SCIENTIFIC RESEARCH AND COLLECTING PERMIT

Grants permission in accordance with the attached general and special conditions

United States Department of the Interior
National Park Service
Aniakchak

Study#: ANIA-00038
Permit#: ANIA-2020-SCI-0001
Start Date: Jul 06, 2020
Expiration Date: Oct 31, 2024
Coop Agreement#:
Optional Park Code:

Name of principal investigator:

Name: Dr Jenelle Dowling **Phone:**4066243320 **Email:**timber@adventurescientists.org

Name of institution represented:
Adventure Scientists

Additional investigators or key field assistants:

Name: Jenélle Dowling PhD	**Phone:** 406-624-3320 x704	**Email:** jenelle@adventurescientists.org
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Name: Michelle Toshack	**Phone:** 406-624-3320 x704	**Email:** michelle@adventurescientists.org

Study Title:
Wild and Scenic Rivers

Purpose of study:
We will conduct a nationwide water quality monitoring study on Wild and Scenic River (WSR) segments across 40 states on federal lands. This project will update the water quality status of the majority of rivers across the National Wild and Scenic River system (NWSRS). Adventure Scientists is prepared to provide advisory data to support federal and state agencies in their efforts to implement the Clean Water Act (CWA), which include TMDLs (total maximum daily loads) as well as 303(b) and 303(d) listings. Adventure Scientists has designed the project to meet the priorities and standards of a variety of stakeholders and to ensure data can improve agencies' decision-making capacity. In addition, state water quality agencies have expressed that regular monitoring of all surface waters improve their management ability, which includes updating assessments of impaired waters and collecting data on waters identified as having a good status but with no data to verify those conditions. The multi-level and inter-agency relationships that develop during the life of the project should allow us to better coordinate across groups in response to water quality issues in the NWSRS.

Several states require repeat monitoring and minimum data points to determine the status of surface waters, including rivers, in order to comply with the CWA. Therefore, Adventure Scientists is planning for four years of data collection (until fall/winter 2022) to enable the collection of sufficient data for river segments with significant data gaps/needs (e.g., unassessed and unknown waters). At full scale, volunteers may be deployed in 40 states.

Subject/Discipline:
Water Quality
Water Resources

Locations authorized:
Research activities will take place in Aniakchak National Preserve and data collection will occur in designated Wild and Scenic portions of the Aniakchak River. Exact points for data collection are to be determined, and will be marked by volunteers when collecting data.

Transportation method to research site(s):
Volunteers will access sampling points via kayak.

Collection of the following specimens or materials, quantities, and any limitations on collecting:

Name of repository for specimens or sample materials if applicable:

NPS General Conditions for Scientific Research and Collecting Permit (available at the RPRS HELP page) apply to this permit. The following specific conditions or restrictions, and any attached conditions, also apply to this permit:
General
• Field crews must carry a copy of the research permit while conducting studies within the park.
• Logistical arrangements (transportation, housing) are the responsibility of the Permittee/Principal Investigator (PI), except where explicit arrangements have been agreed to by Park staff.

• The PI agrees to reimburse any costs incurred by the National Park Service to correct damages or actions caused by failure to comply with the provisions stated in the permit.
• The issuance of a research permit does not provide the PI with preferential rights, nor does it assure future approval of similar research projects. Permits may be revoked or not renewed if any conditions are violated.
• Field work conducted under authority of the permit shall be carried out in such a way as not to impede other legitimate uses of the park, except when special provision has been made by the National Park Service.
• The PI will follow the general conditions applicable to all NPS permits (available at https://science.nature.nps.gov/research/docs/condition.doc) and park specific guidance listed below. Additional project-related specific conditions or exceptions may be provided in the research permit. If this is the case, the project-related condition(s) provided in the permit shall take precedence over the specific conditions provided here. Examples would include approvals to land helicopters, approach wildlife, and camp in sensitive areas.

Regulations
The PI will comply with all Federal regulations, including the park Compendium (available at http://www.nps.gov/akso/management/current_compendiums.cfm).

Other Permits, Approvals, and Authorizations
The PI is responsible for ensuring that all resource agency regulatory permits, approvals, and authorizations are obtained prior to initiation of fieldwork with copies provided to Research Coordinator. Examples include, but are not limited to, Alaska Department of Fish & Game scientific permits, Army Corps of Engineer permits, US Fish and Wildlife permits, National Marine Fisheries permits, and Institutional Animal Care and Use Committee (IACUC) review.

The PI is responsible for obtaining permission to access all non-NPS lands, including Alaska Native, private, state, and other federal agency areas.

Deliverables - Reports/Data/Outreach
Your research is extremely valuable to us! Research conducted on NPS lands helps guide management decisions, inform the public through interpretive and educational opportunities, and fulfill records management and curatorial requirements.

As a condition of the permit, the PI will:
1) Complete an Investigator's Annual Report (IAR) by March 31 for the previous calendar year's work in the Research Permit and Reporting System (RPRS) website (https://science.nature.nps.gov/research/ac/ResearchIndex). An email reminder will be sent at the end of each year. The IAR should include when and where field work occurred; what, where, and how many specimens/artifacts were taken; and summary of the research results to date, even if preliminary.
2) Provide reports (annual, periodic, and final), proceedings, thesis, posters, or related publications using data collected under this permit within a year of publication. Two hard copies should be sent to the Collections Manager for the park archives. Additional electronic or hard copies should be sent to the Research Permit Coordinator. Note: All specimens cited in a publication must include the NPS catalog number.
3) Provide logs of all installations to the Research Permit Coordinator within 30 days of activity.
4) Complete all obligations associated with the curation of collections within a year of obtaining the specimens, unless other specific terms are authorized by the Collections Manager.
5) Provide relevant project documentation, such as field notes, databases, maps, correspondence, photos, etc. to the Collections Manager. Preferred software includes Microsoft Office applications or Adobe Acrobat. Spatial data should be in ESRI ArcGIS format with defined projection/datum/transformation, preferably in North American Datum 1983 (NAD83 (2011) Epoch 2010.0), and include complete metadata to latest ISO standard. Datasets come in a wide variety of formats, but often with minor modifications, your data can easily interface with existing NPS databases.
6) Provide 3 representative, high-resolution public-domain digital photographic images of the research to the Research Coordinator for use in publications and interpretation.
7) Provide a general audience project summary in Microsoft Office or Adobe Acrobat format to the Research Permit Coordinator that does not exceed two 8.5x11" pages to be printed and used for interpretation, the general public, and other park staff and may be used on park website.
8) Schedule times for informal or formal presentations to park staff, local communities, and visitors to relay information gathered through research activities.

Cultural Resources
For cultural resources protection, no disturbance of historic or cultural features will occur; no artifacts will be collected; no camping will be done on cultural sites; and if archeological or historic resources are discovered, work will stop at the discovery site, the discovery will be protected as required and the Park Superintendent, Chief of Cultural Resources, or Park Archeologist will be notified as soon as possible. Information and photographs regarding the location (including geographic coordinates), size, and nature of the discovery should be provided, if possible. Camping sites and any proposed ground disturbing activities will be reviewed for possible effects to cultural resources.
Human waste will be removed from the park using wagbags (see "Human Waste" section) or similar products, no ground disturbance

of any kind will be conducted anywhere, except where provided by the conditions of the permit.

Camping
Camping is not permitted in areas closed by park regulations, compendium, or temporarily for special concerns, such as rare plants, cultural resources, or wildlife issues.

Specimens/Artifacts Collected
Research applications need to specify whether any specimens or artifacts will be collected, regardless of whether they will be released, destroyed through or discarded after analysis, or retained and maintained at either an NPS or non-NPS repository. For any specimen/artifact to be retained at one or more non-NPS repositories, a signed copy of Appendix A of the research application must be submitted to the Research Permit Coordinator before a permit will be issued.

Collections are limited to the type and number described in the Collection section of the permit. Please collect in a manner that will not impair the resource and only as many specimens as are necessary to perform the research permitted. An inventory of what specimens were collected, including those consumed/destroyed in analysis, will be provided to the park by the PI.

Regardless of where they are stored, specimens/artifacts that are retained remain federal property, and must be accessioned and cataloged into the National Park Service's Interior Collections Management System and must bear NPS accession and catalog numbers. The NPS reserves the right to designate the disposition of all specimens removed from the park. No specimens shall be retained, destroyed or discarded by a researcher without prior NPS permit authorization.

It is the responsibility of the PI to contact the Collections Manager to determine attributes required for curation; report collections made; obtain accession and catalog numbers; and complete loan documents for non-NPS repositories. Please review the document Curatorial Responsibilites for Collectors.

Natural Resources
Leave No Trace: Field crew should practice "Leave No Trace" principles during field activities. Use existing campsites or areas with barren ground when available. Avoid trampling vegetation around camp and other work areas. Minimize the use and impact of fires by using existing fire rings and use of dead or downed wood only. Pack out all trash. Do not rely on burning trash as a method of disposal since trash, particularly wet food, remaining unburned serves as a bear attractant. Additional information may be found on the Leave No Trace website (http://www.lnt.org/).

Human waste: Burying human feces is usually a suitable solution if carrying out waste is not feasible. Avoid pollution of water sources, by digging about 6" deep catholes (individual use latrine holes) at least 100 feet from the ordinary mean high water mark of coasts, rivers, and lakeshores. Pack out or thoroughly burn all toilet paper and other sanitary products.

Invasive Species: To prevent the potential introduction of invasive species, all clothing, footwear, gear, and modes of transportation should be visually inspected and washed if necessary prior to field activities. Felt soled boots should not be worn in freshwater systems.

Bear safety: Store food, trash, and other scent attractants in approved bear resistant containers (BRC) at all times, which are available for temporary check-out, free-of-charge at the King Salmon and Brooks Camp Visitor Centers. Other means of food storage, must be approved by the Superintendent. Do not plan on hanging food as a method of storage since trees can be sparse in many areas. Keep your belongings with you: a pack or clothing left unattended invites curious bears. Not only will your belongings likely be destroyed, but the bear may also learn to associate such items with interesting smells or, even worse, food. Kitchen areas should be sited approximately 100 meters downwind from campsites. Keep tents, sleeping bags, and personal gear free of food odors. The carrying of EPA-approved pepper spray and installing electric fences around field camps are recommended as additional precautions. Report all human-bear conflicts to Park staff as soon as possible. Additional information may be found on the Bear Safety in Katmai webpage at http://www.nps.gov/katm/planyourvisit/bear-safety-in-katmai.htm. Additionally, please review the brochure Bear Safety in Alaska's National Parklands.

Wilderness
Most lands within KATM are designated wilderness. Additional lands in ANIA and KATM are eligible wilderness. All studies and research activities in designated and suitable wilderness are subject to "minimum requirements" analyses as described in the Wilderness Act. For areas managed as wilderness, specific restrictions may affect the approval of transportation methods, field work timing and frequency, group size, base camp locations, installations or structures, and the use of motorized tools. Activities should be limited to the minimum necessary to meet the objectives of your approved proposal. For more information, please refer to the Wilderness Research in Alaska's National Parks at http://www.nps.gov/akso/nature/science/research.cfm.

Transportation
Fixed-wing Aircraft - Aircraft use will comply with all applicable Federal Aviation Administration (FAA) regulations and guidelines. All research activities involving aircraft use should maintain a minimum altitude of 1,000 feet above ground level, except during

takeoff, landing, or when required for safe operations. This is to reduce any potential interference or impact on wildlife, visitor uses, and sensitive resource areas. As much as possible, flights should use minimum distances between points within the park. Other restrictions or permissions may be identified within the permit (for example: avoidance of critical areas or low-altitude surveys). Non-NPS researchers who make advance arrangements to utilize NPS owned or contracted aircraft must meet NPS aviation training requirements.

Helicopter - Helicopter use requires advance approval from the Superintendent. Helicopter flights will be kept to the minimum number required to accomplish field activities. The PI is required to contact park dispatch and provide exact dates, times, and locations of helicopter activities as well as helicopter identification information (tail number and description). Flight following may be available with advance notice.

Watercraft - Operation of all watercraft within Park boundaries will be in accordance with United States Coast Guard (USCG) regulations. Vessels used in the study will meet or exceed the minimum safety standards for vessels and associated equipment, including personal floatation devices (PFD's), lights, flares, spill kits, and fire extinguishers.

Snowmachines – Snowmachines may be authorized when adequate snow cover or ice exists.

Other Methods - Conditions will be authorized in the permit.

Fuel Caching – No fuel caching will occur on park lands, except when authorized by the Superintendent in the research permit.

Installations and Field Equipment
All equipment left in the field must be specifically authorized in advance. Authorized installations need to be reported with GPS coordinates to the Research Permit Coordinator within 30 days of activity. A legible label including the researcher's name, study number, and date of installation is required. Labeling the actual installation with a paint pen or engraving is preferred over any form of removable label. Installations should be as unobtrusive as possible and should not interfere with visitor enjoyment of the park. Park staff have the authority to remove unlabeled/unreported installations as abandoned property.

Hazardous Materials
The proper use, care, and disposal of hazardous materials, such as chemicals, preservatives, batteries, and refrigerants, brought into the park remain the responsibility of the PI. Specific authorization must be obtained before using hazardous materials in the park. Material Safety Data Sheets (MSDS) for the hazardous materials may be requested by the Research Permit Coordinator prior to entering the Park. The PI will properly contain, dispose of, and remove all hazardous materials from the Park by the end of the permitted period. Any hazardous material spill must be reported to Park personnel. Spills will be cleaned up in accordance with all applicable state and federal environmental quality laws.

Hunting & Fishing
When encountering people engaged in sport or subsistence pursuits, such as fishing or hunting, do not approach unless invited to do so. Do not interfere with their activities or take actions that could spook fish or game or otherwise prevent them from being successful in their endeavors. An Alaska sport fishing or hunting license is required for activities within certain parklands. It is the responsibility of the PI to know what regulations apply in different parts of each park unit, as well as bag and possession limits.

Safety
PIs should ensure field operations are conducted safely. PIs should brief their team regarding potential hazards, mitigations (such as personal protective equipment), and communications. If the PI needs additional information about park hazards, please contact the Research Permit Coordinator. All projects with NPS staff involvement must submit a Job Hazard Analysis (JHA) to the research permit coordinator annually.

Summary of permitted field methods and activities:

This project empowers Adventure Scientists' volunteer network with the tools, technology, and guidance to collect water quality data across over 13,000 miles of WSRs managed by USFS, BLM, and NPS. Adventure Scientists will leverage its volunteer communities of whitewater rafters and kayakers as well as backpackers, mountain bikers, day-hikers, and trailrunners to collect the necessary data. We will launch the project's first phase as a small-scale nationwide effort, with priority given to the nearly 4000 river miles of unassessed and unknown water quality managed by your agencies. These rivers span 16 of 40 states with WSRs. In the second project phase, Adventure Scientists intends to expand the project scope by prioritizing river segments with significant data gaps as well as those with identified impairments under the CWA. We will also incorporate previously collected data throughout the rivers managed by these three federal agencies.

We will focus on parameters that can be collected via field instruments or observations. Volunteers will deploy field instruments that monitor for dissolved oxygen (DO), pH, temperature, and conductivity. We will utilize FieldKit devices developed by Conservify that meet necessary minimum detection limits for those parameters. FieldKits are equipped with sensory probes made by Atlas Scientific. Probes on FieldKit devices will be calibrated by Adventure Scientists staff before being deployed in the field. Field equipment will be

attended at all times by the volunteer and the volunteer will not be installing or leaving any equipment in the field. While in the field, volunteers will collect both chemical and physical condition data, requiring volunteers to: (1) access pre-selected field sites; (2) mark GPS coordinates and exact time of data collection; (3) collect grab samples following the EPA standard for grab sampling and store them in a cooler; (4) deploy a data logger/sensor for the collection of basic parameters (temp, DO, pH, conductivity) in situ; and (5) conduct a qualitative habitat assessment and take photos.

Recommended by park staff(name and title):

Brian Smith, Environmental Protection Specialist

Reviewed by Collections Manager:

Yes X No ____

Approved by park official:

MARK STURM Digitally signed by MARK STURM Date: 2020.07.31 13:21:58 -08'00'

Date Approved:

Title:

Superintendent

I Agree To All Conditions And Restrictions Of this Permit As Specified
(Not valid unless signed and dated by the principal investigator)

(Principal investigator's signature)

7/22/20
(Date)

THIS PERMIT AND ATTACHED CONDITIONS AND RESTRICTIONS MUST BE CARRIED AT ALL TIMES WHILE CONDUCTING RESEARCH ACTIVITIES IN THE DESIGNATED PARK(S)

GENERAL CONDITIONS
For
SCIENTIFIC RESEARCH AND COLLECTING PERMIT

United States Department of the Interior
National Park Service

1. **Authority** - The permittee is granted privileges covered under this permit subject to the supervision of the superintendent or a designee, and shall comply with all applicable laws and regulations of the National Park System area and other federal and state laws. A National Park Service (NPS) representative may accompany the permittee in the field to ensure compliance with regulations.

2. **Responsibility** - The permittee is responsible for ensuring that all persons working on the project adhere to permit conditions and applicable NPS regulations.

3. **False information** - The permittee is prohibited from giving false information that is used to issue this permit. To do so will be considered a breach of conditions and be grounds for revocation of this permit and other applicable penalties.

4. **Assignment** - This permit may not be transferred or assigned. Additional investigators and field assistants are to be coordinated by the person(s) named in the permit and should carry a copy of the permit while they are working in the park. The principal investigator shall notify the park's Research and Collecting Permit Office when there are desired changes in the approved study protocols or methods, changes in the affiliation or status of the principal investigator, or modification of the name of any project member.

5. **Revocation** - This permit may be terminated for breach of any condition. The permittee may consult with the appropriate NPS Regional Science Advisor to clarify issues resulting in a revoked permit and the potential for reinstatement by the park superintendent or a designee.

6. **Collection of specimens (including materials)** - No specimens (including materials) may be collected unless authorized on the Scientific Research and Collecting permit.

The general conditions for specimen collections are:

- Collection of archeological materials without a valid Federal Archeology Permit is prohibited.

- Collection of federally listed threatened or endangered species without a valid U.S. Fish and Wildlife Service endangered species permit is prohibited.

- Collection methods shall not attract undue attention or cause unapproved damage, depletion, or disturbance to the environment and other park resources, such as historic sites.

- New specimens must be reported to the NPS annually or more frequently if required by the park issuing the permit.Minimum information for annual reporting includes specimen classification, number of specimens collected, location collected, specimen status(e.g., herbarium sheet, preserved in alcohol / formalin, tanned and mounted, dried and boxed, etc.), and current location.

- Collected specimens that are not consumed in analysis or discarded after scientific analysis remain federal property.The NPS reserves the right to designate the repositories of all specimens removed from the park and to approve or restrict reassignment of specimens from one repository to another. Because specimens are Federal property, they shall not be destroyed or discarded without prior NPS authorization.
- Each specimen (or groups of specimens labeled as a group) that is retained permanently must bear NPS labels and must be accessioned and cataloged in the NPS National Catalog.Unless exempted by additional park - specific stipulations, the permittee will complete the labels and catalog records and will provide accession information.It is the permittee's responsibility to contact the park for cataloging instructions and specimen labels as well as instructions on repository designation for the specimens.

- Collected specimens may be used for scientific or educational purposes only, and shall be dedicated to public benefit and be accessible to the public in accordance with NPS policies and procedures.

- Any specimens collected under this permit, any components of any specimens (including but not limited to natural organisms, enzymes or other bioactive molecules, genetic materials, or seeds), and research results derived from collected specimens are to be used for

scientific or educational purposes only, and may not be used for commercial or other revenue - generating purposes unless the permittee has entered into a Cooperative Research And Development Agreement(CRADA) or other approved benefit - sharing agreement with the NPS.The sale of collected research specimens or other unauthorized transfers to third parties is prohibited.Furthermore, if the permittee sells or otherwise transfers collected specimens, any components thereof, or any products or research results developed from such specimens or their components without a CRADA or other approved benefit-sharing agreement with NPS, permittee will pay the NPS a royalty rate of twenty percent(20 %) of gross revenue from such sales or other revenues. In addition to such royalty, the NPS may seek other damages to which the NPS may be entitled including but not limited to injunctive relief against the permittee.

7. **Reports** - - The permittee is required to submit an Investigator's Annual Report and copies of final reports, publications, and other materials resulting from the study. Instructions for how and when to submit an annual report will be provided by NPS staff.Park research coordinators will analyze study proposals to determine whether copies of field notes, databases, maps, photos, and / or other materials may also be requested.The permittee is responsible for the content of reports and data provided to the National Park Service

8. **Confidentiality** - - The permittee agrees to keep the specific location of sensitive park resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

9. **Methods of travel** - Travel within the park is restricted to only those methods that are available to the general public unless otherwise specified in additional stipulations associated with this permit.

10. **Other permits** - The permittee must obtain all other required permit(s) to conduct the specified project.

11. **Insurance** - If liability insurance is required by the NPS for this project, then documentation must be provided that it has been obtained and is current in all respects before this permit is considered valid.

12. **Mechanized equipment** - No use of mechanized equipment in designated, proposed, or potential wilderness areas is allowed unless authorized by the superintendent or a designee in additional specific conditions associated with this permit.

13. **NPS participation** - The permittee should not anticipate assistance from the NPS unless specific arrangements are made and documented in either an additional stipulation attached to this permit or in other separate written agreements.

14. **Permanent markers and field equipment** - The permittee is required to remove all markers or equipment from the field after the completion of the study or prior to the expiration date of this permit. The superintendent or a designee may modify this requirement through additional park specific conditions that may be attached to this permit. Additional conditions regarding the positioning and identification of markers and field equipment may be issued by staff at individual parks.

15. **Access to park and restricted areas** - Approval for any activity is contingent on the park being open and staffed for required operations. No entry into restricted areas is allowed unless authorized in additional park specific stipulations attached to this permit.

16. **Notification** - The permittee is required to contact the park's Research and Collecting Permit Office (or other offices if indicated in the stipulations associated with this permit) prior to initiating any fieldwork authorized by this permit.Ideally this contact should occur at least one week prior to the initial visit to the park.

17. **Expiration date** - Permits expire on the date listed. Nothing in this permit shall be construed as granting any exclusive research privileges or automatic right to continue, extend, or renew this or any other line of research under new permit(s).

18. **Other stipulations** - This permit includes by reference all stipulations listed in the application materials or in additional attachments to this permit provided by the superintendent or a designee. Breach of any of the terms of this permit will be grounds for revocation of this permit and denial of future permits.