

# Arctic Network Inventory & Monitoring Program

U.S. Department of the Interior

**Data Management  
Standard Operating Procedure**  
NPS/ARCNDMSOP-2007-2



## Specifications for Study Plans Submitted to the Inventory and Monitoring Program, Alaska Region

*Guidelines and template for writing effective Inventory and Monitoring  
Program study plans*

### Summary

These guidelines are provided to assist scientists in preparing project proposals for funding consideration under the Inventory and Monitoring Program, Alaska Region.

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## Introduction

These guidelines are provided to assist scientists in preparing project proposals for funding consideration under the Inventory and Monitoring Program, Alaska Region.

## Accompanying Study Plan Template

This document should be distributed in a package with a study plan template that investigators can use to quickly build study plans.

## What is a Study Plan?

A study plan is a document used to define a research project's life cycle from beginning to end. A study plan should define the research objectives, describe why the objectives are important, and show specifically how the data will be collected, analyzed and reported. A project proposal is similar to a study plan, but is more brief and focuses on describing why a project should be undertaken. This document is focused on the study plan and assumes a project proposal has already been accepted.

The study plan should describe how every aspect of the project will be carried out, including

- Project objectives or questions being addressed,
- History of previous research or management actions that logically lead to the proposed work
- Who will carry out the work
- Methods to be used
- Anticipated products
- Work timelines
- Qualifications of individuals and organizations
- Budget
- What scientific or management-related benefits will be achieved by funding it.

The content of all proposed study plans will be kept confidential by NPS until after the plans are formally approved and accepted for funding. Thereafter, study plans may be made public, posted on an Internet website, and made available upon request to interested persons.

## Who Submits a Study Plan?

Study plans are required for anyone receiving funding under the Inventory and Monitoring Program.

## **How Are Study Plans Peer Reviewed and Evaluated?**

All projects funded through Inventory and Monitoring Program will be peer reviewed to assure that they are consistent with the program, based on sound science principles, have clearly defined objectives and planned outcomes, and are cost effective. Proposals and project-specific documents are reviewed by a Peer Review Panel under the direction of the Regional Inventory and Monitoring Program Coordinator. The Peer Review Panel is comprised of technical professionals within or outside of NPS. They are organized according to relevant topics and review proposals in their area of expertise. Following peer review and, if necessary revision of the proposal, final approval is usually made by an I&M Networks Technical Committee or Board of Directors.

## **Format and Guidelines**

Each of the sections below corresponds to an equivalent section in the accompanying study plan template. Use these sections for guidance as you fill out the template.

### **Title**

Use a short, descriptive title that clearly represents the study or project that is proposed. The title must include the name of Park(s) and Network(s) where the work will occur.

### **Date**

List date that the proposal/study plan was prepared or submitted.

### **Investigator(s)**

For each project investigator, include name(s), agency or organization, mailing address, phone number, email address, and FAX number.

### **Abstract**

Each study plan will provide a brief abstract of the proposed investigation. These abstracts may be included in I&M Network annual administrative reports and work plans. Abstracts should identify research questions or objectives, describe where and when the study will be conducted, and give a brief (1-2) sentence overview of the project.

### **Problem Statement**

Describe in some detail the reason(s) for gathering this information and its connection to the Alaska I&M Program. A primary objective of formal proposals and their review is to attain and maintain a high level of technical quality in the I&M Program. Another objective is to ensure that projects selected for funding demonstrate that agency funds are used wisely and efficiently to meet the program's goals.

### **Background**

Describe the ecological context for the project. This information should provide the basis for defining key questions or hypotheses addressed by the study. The investigator should provide a review of pertinent information and past literature on the subject, and relate this project to similar projects. This review should include information from published literature, agency and organization reports, as well as unpublished information from files,

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discussions, etc. All sources of published information must be cited in the text (author and year within parentheses) and listed in the References section (see below). All sources of unpublished information are cited in the text only (name, affiliation, personal communication).

### **Objectives**

Numerically list project objectives in the sequence they will be completed. Objectives are clear statements of what the study is supposed to accomplish. Clear objectives are essential to judge the importance, relevance, and cost-effectiveness of the proposed work, and should flow from the problem statement

### **Methods**

Describe how each study objective will be met. Clearly link a specific set of procedures to the accomplishment of each objective. This section should contain enough detail to allow a reviewer to understand how the study will be conducted, including how data will be collected and analyzed. A short description of the proposed study site, including a map, must be included in this section. To improve clarity, the Methods section should be divided into subsections that represent different components of the study. The Methods section should include study design, sampling methods, data management, and data analysis.

### **Study Design**

For each objective, describe experimental and/or sampling designs. Provide rationale for selected sampling designs. Address sample sizes, sample dates, and sampling effort. If necessary, cite references containing more detail.

### **Sampling Methods**

All field sampling methods and lab analysis must be described in detail. If necessary, cite references containing more detail.

### **Data Deliverables**

List all anticipated deliverables and their expected delivery dates. Include products, descriptions, delivery dates and file formats. Remember to include time for building metadata for each deliverable. Use the following table as a template. Modify as needed.

<b>Product</b>	<b>Description</b>	<b>Delivery Date</b>	<b>File Format</b>
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### **Data Collection and Reduction**

Describe the data collected from each sample, and the protocols for collecting them. Describe the path the data will take after they leave “the field”. Include descriptions of data editing, the media used to record data, and the

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software used to store data.

### Data Analysis

Describe the analytical procedures you plan to use. Cite references as appropriate.

### Performance Ability

Describe the ability of the investigator, agency, or organization, to successfully perform all work associated with the proposed study. When several individuals, agencies or organizations participate in a study, the role of each participant should be clearly identified, including the lead participant accountable for overall performance. Any changes in key participants or their roles will be subject to prior approval and will be specified via modification to the study plan. Include a description of any technical-scientific and administrative training and experience in performing similar work. Past reports and professional journal articles written by the investigator(s) and relevant to the proposed study should be listed. Unpublished work relating to the ability of an investigator, agency, or organization to accomplish study objectives should also be described. Reprints, letters of reference and support, and any additional evidence of performance ability may be included as an appendix.

### Compliance

Describe consultations with park and network staff completed in planning this study to assure that compliance issues are addressed. If projects involve field work, the principle investigator must apply for a research permit for the park(s) involved in the study <http://science.nature.nps.gov/research>. Describe how the project will be carried out in compliance with applicable laws and regulations (e.g, NEPA, minimum tool, collections, etc.). In National Parks it is extremely important that projects observe appropriate research ethics.

### Project Budget

Describe all annual costs by federal fiscal year (October 1 – September 30). For each partner requesting funds from the I&M Program; provide separate, detailed budgets by FY of direct costs for each state agency, federal agency, and non-agency participant.

**Direct Costs** are those costs that can be specifically identified with conducting the proposed project and are part of the budget request to I&M. Direct costs need to be itemized for the proposed project; and generally include labor, travel, rentals, supplies, and equipment. See Appendix G for guidance on preparing a detailed budget. Each budget summary table should be constructed as follows:

FY200\_ Budget Summary Table

FIS 200\_ \_ \_ \_: Project Title

Investigator

Category  
Direct Costs:  
Personnel

FY200\_      FY200\_      FY200\_

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Travel  
Contractual  
Materials and Supplies  
Equipment  
Total Direct Costs (a)

### Indirect Costs:

Percent of Direct Costs  
Total Indirect Costs (b)

### Overhead:

\_\_\_% (c)  
Project Total (a + b + c)

\*\*\*\*\*

**Direct Costs** were explained previously, are those costs that can be specifically identified with conducting the proposed project, and are part of the budget request to I&M. Direct costs can be readily itemized for the proposed project; and generally include labor, travel, rentals, supplies, and equipment.

**Indirect Costs** are in addition to the direct costs, and are part of the budget request to I&M. Indirect costs that cannot be specifically identified with conducting the proposed Project, but would be incurred by the investigating agency as a result of implementing the proposed project. Indirect costs are difficult to itemize directly to the proposed project; and generally include space rental, utilities, postage, unemployment compensation, data processing, training, safety management, affirmative action programs, administrative support, and supervisory oversight. Since Indirect Costs cannot be itemized, they are computed as a percentage of the Total Direct Costs. The percent indirect rate should be stated, as well as the actual request for Indirect Costs.

**Overhead** is the overhead rate applicable to the investigator organization and applies to most direct and indirect costs. Policies vary and its is advisable to contact I&M staff to discuss specifics.

**Project Total** is the sum of the Direct, Indirect Costs and Overhead, and is the total budget request to the I&M Program.

## Schedule and Timeline

Estimate the beginning and completion dates for critical segments of the study, including all deliverables, and provide this information in list or tabular form.

### **Example Project Timeline:**

#### **Project Timeline: FY2003**

##### **January**

Complete study plan.

##### **February-April**

Finalize sampling design (delineate areas, determine necessary sample sizes, determine accessibility, select sampling sites, prepare Minimum Tool Analysis for applicable park units).

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Arrange logistics for first field season (locate access points, assure Office of Aircraft Services [OAS] training and charter requirements in place).

Hire part-time technician (Term GS-9) for GIS-based needs associated with study design and population of the database.

Train field crews (voice recognition, hearing test, appropriate safety courses such as CPR, Wilderness First Aid, boat safety, aircraft safety, bear safety and firearms training).

### **May-July**

Conduct aerial and on-ground reconnaissance to assess timing of seasonal chronology of montane portions of all parks and to refine ecological subsections and selected plot boundaries in Katmai National Park and Preserve and Aniakchak National Monument and Preserve.

Census selected plots in Lake Clark National Park and Preserve.

### **July-September**

Enter and summarize data.

Repeat for each year of the study

## **Project Deliverables/Products**

Describe the products to be provided during and at the conclusion of the study.

Requirements for most studies include annual project performance reports that describe results and accomplishments from the past year as well as any proposed changes in design or methods. For one-year studies, as well as the last year of multi-year studies, a Final Project Report is needed. The final report must describe fulfillment of objectives and includes, an abstract, introduction, methods, results and discussion. Depending upon the specific study, deliverables may also include such products as electronic databases, graphics, or presentations, specimens or samples. Specific details about format of progress and final reports will be addressed during development of the funding contract and agreement.

**Education/Outreach:** Describe opportunities for producing interpretive and educational products in conjunction with the study. These may include news releases, educational brochures, posters, or public presentations.

**Literature Cited:** Provide complete citations for published literature referenced in the above sections.

For example:

Handel, C., and R. Gill. 2001. Black Turnstone (*Arenaria melanocephala*). In *The Birds of North America*, no. 585 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

**Appendices:** Provide any necessary appendices, such as Standard Operating Procedures referred to in the methods section.

## What Makes a “Good” Study Plan?

A study plan is a written document and thus should follow general guidance about clear writing, such as avoidance of jargon and omission of needless words. A good study plan allows the reader to understand what you are going to do and why it is important. A good study plan shows that the methods and objectives are clearly matched. A good study plan demonstrates that you have thought out what will be required to succeed and that you have all the necessary ingredients (money, time, personnel). A “good” study plan is prepared well before the data collection phase of project is slated to start so that the plan can be reviewed and modified as needed.

Scientific programs that require the development and review of study plans prior to commencement of work will avoid common problems and are more likely to be successful than programs which do not require study plans.

### ***Common problems with Proposals and Study Plans***

Many proposals received are inadequate for a variety of reasons. Specific problems include:

1. Incomplete information
2. Disjointed presentation of information
3. Incomplete documentation and references
4. Incomplete descriptions of the problem
5. Inadequate rationale for the need for the study
6. Failure to connect proposed work to the goals and objectives of the I&M Program or other related work
7. Failure to think systematically about the project as a whole: Has the information presented made a convincing case that the project should be funded?
8. Inadequate attention to a systematic approach to the research or management problem
9. Inadequate budget justification relating requested funds to proposed activities

For further information regarding these issues contact the Regional I&M Coordinator or Network Coordinator for the area targeted by project proposal.

## About This Standard Operating Procedure

**Version:** 1

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**Abstract:** These guidelines are provided to assist scientists in preparing project proposals for funding consideration under the Inventory and Monitoring Program, Alaska Region.

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## Arctic Network Data Management Standard Operating Procedure

Version 1.0, Arctic Network-Inventory and Monitoring Program, National Park Service.  
Fairbanks, Alaska.

### Revision History

Version	Version Date	Revised By	Changes
1.0	20071029	S. Miller, adapted from D. Mortenson	Original
1.1	20071101	S. Miller	Migrated to new template

This table reflects changes to this document. Version numbers will be incremented by one (e.g., Version 1.3 to Version 2.0) each time there is a significant change in the process and/or changes are made that affect the interpretation of the data. Version numbers will be incremented after the decimal (e.g., Version 1.6 to Version 1.7...1.10....1.21) when there are changes to grammar, spelling, or formatting, or minor modifications in the process that do not affect the interpretation of data.