

# Standard Operating Procedure 6: Reporting

*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).

## Introduction

An overarching goal of the Southwest Alaska Network (SWAN) is to ensure that information derived from monitoring is delivered to park managers in a meaningful format, so that data can be incorporated into relevant management decisions. Additionally, it is important that information is shared with other stakeholders, such as state and federal agencies, native corporations, and the general public, to facilitate continued collaboration and support for natural resource monitoring. To disseminate information across a broad array of audiences with both technical and non-technical backgrounds, it is critical that a variety of reporting formats (e.g., briefs, newsletters, presentations) be made available, in addition to the synthesis reports described below.

## Synthesis Reports

A synthesis report will be completed once every five years, after results have been returned from contract laboratories and uploaded to the EPA's STORET database. Synthesis reports in later sampling cycles (e.g., after the first three sampling iterations) will include trend analyses, and all reports will provide the following:

- a brief introduction that describes why mercury (Hg) is being monitored;
- an outline of the sampling design (e.g., the number of lakes and fish sampled);
- data summaries, including tables and figures as well as explanatory text;
- in-depth analyses as outlined in the protocol narrative and SOP 5 (Data Analysis); and
- a discussion in which important results are interpreted. The discussion should place the observed results in context by relating them to other published literature; discuss the significance of the results in terms of environmental change; and provide management recommendations based on the findings, if applicable.

The SWAN project manager (i.e., the Aquatic Ecologist) will take the lead in writing synthesis reports, coordinating their internal review, and providing them to parks.

The reports will be formatted as scientific journal articles (i.e., including Abstract, Introduction, Methods, Results, Discussion, and References sections) as required by the NPS Natural Resource publication management series (<https://www.nps.gov/im/publication-series.htm>). The target audience for these reports will be park natural resource managers, SWAN employees, and regional and national Inventory and Monitoring staff. Outside the National Park Service (NPS), the target audience will include local and regional subsistence councils (e.g., Bristol Bay Subsistence Regional Advisory Council), state agencies (e.g., Alaska Departments of Environmental Conservation, Fish and Game, and Health and Social Services), and the broader scientific community.

## Scientific Journal Articles

Because this protocol has been designed with rigorous standards for sampling design and analysis, monitoring results are expected to meet the standards of the peer-review process. The publication of

monitoring results in scientific journals will allow the SWAN to reach the scientific community in a way that internal NPS reports cannot. Further, peer-reviewed publications can promote collaborative investigation by members of the scientific community, either independently or in cooperation with the SWAN. Ultimately, this process should foster a greater understanding of ecosystem components and processes.

For these reasons, the SWAN will strive to publish any significant findings in peer-reviewed scientific journals. We will encourage the preparation of manuscripts by having reviewers of synthesis reports recommend whether publication is warranted and suggest appropriate journals. The SWAN project manager and program manager will track these recommendations and encourage and provide work time, respectively.

## **Other Communications**

While synthesis reports and journal articles are a definitive method of documenting the progress of a monitoring program, other means of communication can disseminate information to a broader audience. To this end, several additional types of communications will be provided periodically, as described below.

### **Resource Briefs**

The project manager will write fact sheets related to the SWAN aquatics program once every two years. These documents, called “Resource Briefs,” are written for a lay audience to convey key findings without using overly technical terminology or jargon. The briefs can be specific to a park (i.e., “Monitoring Mercury in Lake Trout at Katmai National Park and Preserve”) or topical (i.e., “Assessing Mercury Toxicity Risk at Southwest Alaska Network Parks”). Briefs are typically short (i.e., one double-sided page). Hard copies of resource briefs are disseminated to parks, park partners, and other collaborators, and are provided electronically on the SWAN website (<https://www.nps.gov/im/swan/index.htm>).

### **Park Presentations**

The project manager will periodically present the findings from the fish Hg monitoring program to park natural resource managers. These presentations, which will likely occur at the annual technical committee meeting in December, will provide a concise synopsis of monitoring results as well as management considerations.

### **Conference Presentations**

When possible, the project manager will present monitoring results at national and regional scientific conferences. Such presentations will allow the SWAN to reach the broader scientific community, as well as land managers and conservation practitioners. Potential conferences include those sponsored by the Ecological Society of America, Society for Conservation Biology, The Wildlife Society, the Natural Areas Association, the NPS Water Professionals Meeting, and the George Wright Society. Additionally, the conference for the Alaska Chapter of the American Fisheries Society is a valuable venue for regional information exchange.

## **Updates and Newsletters**

Several online venues provide the opportunity to communicate Hg monitoring information to park personnel and the broader NPS community. For example, the SWAN emails updates to the parks twice a year (spring and fall) to provide upcoming or recent field season summaries. Also, the Alaska Regional Office publishes a quarterly resource-oriented newsletter called “High Latitude Highlights.” The project manager will occasionally write short Hg-related feature articles for either venue.

## **Research Permit Reports**

To satisfy the conditions of the permits acquired for this monitoring, the project manager must complete three short reports: one for the NPS and two for the Alaska Department of Fish and Game (ADF&G). Specifically, anyone issued a Scientific Research and Collecting Permit by the NPS is required, as a condition of the permit, to provide an Investigator's Annual Report (IAR). The call for IARs begins in December of the year in which the permit was issued and extends through March of the following year. Likewise, Fish Resource Permits issued by the ADF&G stipulate that an investigator must submit a preliminary report in December of the year in which the permit was issued and a final report in May of the following year.

## Literature Cited

VanderMeulen, D. D., B. Route, J. Wiener, R. Haro, K. Rolhus, M. Sandheinrich, S. J. Nelson, A. Klemmer, C. Eagles-Smith, and J. Willacker. 2018. Protocol for monitoring mercury in dragonfly larvae and fish (version 1.0): Great Lakes Inventory and Monitoring Network. Natural Resource Report NPS/GLKN/NRR—2018/1726. National Park Service, Fort Collins, Colorado.