

Standard Operating Procedure 1: Pre-Season Preparation

Version 1.0

In Protocol for Monitoring Mercury in Resident Lake Fish

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Revision History Log

The following table lists all edits and amendments to this document since the original publication date. Information entered in the log must be complete and concise. Users of this Standard Operating Procedure (SOP) will promptly notify the Southwest Alaska Network (SWAN) project manager and/or data manager about recommended and required changes. The project manager must review and incorporate all changes, complete the revision history log, and change the date and version number on the title page and in the header of the document file. For complete instructions, please refer to SOP 8 (Protocol Revision).

Revision History Log:

Previous Version #	Revision Date	Revision Author	Revision Description and Location in SOP	Justification for Revision	New Version #
—	—	Bartz	Initial creation	—	1.0

Add rows as needed for each change or set of changes tied to an updated version number

Acknowledgments

This SOP was adapted from a similar SOP in the Great Lakes Network (GLKN) protocol for monitoring mercury in dragonflies and fish (VanderMeulen et al. 2018). The original GLKN SOP was based on documents by O’Ney (2005) and the U.S. Geological Survey (USGS 2005).

Introduction

Preparations must be completed before the field season to ensure that sampling occurs on schedule. The open water season in Southwest Alaska Network (SWAN) parks generally runs from May through October, and the ideal time for sampling lake trout – the focal species of this protocol – occurs early in that time window. Therefore, preparations for the season need to begin well in advance, preferably in January of a given sampling year, to allow enough time to complete various pre-season activities. Table 1 provides a checklist of these activities, many of which are described in more detail in other Standard Operating Procedures (SOPs).

Table 1. Checklist of activities to be completed before collecting fish samples.

✓	Activity
☐	Review protocol documents (particularly SOP 3) and revise as needed
☐	Obtain sampling permits and fishing licenses from the state and parks
☐	Initiate contracting paperwork for laboratory analyses
☐	Prepare a calendar of planned field trips, including sampling, locations, dates, and personnel
☐	Make boat, flight, and housing reservations and arrangements, as needed
☐	Inventory equipment and supplies in SOP checklists; repair or replace items if necessary
☐	Review and update field and office binders
☐	Schedule and conduct training (e.g., boat training, field sampling techniques)

Protocol Review

Periodically read through the entire protocol, including all SOPs and Data Quality Standards (DQSs; Bartz et al. 2018). Conduct a particularly thorough review of SOP 3 (Field Work). Be sure to understand the sample collection, processing, and shipping procedures, as well as the purpose for which the data will be collected. Be alert for portions of the protocol that may require revision, and bring these sections to the attention of the appropriate supervisor.

Permit and License Acquisition

A Scientific Research and Collecting Permit must be obtained from the National Park Service (NPS) before any sampling can be conducted within park boundaries. The permit process can be initiated through the Research Permit and Reporting System website at <https://irma.nps.gov/rprs/Home>. Follow the instructions for renewing an existing permit, or if the project is not already in the system, follow the directions to apply for a new permit. Work with the research coordinator at each park.

A Fish Resource Permit is also required before any sampling can be conducted within the State of Alaska. To apply for the permit, go to the Alaska Department of Fish and Game (ADF&G) website (http://www.adfg.alaska.gov/index.cfm?adfg=otherlicense.aquatic_resource). Sport fishing licenses are also required for any adults who fish in the state. Licenses can be obtained through ADF&G at <https://www.adfg.alaska.gov/Store/>.

Contract Scoping and Initiation

The process of securing a contract with an analytical laboratory is lengthy. At the outset, it involves market research and the creation of several documents (e.g., Statement of Work, Purchase Request), which requires input from the NPS Contracting Officer assigned to the project. Paperwork from past contracts is stored at T:\Vital_Signs\Water_Fish\Administrative\Agreements_Contracts. The SWAN's most recent contract was an Inter-Agency Agreement with the U.S. Geological Survey's Mercury Research Laboratory in Wisconsin.

Field Calendar Preparation

Prepare a draft calendar of sampling dates for the season. Take into account the typical timing of other activities, such as training and early season water quality monitoring. Allow for the possibility of bad weather days, when sampling will need to be postponed. Include the sampling location, dates, personnel, and any additional relevant notes (Table 2). Contact park staff well in advance to confirm dates of sampling, and to request assistance from park personnel with the collection of samples.

Table 2. Example calendar of planned field sampling.

Location	Dates	Personnel	Notes
Lake Clark	June 10-12	SWAN, LACL fish crew	Confirm availability of LACL personnel
Kijik Lake	June 13-16	SWAN	Check LACL flight calendar
Lake Brooks	June 20-22	SWAN	Request housing at Brooks Camp
Naknek Lake	June 23-26	SWAN	Reserve time on the Palayaq

Flight, Boat, and Housing Reservations

Making reservations for park flights, boats, and housing is a necessary step toward finalizing the draft field calendar (above). Check on availability and reserve park housing during planned sampling dates. Use the appropriate housing reservation forms for each park. Likewise, check on availability and reserve park boats during planned sampling dates. Submit flight requests to park aviation or dispatch as early in the year as possible.

Equipment and Supplies Inventory

Equipment and supplies should be inventoried well in advance of the field season. Consult the checklists found in the SOPs 2 and 3 while performing the pre-season inventory. Checklists help ensure that equipment and supplies will be ordered on time, data collection activities will be completed appropriately, and data quality objectives will be met. All equipment should be cleaned, tested, and repaired or replaced as necessary. Supplies should be purchased if existing quantities are insufficient. Check on the availability of items typically borrowed from parks, such as freezers, refrigerators, gill nets, and net pens.

Binder Updates

Field binders should contain reference information specific to each sampling location, including maps, photos, previous data, field forms, and summaries of sampling and quality assurance/quality control (QA/QC) procedures. Each year, prior to the sampling season, the field binder for each monitoring site should be reviewed and the following information updated as needed:

- *Field notes.* Review field notes for any indication that the location for sample collection may need revision. Update the protocol if necessary.
- *Permits.* Check the expirations dates on the collection permits. Renew/apply as described above.
- *Site photographs.* Take new digital photographs of site conditions each year when sampling occurs.
- *Site maps.* Review site maps for accuracy; update if necessary.
- *Previously collected data.* A summary of previously collected data or copies of past field forms should be included in the field folder for the purpose of comparison. Familiarity with previously collected data is a critical QA element for early detection of possible problems.
- *Summaries of field procedures.* Prepare brief outlines reminding field personnel of routine procedures, highlighting all changes from previous years.

The office binder should contain reference information relevant to general field sampling procedures. Each year, prior to the sampling season, the office binder should be reviewed and the following information updated as needed:

- *Safety information.* The office binder should include safety-related SOPs and protocol-specific Job Hazard Analyses (JHAs). Verify and/or update emergency contacts and medical information for field personnel (see Appendix 2.2 in SOP 2).
- *Sampling schedule and instructions.* Ensure that the following information is included in the office binder: sampling schedule, preservation guidelines, QC requirements, shipping instructions, and laboratory analyses to be requested along with the associated codes. Verify that the information is correct and report and reconcile any discrepancies to the project manager.

- *Forms and labels.* The office binder should contain enough blank field forms, COC forms, and sample labels to last the entire field season.

Training

Training in field methods is conducted by the SWAN project manager and crew leader. It consists of a review of SOPs 2–4 and practical exercises in sample collection and processing. Quality control procedures should be emphasized at every step. Additional training required for NPS field staff in Alaska (e.g., Operational Leadership and Bear Safety) is taught by park staff and needs to be scheduled prior to the start of the field season. See SOP 2 for details.

Literature Cited

- Bartz, K. K., C. J. Sergeant, and D. D. VanderMeulen. 2018. Data quality standards for monitoring mercury in resident lake fish – Version 1.0: Southwest Alaska Inventory and Monitoring Network. Natural Resource Report NPS/SWAN/NRR—2018/1731. National Park Service, Fort Collins, Colorado.
- O’Ney, S.E. 2005. Standard operating procedure #2: Pre-season activities, Version 1.0. *In* Regulatory water quality monitoring protocol: Version 1.0: Greater Yellowstone Inventory & Monitoring Network. National Park Service, Bozeman, Montana.
- United States Geological Survey (USGS). 2005. National field manual for the collection of water-quality data: U.S. Geological Survey Techniques for Water-Resources Investigations, Book 9, Chapters A1-A9.
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