: Guest Scientist Primary natural resource discipline: Water resources Location: National Park Service - Alaska Regional Office 240 W 5th Ave. Anchorage, Alaska 99501</p>	
PROJECT DESCRIPTION AND WORK PRODUCTS	
<p>Position Description: Lakes integrate water, energy, nutrients, sediments, and pollutants from the surrounding land and air. Therefore, lake water quality is a useful indicator of conditions both within and beyond watershed boundaries. The Southwest Alaska Network (SWAN) is one of 32 regional networks established as part of the National Park Service Inventory and Monitoring Program. SWAN monitors several lake water quality parameters, including temperature, pH, conductivity, and dissolved oxygen. Of these parameters, water temperature is particularly important because all the other parameters are directly related to it.</p> <p>SWAN monitors lake water temperature hourly, year-round at six sites. This monitoring relies on the use of programmable data loggers attached at various depths, from 1 to 100 m, on moored vertical lines called “temperature arrays.” Data from the temperature arrays allow tracking of freeze-up and break-ups dates, seasonal warming and cooling, and large-scale wind events.</p> <p>SWAN is seeking an intern to help finalize, summarize, and analyze the temperature array data, and then convey the results in a formal technical report. Specific tasks of this position will be to: (1) finalize the data via uploading, correcting, and grading them in a database called AQUARIUS; (2) produce summary statistics for the data using AQUARIUS and R; (3) assess status for select water temperature variables at a range of depths and time scales; (4) assess trend for select water temperature variables via seasonal Kendall analyses in R; and (5) document findings on status and trend in a publishable report. Time permitting, the intern will use ArcGIS and R to contribute to an ongoing analysis, the objective of which is to quantitatively link water temperatures in lakes with water temperatures in rivers downstream, in order to examine whether temperature fluctuations in rivers follow upwelling in lakes caused by wind events.</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). Upon successful completion of the GIP internship, the participant is eligible for an AmeriCorps Education Award.</p> <p>Work Products:</p> <ul style="list-style-type: none"> • Uploaded, corrected, and graded data for six temperature arrays, made publicly available through the NPS database, AQUARIUS; 	

- Tabular and graphical summaries of water temperature variables derived from the temperature array data;
- Technical report documenting status and trend of water temperature variables, intended for publication in the NPS Natural Resource Report series;
- R code created during the course of the project, fully commented for transparency; and
- Intermediate data sets generated during the course of the project.

QUALIFICATIONS

Applicants must have strong backgrounds in data analysis, as demonstrated through coursework in statistics, applied mathematics, ecological modelling, etc. Applicants must also be proficient at programming in R. Experience communicating scientific information verbally and in writing and the ability to work independently and meet agreed upon deadlines are also required. Experience with Arc GIS is helpful but not required.

GIP participants are considered AmeriCorps members: 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.

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

Applicants must have a valid driver’s license and a good driving record. The intern will likely have little if any need to drive a park vehicle, so this requirement mainly exists to preserve options, should the need arise.

If the GIP is required to drive a park vehicle for their position, a driving records search will be performed and the GIP’s ability to drive a park vehicle will be contingent upon the results. Examples that will preclude a GIP from driving a park vehicle include DUIs, multiple moving vehicle violations, suspended or revoked license, or three or more accidents (regardless of fault) in the last 3 years.

A personal vehicle is not required to commute to and from the office. Anchorage is a small city, with many housing options available within walking, cycling, or busing distance of downtown, where the NPS office is located.

HOUSING

Park housing is NOT available. As stated above, Anchorage is a compact city, with many housing options available within walking, cycling, or busing distance of the NPS office. Options range from shared housing (at the low cost end) to multi-room apartments (at the high cost end). See Craigslist for short-term rental prices (<https://anchorage.craigslist.org/search/hhh>). Note that prices during summer tend to exceed those during the rest of the year, when this internship will occur. The NPS will offer the intern a housing allowance of \$2,950 (\$147.5/week for 20 weeks).

INTERNSHIP START/END DATES

Start Date: 10/30/2017
End Date: 3/16/2018
Number of weeks: 20
Flexibility of dates: Yes

STIPEND PAYMENT

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

HOUSING PAYMENT

\$2,950 for 20 weeks (\$147.50/week)

TRAVEL ALLOWANCE

\$1,000

PHYSICAL/NATURAL & WORK ENVIRONMENT

Physical/Natural Environment: Anchorage is Alaska’s most populous city, with a diverse population of ~300,000 residents and a landscape bordered by mountains and ocean. It has a subarctic climate with strong maritime influences that lead to relatively moderate winter weather, compared to Alaska’s interior. Average daytime winter temperatures range from ~5 to 30 °F (–15.0 to –1.1 °C). High latitude causes winter days to be short (as little as ~6 hours of daylight), however the ability of snow to reflect ambient light and brighten surroundings is substantial.

All standard amenities are available in Anchorage, including hospitals, schools, universities, restaurants, museums, theaters, and airports. Indoor and outdoor activities abound. In winter, outdoor activities include skiing (classic, skate, downhill, backcountry), snowboarding, snowshoeing, ice skating, and fat tire biking, among others. Trails and lakes throughout the city are groomed and hot-mopped (respectively) during winter, and are available for recreation free of charge.

Work Environment: Work will be indoors at the Alaska Regional Office, located in downtown Anchorage. Office space and a laptop will be provided.

MENTORING AND LEARNING GOALS

Mentoring: The intern will be mentored by the SWAN Aquatic Ecologist, first through training and then regular progress meetings. If issues arise outside the Aquatic Ecologist's expertise in R, ArcGIS, or AQUARIUS, a cadre of experts is available for guidance, including the SWAN Assistant Data Manager, and Natural and GIS Resource Specialists in Anchorage and Fort Collins. While working with these scientists, the intern will develop applied skills vital to a career in geosciences that will ultimately contribute to informed decision making.

Learning Goals: This project will allow the intern to gain practical experience in the latter phases of the scientific research process, from data quality control and summary to analysis and reporting. Additionally, the intern will gain competence with a database used by multiple federal agencies (USGS, NPS), as well as state, regional and local water authorities, private businesses, and academic institutions. Finally, the intern will gain experience communicating long-term monitoring results to a diverse audience.

SUPERVISORS

Primary Supervisor: Krista Bartz	Secondary Supervisor: Russ Frith
Title: Aquatic Ecologist	Title: Assistant Data Manager
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