

POSITION ANNOUNCEMENT:

GEORGE MELENDEZ WRIGHT INITIATIVE FOR YOUNG LEADERS IN CLIMATE CHANGE

The National Park Service (NPS) is pleased to announce the *George Melendez Wright Initiative for Young Leaders in Climate Change* (YLCC) to provide a pathway for exemplary students in higher education (graduate students and advanced undergraduate 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 the NPS response to climate change. Successful students may be eligible for non-competitive hire into federal positions for which they qualify following completion of all academic requirements.

Establishing Fisheries Baselines for a Changing Arctic

Kobuk Valley National Park/Cultural Resources Program/Fairbanks Administrative Center
Fairbanks, AK

INTERNSHIP PROJECT BACKGROUND

Over the last 30 years, Alaska Native peoples have noted the effects of climate change in their physical environment as well as on the predictability, abundance, and distribution of critical subsistence resources, such as salmon and whitefishes. Changes such as the timing and size of historic anadromous fish runs, the timing of shore-fast sea ice formation and breakup, mass wasting events caused by melting permafrost that increase river sediment loads, and changes in bank and river morphology have prompted Alaska Natives to change where, when, and how they harvest and process fish that are crucial to their cultural and economic well-being. Arctic communities, as well as federal and state resource managers are currently seeking ways to anticipate the effects of climate change on important subsistence and commercial resources, and to develop strategies for mitigating these effects.

Existing systematic biological studies of Arctic fishes post-date many climate-induced changes; they are therefore an inaccurate baseline against which to measure the speed and intensity of future changes in fish populations in the region. Biological data from before the Industrial Revolution (ca. AD 1760-1840) are needed to gauge the full impacts of human-induced climate change on critical subsistence resources and to determine how fishes have responded to past environmental changes. Faunal remains preserved in archaeological sites store important pre-industrial species-level population data.

INTERNSHIP PROJECT DESCRIPTION

Though Alaska Native communities and governmental resource managers have identified the need for historical population information of Arctic fishes, this project will provide the first comprehensive attempt to address this need for northern Alaska. By studying archaeological collections from the mid-to late Holocene, taxonomic abundance, distribution, represented size and age categories, and genetic population data of pre-industrial fish populations will be assessed, providing true baseline documentation. This will improve the understanding of Arctic fish species and how they may be affected by current and future environmental change. This information can be incorporated into future planning

documents by resource managers of the Park and of the various landowners of northern Alaska, guiding future work. The intern will be encouraged to communicate results directly to community stakeholders.

The intern will examine existing archaeological collections curated by Western Arctic Parklands and the University of Alaska Museum of the North and prepare an inventory of fish remains that can be identified to Family or finer taxonomic levels. The intern will review primary field documentation, publications, and gray literature sources to prepare a summary of the depositional contexts from which the fish remains were recovered and the results of any previous analyses, such as radiocarbon dating. The intern will identify diagnostic fish specimens to finest taxonomic level with reference to published guides and comparative reference specimens. The intern will compile analytic results and management recommendations into various products for internal and public consumption.

The intern will work with Park staff to produce:

- 1) An electronic database containing an inventory of all analyzed specimens. That includes archaeological context information (i.e. excavation unit number, level, associated stratum, recovery method), descriptive information (i.e. element, portion, quantity), and finest taxon identification (i.e. Family, genera, or species designation).
- 2) A technical report summarizing the results of the collections research, literature review, and zooarchaeological analyses as well as implications for local communities and resource managers.
- 3) A presentation to be delivered at a professional conference or scientific meeting. Depending on the results of the analysis the team may also pursue the development of a manuscript for submission to a peer-reviewed academic journal.
- 4) A one-page resource brief that summarizes the research and results for a public audience.

QUALIFICATIONS

Applicants should be enrolled in a graduate degree program in archaeology, anthropology, biology, or another closely related field. Applicants in their senior year of baccalaureate study in the same fields will be considered. Applicants should be familiar with the biology and modern biogeography of Arctic marine, anadromous and freshwater fish taxa. Applicants should be trained in the identification and analysis of fish remains from archaeological contexts and have experience working with archaeological collections in a curatorial setting.

LEADERSHIP DEVELOPMENT

The project supervisor will work closely with the intern to develop and maintain the proper scope of analysis and manage project workload. Weekly meetings between the intern and the supervisor will provide opportunities to evaluate progress on tasks and products. The intern will conduct groundbreaking research that is desperately needed in the region. As such, the implementation of this project will necessarily expose the intern to a variety of park staff. Management recommendations will be discussed with research staff (biologists and aquatic ecologists from the Park and the Arctic Inventory and Monitoring Network). The intern will evaluate implications for local communities with the Park's subsistence coordinator. Park staff have strong relationships with community stakeholders, namely rural residents of Northwest Alaska. The intern will be encouraged to create opportunities to share research findings with these groups, ideally via travel to these communities.

DATES OF POSITION

The dates of the position are flexible. Ideally the intern will work 480 hours between June 1 and September 30. However, earlier and later start and end dates can be arranged

COMPENSATION

This initiative supports one student at \$15/hour for 12 weeks, or 480 hours.

HOUSING

Park housing is not available. However, the YLCC may provide a housing stipend to partially or fully cover the cost of dorm housing or cabin rental. The University of Alaska Fairbanks provides summer guest housing at \$37/night. Campus is located directly across from the GAAR office site, and can be reached by walking, bike, or public bus. Rental units (apartments and cabins) can also be found nearby on public transportation and/or bike routes. Additional information can be provided by the YLCC administrators and the intern supervisor.

WORK ENVIRONMENT

The work will be primarily office-based with opportunities to travel to Kobuk River communities for engagement and outreach. Travel there will require transportation by small fixed wing aircraft and helicopter. Training in aviation safety will be provided. Work will be conducted at the Fairbanks Administrative Center (FAC) and the University of Alaska Museum of the North, which is accessible via bus, bike, or short walk from the FAC. This project will be based in Fairbanks and supervised by the YUGA Chief of Resources due to the lack of supervisory archaeological personnel in the Kotzebue office, as well as due to the proximity of the UA museum, where a majority of the required research collections reside.

CONTACT INFORMATION

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