National Park Service - Southwest Alaska Network
Inventory & Monitoring Program

# Data Mining Summary Report
# For
# Southwest Alaska Network

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**Acronyms:**

| | |
|---|---|
| AKSO | Alaska Support Office (also referred to as AKRO – Alaska Regional Office) |
| ALAG | Alagnak Wild River |
| ANIA | Aniakchak National Monument & Preserve |
| ARLIS | Alaska Resource Library Information System |
| FGDC | Federal Geographic Data Committee |
| GIS | Geographic information systems |
| I&M | Inventory & Monitoring (Program) |
| KATM | Katmai National Park & Preserve |
| KEFJ | Kenai Fjords National Park |
| LACL | Lake Clark National Park & Preserve |
| mp | Metadata parcer software, checks for errors in metadata |
| NPS | National Park Service |
| RM | Resource Management |
| SWAN | Southwest Alaska Network |
| USGS | US Geological Survey |
| WASO | Washington Support Office |

**Contents**

Appendix List

Background and Planning:


Plans:


Cheat sheets:


Reports:

## Executive Summary

The Inventory and Monitoring (I&M) Program requires a thorough Data Mining Project. The purpose of the Data Mining Project was to find and catalog data and information relating to natural resources within the park or in the vicinity of the park in order to develop the monitoring plan.

The Data Mining Project consists primarily of two types of documentation: a bibliography and metadata. The bibliography documents formal and informal reports, articles, books, etc. Metadata information documents databases, geographic information system (GIS) data, spreadsheets, etc. Both of these documents will be searchable using the National Park Service, NPS Focus website (http://focus.nps.gov/).

In order to document the end products listed above, the products themselves needed to be organized. The Data Mining Project developed a natural resource directory structure based on park staff needs. It drafted an Information Management Plan for the parks to help with future projects and products. This Plan explains the flow of information throughout a project and addresses backups of the natural resource computer files, data security and maintenance, project organization, and hardcopy document management.

Legacy data with very little known information about them were also organized and documented, but with less strict standards. This consisted of creating readme.txt files and documenting what is known about the information, and creating a "parking lot" directory of past employees' projects. It also consisted of general documentation of hardcopy file folders of past employees.

Having a completed list of metadata records and a bibliography database are good products, but they are hard to digest and fully comprehend. A summary report of the data found was generated consisting of the title, date, data type, publisher and abstract. This summary is interactive and available on the SWAN website. A bibliography listing of each park was also generated into a report and is also available as a .pdf file on the SWAN website:
http://www.nature.nps.gov/im/units/nw01/index.htm
or can be searched through the NatureBIB website (password required):
http://www1.nature.nps.gov/im/apps/npbib/index.htm

For the benefit of other data managers and park staff and to document the steps used in this Project, a series of "Cheat Sheets" were developed to provide direct technical instructions to accomplish a particular task. These are included as appendices in the Data Mining Summary Report.

Kenai Fjords National Park and Lake Clark National Park and Preserve have gone through the initial Data Mining Project. A follow-up to the Information Management Plan and modifications to the bibliography database should happen within fiscal year 2004. Katmai National Park and Preserve also represents the park natural resource information for Alagnak Wild River and Aniakchak National Monument and Preserve. Data Mining is scheduled for Katmai later Fall 2003 when park staff will be available.

# Introduction

The Inventory and Monitoring (I&M) Program requires a thorough Data Mining Project. This includes documenting what information has been collected about the parks such as reports or data. The purpose of documenting this information is to a) make the information discoverable via a search on a website or some other means, b) provide enough information so the end user can determine if the report or data is of interest, and c) ensure the appropriate use of the information by documenting any restrictions or the quality of the information.

The documentation falls into two categories: a bibliography and metadata. The bibliography documents formal and informal reports, articles, books, etc. Metadata information documents databases, geographic information system data, spreadsheets, etc. Both require very similar information, such as title, date, abstract, and keywords. They have their differences, however, so they remain two separate entities. For example, a bibliography may contain call numbers, where as a spreadsheet may contain the definition of each field. Both entities have standard fields required and optional.

Both of these sets of information can be searched from one place called a clearinghouse. In the case of the National Park Service, a website is available called NPFocus which can search either the bibliography, metadata or both. The purpose of the Data Mining Project are to populate these two sets of information so they may be used by researchers.

An additional goal of the Data Mining Project was to bring better data management practices to the parks and assist in data organization. Sifting through drawers and shelves of reports and computer files, one cannot help but to gain an understanding of the flow of information. It is not the I&M Program's responsibility to take on all data management, but the Program can assist the parks to develop a plan to accomplish this. We helped the parks accomplish this where possible and when time permitted.

This report summarizes the efforts of the last several months including revision of electronic directory structure for Kenai Fjords National Park (KEFJ) and Lake Clark National Park and Preserve (LACL); development of metadata for both parks, updates of National Park Service bibliography, NatureBIB, and; some revision on organization of hardcopy data at KEFJ.

## Background and Planning

The Data Mining Project stems from Step 2 in the "Recommended Approach for Developing a Network Monitoring Program". The website is: www1.nature.nps.gov/im/monitor/approach.htm

2. Summarize existing data and understanding.
One of the most important steps in the process of developing a monitoring strategy is the task of identifying, summarizing, and evaluating existing information and understanding of park ecosystems. Much of this needs to be done before the scoping workshop is held.
To accomplish this task, it is anticipated that most networks will need to hire, assign or contract at least one or two full-time persons (e.g., a Monitoring Coordinator and data management specialist) and allow at least a year prior to the scoping workshop for this step to be accomplished.
This step will include a literature review, a review of the Resource Management Plan (RMP), General Management Plan (GMP), and other applicable plans for each park, and an inventory of existing datasets and other information on park ecosystems.
Superintendents and other park managers should be interviewed regarding the key management issues facing their park and the types of information they need from the monitoring program.
Current or historical monitoring of natural processes and resources in each park should be summarized, including data from monitoring of fire effects, T&E species, water quality, air quality, physical processes/changes, and other resources. Data sets and the sampling design used should be evaluated to determine whether the monitoring is meeting the needs of park managers and is providing reliable and credible data to help manage the park. Maps showing the locations where monitoring has occurred should be prepared.
Monitoring that is being conducted by neighboring agencies, partners, and related parks should be identified and summarized to help determine where comparable data sets and sampling protocols exist.
Where understanding exists regarding cause-effect relationships between environmental stressors and the park's natural resources, or where the linkages among ecosystem components are understood, draft conceptual models should be prepared to help summarize this understanding.

To simplify the above, the I&M Alaska Support Office, Central Alaska Network and the Southwest Alaska Network met to discuss the interpretation of Data Mining and how it applies to Alaska. Following is how the group defined Data Mining. For more information on this meeting, please review the minutes in

Appendix A. Background information in preparation for this meeting may be found in Appendix B.

***Definition of Data Mining:***
Find and catalog data and information relating to natural resources within the park or in the vicinity of the park in order to develop the monitoring plan.

***The Purpose of Data Mining:***
Evaluate and understand the parks based on existing information in order to develop the monitoring plan.
Evaluate for comparison to anticipated monitoring data
Opportunistically, demonstrate good cataloging practices for non-Inventory & Monitoring purposes
Opportunistically, develop a standard operating procedure for updates/maintenance of data and bibliographic cataloging.

The Heartland Network's "Data Mining Guidelines" written largely by Brent Frakes, Database Manager, was also a helpful resource. Please see Appendix C.

***SWAN Work Plan:***
SWAN developed a work plan to complete the Data Mining Project. This is an ongoing plan and is updated periodically. Please review Appendix D.

## Electronic File Directory Clean-up

The underlying theme to the Data Mining Project is data organization: Knowing what you have and where it is. We do this by documenting the inventory of natural resource information either through a bibliography, if it is a document, or a metadata record, if it is data. Both the bibliography and metadata efforts will be further described later in this document.

To begin with some efficiency, we need to have our inventory of information sorted in some kind of order. If we were to document every single file without any kind of organization, our information would result with many unknowns, duplicates, and irrelevant records. We would also have a difficult time keeping our documentation updated, as files would be moved, deleted, or renamed with little regard.

The Southwest Alaska Network approached data mining by organizing the electronic information first. In hindsight, I believe this is one of the most important steps, if not *the* most important, in data mining. It is not the responsibility of the I&M Program to organize a park's electronic files. However, it is in the best interest of the park and the network to do so. It is a joint effort between the park and the network. The network can act as a facilitator, but it is ultimately the responsibility of the park to ensure the content is appropriately organized.

Steps to Electronic File Clean-up:
Ask questions; Be familiar with existing organization; Identify the problem areas
Discuss with the staff
Outline an ideal file structure
Create a backup and a time stamp file
Populate the new structure
Write standard operating procedure(s)
Follow-up

### *Step 1: Ask Questions/General Assessment*

These types of questions were asked to get a general assessment of the initial situation:

*What is the condition of the existing file structure and information?*

- In general all SWAN parks needed some assistance in cleaning up files, either a complete file structure overhaul or some reassessment and tidying up.

*What is the logic behind the structure?*

- KEFJ used the same logic as their hardcopy file structure. This structure, however, resulted in many empty directories, buried directories, and was not seemingly intuitive to new staff. It did, however, provide a "home" for just about anything and there was some connection between the hardcopy file and the electronic file. This served to be the foundation of the newer structure.
- LACL resource management staff is relatively new and did not have a specific file structure in place.
- KATM has not been reviewed in detail yet. (Note KATM also houses ALAG and ANIA data).

*What subjects contain lots of information (i.e., bear studies)? What subjects have very little information (i.e., invertebrates)?*

Some topics, such as bear or salmon studies, have much more information than others. The file structure needs to accommodate this by bringing larger projects

and datasets to an upper directory. In the following example, the various bear studies are directly under \MammalsTerrestrial, as oppose to under \MammalsTerrestrial\Bears\HabitatStudy, etc.

Example:
\Resources
    \Data
        \Biological
            \MammalsTerrestrial
                \BearHabitatStudy
                \BearHumanStudy
                \BearSurveys

In considering a file structure, there are two approaches: "splitters" and "lumpers". If the structure is split too much, information gets buried. If the information is lumped together too much, directories become unwieldy. Somewhere in between is the balance and it may take a few attempts to reach this balance.

*When was the last complete backup? Are backups reliable?*

In all SWAN parks reliable backups are a significant issue. The park computer network staff is aware of these issues and is working to resolve them. In the meantime, a backup of the drives were specifically created before any file clean-up was started. The difference between a "catastrophic" backup (if the building burned down or the server fried) vs. a project backup (when you can logically remember completed stages of your project) was discussed with resource staff. Resource staff are encouraged to create their own project backups at particular milestones, such as after data entry, before project clean-up of files, and when the project is completed. Unfortunately, several of the resource staff do not have the appropriate hardware (CD writer) to do these types of backups. Requests have been made to upgrade these computers, not only to complete appropriate backups, but because these computers are also running Windows 98, have slow processors, and numerous other problems. The park computer network staff is aware of these issues and is working to resolve them as well.

Backup power was an issue for one of the parks. The server hosting all of the resource management data did not have a battery backup. This was quickly and easily resolved, but it should be noted it is important to check this detail.

*What access problems and issues are there?* For examples:
- Speed and access to certain drives?

- Sensitive information; is there some information that should be protected by law?
- Team projects; do staff need to share information with each other?

Each park has a list of "Drives" that automatically are assigned when a person logs onto their computer. The letters assigned are not necessarily consistent from park to park, but for sake of discussion, I will refer to the U, T, X, and W here. Please see Appendix F, Cheat Sheet: Mapped Drives for more details. In general park staff could not say with certainty which drive was used for what.

The U drive is the individual's own workspace that is on a server but is only available to that individual. It is much like a C drive, but is on a scheduled backup and contains only data and files (no programs). When I inquired about backups, I discovered that in reality, these drives were not being backed up due to some technical problems (which are being resolved).

The T drive is the team drive. In the parks, it generally is the whole park. There are subdirectories that separate the different divisions within the park. The T drive is located on a server within the park. It is only accessible to those in the park or who have special permission.

The X drive is the read-only GIS information, managed by the Regional Support Office and distributed to the parks. The X drive is located on a server or computer within the park. It is accessible to anyone within the park. All parks have the same general information on the X drive, and some park specific information as well.

The W drive is the Alaska Region drive, in which anyone within the Alaska Region can access. The W drive is located within the Alaska Regional Office and is, unfortunately, very slow and unrealistic to use for anything more than a general repository. Opening a dataset from this drive, for example, will bring even a computer located in the Regional Office to a halt and the computer will need to be restarted.

Sensitive information is collected for certain projects, such a telemetry information for radio collars, eagle nest locations, or endangered plant species locations. These need to be handled with the appropriate permissions and protection.

Sharing of information ranged within the park. In the case of LACL, the Resource Chief and the biologist were both involved in the same project, but in different capacities. The Resource Chief did more administrative and reporting

work, while the biologist did more data and analysis. This relationship was taken into consideration in the file structure to allow a combined project without stepping on each other's toes. This was also a similar relationship between the biologist and the biological technician.

Once a project was done, information needs to be brought forth to other levels, such as to the Superintendent, the GIS liaison, researchers from other agencies, future researchers of the Park Service, etc. How the flow of information was handled, from raw detailed datasets to "generally finished" to publication, needed consideration in the file structure.

*Does staff know what they are supposed to do with the information they collect?*
Not all staff understood where to find information, or knew what they were supposed to do with their own information. The idea is vaguely there, but not specific and not crystal clear. Some training and guidelines will help this, which is discussed later in this document.

### *Step 2: Discuss with staff*

If the staff doesn't want an organized, resource management file structure, it isn't going to happen. Fortunately (with a great sigh of relief), everyone in the SWAN parks does. Most, if not all, are willing to do what is recommended, if only there was a recommendation.

Knowing how to best organize the resource management information needs input from the staff. There needs to be a balance between what a region-wide or agency-wide structure might be like and what is practical at the park level. Discussing how information is moved from the individual project "up the chain" to a national level needs to be considered. How will information be shared? How will it be archived?

### *Step 3: Outline an ideal file Structure*

Initially we looked for an existing structure. There were some examples, such as the structure for GIS data or the NPS hardcopy file structure. This was added to the pool of things to take into consideration. Other considerations were:

- Limit the first two or three directory levels to a minimum (under 10 or 15).
- Name directories so they:
    - make sense,
    - sort logically (i.e., \MammalsMarine, \MammalsTerrestrial or \BearsHabitatStudy, \BearsHumanStudy), and
    - follow good naming structure (no special characters, spaces, etc.) that could be used in a pathname of a program without problems.

- Create a parking lot for things that might take longer to deal with, such as project information from past employees or unknown files.
- Create a read-only repository and a read/write directory for active or ongoing projects

Keep in mind it is not likely there will be one directory structure that will make everyone within the agency happy the first time around. This is an iterative process. Each resource management division within each park will have their own file structure and it will be different from the next division and from the next park. There has been some discussion to make one, catch all directory structure, but this will be discussed for quite some time. In the meantime, we will have organized our data, completed our data mining process, completed our standard operating procedures, etc. The good news is whatever structure does result in the end, we will have documented and organized files that can be reorganized with greater ease.

### *Step 4: Backup and Timestamp*

Backups for the resource management files had not been completed in quite some time. Before starting anything, this needed to be done. In the case of KEFJ, networking from the resource management (RM) server to the backup servers was a complicated problem. Therefore the RM files were copied onto a "firebox", which is like a portable, large disk drive. The firebox was then physically carried and connected to the backup server and copied. In addition, groups of directories that could fit onto a CD were copied onto CD-ROMs. The information stayed on the firebox until the data was reorganized and in full production. The information was also on the original server, under a different directory (\Resources_Old) as read-only until the new structure is in full production.

In the case of LACL, the backups were also problematic. The needed hardware for backups was on order. Because a proper backup would not be in place before the data clean-up would take place, we used the "firebox" as a backup of the existing drive.

In the case of KATM, our timing was a bit off. Before we were able to meet and agree on a file structure, the spring and summer season was upon us. The necessary staff to complete this task is unavailable until the fall of 2003.

For comparison of file names, file sizes, etc. we used a freeware software package called Directory Lister v0.6 to create a timestamp file of all the files, pathanames and files sizes. Please see Appendix F: Cheat Sheet: Instructions for using Directory Server for more details. We considered creating a database of

tracking what files went to where, but found this would take too long and would not yield that much benefit. We looked for tools that might be able to do this automatically, but did not find one. Given that these parks have relatively small resource management divisions, staff felt comfortable with making the reorganization without this level of detail. Other networks with larger resources may need to give this further consideration.

### *Step 5: Populating the new structure*

Timing is everything, particularly when dealing with seasonal projects and staff. The best time to take on a data clean-up project is in the winter. Permanent staff are back from the field and have wrapped up their field work. Having the file structure outline completed by fall lends itself to staff being able to populate the new structure and help with documentation over the winter months. Reorganization can also be completed before the spring season projects start, and, ideally, resource managers will have an infrastructure in place for the coming season projects.

We scheduled a two week period for park staff to organize their data into the new file structure. All resource staff of that particular park were made aware of the changes in advance and were advised to not make edits to either the old or the new file structures until the transition was completed. Two weeks was sufficient time to make the transition of the existing information. As time permitted, other files could be moved from individual C or U drives. Additional polishing off, such as writing README.TXT files for the main directories, could be done as time permitted.

For files that would take more time to sort out, such as work completed by past employees, a "parking lot" was set up. In this example it is called the \Users_old directory. Initial assessment of the information is written in a README.TXT file. Last names are added, if they are known (directory \Jane is changed to \Jane_Doe, for example.) As returning seasonals come back to the park, or the information is needed, these files can be cleaned up as time permits.

One issue we commonly encountered with KEFJ file clean-up involved dealing with older and unrecognized file extensions. Some information was stored in database and text software formats that no longer exist. Many of these databases were converted to current software applications. We created a short cheat-sheet of common files extensions that we encountered and how we dealt with them (Appendix F: Cheat Sheet: Tips on Opening Documents with Unknown File Extensions).

I should clarify not every single individual file is cleaned up. We weren't intending to finish projects that were incomplete or make everything perfect. The purpose is to sort, organize and tidy up a bit to make information discoverable and retrievable, and to establish a "home" for information. Likening it to other cleaning, we were cleaning enough to have friends over for a nice dinner at our house, not disinfecting a biological hazard laboratory. As time and interest warrants, further cleaning could be done. So in looking at the many bear studies, for example, you would find all these bear studies in the same general directory. For the individual projects, however, things might still be a little untidy. Future bear studies will hopefully be better organized, as a result of the Information Management Plan. An example of a draft plan can be found in Appendix E.

### *Step 6: Write up the Standard Operating Procedure or Information Management Plan*

After the electronic file reorganization, we may result in an organized, resource management file structure, but how we got to this point should be documented. What do the parks want to do from here on out? What were the decisions made? What should new staff know? This leads us into the initial Information Management Plan and the Project Organizer guidelines for the individual parks. As examples, please see Appendix E.

### *Step 7: Follow-up*

After the new file structure has been in place for a year and has lived through it's summer field season and fall wrap-up season, the structure should be revisited. Adjustments should be made as needed.

## Metadata

Once the electronic data file structure was cleaned up in each park, we systematically reviewed files and created metadata for all Microsoft Excel spreadsheets and Access databases. Excel and Access are the two most commonly used file types use for data within the parks. Metadata was also created for some hardcopy data that did not have corresponding electronic data. We created metadata using the Spatial Metadata Management System 3.2 software (SMMS). Notes on how to use SMMS in found in Appendix G: Cheat Sheet: Notes on Using the SMMS Software and Completing FGDC metadata.

Metadata allows you to add theme keywords and place keywords. We added the following keywords to every record under the theme keyword list: NPS, and National Park Service, (inventory and/or monitoring when appropriate).

To ensure place names were spelled correctly and consistently, we created a place keyword thesaurus in SMMS for each park. First we used the US Geological Survey (USGS) place names point coverage in geographic information system (GIS) and clipped within a five mile buffer of the park boundaries. The resulting lists of place names and feature types were put into an Access database. This list was compared to USGS park maps and additional names were added. We exported this list, placed some necessary code (XML) at the beginning and the end, then imported it into SMMS. We added the following keywords to every record under the place keyword list: Alaska; four letter park code; park name. Instructions can be found in Appendix G: Cheat Sheet: Creating a Keyword List for SMMS. A Report of the list can be found in Appendix I: Reports: SWAN Gazetteer.

We exported metadata from SMMS and corrected it using the error checking options with the Metadata Parser (MP) provided by the Alaska Support Office Geographic Information Systems Office (AKSO GIS). Once the metadata was error free, they were put into two locations: One, a repository location in the \DataManagement directory, and; Two, in the individual folders where the data resides. In the later, the metadata record was renamed to the name of the file and given a .met extension. For example, the dataset baldeagle1998.mdb would have a metadata record named baldeagle1998.met. Instructions on using Metadata Parser are found in Appendix G: Cheat Sheet: Using Metadata Parcer (MP) to check SMMS Metadata for FGDC Compliant Errors.
The idea is that the metadata record should be found next to the actual data. If there are any changes to the data, it should be updated in the metadata record within the directory. Likewise if anyone were to find the data or want to copy the data, the metadata would be readily available to go with it. Periodically or at

the same time, the repository should be updated. The repository is a place where others can look for information without having to look in individual folders. It is also a place where metadata can be reviewed for consistency. Details of the flow of information are subject to change. The repository of information may be handled in the future through a website or through SMMS software. In any case, park staff should refer to the Information Management Plan for their park for updated procedures.

We also used MP to generate text and html metadata files from complete and corrected metadata. The HTML version is easier to read for content. These files were made available to park staff for review of the content of the information.

To present a "deliverable" regarding the metadata effort, we wanted to generate a report of a short list of the metadata, including title, date, data type, publisher, and abstract. We also wanted to make this list available on the internet, linking to the metadata records. In this way, all members of the Technical Committee and the park staff could view the metadata list at anytime at anyplace, and would not need any instructions on how to use it.

For geospatial metadata, the AKSO GIS Office has done an outstanding job of maintaining these records and making the metadata as well as the data available on the internet. Initially we thought we could tag onto this effort. The tabular data just inventoried in this exercise does not fit the same criteria as the geospatial data, however. Currently, the method used to extract the metadata involves using the Theme Manager in ArcView. These tabular data are not necessarily stand-alone datasets polished for the public and they do not generally have a GIS component to them. Because of their uniqueness, these metadata records and datasets didn't naturally fall into the same routine as the process used for GIS metadata.

We first looked to the WASO I&M Program for guidance. WASO is planning a revamping of the clearinghouse and will use NPFocus as the clearinghouse search tool. However, these tools are not yet in place. It is estimated these would be ready sometime in December of 2003. These tools do look promising and we would like to use this method along with the other I&M Networks.

Until WASO clearinghouse is ready for production, we needed a temporary solution. SMMS is an excellent tool for writing metadata, but it does not generate reports. SMMS has a clearinghouse option, for an additional fee, but this was too involved and expensive for a temporary solution.
Our temporary solution was as follows:
Export the records from SMMS to text format

Run MP, using a configuration file for formatting
Import the XML files into an Access 2002 database
Code the records to be either Biological, Cultural, Index, or Physical
Generate reports, save as .pdf and post on the website
Develop a website using ColdFusion to read the database
Website shows the metadata as a summary, dividing the records on to Biological, Cultural, Index, or Physical web pages.
Title links to the actual metadata record.

Using a sizable hammer, we were able to achieve our goal. If this becomes a longer term solution, the process should be revisited. It should be noted these metadata records are not available on any clearinghouse. They are only available on the website. This is acceptable for SWAN's intermediate needs. The Metadata Summary Report may be found in Appendix I.

Please note the following websites for more information:
Geospaital Metadata
http://www.nps.gov/akso/gis/index.htm
Kenai Fjords National Park: http://www.nps.gov/akso/gis/kefj/kefj.htm
Lake Clark National Park and Preserve: http://www.nps.gov/akso/gis/lacl/lacl.htm
Katmai National Park and Preserve and Alagnak Wild River: http://www.nps.gov/akso/gis/katm/katm.htm
Aniakchak National Monument and Preserve: http://www.nps.gov/akso/gis/ania/ania.htm

Tabular Metadata:
http://www.nature.nps.gov/im/units/nw01/MetaData/metahome.htm

FGDC Content Standards for Metadata:
http://www.fgdc.gov
http://www.fgdc.gov/metadata/meta_workbook.html

## Bibliography

The National Park Service has two bibliographic databases that are maintained each serving a different purpose. One is called Voyager Library Catalog, the other is called NatureBIB. Voyager is used for cataloging a library's collection, where everything that is physically in the park library is recorded in this database. It does not include other information outside of the park library that might be about the park. It might also include information that has nothing to do with the park, such as a general reference book. To enter information into the Voyager, the off-the-shelf software called ProCite was used. ProCite files are sent to the NPS Librarian for update into Voyager. For normal NPS procedures, Voyager is used.

NatureBIB contains all bibliographic information about a park, whether the park holds a physical copy of it or not. It excludes reference material that are not specifically related to the park. NatureBIB combines many of the previously existing bibliographies such as DeerBIB, NRBIB, GRBIB, PaleoBIB, and others. To enter information into NatureBIB, a customized website data entry form or a customized downloadable Microsoft Access database can be used. For the Inventory and Monitoring Program, NatureBIB is used.

Both the Procite and NatureBIB have their own advantages and disadvantages, which can be compared in Appendix B. One of the issues we came across was determining if we were really creating a bibliography or a catalog. There is a need for both. The parks want to have just one database, one that could be maintained by a clerical staff. They do not want to maintain both. These two databases, however, do not use the same data standards and transferring records from one to the other is not that simple. ProCite would allow a person to classify the record as needed, say for catalog only or for SWAN Bibliography or for Water Quality Bibliography. The online version of NatureBIB does not give you that capability. The Access version of NatureBIB would allow you to customize a classifying table, but it would be lost as it was imported to the online version and would be lost with an updated download.

NatureBIB is still in its early stages of development. Understandably, resolving problems with this database are no small tasks. Updating and downloading of information have been slow, taking several months to a year to complete. All edits must be done online and there are no plans to change this. This has been problematic as one edit done online takes a minimum of 5 minutes to complete. The online interface is slow and cumbersome. There are plans, however, to improve the interface at an unspecified time in the future. We are hopeful this will make editing easier.

The information preloaded into NatureBIB are from a variety of sources, such as NRBIB and GRBIB. As such there are many duplicates. The duplicates, however, are not consistent and readily apparent and cannot be easily programmed. For example in comparison of two sources for the same document, the title may have been typed in slightly differently, different keywords were used, one might have an abstract while another has none, one may have been entered as a formal report, the other as an article. To clean-up these records, a desktop application and download of the data would be very helpful.

Resolving the duplicates issue gets a little more complicated. For one, the records in the online database (Oracle) does not appear to have a stable and unique ID. A person could not specifically say bibliography ID =1 should now be = 2. Bibliography ID = 2 will always be assigned to 2. So for example, if I were to receive a download of all SWAN records and make the corrections I wanted to make, there would be no way for WASO to replace those records (replace ID= 1 from me with ID=1 in Oracle). Information from WASO of why this is the case is sketchy, but I will trust there is a reason for it.

The other issue that makes resolving duplicates complicated is duplicates caused by the same document being entered by NRBIB and GRBIB. The task of editing the GRBIB records has been assigned to the WASO geologist. These records will be cleaned up independently of records from NRBIB, and will be done in the order of A-Z of the authors' last name. In other words, the same document could remain a duplicate and be cleaned up twice, in two slightly different ways. The advice has been not to attempt to clean-up the GRBIB records until WASO's tasks have been completed.

Given the current tools and advice and the slow turn around time to upload and download information, the effort to clean-up the records in NatureBIB outweighs the benefits. In the case of Alaska, most researchers will use ARLIS and consider it more reliable. It's not that having the NatureBIB database would not be helpful, as it would. It's that it will require so much more time and effort, that other significant data needs will suffer. In addition, it still does not meet the park's need for a single database to act as a catalog and a bibliography. Attempts to clean these records and to find more efficient ways of doing so will continue. It may be, however, NatureBIB needs more time to mature and the task is revisited in a year or so.

Despite the editing issues with NatureBIB, we did populate the database with new records. We searched file drawers and shelves in each park for resources

and bibliographic citations. Citations from KEFJ and LACL were checked to see if they had already been captured in the online version of NatureBIB. Citations which did not exist on line were added to a local version of NatureBIB (an Access based program). This information was then sent to WASO for uploading in the online version of NatureBIB.

Before the records were sent to WASO, the records were checked for consistency. NatureBIB interface does not have any editing capabilities. For example, say after you've entered a citation you noticed you misspelled someone's name. You cannot go back and edit that record to correct the spelling. To edit the records, you must open the Access tables directly to make your changes. To check for consistency and to tidy up the records, we developed an editing process of opening these tables. A description of this process can be found in Appendix H: Cheat sheet: NatureBIB Clean-up Procedures. It is recommended only those familiar with Access databases and NatureBIB use these procedures.

During the course of editing KEFJ's bibliography we found that the in-house version of the RM Procite database did not include many abstracts. Alaska Resource Library and Information Service (ARLIS) had made an effort several years ago to add abstracts to the database. We contacted them and they sent us a copy of bibliography files for KEFJ and other Alaska parks with the missing abstract files on CD. The CD contains this information in the 5.0 version of Procite however the RM version of the Procite database is still 3.4. This CD of information is located at Kenai Fjords National Park and the local files have not been updated.

## Hardcopy Data

In the case of Lake Clark National Park & Preserve, the resource management division is relatively new and very small. Some of the work that has been done in the park are from various people passing through: students, researchers, volunteers, other agencies, etc. There may not be any final reports or any electronic files. There may be, however, a folder of valuable information that may date back many years. In some cases the current biologist on staff may not be familiar with the topic or have the time to be able to determine its value. In these instances, the resource management division has a few drawers of folders of "unknowns".

We attempted to capture this information as a one-time inventory. Any new projects will have a report and electronic files, and, hence, will have a bibliography or metadata record. This inventory captures information that could not be found electronically or in the bibliography.

In all probability, these files will be incomplete and may not yield great dividends. For this reason, we kept our inventory very simple, not using metadata or NatureBIB. We created an Access database with only a few fields. The purpose was to generate a list in a report with enough information to determine if it was worth pursuing further. If there were files of particular interest, we would complete a metadata or bibliography record, which ever was most appropriate.

The Access database contains fields for the file folder name, keywords, and abstract. The database documents if the information also exists in electronic format. Some file folders at the park were put into this format. Please see Appendix I: Reports: Clark NP&P Resource Management File Descriptions.

In Kenai Fjords National Park hard copy data is stored in the Resource Management file drawers using the old RM file structure. KEFJ plans to reorganize the hardcopy data so that administrative documents are kept in file drawers using the system instituted by Director's Orders 19. Project data will be pulled out of the file drawers and put in file boxes on designated shelves. Other reference materials will be pulled out of the main file drawers and placed on a shelf designated as the RM Reference Library. Both the project shelf and the reference shelf will be organized using the same format as the electronic file structure.

## Conclusion

This document summarizes the work completed during the last several months for the Inventory & Monitoring Program, Southwest Alaska Network at Lake Clark National Park and Preserve and Kenai Fjords National Park. Additional efforts will be needed to complete the same work for Katmai National Park and Preserve, Aniakchak National Monument and Preserve and Alagnak Wild River.

# Appendix A:
# Data Mining Meeting Minutes

# Inventory and Monitoring Program
# Data Management
## *Focused Discussion on Data Mining*
### December 4, 2002
# MINUTES

**Time:** 8:30am – 4pm

**Location:**
USGS-BRD
1011 Tudor Road, Anchorage
First floor, small conference room (same one as Nov. 18 meeting)
*BRING ID*

**Purpose of Meeting:**
Data Mining: What does the Alaska Region and Networks want?
One of the requirements for the I&M Program is a data mining effort. No doubt data mining would be beneficial. How beneficial will depend on what is included and how it is brought together. WASO provides some general guidance on this, but there is some flexibility. With some thought and discussion at this meeting, it is possible to yield more benefits and obtain more closely what we want for Alaska.

**Agenda:**
Overview of Information Searches
- How things are done outside of NPS
- How things are done within NPS
- How things are done with I&M
- How things are done at the Parks

I&M Program Data Mining
- What is suggested/required by WASO
- What has been done by the Nature Conservancy - Blain
- What has been done by CAKN - Doug
- What does Alaska Region and Networks want?

Implementing
- What should be included, what should not
- Archiving – where do we put our information?
- Are there priorities?
- Regional efforts

Message to WASO
- What messages to send to WASO

# TO DO'S

**GEORGE, ANGIE, & GREG:**
- Meet w/ WASO staff on issues listed during the meeting
- Bring back good news
- Review "background" and fill in any WASO or AKSO expectations

**SARA:**
- Make a contact with ARLIS
- Review "background" and fill in any WASO or AKSO expectations

**DOUG:**
- Refine decisions made during the data mining efforts
- Revisit diagrams used for discussion

**DOROTHY:**
- Finish off "background" section to be a stand alone
- Compile comments
- Start draft of "from here on out" SOP.

**KAREN:**
- List of typical Keyword/categories/topics (if number is too great, do not do).

**GROUP:**
- Reply to Dorothy with 3-5 typical questions you have in searching for information (bibliographic or GIS metadata).
- Reply to Dorothy if you are or are not interested in search capability mostly or would browsing capabilities be useful (if you can quantify how useful- great, nice to have, ziltch)?
  For example:
  A website listing key bibliographies and data themes organized, say for example as:
  BIRDS
  - Seabird Surveys, 2002, NPS, KEFJ - BIO, GEO
  - Seabird Surveys, 2001, FWS - GEO

  This idea was one I suggested at the meeting that we didn't discuss greatly. I'd like to have some idea if this would be useful in weight of the effort.
- Read the Minutes and provide comments, new ideas, etc. to Dorothy
- Think about the items brought up, but not addressed:
  - Quality rating
  - Who's responsible for the maintenance/upkeep
  - What is the relevance to the Parks
  - What could be some outputs to the Parks (as oppose to just search tools)
- Attend the next meeting in January

# DATA MINING

## I&M at WASO Formerly Described:

From step 2 in the "Recommended Approach for Developing a Network Monitoring Program" www1.nature.nps.gov/im/monitor/approach.htm

**2. Summarize existing data and understanding.**

- One of the most important steps in the process of developing a monitoring strategy is the task of identifying, summarizing, and evaluating existing information and understanding of park ecosystems. Much of this needs to be done before the scoping workshop is held.
- To accomplish this task, it is anticipated that most networks will need to hire, assign or contract at least one or two full-time persons (e.g., a Monitoring Coordinator and data management specialist) and allow at least a year prior to the scoping workshop for this step to be accomplished.
- This step will include a literature review, a review of the Resource Management Plan (RMP), General Management Plan (GMP), and other applicable plans for each park, and an inventory of existing datasets and other information on park ecosystems.
- Superintendents and other park managers should be interviewed regarding the key management issues facing their park and the types of information they need from the monitoring program.
- Current or historical monitoring of natural processes and resources in each park should be summarized, including data from monitoring of fire effects, T&E species, water quality, air quality, physical processes/changes, and other resources. Data sets and the sampling design used should be evaluated to determine whether the monitoring is meeting the needs of park managers and is providing reliable and credible data to help manage the park. Maps showing the locations where monitoring has occurred should be prepared.
- Monitoring that is being conducted by neighboring agencies, partners, and related parks should be identified and summarized to help determine where comparable data sets and sampling protocols exist.
- Where understanding exists regarding cause-effect relationships between environmental stressors and the park's natural resources, or where the linkages among ecosystem components are understood, draft conceptual models should be prepared to help summarize this understanding.

## I&M WASO – Informally Described:

Data mining will consist of:

- Looking in every drawer in all the parks
- Looking at every electronic file on the computers at the parks
- Documenting the above in either NatureBIB or Dataset Catalog. This would include memos, etc.

# AKSO – Interpretation of Data Mining:

The I&M Alaska Support Office, Central Alaska Network and the Southwest Alaska Network met to discuss the interpretation of Data Mining and how it applies to Alaska. Alaska is in a unique situation in that NPS pays a multi-agency resource library to maintain a reference library (ARLIS). In addition, Alaska has a close multi-agency geographic data committee (AGDC) that has made cooperative agreements on metadata, sharing of data, etc. More informally, Alaska has a close GIS user group (Alaska Arc User Group), which sponsors a state-wide annual conference and holds monthly meetings to share information and techniques.

**Definition of Data Mining:**
Find and catalog data and information relating to natural resources within the park or in the vicinity of the park in order to develop the monitoring plan.

**The Purpose of Data Mining:**
- Evaluate and understand the parks based on existing information in order to develop the monitoring plan.
- Evaluate for comparison to anticipated monitoring data
- Opportunistically, demonstrate good cataloging practices for non-Inventory & Monitoring purposes
- Opportunistically, develop a standard operating procedure for updates/maintenance of data and bibliographic cataloging.

**Criteria to evaluate what to include in the Data Mining Catalogs:**
This was not discussed in detail during the meeting. It was suggested each document type may have different sets of rules. Following includes some of the suggestions that were made, but this needs further discussion/comment.
- Biology or Ecology related
- Within the Park or in the park vicinity (i.e., to include off the coast of KEFJ)
- Document Type Criteria
  Books
  - Include if ….
  - Do not include if ….

  Chapters or Sections of Books
  - Include if ….
  - Do not include if ….

  Reports – Formal/Published (White literature)
  - Include if ….
  - Do not include if ….

  Reports – Informal/Unpublished(Grey literature)
  - Include if ….
  - Do not include if ….

  Journal Articles
  - Include if ….
  - Do not include if ….

  Maps
  - Use FGDC metadata

  Conference Proceedings
  - Do not include, unless park was presenting. In this case, include the presentation
  - Xxx

  Theses/Dissertations

- Include if ….
- Do not include if ….

Letters/Correspondence

- Do not include, unless they are notably important – possibly with legal implications
- Xxx

Other

- Use for such things as Field Notebooks
- Xxx

Data Sets

- Use FGDC metadata for electronic datasets

**Data Mining Deliverables:**

- Cataloged citations/reports
- Cataloged datasets
- Scanned Report Library(NP Focus – DjVu or .pdf) (opportunistic)
- Report on process used for data mining (legacy information)
- Within the Data Management Plan, include standard operating procedures for updates, maintenance, and annual re-evaluation (from here on out information)
- Within the Phase I Report, summary of the evaluation of the data mining efforts.

**Data Mining Deliverables being Discussed:**

As a byproduct of the data mining efforts, the I&M Alaska Region discussed other possible products that would be beneficial. These would not be products required by the Program, but are agreed upon within the Region as desirable/optional products.

- Annual Report of new bibliographies
- E-mail list of this report
- Park Specific Bibliography
- Website of Selected Bibliographies, as determined and maintained by NPS subject expert
- Website allowing for spatial query of bibliographic or data (similar to CIIMMS, which uses a gazetteer to link place names to geographic coordinates).

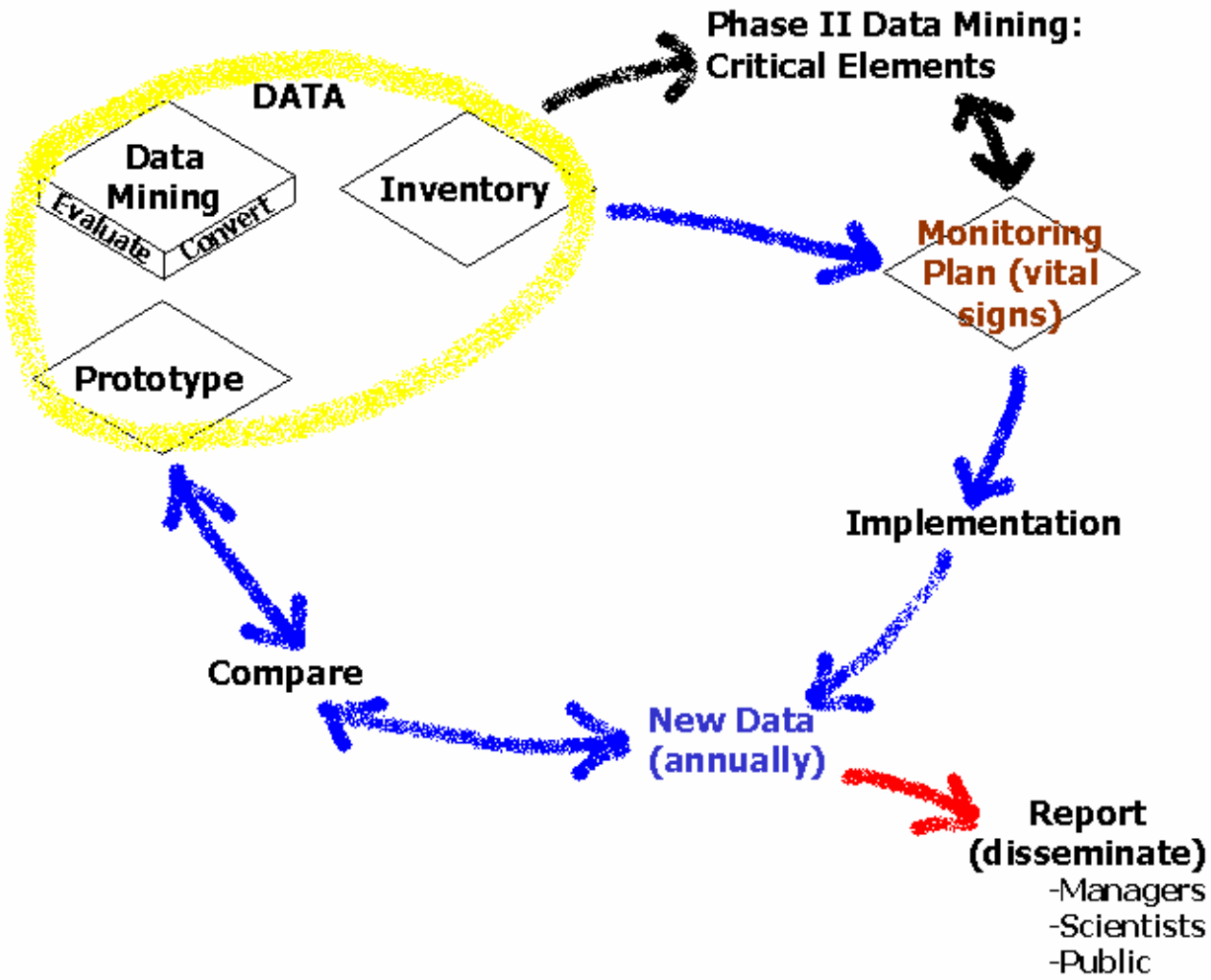
**Editorial Note:**

Since our meeting, SWAN has been discussing another possible document to help outline what should be done with a project from here on out. This would be an outline of a SOP. The outline would include the milestones of a project, what the deliverables are, and where these deliverables should be stored and cataloged.

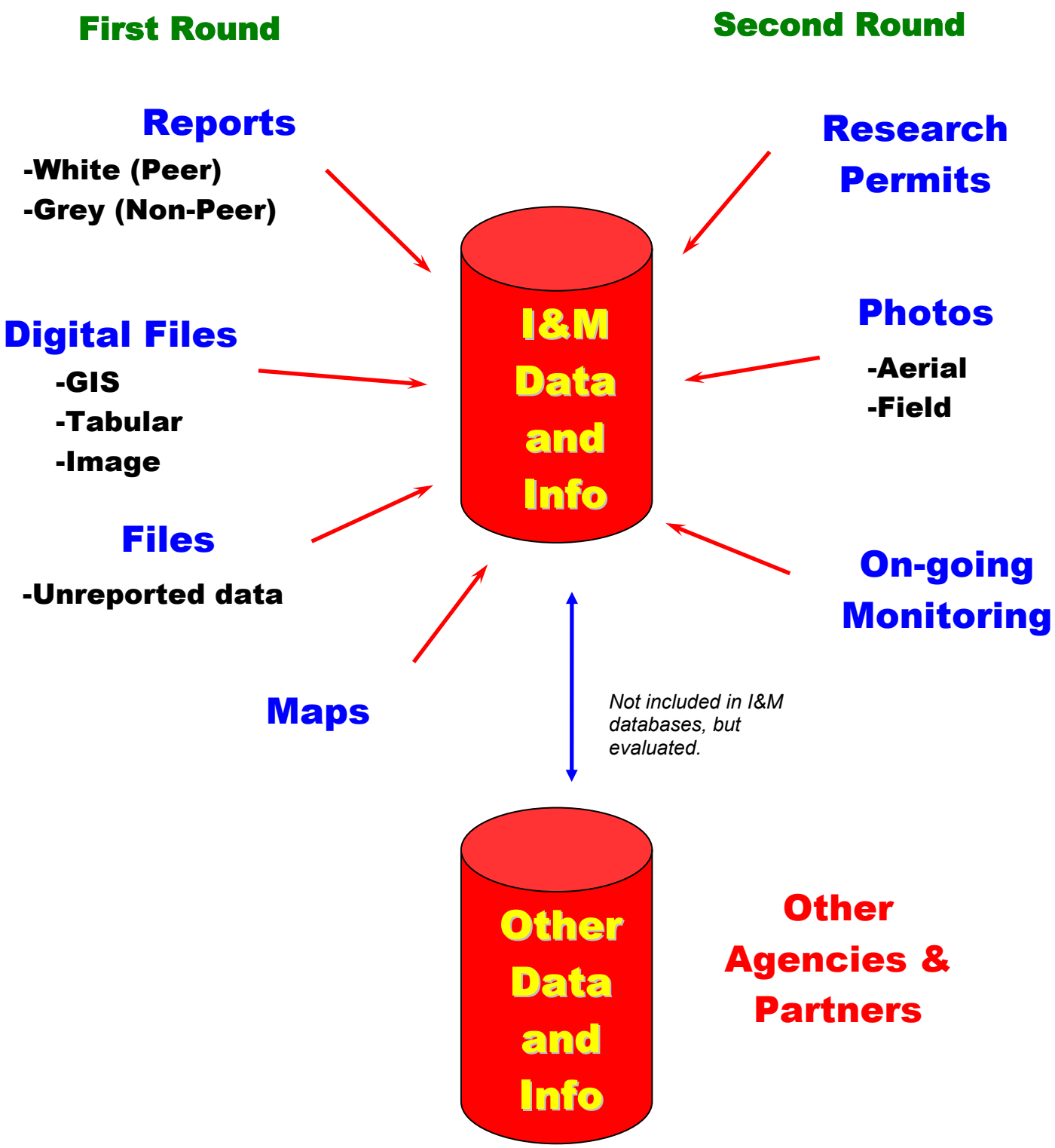
# DISCUSSION

## DATA FLOW:

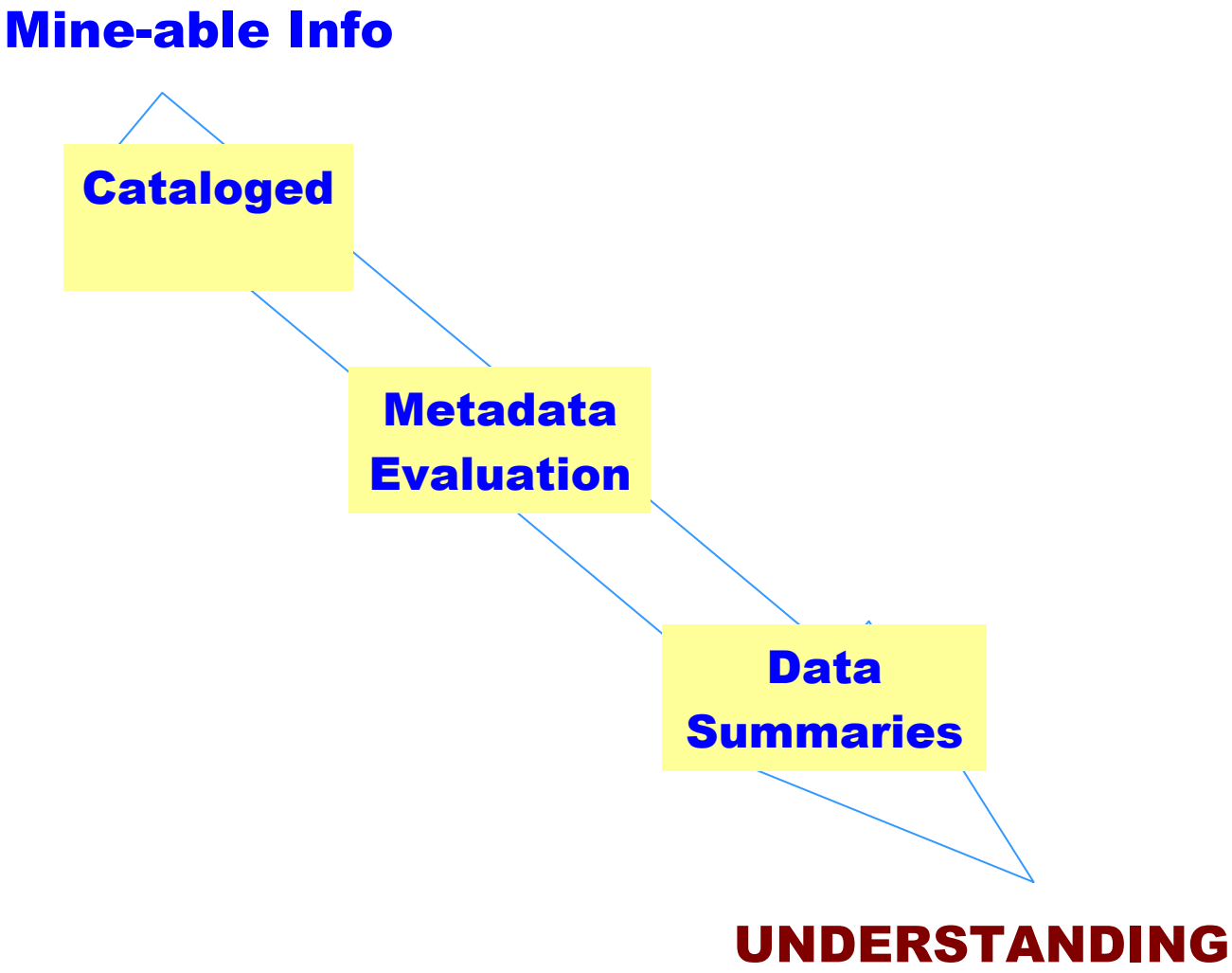
Note Phase II should be Stage I.
Needs to depict mechanism for review of scientific literature that could feed into data flow.
The monitoring program is the engine for data flow that should go thru tools developed for the monitoring program but applicable to park-based resource management work in general. This thing is bigger than just the monitoring program but it helps data managers and miners to have the focused goal of the monitoring program.



**MINABLE DATA:**



**DATA MINING PROCESS:**



# 1995 BIBLIOGRAPHIC DATA MINING EFFORTS
# From Nature Conservancy

**What was done:**

NRBIB was populated by AKNHP from June 2000-Sept. 2001. References included species lists, published and unpublished reports and documents, backcountry reports, inventory reports, original research reports, technical papers, investigator's annual reports, observation cards, and ranger reports.

Bibliographies searched included UA Consortium Library, ZJ Loussac Public Library, and ARLIS. Additional databases included AKNHP Biological and Conservation Database, UAA ENRI In-house NPS and PWS databases, and NRBIB, as it became available.

Park visits were carried out by searching libraries, archived material, bibliographies, and uncataloged gray literature. Additionally, available Park staff were interviewed. These Park databases were entered into NRBIB by AKNHP.

AKNHP added 634 new citations to NRBIB, and edited 583 records.

**What needs to be done:**
Review and evaluation of gray literature, memos, etc. for relevance

NatureBIB currently contains the following document types:

- Books
- Chapters or Sections (of book or report)
- Reports (Formal or Published)
- Reports (Informal or Unpublished)
- Journal Articles
- Maps
- Conference Proceedings
- Theses/Dissertations
- Letters/Correspondence
- Other
- Data Sets

# CENTRAL ALASKA NETWORK
# Data Mining Efforts

**Approach:**

Stage I

- Literature search – park and published
    - FOCUS ON BIOLOGY – NATURAL SCIENCES
    - FOCUS ON INFO NOT FOUND ELSEWHERE
    - White literature results for all network compiled into text file
    - WRST grey literature - existing effort
    - WRST park Procite database – evaluate and upload to NatureBib
    - DENA park Procite database – evaluate and upload to NatureBib
    - YUCH summer 2001 Procite database – upload to NatureBib
- Summarize park datasets/projects
    - IDENTIFY PROJECTS THAT HAD/HAVE A MONITORING COMPONENT
    - WRST park project datasets - existing effort
    - DENA Research Permit database/physical files – evaluate
    - YUCH summer 2001 dataset catalog – upload to Dataset Catalog

Stage II

- Literature/Datasets – other agencies and organizations
- Organize and submit local databases to Ft. Collins
- Map distribution of monitoring projects
- Identify cataloged datasets that merit conversion

Stage III

- Evaluate/convert selected mined data

**Previous Work:**

- AKNHP NPSpecies and NatureBib Populating
- YUCH Dataset Catalog and NatureBib Populating
- WRST existing effort to populate Dataset Catalog and NatureBib
- WASO efforts to populate NatureBib and NPSpecies

**Progress:**

- Over 700 citations found during white literature search are now being entered into NatureBib
- Grey Literature: YUCH – done, WRST – on-going, DENA – Procite
- ~330 Datasets for the network
    - DENA 76 (more to come)
    - YUCH 16
    - WRST 238 (7 identified as monitoring)

**To Do:**

- Investigate FirePro data
- Other agency grey literature and data
- Summarize monitoring data/projects
- Look into current NPSpecies records – Are all data we have captured?
- Other?

# ALASKA REGION
# Data Mining Efforts

**If you were to start a research project or review a research project, what would you want to be able to do (as a result of the data mining effort)?**

- One-stop-shopping search (ability to cross databases for a search)
- Directly link to documents
- Identify what is a selected bibliography for a particular subject (i.e., plant studies commonly refer to x, y, and z documents)
- Adequate keyword search – from a specific keyword list
- Confidence that if it exists, it is in one of these primary databases.
- Park specific bibliography – Content is verified to be within the park.
- Output: Annual report of new work.
- E-mail list of new publications
- Possibly a website to display "selected" bibliographies i.e., bird list, fish list, etc.

**What do we want to have done from here on out:**

- Needs to be discussed

**What should be done at the regional level?**

- Needs to be discussed

**Review of questions brought up in NatureBIB:**

(not discussed)

# ALASKA REGION
# Data Mining Archives

**What do we do with the records:**
Bibliography Records – If it is possible, the Alaska Region would like to use ARLIS has the housing of the bibliographic records. This will require further investigation with ARLIS. Ideally, we would like to have ARLIS take over data entry of formal and informal reports. These could possibly be "imported" into NatureBIB to build a comprehensive park database. What items can or cannot go into ARLIS has yet to be determined. Sara Wesser will look into finding an appropriate contact for working out the specifics.

[Editor's note] Sara Wesser and Dorothy Mortenson met with ARLIS to discuss the above option. It was determined ARLIS has different goals and objectives than NPS and would not include all of the information that needed to be included (i.e., ARLIS does not include journel arcticles). NPS will send three copies of final reports completed by or for NPS to ARLIS.

Metadata Records – should be stored in the same manner as we currently store metadata records. One in the directory of the data, one to the AGDC, and non to the NPS node.

**Hardcopy documents:**
- Example: Possibly scan and place on NPS Image Server
-

**Metadata:**
- not discussed

**Databases:**
- Question if datasets should be centralized.
- SWAN will (with the help of Parks and GIS) centralize data on the Park server as we go through the data mining process. Once the data is unraveled to determine what is the "final" dataset for documentation purposes, place that final dataset on the server. Monitoring will soon pick up and this opportunity may not come up again.
- CAKN may want to do a thorough cataloging that will help define further work regarding data and info handling. In some cases, it may be prudent to spend more time on one data set despite not having first taken note of all the datasets CAKN has.

## Messages to WASO

- Discussion of tools and software development
- Web improvement
- Communication to the data managers and to the field
- Training issues – are they enough, should they be more tailored to Data Managers
- Database Template – Where are we at on this
- Thesaurus in NatureBIB – status
- Role of the new position
  - Have a data management plan
  - Better documentation of the products we have
- Where to house FGDC metadata
  - Where is the "official" NPS clearinghouse node
  - Where to put metadata records that are not public (park specific) that will still allow for searching.

# Appendix B:
# Clearinghouse Background

National Park Service - Southwest Alaska Network
Inventory & Monitoring Program

# Background Information of Clearinghouses In Alaska

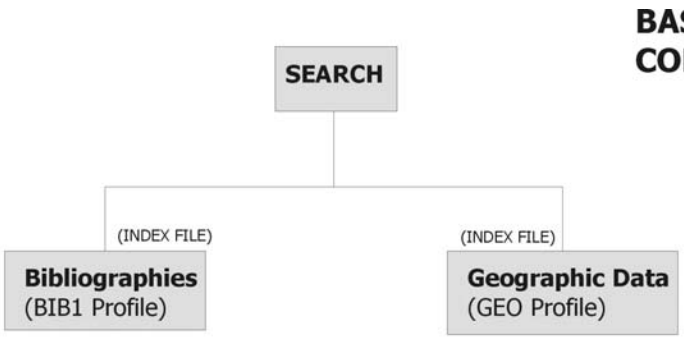
Dorothy C. Mortenson
Southwest Alaska Network
National Park Service
240 West 5th Avenue, #114
Anchorage, Alaska 99501

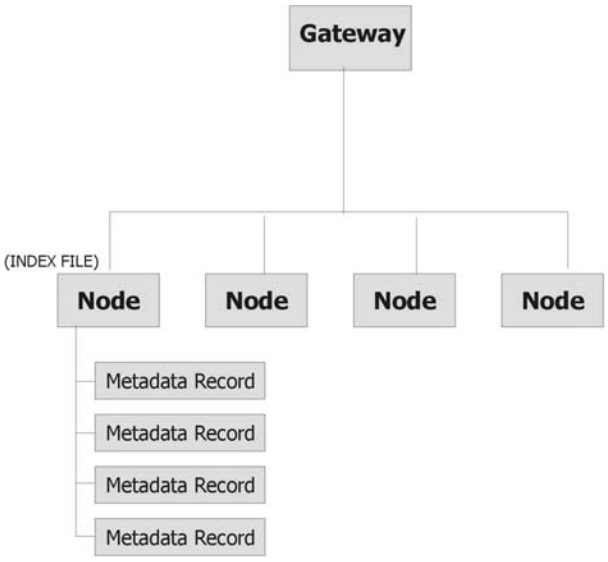
January 2003

Funding Source:
US National Park Service, Inventory & Monitoring Program

# Table of Contents

# OVERVIEW OF HOW DATA SEARCHES WORK



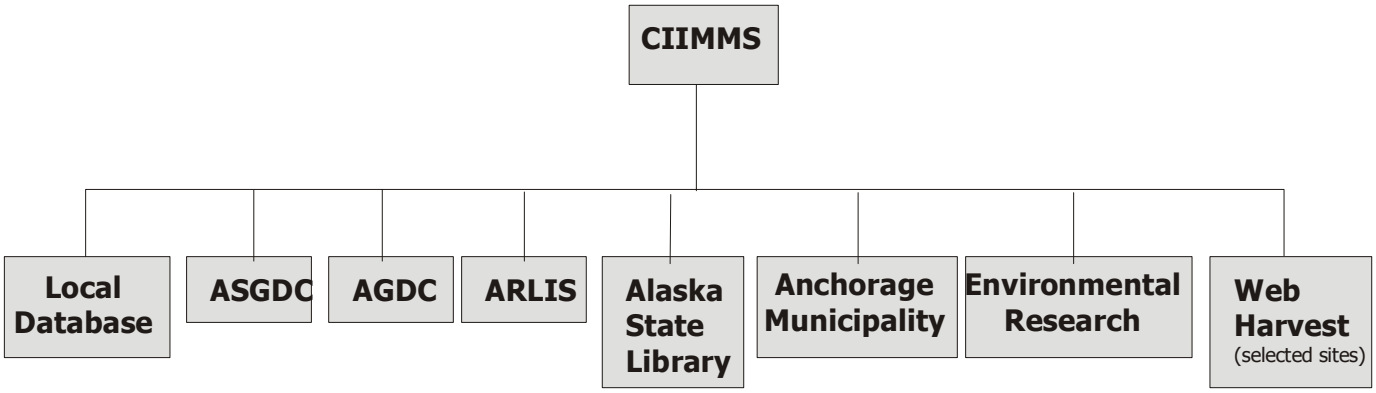



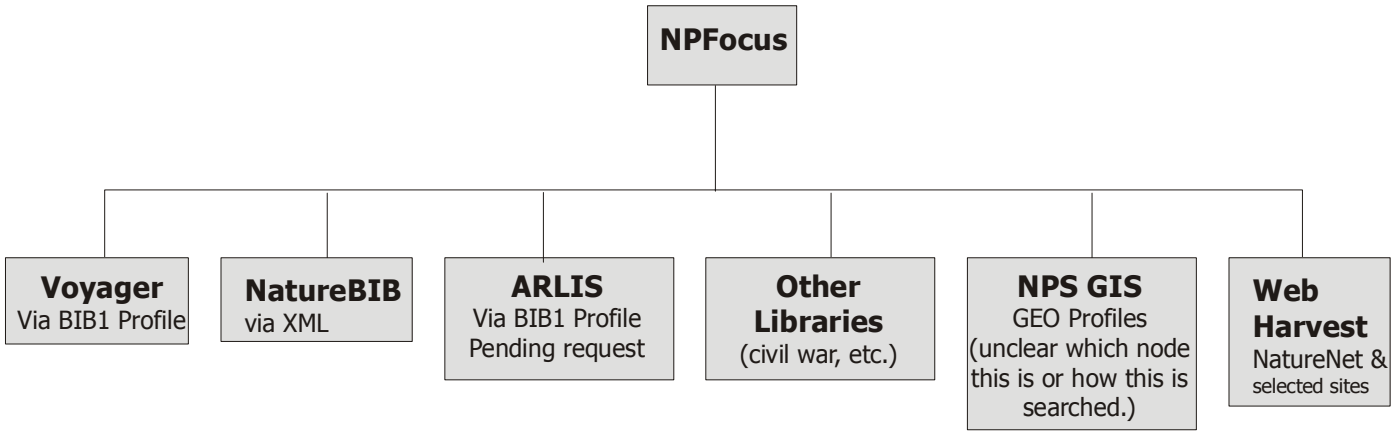

**Gateway:** One-Stop-Shopping
Search across databases
by reading the index files
Similar to google.com, but more intellegent
Needs to know the difference between
a BIB and a GEO profile
Example: NPFocus
CIIMMS
FGDC
AGDC (Gateway)

**Node:** Registered Specialty Stores
Registered Individual Databases
Designated as having a "BIB1" or a "GEO" Profile
Contains the index file as well as
the individual records
Example: Anchorage Municipality - GEO
ASGDC (state node) - GEO
AGDC (federal node) - GEO
ARLIS - BIB1
Voyager - BIB1

**Metadata:** Individual Record
Following content standards
FGDC content standard for data
Dublin Core content standard for bibliographies
Example: 1998 Forest Damage for Kenai Peninsula
The Alaska Vegetation Classification (Viereck)

# Examples


CIIMMS
Local Database
ASGDC
AGDC
ARLIS
Alaska State Library
Anchorage Municipality
Environmental Research
Web Harvest
(selected sites)


NPFocus
Voyager
Via BIB1 Profile
NatureBIB
via XML
ARLIS
Via BIB1 Profile
Pending request
Other Libraries
(civil war, etc.)
NPS GIS
GEO Profiles
(unclear which node this is or how this is searched.)
Web Harvest
NatureNet &
selected sites

## GATEWAYS

***How to search across Databases***

- **NPFocus**
- **CIIMMS**

# NPFocus:

### Website: http://focus.nps.gov/

**Description:**
This site is in development. It is intended to be a "one stop shopping" search tool across the National Park Service. It is being developed outside of I&M, but is working closely with I&M WASO staff.
Includes (among others):

- NatureBIB
- Dataset Catalog
- ParkNet Websites

Does not Include:

- ARLIS – but this has been requested
- AGDC/ASGDC – but may be able to get to these via FGDC
- CIIMMS – but this has been requested

**Advantages:**

- Searches many databases
- Uses "Blue Angel" technology and the current standards used by other agencies and organizations (FGDC, CIIMMS, Libraries, etc.)
- Possibly connected to the Image Server – a place we could store scanned documents.

**Disadvantages:**

- Not working yet. Date of availability has been moved many times.
- Cannot access NatureBIB yet (but working with I&M)
- First available to NPS, then may be made available to outside. (Karen was able to access the test page though. Yeah!)

**WASO Expectations:**

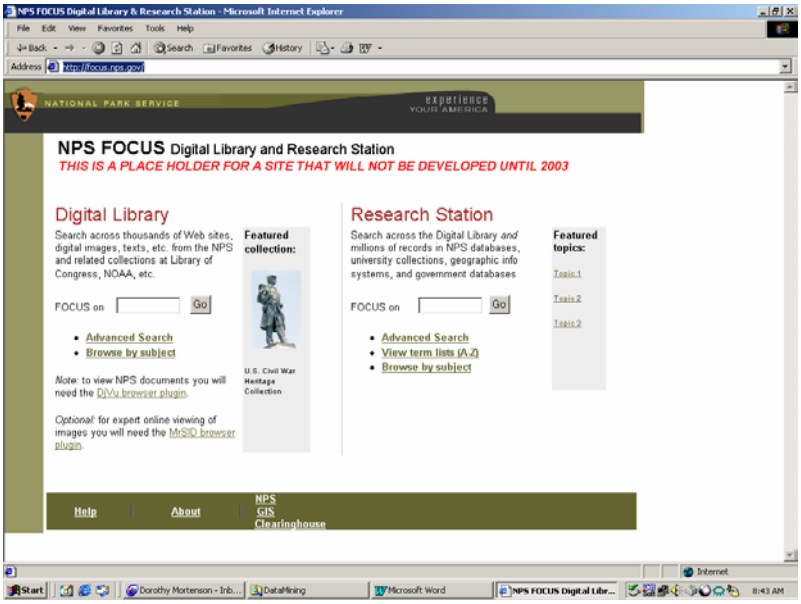
- 

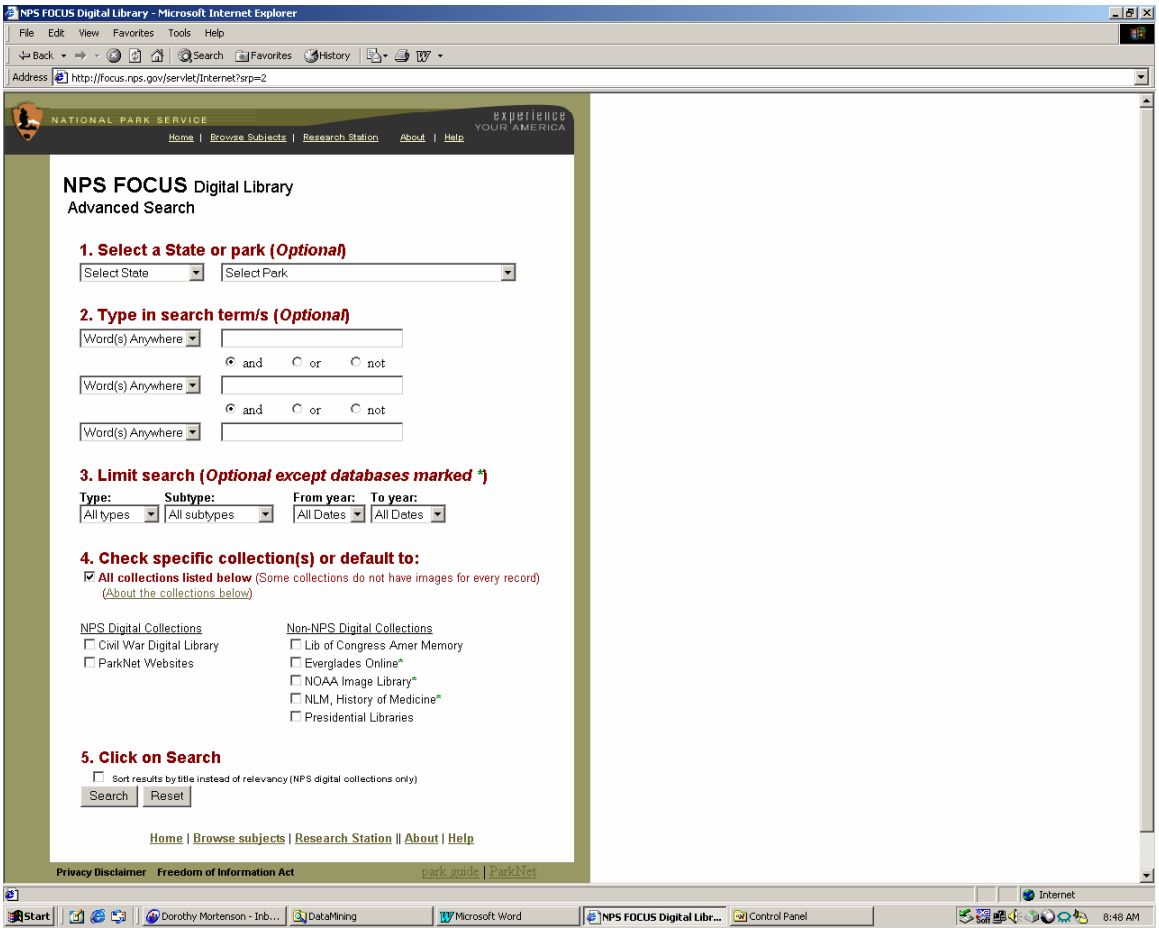
**Alaska NPS Expectations:**

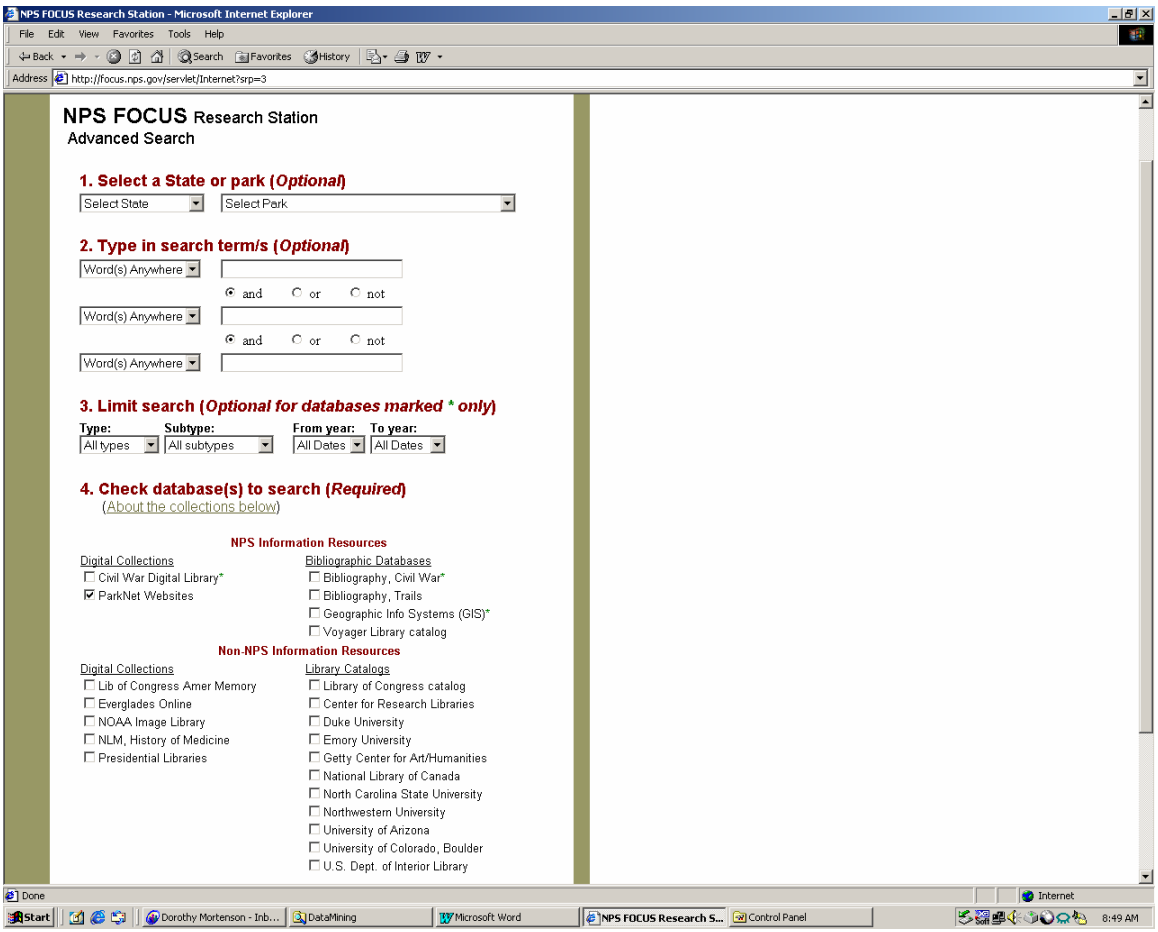
- 

**Questions/Comments:**

- 


NPS FOCUS Digital Library & Research Station - Microsoft Internet Explorer
NATIONAL PARK SERVICE
NPS FOCUS Digital Library and Research Station
THIS IS A PLACE HOLDER FOR A SITE THAT WILL NOT BE DEVELOPED UNTIL 2003
Digital Library
Search across thousands of Web sites, digital images, texts, etc. from the NPS and related collections at Library of Congress, NOAA, etc.
FOCUS on
Go
Advanced Search
Browse by subject
Note: to view NPS documents you will need the DjVu browser plugin.
Optional: for expert online viewing of images you will need the MrSID browser plugin.
Featured collection:
U.S. Civil War Heritage Collection
Research Station
Search across the Digital Library and millions of records in NPS databases, university collections, geographic info systems, and government databases
FOCUS on
Go
Advanced Search
View term lists (A-Z)
Browse by subject
Featured topics:
Topic 1
Topic 2
Topic 3
Help
About
NPS GIS Clearinghouse


NPS FOCUS Digital Library - Microsoft Internet Explorer
http://focus.nps.gov/servlet/Internet?srp=2
NATIONAL PARK SERVICE
Home | Browse Subjects | Research Station | About | Help
NPS FOCUS Digital Library
Advanced Search
1. Select a State or park (Optional)
Select State
Select Park
2. Type in search term/s (Optional)
Word(s) Anywhere
and or not
3. Limit search (Optional except databases marked *)
Type:
Subtype:
From year:
To year:
All types
All subtypes
All Dates
4. Check specific collection(s) or default to:
All collections listed below (Some collections do not have images for every record)
(About the collections below)
NPS Digital Collections
Civil War Digital Library
ParkNet Websites
Non-NPS Digital Collections
Lib of Congress Amer Memory
Everglades Online*
NOAA Image Library*
NLM, History of Medicine*
Presidential Libraries
5. Click on Search
Sort results by title instead of relevancy (NPS digital collections only)
Search
Reset
Home | Browse subjects | Research Station || About | Help
Privacy Disclaimer Freedom of Information Act
park guide | ParkNet


NPS FOCUS Research Station - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://focus.nps.gov/servlet/Internet?srp=3
NPS FOCUS Research Station
Advanced Search
1. Select a State or park (Optional)
Select State
Select Park
2. Type in search term/s (Optional)
Word(s) Anywhere
and or not
Word(s) Anywhere
and or not
Word(s) Anywhere
3. Limit search (Optional for databases marked * only)
Type:
All types
Subtype:
All subtypes
From year:
All Dates
To year:
All Dates
4. Check database(s) to search (Required)
(About the collections below)
NPS Information Resources
Digital Collections
Civil War Digital Library*
ParkNet Websites
Bibliographic Databases
Bibliography, Civil War*
Bibliography, Trails
Geographic Info Systems (GIS)*
Voyager Library catalog
Non-NPS Information Resources
Digital Collections
Lib of Congress Amer Memory
Everglades Online
NOAA Image Library
NLM, History of Medicine
Presidential Libraries
Library Catalogs
Library of Congress catalog
Center for Research Libraries
Duke University
Emory University
Getty Center for Art/Humanities
National Library of Canada
North Carolina State University
Northwestern University
University of Arizona
University of Colorado, Boulder
U.S. Dept. of Interior Library
Done
Internet
Start
Dorothy Mortenson - Inb...
DataMining
Microsoft Word
NPS FOCUS Research S...
Control Panel
8:49 AM

# CIIMMS:

**Website:** info.dec.state.ak.us/ciimms/

**Description:**
An Alaskan based search tool. Searches all significant "nodes" within Alaska.
Includes:
- CIIMMS Local Database (where folks add misc. metadata records)
- CIIMMS Project Database (DEC is required to document every project)
- ARLIS
- AK State Library
- ASGDC
- AGDC
- Municipality of Anchorage GIS
- Environmental Research (LTER & Ecosystem)
- CIIMMS Web Harvest (searches selected websites, such as agency websites)

Does not include:
- NatureBIB
- Dataset Catalog
- Any NPS specific databases

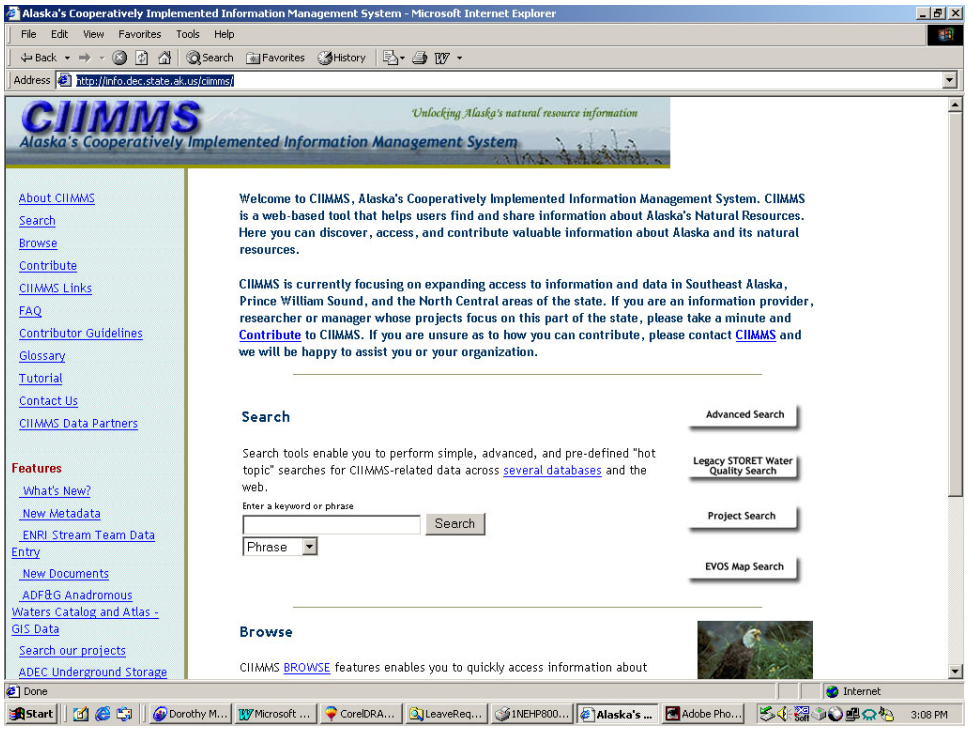
**Advantages:**
- Searches many databases
- Relatively fast
- Provides for various levels of records of completion
- Alaska oriented
- May be tying into water quality databases in the future

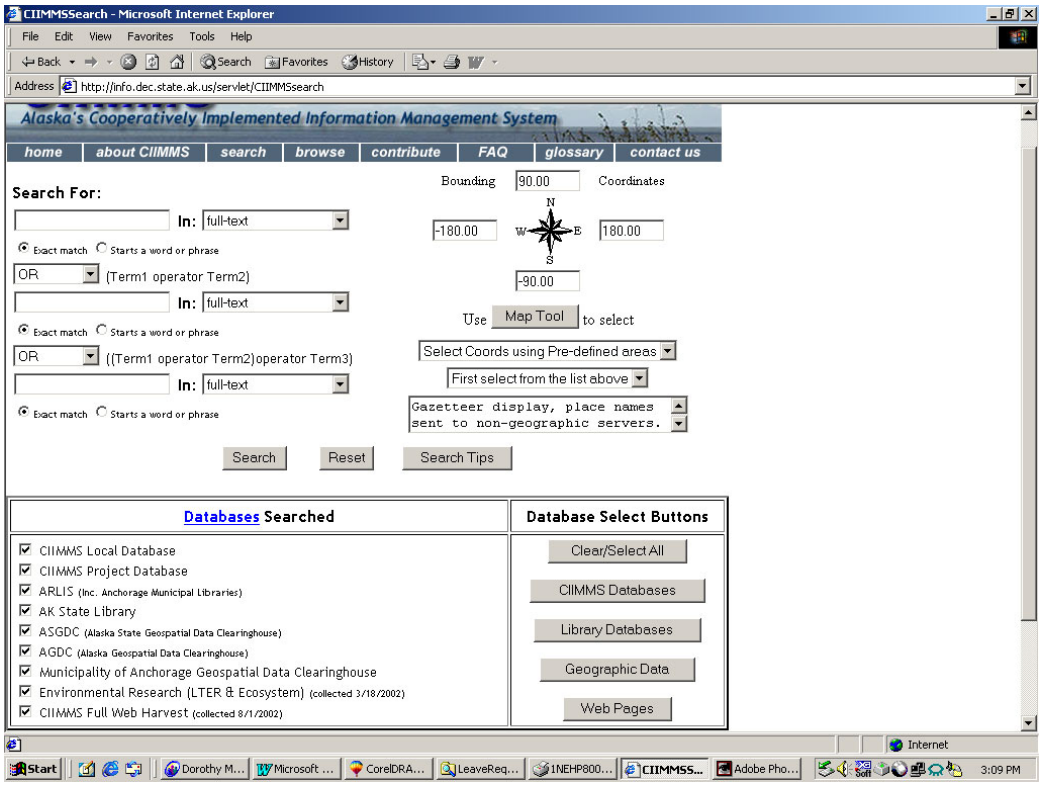
**Disadvantages:**
- Not able to search the NPS required databases

**WASO Expectations:**
- None

**Alaska NPS Expectations:**
- Would like to use the Agency Projects database (Minimum metadata oriented towards projects).
- Would like Alaska NPS metadata to be found using this tool

**Questions/Comments:**
-


Alaska's Cooperatively Implemented Information Management System - Microsoft Internet Explorer
http://info.dec.state.ak.us/ciimms/
CIIMMS
Unlocking Alaska's natural resource information
Alaska's Cooperatively Implemented Information Management System
About CIIMMS
Search
Browse
Contribute
CIIMMS Links
FAQ
Contributor Guidelines
Glossary
Tutorial
Contact Us
CIIMMS Data Partners
Features
What's New?
New Metadata
ENRI Stream Team Data Entry
New Documents
ADF&G Anadromous Waters Catalog and Atlas - GIS Data
Search our projects
ADEC Underground Storage
Welcome to CIIMMS, Alaska's Cooperatively Implemented Information Management System. CIIMMS is a web-based tool that helps users find and share information about Alaska's Natural Resources. Here you can discover, access, and contribute valuable information about Alaska and its natural resources.
CIIMMS is currently focusing on expanding access to information and data in Southeast Alaska, Prince William Sound, and the North Central areas of the state. If you are an information provider, researcher or manager whose projects focus on this part of the state, please take a minute and Contribute to CIIMMS. If you are unsure as to how you can contribute, please contact CIIMMS and we will be happy to assist you or your organization.
Search
Search tools enable you to perform simple, advanced, and pre-defined "hot topic" searches for CIIMMS-related data across several databases and the web.
Enter a keyword or phrase
Search
Phrase
Advanced Search
Legacy STORET Water Quality Search
Project Search
EVOS Map Search
Browse
CIIMMS BROWSE features enables you to quickly access information about


CIIMMSSearch - Microsoft Internet Explorer
http://info.dec.state.ak.us/servlet/CIIMMSsearch
Alaska's Cooperatively Implemented Information Management System
home
about CIIMMS
search
browse
contribute
FAQ
glossary
contact us
Search For:
In: full-text
Exact match
Starts a word or phrase
OR
(Term1 operator Term2)
((Term1 operator Term2)operator Term3)
Bounding Coordinates
90.00
-180.00
180.00
-90.00
Use Map Tool to select
Select Coords using Pre-defined areas
First select from the list above
Gazetteer display, place names sent to non-geographic servers.
Search
Reset
Search Tips
Databases Searched
CIIMMS Local Database
CIIMMS Project Database
ARLIS (Inc. Anchorage Municipal Libraries)
AK State Library
ASGDC (Alaska State Geospatial Data Clearinghouse)
AGDC (Alaska Geospatial Data Clearinghouse)
Municipality of Anchorage Geospatial Data Clearinghouse
Environmental Research (LTER & Ecosystem) (collected 3/18/2002)
CIIMMS Full Web Harvest (collected 8/1/2002)
Database Select Buttons
Clear/Select All
CIIMMS Databases
Library Databases
Geographic Data
Web Pages

## *BIBLIOGRAPHIES*
### *Where to put the Bibliographic Citations*

- ARLIS
- NatureBIB
- Voyager
- Procite

# ARLIS:

**Website:** www.arlis.org

**Description:**
[From mission statement] Alaska Resources Library and Information Services (ARLIS) provides universal access to natural and cultural resources information. The library staff and ARLIS's federal, state, university, and future partners recognize that improved understanding of Alaska's resources facilitates wise development, conservation and management. ARLIS serves the diverse information needs of its customers in an unbiased and effective manner.

ARLIS, Anchorage Municipal Libraries, and the University of Alaska Anchorage libraries share a joint library catalog.

The natural and cultural resources collection at ARLIS consists of:

- 150,000 books
- 700 journals
- Electronic databases
- Legal materials
- Federal and state documents
- Agency documents
- Maps and atlases
- Conference proceedings
- Masters theses and Ph.D. dissertations
- Videos, slides, and photos
- Furs, skulls, and bird mounts
- Environmental education materials

**Advantages:**

- Many researchers currently use it
- NPS helps pay for it
- It's accessible to everyone; most people are satisfied with it.
- It follows standards that can be used by other "gateways" (such as CIIMMS, other libraries, even NPFocus could tie to it directly).
- Will be expanding and gaining momentum/wider recognition and support

**Disadvantages:**

- It does not contain the Park Code
- It only contains public/ final documents
- Does not provide a catalog solution for the parks themselves to keep track of their own documents

- Is a complicated database. Exchange of data is between ARLIS and NPS is not likely.
- Requires a librarian to enter data.
- NPS does not have a direct representative at ARLIS like other federal agencies do.
- Turn around time can be slow
- Connection between ARLIS and NatureBIB is unlikely.

**WASO Expectations:**

- None at this time. Possible to get into NPFOCUS.

**Alaska NPS Expectations:**

- NPS staff sends three copies of documents to ARLIS to enter.

**Questions/Comments:**

# NatureBIB:

**Website:** https://science1.nature.nps.gov/naturebib/
Requires a login and password assigned by the database manager for the Network.
Username:
Password:
(Read only access)

**Description:**
This is the NPS bibliography database. It combined many other bibliographies, and will be used as one of the key databases for GPRA, NPSpecies, Water Resource bibliography, Permits, FirePro, and possible cultural resources. This is a REQUIRED database for the I&M Program. It is suppose to take over the use of ProCite. There is an on-line version available for internal use as well as an Access database. The on-line version should be made available to the public at an unspecified time. It may require editing all of the existing records to "flag" which are public and which are not.

The Access database is not quite as smooth as NPSpecies at this time. You may download the application, but you cannot download the data to go into it. This is done by special request and may take several months to receive. You cannot edit any records you add, such as a "junk" record you use to become familiar with the program. You cannot go back to a record you entered earlier to either correct a spelling or add more information. ALL EDITS MUST BE DONE ON-LINE.

**Advantages:**
- Is less formal than a library bibliography; does not require a librarian to complete
- Allows you to add the Park Code
- Allows you to add "less than public" documents
- Allows you to add local locations of the documents (park libraries)

**Disadvantages:**
- Is available for internal use only, though this is said to be changing.
- Does not follow any non-NPS standards (Such as MARC for libraries, etc.)
- Support is limited
- Software does not allow for edits (i.e., cannot delete junk or modify a partial record while in the Access database. Need to load on-line, then make edits there.)
- Turn around time for loading records from the Access database is slow (may take several months).
- Has several bugs, particularly with printing.
- Cannot store "marked" records
- "Topics" are illogical
- Can only pick one topic
- Need to assign to one specific bibliography (i.e., NRBIB, GRBIB) – results in duplicates and misrepresentation.

**Federal Expectations:**
- Unaware of any federal requirements

**WASO Expectations:**

- It is *required* and will be completed.
- Contains:
- Natural Resource documents that
  - Belong to NPS that
    - May be used as a reference, such as
      - Field notes with photographs annotated on the page
    - Or is considered a Record, such as
      - A document of NPS policies, activities, or other transactions

- Using citations from commercial databases
  Factual information may be used from commercial databases to enter into NatureBIB, but see below for instructions on using abstracts. If you are exporting the information to use in a local database please be sure not to copy the database structure from the commercial provider if they are using anything other than a standardized structure.

- Abstracts
  Abstracts should not be copied verbatim, but may be put into your own words. If an Abstract is copied verbatim please refer to the source in the abstract field.

- Citing the commercial database
  It is not necessary to cite the commercial database unless it is the sole source of the information. In the holding/location sections of NatureBIB it is okay to point the searcher to the commercial database.

**Alaska NPS Expectations:**

- Because of the limited editing capabilities within NatureBIB, the problems with the existing data within NatureBIB (duplicates, incomplete information, etc.), and the slow turn around time of uploading and downloading, the amount of effort it would take to create a reliable bibliography using NatureBIB outweigh it's advantages. These issues have been brought to the attention of WASO, but limited resources prevent a viable solution within the foreseeable future.
- Alaska will complete the NatureBIB database, but are less than hopeful this is an adequate solution. Researchers have indicated they will use ARLIS as their primary source for bibliographies.
- The SWAN parks are interested in using NatureBIB as their park cataloging database, but are disappointed in it's editing capabilities.

***Comments from the Field:***

*Wendy Bryden*
Nature Bib Data Entry Pros and Cons

These first comments all pertain to the Access version of NatureBib

- Need document form for newspaper article
- Journal Article form should have a block of Journal Title – so it is not forgotten.
- In the citation for a new report formal or published report There is a line that appears in the box Labeled Date of Copyright
- Access version – no way to delete records which are junk records
- No way to edit a record once it is entered (from form menu)

NatureBib Access version vs. on–line version

Access Version
- It's easier to see what you have already entered in this version – ie:keywords can easily be scrolled back through to see which ones you have already entered.
- You can add your own topic area versus using one of the listed ones.

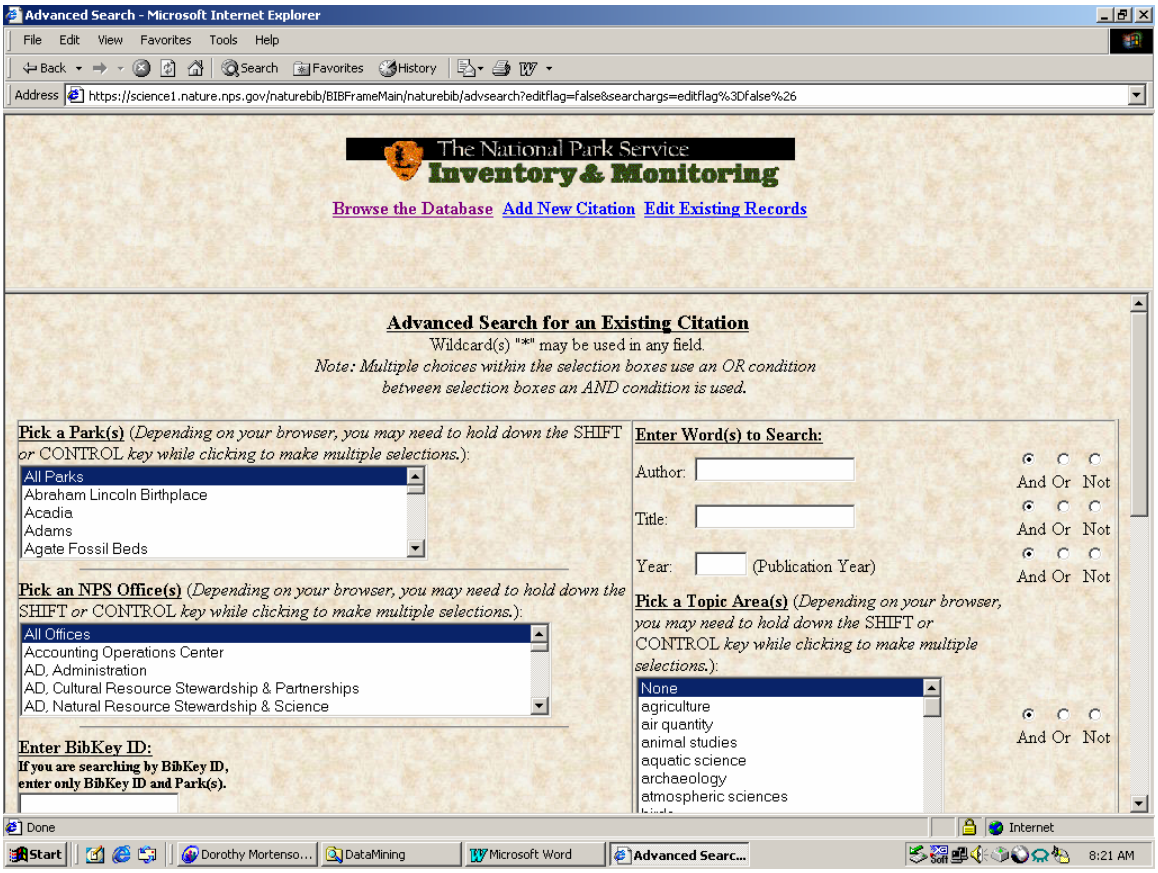
On-line Version
- The scroll down boxes are cumbersome
- Entering a document on line takes much longer
- SLOW!
- On-line version has better help – the directions about what to enter in each box are right there on the screen – this also makes it slower however
- Picking items out of pick lists takes longer

Structures are not parallel
On-line there is no place to add a call number – the library blocks contain
Storage location
Item location
Copy info

In Access version the location contains
Call number
Collection
Location

Both versions have the same New Citations Options except the online version has an option for data set entry.


NatureBib - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address https://science1.nature.nps.gov/naturebib/
The National Park Service
Inventory & Monitoring
Browse the Database Add New Citation Edit Existing Records
NatureBib
ParkNet
National Park Service
I&M Program
National Park Service
NatureNet
National Park Service
Internet
Start
Dorothy Mortenso...
Microsoft Word
accounts
NatureBib - Micr...
Microsoft Excel
3:52 PM


Advanced Search - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address https://science1.nature.nps.gov/naturebib/BIBFrameMain/naturebib/advsearch?editflag=false&searchargs=editflag%3Dfalse%26
The National Park Service
Inventory & Monitoring
Browse the Database Add New Citation Edit Existing Records
Advanced Search for an Existing Citation
Wildcard(s) "*" may be used in any field.
Note: Multiple choices within the selection boxes use an OR condition between selection boxes an AND condition is used.
Pick a Park(s) (Depending on your browser, you may need to hold down the SHIFT or CONTROL key while clicking to make multiple selections.):
All Parks
Abraham Lincoln Birthplace
Acadia
Adams
Agate Fossil Beds
Pick an NPS Office(s) (Depending on your browser, you may need to hold down the SHIFT or CONTROL key while clicking to make multiple selections.):
All Offices
Accounting Operations Center
AD, Administration
AD, Cultural Resource Stewardship & Partnerships
AD, Natural Resource Stewardship & Science
Enter BibKey ID:
If you are searching by BibKey ID, enter only BibKey ID and Park(s).
Enter Word(s) to Search:
Author:
Title:
Year: (Publication Year)
And Or Not
Pick a Topic Area(s) (Depending on your browser, you may need to hold down the SHIFT or CONTROL key while clicking to make multiple selections.):
None
agriculture
air quantity
animal studies
aquatic science
archaeology
atmospheric sciences
Done
Internet
Start
Dorothy Mortenso...
DataMining
Microsoft Word
Advanced Searc...
8:21 AM

# Voyager:

**Website:** http://www.library.nps.gov/
http://crm.cr.nps.gov/archive/21-6/21-6-11.pdf

**Description:**
NPS Voyager Library Catalog contains records contributed from:
- Alaska parks consortium catalog
- 77 park units
- 2 regional offices
- 3 service centers

The majority of the records are for published books and reports that may be found at other libraries in the United States. The primary purpose of NPS Voyager is to provide a ready and reliable finding aid to NPS library collections for park staff. However, NPS Voyager is useful to the public as a bibliographic reference tool in that it collects in one place many citations to materials about the parks. Ultimately, NPS Voyager will contain records for all of the 400+ NPS libraries.

Most NPS offices and parks staffed with professionally trained librarians are OCLC participants and are able to contribute records to NPS Voyager that are compliant with professional cataloging standards and USMARC format. The majority of the NPS libraries, however, are managed by staff with no professional library training and no budgets. These library collections are being cataloged using ProCite Bibliographic Software.

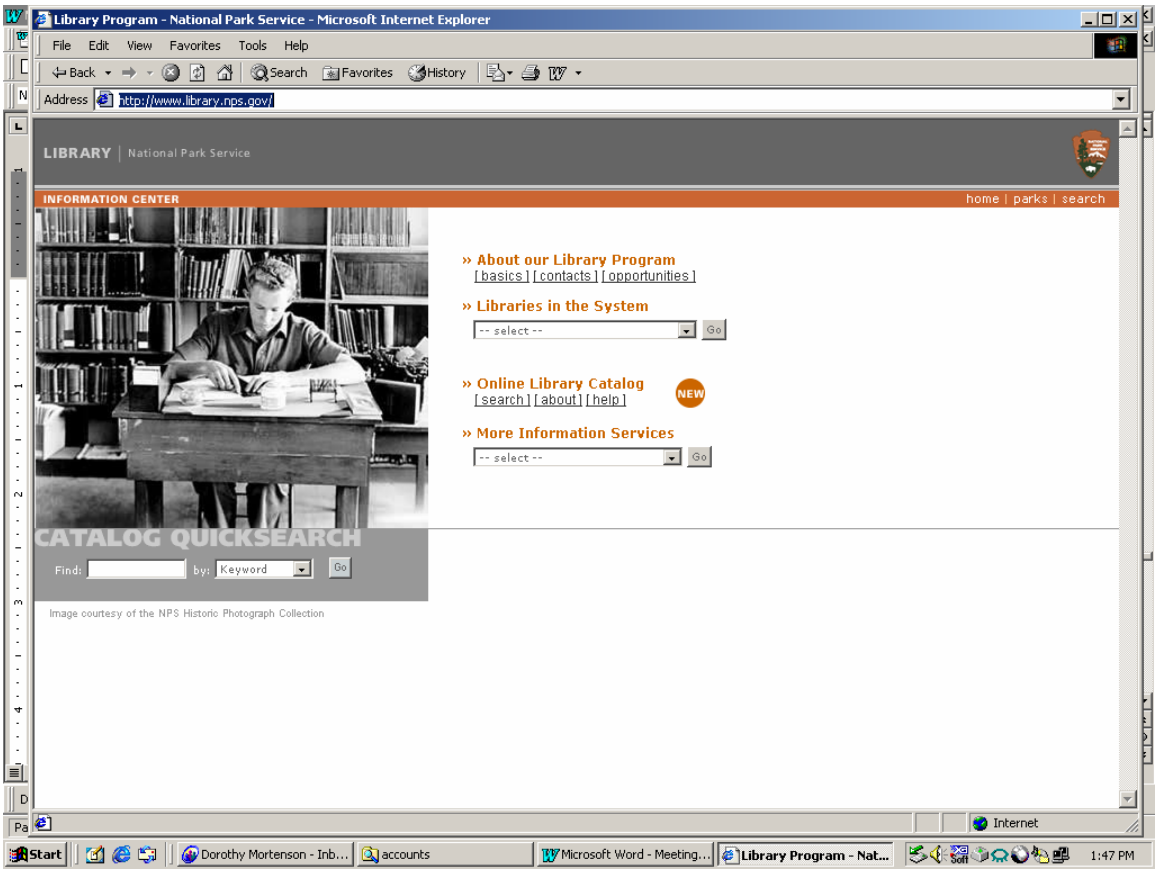
A policy and process for flagging the ProCite records in the NPS Voyager Library Catalog is being developed. In the meantime, outside organizations considering NPS Voyager as a source of copy cataloging are advised to proceed with caution.

**Advantages:**
- Currently in use
- Available to the public
- Can accept any MARC standard records
- Z39.50 information storage and retrieval protocol, which means if any search engine (CIIMMS, NPFOCUS) wants to add this to their list of databases, it can be easily added. This makes it even more "discoverable".

**Disadvantages:**
- Is primarily a catalog database, rather than a bibliography
- Will not meet the WASO I&M bibliographic data mining requirements.

**WASO Expectations:**
- NPFocus will use this as one of it's databases
-

**Alaska NPS Expectations:**
- Probably not well known


Library Program - National Park Service - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://www.library.nps.gov/
LIBRARY | National Park Service
INFORMATION CENTER
home | parks | search
» About our Library Program
[ basics ] [ contacts ] [ opportunities ]
» Libraries in the System
-- select --
Go
» Online Library Catalog
[ search ] [ about ] [ help ]
NEW
» More Information Services
-- select --
Go
CATALOG QUICKSEARCH
Find:
by: Keyword
Go
Image courtesy of the NPS Historic Photograph Collection
Internet
Start
Dorothy Mortenson - Inb...
accounts
Microsoft Word - Meeting...
Library Program - Nat...
1:47 PM

# ProCite:

**Website:** http://www.procite.com/
http://www.biblio-tech.com/html/pbm_features.html

**Description:**
Since the early 1990's, ITC has been providing ProCite Bibliographic Software to the field for library cataloging, collection management and bibliography maintenance applications. With Y2K funding, ITC was able to purchase 500 copies of Version 5.

Per Director's Special Directive 94-1, ProCite is the standard for NPS libraries, excepting those that are professionally staffed and use a fully MARC-compliant COTS software, or those who receive cataloging support from regional library programs via the fully MARC-compliant ALICAT program, developed in-house.

ProCite version 5 comes with an exciting new "Internet Search" utility enabling the user to locate and download records matching the user's library titles from over a hundred library catalogs on the Web. With this enhancement, parks may obtain free, professional catalog records for their published books in a matter of minutes per title.

Additional ProCite support provided to the field includes:
- a library labels program developed inhouse
- guidelines for selected NPS-specific ProCite routines to supplement the vendor manual
- occasional training sessions to supplement the tutorial shipped with ProCite
- data conversion (from legacy systems)
- telephone assistance

Centralized, wide access to merged NPS ProCite and MARC library records is provided via NPS Voyager (aka "NPS Combined Library Catalog on the Web"). ProCite records are mapped and imported to NPS Voyager by the NPS Voyager System Administrator. Scheduling of import batches is determined jointly by the NPS Library Program Manager and the NPS Voyager System Administrator.

**Advantages:**
- Currently used in the Parks
- Ability to groups references and create subject bibliographies
- There is a mechanism in place to move Procite records into Voyager.
- Allows the user to easily import a bibliography from the web (i.e., look up in ARLIS and import)
- Compared to other off-the-shelf products, it scores pretty well.

**Disadvantages:**
- Will not be supported by WASO I&M Program after January 1, 2003.
- Will not meet the WASO I&M Program bibliographic data mining requirements.
- Strips any MARC tags that may be added
- Difficult for NPS to support
- Does not include Park Code (though it could)

**WASO Expectations:**

- NatureBIB is suppose to take over ProCite.

**Alaska NPS Expectations:**

- NatureBIB could take over ProCite, but NatureBIB should be a stand-alone, working database. WASO has indicated this is not likely.

## DATA DOCUMENTAITON

***Where to put the documentation about the data***

- Dataset Catalog
- FGDC Content Standard Metadata

# Dataset Catalog:

**Website:** www1.nature.nps.gov/im/apps/datacat/index.htm (but not the site you search on)
*Question: How do you actually search the dataset catalog on the web?*

**Description:**
The Dataset Catalog is a tool for keeping an inventory and providing abbreviated metadata "metadata lite" about a variety of natural resource data sets, from physical files and photographs to digital scientific and spatial data. The federal government requires that spatial data have fully FGDC-compliant metadata, but for non-spatial data the Dataset Catalog provides a means for parks to keep an inventory of various data files, notebooks of field data forms, photographs, etc. The one-page input and report forms provide a straightforward way to document all types of resource data that may or may not meet formal metadata standards. As with other NRPC applications, the master version of the Dataset Catalog will be available through a website and will be linked to NPSpecies (the NPS Species database) and NPBib (the bibliographic database). It will also be possible to download a version in MS Access from the website.

The purpose of the Dataset Catalog is to provide a single source for information about existing data on parks' natural and cultural resources and to combine the individual databases into a Servicewide catalog of park-based data. The original goal for catalog records consisted of a single page per data set. The current version of the Dataset Catalog consists of a relational database that can be shared among NPS units and included in the Servicewide system on the Internet. The catalog is not intended to be an exhaustive metadata listing but a basis for implementing comprehensive metadata standards later on. Action is currently underway to integrate the Dataset Catalog with the FGDC metadata standard.

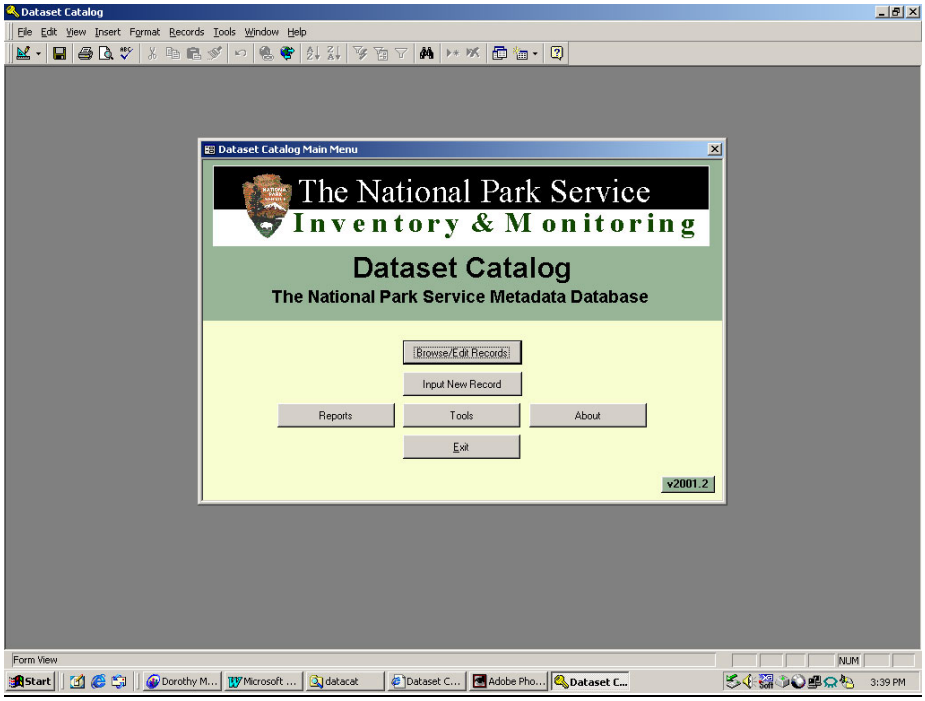
**Advantages:**
- It was created when metadata was not getting done because of the difficulty in learning the standards. This was an attempt to make it easier on the end use.
- Is able to import information from an Access (relational) database – unique in that other metadata tools do not do this.
- Can tie to bibliography database (maintenance may be questionable however)

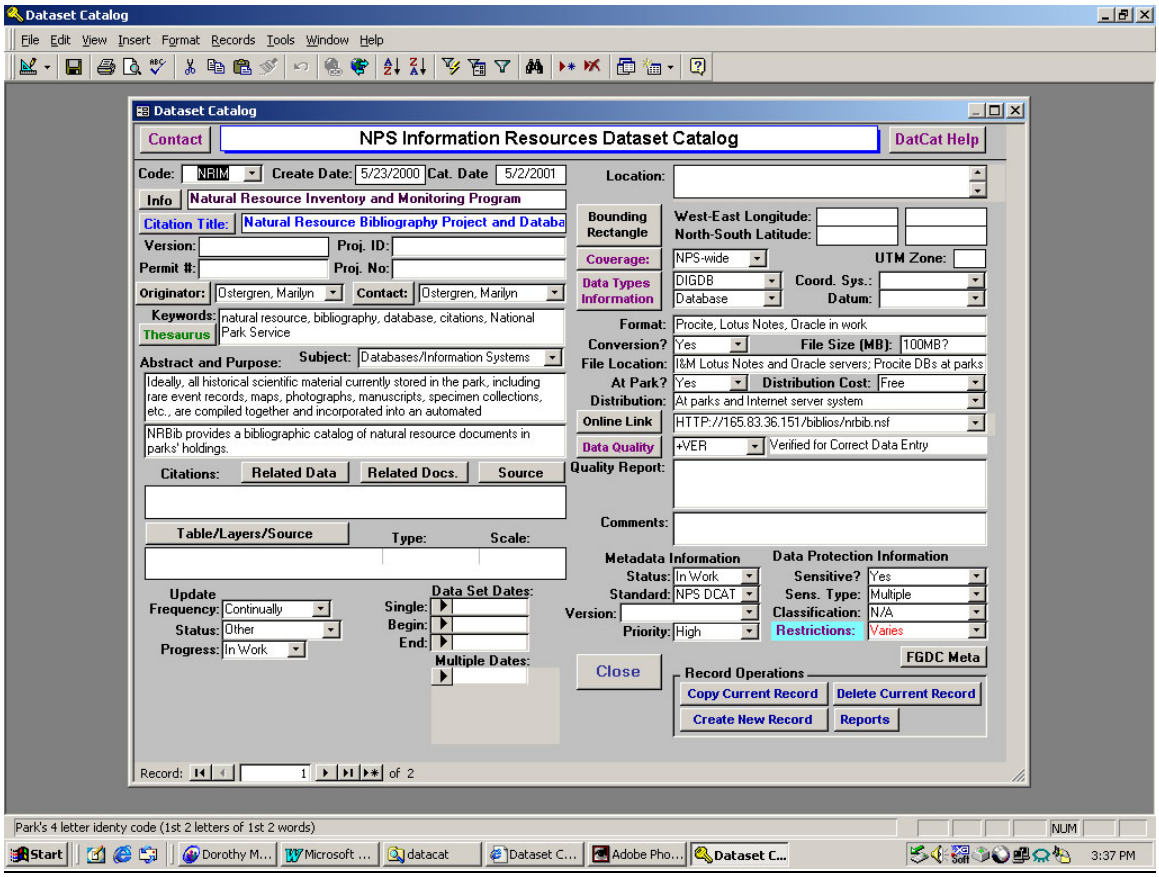
**Disadvantages:**
- Not really FGDC compliant.
- The database design is only partially reflective of the FGDC standards. This makes it difficult to expand on the capabilities of Dataset Catalog. Not really a problem, but a missed opportunity for others to use this as a foundation.
- Import and export is less than straight forward.
- Not the easiest interface to understand.

**WASO Expectations:**
- Complete metadata records for your data. If you have no other tool to use, use the Dataset Catalog

**Alaska NPS Expectations:**

- Complete FGDC content standard metadata (minimum required during data mining efforts).




Dataset Catalog
File Edit View Insert Format Records Tools Window Help
Dataset Catalog
Contact
NPS Information Resources Dataset Catalog
DatCat Help
Code: NRIM
Create Date: 5/23/2000
Cat. Date 5/2/2001
Info
Natural Resource Inventory and Monitoring Program
Citation Title:
Natural Resource Bibliography Project and Databa
Version:
Proj. ID:
Permit #:
Proj. No:
Originator: Ostergren, Marilyn
Contact: Ostergren, Marilyn
Keywords:
Thesaurus
natural resource, bibliography, database, citations, National Park Service
Abstract and Purpose:
Subject: Databases/Information Systems
Ideally, all historical scientific material currently stored in the park, including rare event records, maps, photographs, manuscripts, specimen collections, etc., are compiled together and incorporated into an automated
NRBib provides a bibliographic catalog of natural resource documents in parks' holdings.
Citations:
Related Data
Related Docs.
Source
Table/Layers/Source
Type:
Scale:
Update Frequency: Continually
Status: Other
Progress: In Work
Data Set Dates:
Single:
Begin:
End:
Multiple Dates:
Location:
Bounding Rectangle
West-East Longitude:
North-South Latitude:
Coverage: NPS-wide
UTM Zone:
Data Types Information: DIGDB, Database
Coord. Sys.:
Datum:
Format: Procite, Lotus Notes, Oracle in work
Conversion? Yes
File Size (MB): 100MB?
File Location: I&M Lotus Notes and Oracle servers; Procite DBs at parks
At Park? Yes
Distribution Cost: Free
Distribution: At parks and Internet server system
Online Link: HTTP://165.83.36.151/biblios/nrbib.nsf
Data Quality: +VER
Verified for Correct Data Entry
Quality Report:
Comments:
Metadata Information
Status: In Work
Standard: NPS DCAT
Version:
Priority: High
Data Protection Information
Sensitive? Yes
Sens. Type: Multiple
Classification: N/A
Restrictions: Varies
FGDC Meta
Close
Record Operations
Copy Current Record
Delete Current Record
Create New Record
Reports
Record: 1 of 2
Park's 4 letter identy code (1st 2 letters of 1st 2 words)
NUM
Start
Dorothy M...
Microsoft ...
datacat
Dataset C...
Adobe Pho...
Dataset C...
3:37 PM

# FGDC Content Standard Metadata:

**Websites:** www.fgdc.gov/
agdc.usgs.gov

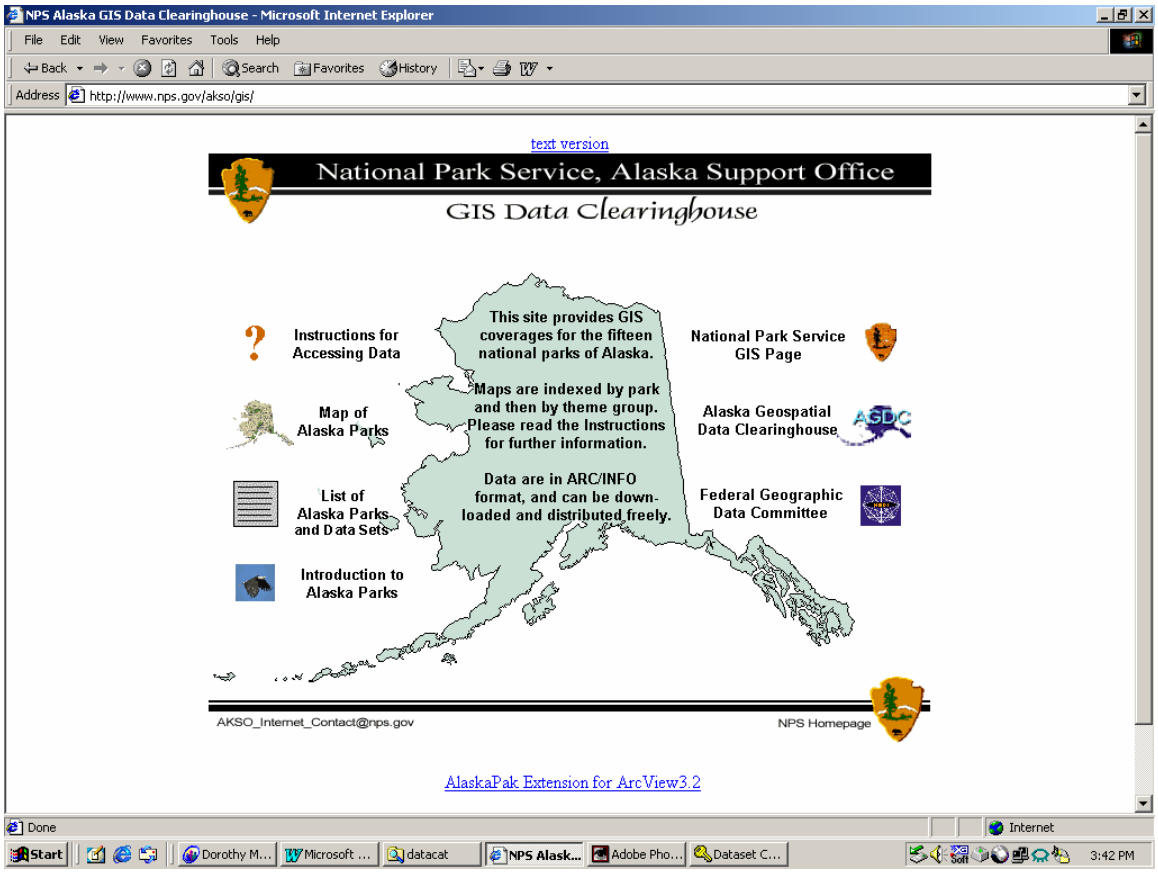
**Description:**
The primary goals of the NSDI Content Standards for Geospatial Metadata (loosely called FGDC metadata) are to a) make data discoverable, and b) provide enough information for another user to make a decision on the appropriate use of it. The FGDC content standards for geospatial metadata were developed from the Executive Order 12906, which requires Federal agencies to use this standard to document data that they produce beginning in 1995. Executive Order also requires Federal agencies to look on the Clearinghouse for existing data before projects are started.

**Advantages:**
- The standards, much like the MARC standards, are used widely throughout the country, even internationally. This allows a variety of clearinghouse gateways (the means for searching) to readily access the document
- Once the standard is understood by the user, the user will be able to quickly read the documentation to get what he/she is looking for. In other words, the user only has to learn one system that will work no matter who did the documentation.
- Ensures the necessary information is complete.

**Disadvantages:**
- Designed for geospatial/single datasets. Difficult to document relational databases using the full FGDC content standard. Ideal to use the minimum standard to make the database discoverable, then rely on other means (CASE tool, Access documenter, or Word documents) for a more complete documentation.

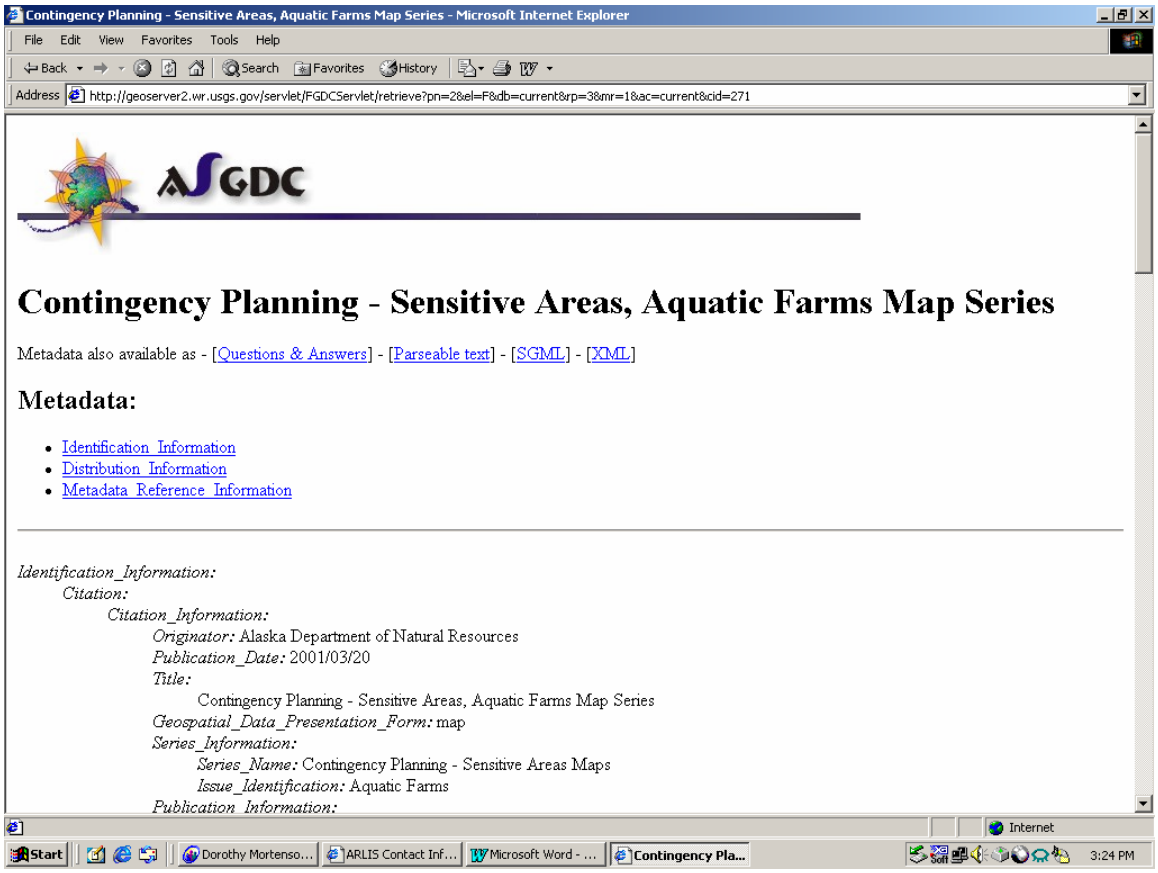
**WASO Expectations:**
- FGDC metadata will be served using the Blue Angel clearinghouse, once it becomes available.

**Alaska NPS Expectations:**
- During the data mining efforts, complete the minimum FGDC required fields for datasets.
- When metadata is completed, metadata should be stored in the same directory as the database. Metadata records should be copied and stored in central metadata storage for upload to a clearinghouse node.


NPS Alaska GIS Data Clearinghouse - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://www.nps.gov/akso/gis/
text version
National Park Service, Alaska Support Office
GIS Data Clearinghouse
Instructions for Accessing Data
Map of Alaska Parks
List of Alaska Parks and Data Sets
Introduction to Alaska Parks
This site provides GIS coverages for the fifteen national parks of Alaska.
Maps are indexed by park and then by theme group. Please read the Instructions for further information.
Data are in ARC/INFO format, and can be down-loaded and distributed freely.
National Park Service GIS Page
Alaska Geospatial Data Clearinghouse
Federal Geographic Data Committee
AKSO_Internet_Contact@nps.gov
NPS Homepage
AlaskaPak Extension for ArcView3.2
Done
Internet
Start
Dorothy M...
Microsoft ...
datacat
NPS Alask...
Adobe Pho...
Dataset C...
3:42 PM


Brooks Camp Bear Trails (br_bear) - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://www.nps.gov/akso/gis/metadata/br_bear.html
National Park Service, Alaska Support Office
GIS Data Clearinghouse
Brooks Camp Bear Trails (br_bear)
Metadata also available as - [Questions & Answers] - [Parseable text] - [SGML] - [XML]
Metadata:
Identification_Information
Data_Quality_Information
Spatial_Data_Organization_Information
Spatial_Reference_Information
Entity_and_Attribute_Information
Distribution_Information
Metadata_Reference_Information
Identification_Information:
Citation:
Citation_Information:
Originator: National Park Service, Alaska Support Office
Publication_Date: 19981201
Title: Brooks Camp Bear Trails (br_bear)
Geospatial_Data_Presentation_Form: Map
Publication_Information:
Publication_Place: Anchorage, Alaska
Done
Internet
Start
Dorothy Mortenso...
Microsoft Word
datacat
Brooks Camp Be...
3:44 PM

## Example of Minimum Metadata Record:



## DATA LOCATION

***Where to put the actual data and reports***

- ARLIS
- PARK Libraries
- NPS Image Server
- PDS – Permanent Data Storage

Now that you have found what you are looking for, how do you get it?
This is a subject for another day. In both the Bibliography and the Metadata, a location will be specified. Food for thought on this are listed here.

- Important/significant documents (not books) to be scanned and placed into the NPS Image Server
- Important data should be moved to a park-level permanent data storage or to the Alaska-Regional level permanent data storage (the X drive). This is not the within the scope of the I&M data mining. However, if park staff and GIS liaisons are available to make data clean-up efforts, the database manager may be able to assist.

# Appendix C:
# Data Mining Guidelines for the Database Manager

# I&M Data Mining Guidelines

*Version 1*
*September 2002*

Current Editor: Brent Frakes, Heartland Network

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# DATA MINING

## 1 Introduction

This goal of this document is to serve as a guide to I&M Data Managers for data mining within our respective networks. Without a clear understanding of some of the considerations and pitfalls associated with this task, we run the risk of duplicating efforts and wasting valuable time. It should be noted that this is merely a guide. Because each of our networks are different and we each have different strengths and weakness, there is no one way of initiating data mining. It is likely that only 10% of what is written here will pertain to you – please help me fill in the remaining 90%.

Data mining is defined as the collection, analysis, and organization of natural resource information. (This definition requires clarification!)

This document grew out of work initiated by Brent Frakes, Data Manager for the Heartland Network, in the late spring and early summer of 2002.

I&M data mining can be divided into a number of related tasks. These tasks include (1) Consideration of the types of information to be mined; (2) evaluation of the servicewide databases; (3) discussion with the parks concerning the state of these databases; (4) development of a plan for data mining; and (5) oversight/initiation of the data mining.

## 2 Types of Information Mined

There are countless types of information that the data miner will encounter. Sometimes this information is bound on a shelf while other information may be hidden away in a file cabinet. Some information may be of obvious importance, while other information may have dubious value. Knowing the types of information one will be dealing with helps to know what skills are needed and also what servicewide databases the information will be recorded in.

Four types of information important for monitoring that are found in the databases include spatial, tabular, bibliographic, and miscellaneous. Each is different in nature and also requires a different set of skills for effective interpretation and cataloging.

### 2.1 Spatial

Spatial information is anything related to maps, photos, GIS shapefiles and/or coverages, or GPS files. Cataloging, interpreting, and organizing this information requires experience in GIS, GPS, remote sensing and airphoto interpretation, geography, and/or cartography. I have not gotten to any of the GIS data yet – I think anything that has been incorporated into the park themes already has good metadata. I suspect most of this is okay at KEFJ

### 2.2 Tabular

Tabular information pertains to any type of table, database or collection of hardcopy forms. In some cases, this tabular information may accompany a report, while in other cases it may be stand-alone. Cataloging and management of tabular information requires proficiency in database design and biology (for interpretation). There is probably some of this on the RM Server which will need metadata created with SMMS. (I will be looking at the server very soon.)

### 2.3 Official/Unofficial Reports

The third type of information is bibliographic. Anything that is a full report, either published or unpublished, and is suitable to serve as a professional reference would be considered a bibliographic reference. Evaluation of bibliographic information requires a proficiency in biology. (I think most reports are cataloged – anything already in the archives, park library and RM files should be in Procite or Naturebib.) We still need to get everyone to go through the piles around their desks and there personal files drawers but otherwise most of this stuff should be identified.

### 2.4 Miscellaneous Notes and Memos

A fourth type of information are miscellaneous memos, letters, or notes. These collections of information may help inform any of the previous types of information or may be important for their own merit. Skills and experience required to interpret miscellaneous information include a broad understanding of park's history (e.g., why the notes even exist) and the ability to discern what is important from what is g. I

**Deleted:** arbage

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Have found this sort of stuff in the RM files as well and should be cataloged if important

# 3 NPS Servicewide Databases

All parks have information that may contribute to the development of the monitoring plan. In some cases, parks funded inventories or tracked particular species through time. Some parks have old photographs and maps that show the state of the natural resources at one point in time and indirectly help to track natural resources through time.

To track information related to natural resources, the NPS has initiated a number of servicewide databases and clearinghouses. Official databases pertinent to the I&M program include Natural Resources Bibliography (NRBib), Dataset Catalog, and NPSpecies. In addition, the Geographic Information System (GIS) Clearinghouse, although not considered a distinct servicewide database, functions as a fourth important source of natural resource information.

## *3.1 NR Bib*

NRBib is the master web-based database for scientific citations presented as bibliographic references. NRBib merges a number of previously separate databases dealing with natural resource related topics including air, deer, geology and paleontology. A majority of the citations found in NRBib originated in 1995 from the Natural Resource Bibliography Project, a program with the goal of locating all information about each park. Since 1995, each park has been responsible for updating and maintaining NRBib. In some cases, however, prototype programs (e.g., The Prairie Cluster LTEM) may have updated NRBib for the parks.

## *3.2 Dataset Catalog*

Dataset Catalog (DSCAT) is another database for tracking spatial and tabular information. DSCAT not only serves as a general bibliographic tools, but also provides basic, or light, metadata. Metadata refers to why, what, when, where and how the information was generated. DSCAT has citations for a variety of natural resource data sets, ranging from physical files and photographs to digital scientific and spatial data. The NPS has only recently introduced DSCAT (~2000) and is still in the beta phase for maintaining this system online.

## *3.3 NP Species*

## *3.4 GIS Clearinghouse*

The GIS Clearinghouse is a NPS web site (http://www.nps.gov/gis/) dedicated to distributing geospatial data. It houses ArcInfo coverages and shapefiles for each park, along with FGDC compliant metadata. Because the GIS clearinghouse contains metadata, it is similar in form to the DSCAT except for (1) the metadata is FGDC compliant, meaning that it contains all required metadata; and (2) the data is available directly online.

## *3.5 Others*

While the I&M program has focused on and promotes the previous databases, data managers should be aware of other tools frequently used by the parks to manage information and data.

### 3.5.1 ANCS+

### 3.5.2 Procite

## *3.6 General Considerations*

Data mangers can expect the servicewide databases to be in various states of organization, depending on the parks. For instance, within the Heartland Network, parks were given a list of references for NRBib and DSCAT and estimated that they ranged in the level of completeness from 25-90%, depending on the park. I think the Bibliography list at KEFJ is fairly complete for park resouces – I have not been entering stuff that is not KEFJ specific but is NPS specific.

The difference in the maintenance and overall completeness of the databases is attributed to a number of factors. Some parks lack the personnel to organize and maintain the information. In addition, some parks do not have natural resource management as their primary goal, and therefore have not dedicated as much attention to that task. Finally, some parks are relatively new or have recently expanded and have not had the opportunity to participate in cataloging efforts. KEFJ has a resonably usable system which

All rm files paper files are organized under and all files on RM server are organized under. (It is not based on NPS filing structure but it works fairly well for RM needs.)

# 4 Assessment of Previous Work

Once the data manager knows the types of information that may be mined and how they relate to the servicewide datasets, the next step is to get an idea of the state of the databases. General recommendations include:

1. Create a list of all datasets from NRBib, DSCAT, and GIS clearinghouse for each park;
2. Visit each park with the list and ask various natural resource personnel to estimate the completeness of the datasets;
3. Create a table showing the relate completeness of each dataset to get an idea of the time involved in further data mining

# 5 Initiating Data Mining

Based on the estimated completeness of the datasets, it is likely that data mining will occur at most, if not all, of your parks. There were a number of constraints and considerations you should evaluate before initiating data mining. A coherent, yet flexible plan is critical before initiating the task.

## *5.1 Cost*

Data mining can be extremely costly and it is therefore critical to allocate a specific amount of time/money to complete the task. It should be determined in advance how much time and/or money will be allocated for such a task. One suggestion is to ask each park how much time it would take to bring the servicewide databases up to date. However, you should be aware that data mining a potentially an endless task and there is a point where the costs outweigh the overall benefits.

## *5.2 Deadlines of the I&M program*

Be aware of the deadlines imposed by the I&M program. Phase I, for instance, requires that all pertinent databases be evaluated prior to the selection of indicators/vital signs in Phase II.

The Heartland Network is approaching this a little differently. For Phase I, the focus was on organization and recording the information in NRBib. During Phase II, selected datasets and other reports were analyzed concurrent with the selection of indicators.

## *5.3 Expertise of Data Miner*

The quality of the mined data will depends on the expertise of the person interpreting and registering the information. As the data manager, you already have many of the skills necessary for effective data mining -- unfortunately, we are a rare breed.

It is best to coordinate with the parks how they want to conduct the data mining. Insisting that data mining be done your way may alienate the parks and reduce their overall cooperation. There are at least three ways the parks may decide – either to let you do the data mining, train one or two individuals to do the data mining for all of the parks, or train separate park staff to do the data mining at their own park.

### 5.3.1 The Data Manager as Data Miner

***5.3.1.1 Advantages***
***5.3.1.2 Disadvantages***

### 5.3.2 Two Data-Mining Clones

***5.3.2.1 Advantages***
***5.3.2.2 Disadvantages***

### 5.3.3 Training others to do the dirty work

In the case of the Heartland Network, parks were asked to identify personnel who would be responsible for mining bibliographic, spatial and tabular information. Parks were asked to budget approximately 160 hours for completion of both stages of the data mining. When possible, two individuals were to be identified – one who was more proficient in the spatial information while another who would be capable of interpreting the tabular and bibliographic information. In application, however, most data miners selected did not have many specialized skills.

Training occurred at two formal training session and miscellaneous informal training sessions. In July and August, the data manager trained park staff during a one-day data

mining session. Park staff were briefed on the data mining criteria and how to enter information into NRBib.

DSCAT was not used during the data mining with the park staff. First, the online version of DSCAT was not working. Second, teaching seasonals how to use two different programs only complicates the process.

#### *5.3.3.1 Advantages*

*5.3.3.1.1 Faster process*

*5.3.3.1.2 Less burden on data manager*

*5.3.3.1.3 Parks feel more involved*

#### *5.3.3.2 Disadvantages*

*5.3.3.2.1 Lower quality of work*

*5.3.3.2.2 Training still takes time*

*5.3.3.2.3 Cost of training*

*5.3.3.2.4 Less consistency and control*

## *5.4 Finding Important Materials*

Data mining should focus on those resources both within and outside of the parks. The following materials should be evaluated within the parks:

- Published reports
- Unpublished reports
- Current and historic research permits (these indicate who has been conducting scientific research at the parks)
- Management plans
- Maps
- Aerial photographs
- Photographs of natural resources
- GPS files
- GIS files
- Digital databases

In addition to the parks, the following agencies and groups should also be contacted:

- State Department of Natural Resources
- The closest USGS office
- County agencies

- Local libraries
- Universities and colleges
- Regional NPS office
- Most important, talk with the parks' natural resource managers concerning other agencies or groups that may have conducted research at their parks.

## *5.5 Evaluation Criteria*

Another consideration during data mining is the establishment of evaluation criteria. In general, there is an endless supply of information that can be organized and registered in the servicewide databases. The creation of criteria ensures that the information selected is consistent and of value to the I&M program and the parks' management issues.

The general goal is to get data/information that (1) is related to a natural resource, and (2) is specific to the park. In addition, the following questions should generally be answered:

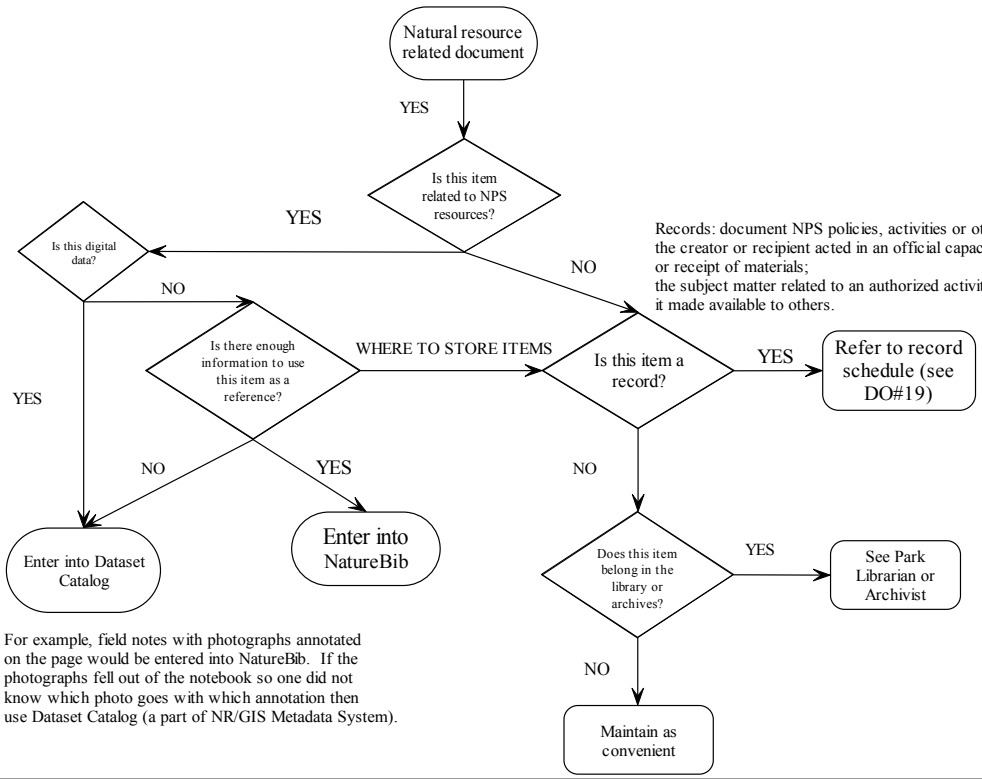
- Where?
- What?
- When?
- How?
- Why?

For each type of information resource, these criteria can be articulated more specifically:

- Tabular - Is part of a report OR already has documentation about its collection (e.g., metadata) OR the individual(s) who created the dataset is still working for the park or can easily be contacted
- Bibliographic - Is a published report OR is an unpublished and completed report
- Spatial - Is a map from an old report OR aerial photograph OR photo where location has a known spatial location (e.g., view of park from hilltop) OR a stand-alone map with a legend OR a shapefile/coverage with metadata not already listed on the GIS clearinghouse
- Miscellaneous Notes – Is a collection of related memos, notes, or letters that appear to be related to other formalized studies OR appear to have meaningful information not found in other formal sources

The servicewide database where the information is entered depends on the type of resource. In the case of NRBib and DSCAT, WASO has further suggestions:

## Does this item belong in NatureBIB?




Records: document NPS policies, activities or other transactions;
the creator or recipient acted in an official capacity during the creation or receipt of materials;
the subject matter related to an authorized activity of the agency; and it made available to others.

For example, field notes with photographs annotated on the page would be entered into NatureBib. If the photographs fell out of the notebook so one did not know which photo goes with which annotation then use Dataset Catalog (a part of NR/GIS Metadata System).

Evaluation criteria are not set in stone. Instead, you need to budget the amount of time allocated for data mining with the amount of materials to be mined. Whatever criteria that are used, they should ensure that the process is expedient, consistent, flexible, and balances quantity with quality.

## *5.6 Organization/Archiving of Information*

Data must be effectively organized. Without organization, information may be searchable in NRBib, but will be unavailable for further analysis and use at a later time.

Unfortunately, the task of organization is frequently overlooked by many of the parks. Generally, small parks are less organized than the larger parks. Frequently they do not have the staff to focus on resource management or may have a contrasting park emphasis (e.g., historical person or event). Larger parks, in contrast, have personnel devoted to natural resource and/or information management. Larger parks also have devoted space to maintaining materials, the expertise to interpret and catalog the materials, and the resources to update the servicewide databases.

From experience, although citations may exist on the digital databases, it is important to check whether they still exists in hardcopy. In some cases, you are likely to be surprised at the level of disarray. In other instances, the park may have a system in place. In these cases, the questions to ask is "Can it source X be found in 30 seconds?" Why? How long would it take to find 30 documents if it took you five minutes each? Now, multiply that by the number of parks in your network.

If resources cannot be found, it is important to work with the parks to establish an indexing system to manage their natural resource information. It is critical to work closely with the parks and not impose an organization system on them that they do not feel comfortable with. They will be responsible for maintaining the system once you leave and should have complete buy-in.

### 5.6.1 Indexing and Archiving

Assuming the parks do not have an effective organization system in place, significant energy should be devoted to organizing/archiving the information. One step is to ensure that all natural resource-related materials are in a known location, which often required the use of a dedicated shelf, for bound materials, and a file cabinet for unbound materials placed in manila folders.

If your park does not already good organization system is not already in place, hardcopies of the resources should be organized by AUTHOR-YEAR-TITLE-PERIODICAL (AYTP). For each source, at minimum of three keywords are entered into NRBib.

The ATYP system has a number of advantages over other systems including the Dewey Decimal System, Library of Congress, grouping by subject, and other randomly-assigned indexes. Foremost, this system mirrors that of NRBib and any *List of References* found at the back of a document. Furthermore, keeping works by the same author in the same location generally keeps the same types of studies and methodologies together. Finally, the use of keywords on the computer allows one to sort and group references in any way the like.

### 5.6.2 Scanning of key documents

Documents that were identified as being particularly important should be scanned into Acrobat format using Adobe Capture. This method maintains the original format of the documents, is compressed, accessible by anyone with a computer and a free version of Acrobat, and is text-searchable.

## *5.7 Analysis of Information*

Just as there is a countless amount of information to organize, analysis of this information is likewise an endless task.

Thorough evaluation of these selected sources should follow the more stringent criteria:

- Is the resource related to the identified park's management issue?
- Are the methods complete enough for the study to be reproduced?
- Is the information in a format that is useful to the monitoring program?

Analysis is perhaps the most important step of data mining but also the most difficult to do. First, analysis takes considerably more time than just entering a citation and copying an abstract. Likewise, analysis requires expertise. Unfortunately, there are very few of us who can say whether the use principal component analysis (PCA) is a valid statistical model for understanding species distributions in oak-hickory savannas. Therefore, it is critical to have the specialized "*ologists" take care of this.

# 6 Conclusions

Please help make this a better document!!

# Appendix D:
# Data Mining Work Plan

# Data Mining Work Plan
# For
# Southwest Alaska Network
# Inventory & Monitoring Program

Last updated: July 2003

## Table of Contents:



## Status of Data Mining:

July 2003

Data mining is complete for Kenai Fjords National Park and for Lake Clark National Park and Preserve. Some follow-up work is still needed. Katmai National Park & Preserve and the other park units managed under Katmai (Alagnak Wild River and Aniakchak National Monument and Preserve) are all underway.

| | | |
|---|---|---|
| Metadata: | ALAG | - this fall |
| | ANIA | - this fall |
| | KATM | - this fall |
| | KEFJ | - done; needs review |
| | LACL | - done |
| Bibliography: | ALAG | - additions to be made this summer |
| | ANIA | - additions to be made this summer |
| | KATM | - additions to be made this summer |
| | KEFJ | - done; needs cleaning up |
| | LACL | - done; needs cleaning up |
| Misc.: | ALAG | - none scheduled |
| | ANIA | - none scheduled |
| | KATM | - none scheduled |
| | KEFJ | - Would like to post documents on website, still need to get a copy of these files |
| | | - May want to add abstracts from ARLIS to NatureBIB |
| | LACL | - file drawers have all been inventoried. |

## Goal:

- To provide documentation of natural resource information about the parks
- To populate the NPS clearinghouses with this documentation so it may be easily retrieved.

## Objectives:

- Complete the minimum Federal Geographic Data Committee (FGDC) metadata content standard for natural resource information
- Complete the bibliographic documentation provided in NPS's NatureBIB
- Post both sets of documentation records on the NPS clearinghouses for search and retrieval capabilities.

## Strategy:

1. Prepare for Data Mining
    - Informal Notice: Give as much notice to key staff as possible; Key staff include: Chief of Resource Management, resource staff, archive staff, and network specialist. You may want to consider other managers to ensure buy-in to the work. Discuss and address any concerns. Once you have the buy-in, proceed to next step.
    - Prepare a mini-work plan, which includes: Goals, objectives, tasks, and list of staff involved.
    - Identify Key Information: Ask staff for any key sources of information that may be related to inventory or monitoring.
    - Talk with the Computer Network Specialist who is responsible for backups. Ensure a complete and solid back up is done before work is started. Resolve any backup issues before starting.

2. Build the infrastructure
    - Directory structure for project (read/write access) and repository (read-only)
    - Directories have readme.txt files
    - Establish proper access (appropriate read, write, read-only)
    - Select theme keywords and placename keywords
    - Create selective queries for searching for data on the internet (identify which keywords provide good hits, which do not)
    - Base map templates
    - Project Directory templates
    - Metadata templates (SMMS, readme.txt files, etc.)
    - Folders or boxes in which to store paper documents
    - Approval of the new directory structure, keywords, templates from staff

3. Establish the processes to use:
    - Procedures for starting a project
    - Procedures for finishing a project
    - Procedures from move project information into permanent storage
    - Approval of procedures from staff

4. Draft/Update Data Management Plan for Unit
   With the above information, a draft data management plan can be started and may be useful in documenting the process used.

5. Clean up Data Information
    - Ensure Backup is complete before starting
    - Create a list of what is on original directory using the directory lister tool
    - Provide plenty of notice to staff of the changes to the directory

- "Lock down" original files folder so no new data can be added while data is moved
- Move or copy data from original directory to the new directory
- Review and approval from staff
- Ensure read/write permissions are properly set

6. Metadata Database
   - Complete metadata for data stored in new directory structure
   - Use the database template established
   - Use the keywords established
   - Metadata is review by key staff
   - Create a report of new metadata records

7. Bibliographic Database
   - Query NatureBIB for records for the selected unit and generate a report. This will be used as a reference to see if a document has already been entered.
   - Review documents that are in the park. Any new records add into a new NatureBIB database.
   - QC: Ensure these records are correctly entered:
     - Because NatureBIB does not allow for editing of records, records will need to be checked from the Access tables directly.
     - Print a NRBIB report and review.
     - Approval of NatureBIB records
     - Upload into the Oracle NatureBIB
   - Download the Oracle NatureBIB after the records have been entered, and follow the same QC procedure as above.
   - Regenerate unit NatureBIB Bibliography Report and post to internet.
   - Go to ARLIS, selected sites and do a bibliography search.
   - Generate specific bibliography reports, as needed. (i.e., water quality, biological)

8. Post information to the clearinghouse
   - Procedures are TBA

9. Update Data Management Plan
   At this stage, more information may have been learned and could update the draft data management plan.
   - Unit review of plan
   - Post plan in \DataManagement directory
   - Post on website

## Maintenance:

Update cycle are TBA

# Appendix E:
# KEFJ Information Management Plan

National Park Service - Kenai Fjords National Park

Natural Resource Management

# Information Management Plan
# For
# Kenai Fjords National Park

Version 2.1
July 15, 2003

*DRAFT*

Dorothy C. Mortenson
National Park Service
Inventory & Monitoring Program
Southwest Alaska Network
240 West 5th Avenue, #114
Anchorage, Alaska 99501

Report Number: (tba)
File Number: (tba)

Funding Source:
US National Park Service, Inventory & Monitoring Program

## Table of Contents

# Introduction:

The purpose of information management is to ensure that an accurate and complete record of the information collected about a park is maintained. The purpose of this plan is to provide guidance of how information should flow for a project to ensure the deliverables along the way can be easily found and retrieved. The document is dynamic. Information subject to change the most have been separated into the appendices so they can be easily replaced.

# Flow of a Project:

Figure 1 illustrates the general flow of a project from a researcher's perspective. At various stages of the project, the researcher searches and retrieves information. In other stages, the researcher is contributing to the pool of information about a particular park. Knowing where to search and what to do with completed products is key to building the National Park Service's information database.

Once a researcher has the appropriate approval to begin a project, he or she may use one of the search tools available. Ideally NPFocus will serve as the "portal" to information from many locations. The researcher may need to search other, more topic specific tools, such as specific journals.

Next, the researcher may browse for existing databases and protocols. By using existing databases and protocols, or working with others on these databases and protocols where ever possible, more information can be shared and pooled and can be used for Network wide or statewide analysis. It is not expected one database will match each projects goals, but where ever possible, consistency is encouraged.

The National Park Service has a few servicewide databases involving the management of a project, such as PMIS. These databases are beyond the scope of this document, and will not be discussed here.

After a researcher has completed a project, various products are to be delivered. Ideally, these will be stated in the study plan. These products include, but are not limited to:

- Final and annual reports
- Field notes
- Databases and spreadsheets
- Photographs
- Maps
- Etc.

All of these products are property of the National Park Service and need to be properly stored and documented. Database Specifications Guidelines and GIS Specifications Guidelines have been written to assist in this process. These guidelines should be considered in the study plan when specifying the deliverables and considered throughout the remainder of the project.

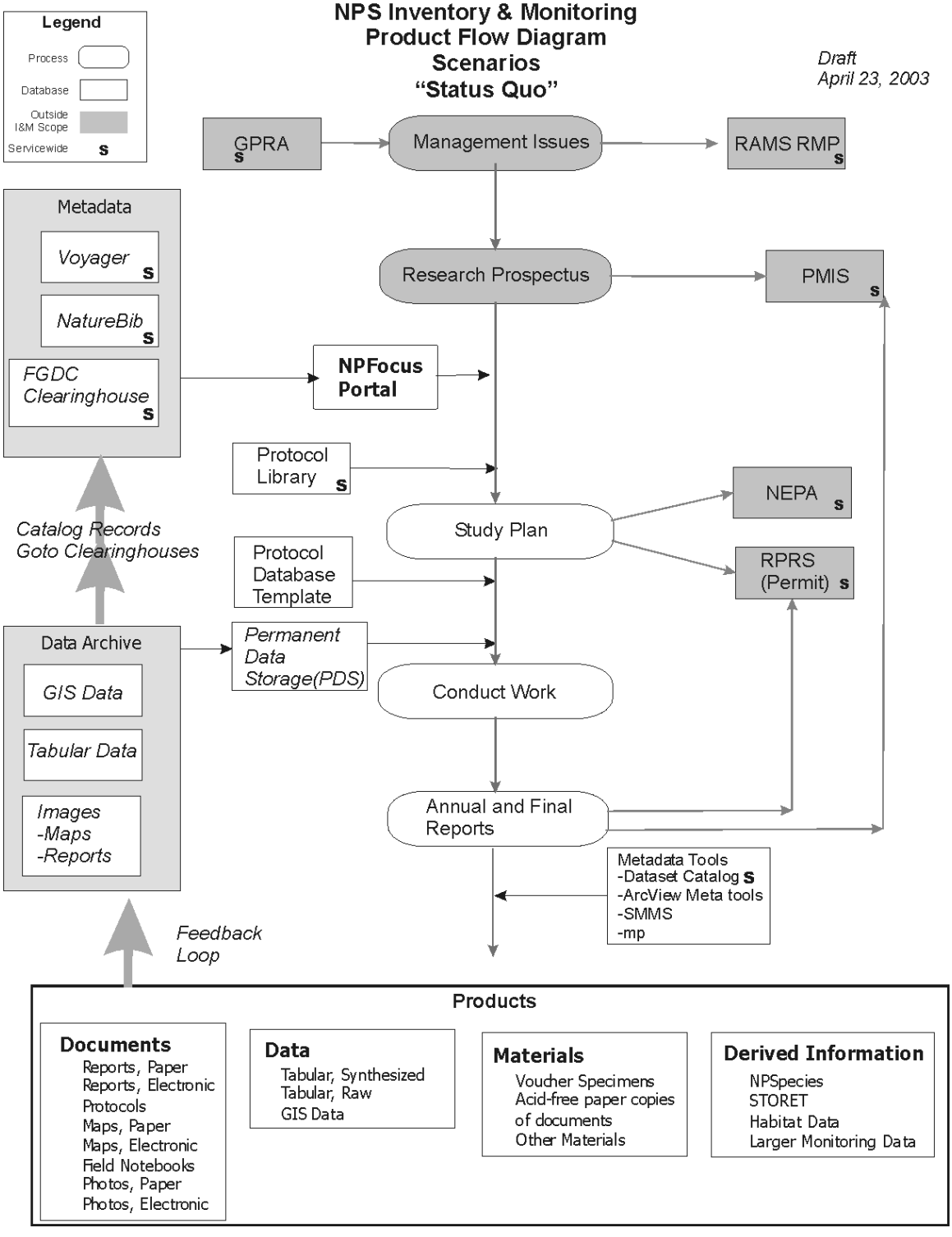



**Figure 1: Flow of a Project**

# Electronic Data Management:

## *Life Cycle of Data*

Data should be considered throughout the entire cycle of a project. Data may be worked on locally, but ultimately the data should reside in a permanent storage location.

| Stage of a Project | Stage of Data |
|---|---|
| 1) Research and Literature Review | Existing data is searched in permanent storage, ANCS+, data clearinghouses, etc. |
| 2) Planning and Administrative | Data needs are identified and planned and study plan is written |
| 3) Field work | Data is collected |
| 4) Data Entry and Analysis | Data is entered, cleaned, analyzed, and generated |
| 5) Reporting | Data is presented and documented |
| 6) Completion of Data Management | Data is moved to permanent storage |

## *Data Deliverables and Tracking*

| Stage of a Project | Tracking | Stage of Data |
|---|---|---|
| 1) Research and Literature Review | None | Existing data is searched in permanent storage, ANCS+, data clearinghouses, etc. |
| 2) Planning and Administrative | PMIS | Proposal |
| | NatureBIB | Study Plan |
| | Library of Protocols | Protocols |
| | Field forms Library and Database Template Library | Field Forms and database |
| | Metadata | Beginning metadata record of what is to be collected. |
| | RPRS | Permit |
| | Project Organizer | The Park Project Organizer document is started. |
| 3) Field work | ANCS+ | Completed field forms, field notebooks, and collections |
| | Databases | Complete database templates |
| | Metadata | Continue completing metadata record |
| | Photo Library/database | Any photos collected. |
| 4) Data entry and Analysis | Databases | Completed data, analyzed data |
| | GIS data | Generated GIS layers |
| | Metadata | Metadata completed for all data |
| | Project Organizer | The Park Project Organizer document further completed. |
| | Map Library | If maps are generated, these should be created as stand-alone products and moved to the map library. |

| | | |
|---|---|---|
| 5) Reporting | NatureBIB | Gray and white literature generated |
| | ARLIS | Gray and white literature generated |
| | ANCS+ | Gray and white literature generated. |
| | RPRS/IAR/RAMS | Closeout of any permits, etc. |
| 6) Completion of Data Management | Project Backup Database | Project has been backed up and recorded in a project backup database. |
| | Project Check List | PI has reviewed the project check list and ensured all deliverables are met and in proper storage. |
| | Permanent storage | Data has been appropriately stored in the permanent storage. |
| | Metadata | Metadata is complete and reviewed. |
| | Project Organizer | The Park Project Organizer document is completed and reviewed. |
| | Roll-up, as needed | Available information is communicated via e-mail, roll-up to regional office, or other means appropriate for the project. |

## *Data Organization*

There are two Data Organization structures: 1) Project level structure, and 2) Permanent storage structure. The project level structure is how a specific project is organized while it is being worked on. Permanent storage structure provides a permanent home for the finalized data and reports.

### Project Level Structure:

The project level structure is how a specific project is organized while it is being worked on. This helps the researcher to retrieve information from past projects quicker and helps to keep draft or working files from final analysis and reports. Please review Appendix A: Park Project Organizer for more details on this section.

### Permanent Storage Structure:

Resource Management files should be stored on a drive that is accessible to all park staff. Resource staff should discuss type of access, and determine who will have write permission to these directories. It is recommended a designated person and a backup person manage the write access. Please review Appendix B and C for the parks structure.

## *Naming Convention*

Select a standard naming convention for the park. Such things to consider are:

- Do not use words like FINAL, OLD, DRAFT in the name
- Use dates, where appropriate, in the format of YYYYMMDD or YYMMDD
- Avoid spaces or special characters
- Use folder names with upper/lower case, such as BearStudy2002
- Avoid starting a folder with a number
- Consider how the files and folders will sort, such as FishSalmon, FishStickleback

## *Version Control*

Prior to any major changes of a data set a copy is stored with the appropriate version number. This allows for the tracking of changes over time. With proper controls and communication, versioning ensures that only the most current version is used in any analysis. Versioning of archived datasets is handled by one of two ways:

a) By date, using YYMMDD format or YYYYMMDD format
b) By version number. Add a three-digit number to the file name, starting with 001. Each additional version is assigned a sequentially higher number.

## *Data Entry*

Use the following guidelines in developing a data set:

- National Park Service Database Specifications for Inventory and Monitoring Studies
- National Park Service GIS Specifications for Inventory and Monitoring Studies
- National Park Service Recommended Database Strategies including I&M Database Template
- National Park Inventory and Monitoring Program Recommended Naming Standards
- The Project Study Plan and Protocols.

These documents explain in greater detail database specification, naming conventions, quality control, etc.

## *Data Maintenance*

Data are rarely static. They often change through additions, corrections, and improvements made after the archiving of a data set. These are three main caveats to this process:

1) Only make changes that improve or update the data while maintaining data integrity
2) Once archived, document any changes made to the data set in the metadata record
3) Be prepared to recover from mistakes made during editing.

Any editing of archived data is accomplished jointly by the Project Manager and the Data Manager. Changes must be documented in the metadata or other approved method.

## *Data Archival and Storage*

For the physical documents collected during a project, follow the guidelines described in "Natural History Specimen Collections Curatorial Responsibilities for National Park Service Collectors". Even if the project does not collect specimens, the field notes, reports, and correspondences should be stored in archives. Copies can be stored in the resource library for day to day use.

### Backups:

There are two types of backups that need to be explicitly clarified. One is a network backup used primarily for protection against catastrophic events, such as fire, flood, system crashes. The other is a project backup done at specific milestones of a project.

The network backup has two cautions: 1) Over time, the backup media may become outdated, corrupted, or otherwise deemed useless, and; 2) the backup timing may not be conducive to the project – the project gets backed up when in the middle of the draft report, as oppose to when the report is finished. Network backups are still very important for the purpose of catastrophes, but do not meet the needs of archival of a project.

A project backup is controlled by the researcher, and is done at logical milestones of the project. Such milestones might include: after data entry is complete; after quality control is complete; after analysis is complete; before a project cleanup, or any other logical breakpoints in the project. Once the project is completed, a project backup should be done to archive in the researcher's folder or other designated place. This allows the researcher to move the project to a permanent storage location, while being able to retrieve draft versions of the project as needed. These backups are stored in an area where the researcher can restore what he/she needs immediately.

## Permanent Storage:

Once a project is complete (or as complete as it is going to be), relevant information should be moved to a permanent storage area. As much as possible, information should be moved to the Resource Library directory. Whether to move the information to the Projects or Resource Library directories will depend on the nature of the information. Some things to consider are:

| Projects Directory | Resource Library Directory |
|---|---|
| Geographic Extent:<br>• extensive information about a small area | Geographic Extent:<br>• Information is spread throughout the park, or could be combined with other projects to provide a wider view |
| Relevance:<br>• Information is very site specific and has little meaning outside of the project. | Relevance:<br>• Information could be useful to others outside of the project.<br>• If this is a significant project, most likely it should be stored in the Resource Library |
| Legacy:<br>• For legacy data, it may be easier to store project information under the project directory, until the information is deemed useful. | Legacy:<br>• As information is deemed useful, it should be designed to be stored in the Resource Library. |

In both cases, metadata should accompany the data being stored. It is advised to designate one main contact person and one backup person to copy the information into the permanent storage location. This person should ensure metadata is complete and understandable, and the naming convention does not conflict with other names.

## Data Updates and Data Checkout:

Once data is stored in the permanent storage, users can point to these data. If data needs to be updated, the data should be "checked out" of the permanent storage (make a copy on your local drive) and edits should be made to the copy. Once the updates are made, this data should be "checked in" to the permanent storage. It is advised to designate one main contact person and one backup person to control the checking in of data. Be sure to update the metadata record.

# Hardcopy Document Management:

Organization of Physical Documents in the Resource Library

### *Park Library:*

Some documents should reside in the Park Library, as oppose to the Resource Library. This includes *< To be decided by the Park>.*

### *Park Archives:*

Some documents should reside in the park Archives. Copies may be made to use in the Resource or Park Library. Items that should be stored in Archives are: *<TBA>*

### *Resource Library:*

The Park Resource Library is a repository of completed reports and relevant information for resource management within the park.
It should include: *< To be decided by the Park>*

- Final Reports
- Any documents produced by the Park
- Final data
- Reference to the project working folder.

It should not include: *< To be decided by the Park>*

- Draft proposals
- Draft reports, when a final exists. If the Draft report is the best available information, then this is acceptable.
- Notebooks
- Junk

### *Organization:*

Organization of physical documents should be organized as the following:
<TBA by park>
Example:

- By three ring binders or boxes
- By DO 19 file structure or by taxonomic groups, etc.
- Within each, include tabs such as: general information, habitat, food, surveys, disease, etc.
- Check out policy…

## *Physical Hardcopy Folder*

A Six-Part folder is recommended to organize your final hardcopy documents for a project. You may use other folders for working documents. Use accordion folders for large, unbound reports. Folders should be labeled as follows:

Main Subject/Secondary Subject
Year

If this is going to be a large project, you may elect to create a file index. For example:

| Main Subject | Secondary Subject | Subject with files |
|---|---|---|
| Budget | Budget FY2001 | • NRPP<br>• GMP<br>• NRPP Expenditures<br>• GMP Expenditures<br>• AFS & Budget Notes<br>• Estimates |
| Environmental Impact Statement | Notice of Intent | • Justification<br>• EIS Final & Drafts<br>• Comments<br>• Samples |
| Vegetation | Exotic Plants | • Final Report<br>• E-mails<br>• Data Sheets & Instructions<br>• Completed Datasheets |

Within the final hardcopy folder for a project, possible organization structure is:

- Planning
  - PMIS project proposal
  - Draft Study Plans
  - Reviewer Comments of Study Plan
  - Study Plan (includes: xx, Example data sheets and instructions, budget)
  - Example of data sheets and instructions, if not included in Study Plan.
  - Information Gathering
  - Cooperative Agreements
  - Environmental compliance documents
- Interim Work
  - Field notes/notebooks
  - Completed data sheets
  - Correspondences
    - Expert Mailing List
    - Meeting Notes
    - E-mails
- Final Deliverables
  - Progress Reports
  - Final Reports
  - Reviewer's comments on final report
  - Hardcopy Maps
  - Printout of Metadata Records
  - Printout of Bibliographic Records

In the front of the folder, a completed "Project Check List" should be provided. See Appendix D.

# Appendix A: Project Organizer

## *Template*

# Kenai Fjords National Park

# XXXXX Project Organizer

[Study Plan] [Reports] [Database]
[Field Protocol] [Data Processing Protocol]
[Record of Protocol Changes]
[Project Log][Safety Manual]

## Contacts:

## Objectives:

ADD A SHORT PROJECT SUMMARY, SCHEDULES, PHOTOS AND LINKS TO OTHER PROJECT DOCUMENTS THAT ARE NOT LINKED ABOVE.

---

## *HOW TO SET UP YOUR PROJECT ORGANIZER*

*NOTE: Once you are familiar with how to create and organize your project page, delete all the text below the line and the all capital text above.*

The purpose of the project organizer is to:

- help you organize and get to your project documents and data.
- help park managers to access your data and understand your project.

Ideally a project novice should be able to open this document and all its links and **get all the information needed to safely and efficiently go out and collect, process, analyze and report data for your project**.

The project organizer can be maintained in Word or as an html file. The file should be maintained in the root of the project folder and should be named index.html or index.doc.

There should be eight main links right at the top of the page. These main links can open a single document or a document that links to other documents. For example, a small short project may link directly to a study plan document. A long-term, large project may have amendments and the study plan link on the Project Organizer may open a Study Plan page with links to the study plan and amendments and perhaps correspondence about the plan.

The main links:

**Study Plan** – the original document(s) that proposed the work, and all amendments.
**Field Protocol** – the document or a page that links to multiple documents that describe in explicit, vivid detail how the data is collected.
**Data Processing Protocol** – a page that links to documents that describe in vivid detail how to store, process and archive the data. There should be a linked document in here describing each project sub-folder and its contents.
**Record of Protocol Changes** – a single document that records all changes in the way data is collected by date. All project personnel should be familiar with this document and should enter protocol changes and issues **as soon as they occur or become known**.
**Database** – where applicable link directly to the Access database holding the project data. If complex data is stored in text files or other formats, link to a page detailing the storage location with links to data view projects in ArcView, ArcGIS etc.
**Reports** – reports pertaining to the project data
**Project Log** – this should be a single document that is a day-to-day or week-to-week log book recording significant accomplished work, ideas, meetings, trainings, field trips, procedural conflicts and resolutions etc. All members of the team should input. Newest entries should be at the top of the document.
**Safety Manual** – project specific safety information, links to Park safety pages

Other items on this page or links to other items of importance should include:

- Datasheets
- Current years schedule and assignments
- Links to previous years schedules and assignments
- Personnel biographies
- Slide shows or image collections about the project

NOTE: this page needs to open quickly - don't put to many pictures on this page and the pictures you do put on should be small.

**Folder naming conventions.**

- Try to follow the basic folder outline as described below.
- Keep new names short if possible but make them meaningful.
- Use upper and lower case for multiword files, such as BearStudyPlan.
- Avoid spaces and unusual characters in both folder and file names if possible, especially with protocol folders and folders that contain GIS data.
- Image folders and historical folders should usually be named based on the date in this format: YYMMDD. This makes the folders sort properly and greatly helps to organize them.

**Folders and what's in them.**

**\Administrative**
**\Data**

**\Analysis** – data analysis, statistical analysis. At analysis time: create a folder based on the date. Copy the data (database or exported data from the database ) you are going to analyze to the folder. Analyze and document the analysis in the *|Analysis|YYYY-MM-DD Blaa Blaa* folder. Document permanent analysis techniques in the Analysis Protocol.
**\DataForms** – Contains the template for the field forms used.

**\GPS** – Contains information downloaded from GPS

**\Spatial** – Contains GIS information

**\avprojects**

**\extensions**

**\geoimages**

**\legends**

**\meta**

**\outputs**

**\shapes**

**\Tabular** – Contains the Access database and corresponding documention.

**\FieldNotes –** Store field notes made here.

**\Information** – Store additional information, such as examples from other studies, downloaded reports from other studies, etc. here.

**\Photos** – Store photos taken for this project here.

**\Presentations** – Store powerpoint presentations about this project here.

**\Proposals –**

**\Protocols –** Protocols are detailed descriptions of how to collect, process and analyze data for this project. Include protocols for the field, data processing, equipment, safety, etc., as applicable.

**\Reports –**

**\Draft –** draft/working documents

**\Final -** finalized official reports, publications or other products based on or containing project information

**\Workplans –** Final Work Plan for the project.

# Appendix B: Pre 2003 Library and Computer File Structure

# Kenai Fjords National Park
## Resource Management Division

LIBRARY AND COMPUTER FILE STRUCTURE
*Pre 2003*

**1.** ADMINISTRATION

a. Budget
   i. AFS
   ii. DI-1
   iii. Funding
b. Non-NPS Groups
   i. Interagency Agreements & Info.
      (1) USFS
      (2) USF&W
      (3) ADF&G
      (4) USGS
      (5) State Parks
      (6) NBS
   ii. Conservation Groups
   iii. Other
c. Personnel
   i. Employee Development & Training
   ii. Performance Standards
   iii. Position Descriptions
   iv. Seasonal Employees
   v. Time Sheets
   vi. Travel
   vii. Volunteers
   viii. Employee Issues
      (1) ANPR
      (2) EEO
      (3) Ethics
d. Policy, Guidelines, & Laws
e. Special Use permits/ROW
f. Standard Operating Procedures (SOP)

**2.** ATMOSPHERIC

a. Air Quality
b. Weather
    i. Aialik Bay
    ii. Exit Glacier
    iii. Nuka Bay
    iv. Instruments/General Protocols & Techniques
    v. Other Data/Info
c. Global Climate Change

**3.** CULTURAL RESOURCES

a. Collections Management
b. Curatorial
    i. Archives
    ii. Storage and Exhibits
c. ARPA
d. Studies
    i. KEFJ
    ii. Other
e. Technical Info
    i. General
    ii. Historic Structures
    iii. NAGPRA
f. Program Management/Funding

**4.** GEOLOGIC

a. Event Record
b. Geologic Map
c. Landforms
d. Minerals
e. Sediment Movement
f. Soils
g. Geology

**5.** HYDROLOGIC

a. Groundwater/Drinking Water
b. Lakes & Resevoirs
c. Streams & Rivers
    (1) General
    (2) KEFJ Stream/River Inventory
    (3) Stream/River gauges
d. Ocean

e. Hydrologic Development
f. Harding Icefield
g. Snowpack
    i. Snow Surveys
    ii. Avalanche
h. Glacial Activity
    i. Glaciers
    ii. Exit Glacier
    iii. Exit Glaicer Terminus Mapping
    iv. Tidewater Glaciers

**6.** FLORA

a. Nonvascular
    i. Bryophytes
    ii. Algae
    iii. Fungi
    iv. Lichens
b. Vascular
    i. Herbs
    ii. Trees & Shrubs

**7.** FAUNA

a. Prokaryotes/protists
b. Invertebrates
    i. Terrestrial
    ii. Aquatic
        (1) insects
        (2) Brachiopods, molluscs, crustaceans
c. Vertebrates
    i. Terrestrial
        (1) Amphibians
        (2) Reptiles
        (3) Birds
            (a) Bald Eagle
        (4) Mammals (NOTE: Bear Safety under 11-h-iii)
    ii. Aquatic
        (1) Amphibians
        (2) Birds
        (3) Fish
        (4) Mammals
    iii. Dead /injured Wildlife

## **8.** LANDSCAPE/ECOSYSTEM STRUCTURE & FUNCTION

a. Terrestrial Systems
    i. Biomass & productivity
    ii. Energy Flow
    iii. Mineral cycling
    iv. Climate effects
    v. Fire Effects
    vi. Human impacts
b. Aquatic Systems
    i. Biomass & productivty
    ii. Energy Flow
    iii. Mineral cycling
    iv. Human impacts
c. Landscape Patterns
    i. Role of Park in Region
    ii. Isolation of Park
    iii. Spatial Patterns
    iv. Biodiversity

## **9.** HUMAN ACTIVITY: NON-RECREATION

a. Air Traffic
b. Field Operations
    i. Aialik Bay
    ii. Nuka Bay
    iii. Exit Glacier
c. Collection of Natural/Cultural artifacts
    i. Permits
        (1) Natural
        (2) Cultural
d. Commercial fishing/Aquaculture
e. Gathering & Consumption
f. Mining
    i. Division Updates
    ii. Kinney(Suprise Bay)
    iii. Waterfield(Suprise Bay)
    iv. Glass-Heffner(Beauty Bay)
g. Subsistence

h. Transportation
    i. Automobile Traffic
    ii. Commercial Traffic
    iii. Watercraft Use
        (1) SERAC
        (2) Inflatables
        (3) Outboard Motors
        (4) Safety Training
    iv. Aircraft
        (1) Fixed Wing
        (2) Helicopters
i. Wood Gathering
j. Research
    i. Administration
    ii. proposals
    iii. reports
        (1) IAR
k. Environmental Mitigation

**10.** HUMAN ACTIVITY: RECREATION

a. Sport Fishing/Hunting
    i. General
    ii. Fishing
    iii. Hunting
b. Backcountry Use
    i. Permit Activity
    ii. Hiking/Trails
    iii. Camping
    iv. Gathering & Consumption
    v. Vehicle Use
    vi. Watercraft Use
    vii. Impacts on Resources
    viii. Visitor Use Statistics
c. Developed Area Use
    i. Hiking/Trails
    ii. Camping
    iii. Gathering and consumption
    iv. Vehicle use
    v. Watercraft Use
    vi. Public Use Cabins
    vii. Litter & Trash
    viii. Impacts on Resources

## **11.** MANAGEMENT ISSUES

a. Collections Inventory (Natural)
b. Data Management
    i. Geographic Information System
        (1) Software
        (2) Hardware
        (3) Digital Data Info
        (4) Survey Markers and Control Points
    ii. Database Management
        (1) Bibliography
        (2) Natural History/Wildlife Obs.
    iii. Photography
    iv. Maps & Nautical Charts
    v. Newsletters, & Misc. Publications
    vi. RM Incident Reports
    vii. Visitor Stats - Park-wide
c. Equipment & Supplies
    i. Inventory
    ii. Technical manuals
    iii. Supply Catalogs
    iv. Commputers & Technology
    v. Telephone System
d. Fire Management
e. Interpretation (Nat. Res.)
    i. History
    ii. Environmental Education
    iii. Social Science
f. Inventory & Monitoring
    i. Event Record
    ii. Protocols
g. Planning
    i. Resource Management Plan
    ii. Environmental Compliance
        (1) NEPA
            (a) (EA) Environ. Assess.
            (b) (EIS) Environ. Impact State.
        (2) XXX
    iii. Land Acquisition & Protection
    iv. Emergency Management
    v. Development Plans
    vi. Other Management Plans
    vii. Projects

h. Public Health & Safety
    i. Waste Management
        (1) Hazardous Materials
        (2) Solid Waste
        (3) Sewage & human waste
        (4) Explosives
    ii. Integrated Pest Management
        (1) Exotic Species
            (a) Flora
            (b) Fauna
        (2) Disease Causing agents
        (3) Pesticides
    iii. Bear Management
    iv. Abandonned Mines
i. Threatened, Endangered & Rare Species
    i. Flora
    ii. Fauna
j. Threats/Issues
    i. Sensitive Resources
k. Wetlands
l. Wilderness Management
m. Recycling
n. Coastal Zone Management
o. Exxon Valdez Oil Spill
    i. EVOS oil spill

# Appendix C: Redesigned Computer File Structure

# Kenai Fjords National Park
## Resource Management Division

COMPUTER FILE STRUCTURE
*New File Structure - DESIGN*

The following is the initial design used to reorganize the computer file structure for Kenai Fjords National Park, Resource Management Division. KEFJ RM staff and the Inventory and Monitoring (I&M) Program staff met and agreed to this initial design. The purpose of the redesign was to make files more intuitive to find and store electronic files.

T:\ RMFILES
- \Administration
  - \Budget –
  - \Compliance –
  - \Forms –
  - \GPRA
  - \PMIS
  - \ManagementPlans –
  - \PMIS –
  - \Policy -
  - \Property –
  - \SOPs –
- \Projects – (still under development)
  - \Biologic -
  - \Cultural –
  - \Physical –
  - \ResourceManagement –
- \ResourceData –
  - \Biologic -
  - \Cultural –
  - \HumanUse -
  - \Physical –
- \ResourceLibrary –
  - \BasicParkInfo
  - \Bibliographies
  - \DataManagement
  - \GraphicLibrary
  - \ProtocolLibrary
  - \Templates
  - \Tools
- \Users_Old – (parking lot for past users. Files need appropriate home).

X:\GISData

# Kenai Fjords National Park
## Resource Management Division

COMPUTER FILE STRUCTURE
*New File Structure - ACTUAL*

Following is the actual file structure. Please see the context of this document or the README.txt files on the RMFILES directory for more information.

T:\ RMFILES
- \Administration
  - \Budget –
  - \Compliance –
  - \Forms –
  - \GPRA
  - \PMIS
  - \ManagementPlans –
  - \PMIS –
  - \Policy -
  - \Property –
  - \SOPs –
- \Data –
  - \Cultural
  - \Fauna
    - \Invertebrates
    - \Vertebrates
      - \Amphibians
      - \Birds
      - \Fish
      - \MammalsMarine
      - \MammalsTerrestrial
  - \Flora
    - \Nonvascular
    - \Vascular
  - \HumanUse
    - \Nonrecreation
    - \Recreation
  - \Physical
    - \AirQuality
    - \Earthquake
    - \GlaciersIcefields
    - \Hydrologic
    - \Soils
    - \Weather
- \Documents –
  - \BasicParkInfo
  - \Bibliographies
  - \DataManagement
  - \MapLibrary
  - \PhotoLibrary
  - \ProtocolLibrary

\Cultural
\Fauna
\Invertebrates
\Vertebrates
\Amphibians
\Birds
\Fish
\MammalsMarine
\MammalsTerrestrial
\Flora
\Nonvascular
\Vascular
\HumanUse
\Nonrecreation
\Recreation
\Physical
\AirQuality
\Earthquake
\GlaciersIcefields
\Hydrologic
\Soils
\Weather
\References
\Cultural
\Fauna
\Invertebrates
\Vertebrates
\Amphibians
\Birds
\Fish
\MammalsMarine
\MammalsTerrestrial
\Flora
\Nonvascular
\Vascular
\HumanUse
\Nonrecreation
\Recreation
\Management
\Original_documents
\Physical
\AirQuality
\Earthquake
\GlaciersIcefields
\Hydrologic
\Landcover
\Soils
\Weather

\Templates
\Tools
\Projects – (still under development)
\

\Users_Old – (parking lot for past users.  Files need appropriate home).
X:\GISData

# Appendix D: Project Check List Form

# National Park Service
# Kenai Fjords National Park
# Project Check List Form

Place a copy of this completed form (or one similar) in the hardcopy folder of the project. Store the electronic copy of this document in the project/Information/ subdirectory.

**Date**: _____

**Location of Materials:**
Physical files: _____
Electronic files: _____

**Check List:**

| Hardcopy in Folder | Electronically Filed | Deliverables | Comments/Location: |
|---|---|---|---|
| | | Final Proposal | |
| | | Study Plan | |
| | | Permit | |
| | | Compliance Documents | |
| | | Protocols | |
| | | Field Forms | |
| | | Field Notes | |
| | | Data entry Databases | |
| | | Completed Databases | |
| | | Reports | |
| | | Maps | |
| | | Documentation of files | |
| | | CD-ROM backup of project | |
| | | Files copied to permanent storage (\ResourceLibrary) | |
| | | Reports in Resource Library | |
| | | 3 Copies of Report to ARLIS | |
| | | Acid Free copy to Archives | |
| | | Entered into NatureBIB | |
| | | Metadata in Clearinghouse | |
| | | Entered in ANCS+ | |
| | | Notice to park staff, others | |
| | | Closeout of Project/Permits | |
| | | | |
| | | | |
| | | | |

# Appendix F:
# Cheat Sheets: Data Organization

# Cheat Sheet: Mapped Drives

**Author(s) of Sheet:** Dorothy Mortenson, Southwest Alaska Network

**Website:** http://165.83.48.21/aim/Docs/Network%20Mysteries.htm

**Purpose:**
The National Park Service, Alaska Region uses a number of Drives to organize electronic information. These Drives are further described at the Alaska Regional Office internal website at: http://165.83.48.21/aim/Docs/Network%20Mysteries.htm (Topic Index, N, Network Info). These drives are automatically assigned and linked when the user logs onto his/her computer. They are organized as follows:

**Bold letters** – same throughout AKSO and parks.
*Italic Letters* – inconsistencies within NPS.

| Drive | User\Access* | Description | Administrator | Backups |
|---|---|---|---|---|
| **C:\ and D:** | Employee (You)<br>• read, write/delete | Your personal computer | You | You |
| M:\ | CAKN employees<br>• read, write/delete | Mortal cleaned out no questions asked after 60 days. Other parks do not have an M drive. AKSO does not have an M drive. | CAKN Park Computer Specialists | CAKN Park Computer Specialists |
| N:\ | NPS Web developers<br>• Read, write/delete | For development web design. Files are automatically moved to the production web server every XX minutes, controlled by AKRO Web Administrator | Web Administrator (Dave Oradei) | Dave |
| P:\ | *AKSO employees*<br>• *Read, write/delete* | *Shared for the install & Operation of Network Software Programs. Find applications to install onto your computer here, such as CorelDraw, etc.* | *AIM* | *AIM* |
| P:\ | *CAKN employees*<br>• *Read, write/delete* | *Parkwide (top 10 projects). Read-only file structure much like your projects. They have a photos subdirectory on this drive that does have a /maps directory within (mostly pdfs)* | *Park Computer Specialist* | *Park Computer Specialist* |
| Q:\ | All NPS employees<br>• Read, execute. | Shared for IT Inventory purposes | AIM | AIM |
| S:\ | *NPS employees within same building*<br>• *read, write/delete* | *Used to share files between teams within a building. AKSO sees a different S drive then say Lake Clark NP&P* | *AIM or Park Computer Specialist* | *AIM or Park Computer Specialist* |

| | | | | |
|---|---|---|---|---|
| S:\ | *CAKN employees*<br>• *Read, write/delete* | *Software – similar to AKSO P drive.* | *Park Computer Specialist* | *Park Computer Specialist* |
| T:\ | AKSO Team** (see below for teams)<br>• read, write/delete | AKSO ONLY: This allows members of the same team to be able to share files. | AIM | AIM |
| T:\ | Park Employees<br>• read, write/delete | PARK ONLY: This allows members of the same team to be able to share files. All park employees are on the same team. | Park Computer Specialist | Park Computer Specialist |
| **U:** | Employee only (you)<br>• read, write/delete | Your own work, similar to the C or D drive | AIM or Park Computer Specialist | AIM or Park Computer Specialist |
| **W:** | All NPS, Alaska employees<br>• Read, write/delete<br>• Access is slow | All NPS employees has access the same files. However, the connection to this server is particularly slow to everyone. | AIM | AIM |
| **X:** | NPS, Alaska employees – Each park with own X drive.<br>• Read only | Each park has their own X drive. The X drive is copied by AKSO, and should be the same no matter the location. It contains read only GIS files. | AKSO, GIS | AKSO, GIS |

* User\Access definition:
User: The user with the defined access.
Access:
- Read – User can read the file
- Write/Delete – User can write or delete to the directory

** Teams

| | |
|---|---|
| AAP | Administrative Acquisition & Property |
| AB | Administrative ? |
| AIM | Administrative Information Management |
| AHR | Administrative Human Resources |
| AKR | Administrative ? |
| AKSO | Alaska Support Office |
| EEI | |
| EC | |
| EPD | |
| EPR | |
| RAD | |
| RCR | Resource Cultural Resource |
| RBR | Resource Biological Resource |
| RER | Resource Environmental Compliance |
| RPR | Resource Physical Resources |
| RTCA | Rivers Trails Conservation Assistance |

# Cheat Sheet: Instructions for Using Directory Lister

**Author of Sheet:** Wendy Bryden, Kenai Fjords National Park

**Website:** http://freeware.prv.pl/

**Purpose:** Use to take a snapshot of a directory at a given time.

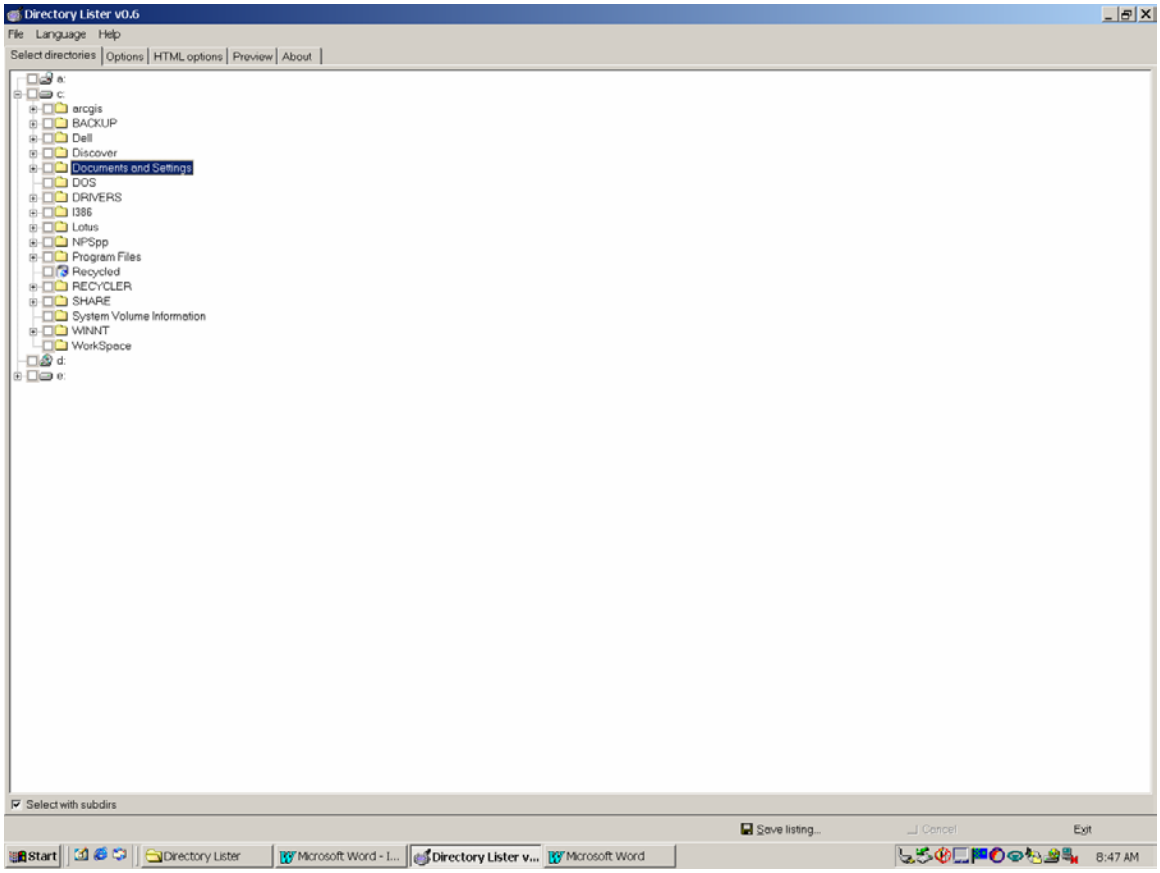
**Abstract:**

Directory Lister is a freeware tool that can be downloaded off the Internet. It will create a text file listing of a directory file structure of your choosing. It is a simple way to create a record of what a directory looked like at a given time.

**How to use:**

It is available for down load from http://freeware.prv.pl/ Go to Directory Lister Download (on the left). Download **Directory Lister v0.6 zipped – 292 kb**
Create a directory where you want to work and uncompress the file into the new directory.

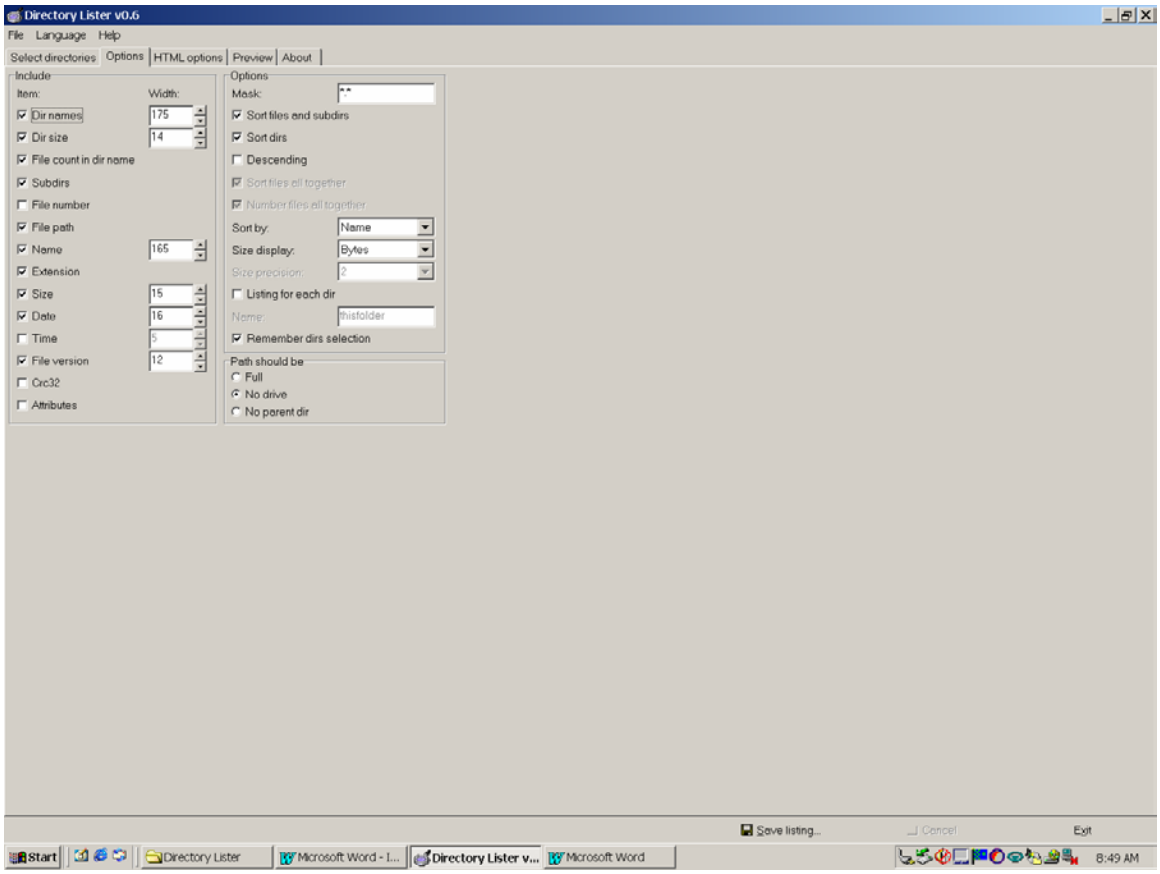
Click on the file titled DirLister.exe 279KB Application to start the program. A window will open with five tabs. It will look something like this.



Basic information about each tab is listed below. More information about the program and selections found on the **Options tab** can also be found in the file entitled Readme.html.

**Select directories:**
This shows a directory of your current computer and mapped drives Windows Explorer style. Use the plus or minus box to expand directories and look at folders. Check the boxes for the folders or directories that you want to create a directory list for. Experiment with a small directory such as My Documents at first. Once you have selected the directories the program will create a listing under the Preview tab. This may take some time if the directories are large.

**Options:**
The options tab gives you control over the output directory list. The options listed below are a sample of values you can use on this page.




Experiment with a small directory – you can change column widths and control what information is included in the final listing. If the box in the second column labeled **Remember dirs selection** is checked the program will remember any changes you have made and display them as the default the next time you open the program.

**HTML Options:**
This tab allows you to create your directory structure as a list of HTML links. This option is not needed for creating a basic file structure directory in text format. **Be sure the Generate HTML box is unchecked.**

**Preview:**

Once you have set the options on the first three tabs to the correct format open this tab. Directory Lister will generate a preview of your file directory. This may take some time if you are dealing with a large directory. The Cancel button at the bottom of the page will be bright and the title bar will show that the program is processing the directories you selected. The title bar will keep a running update on how much memory has been processed. You can use the Cancel button at the bottom of the page to escape if the program is not generating the information you wanted or if it is taking too long. Once the preview generation is complete the Cancel button will go dim and the Save listing… button at the bottom of the page will brighten. Use this to save the directory structure you have generated. Use the date as part of the file name, for example mydocuments030220 (fileyymmdd). Once again if the directory is large it may take some time to save the directory list.

**About:**
General information and version information about the program.

# Cheat Sheet: Tips for Opening Files with Unknown Extensions

**Author(s) of Sheet:** Wendy Bryden, Kenai Fjords National Park
Dorothy Mortenson, Southwest Alaska Network

**Website:** Suggestion: http://www.glossword.ru/list/15/

**Purpose:** Provide tips to determine unknown file extensions. Not all file extensions are included here. Please visit suggested website for anything not found.

**How to open an unknown file extension:**

- First see if the extension is listed here or on the website.
- If it is, right click to "Open with", then select the appropriate program. Do not check the "always open as" unless you are sure of the format.
- Your computer may not have the program, in which case you will need to find the program and install it, find a computer with the program already loaded, or find a program that will make the conversion for you.

- If you do not know the appropriate program, make a test copy of the file.
- Open the test copy in Notepad or Word.
- Make sure the box "always open as" – is unchecked.
- Scroll through to see if there is anything recognizable. There may be gobble gook, but look through to see if you find any text that might help you understand what the file is.

**File types:**

Misc.

- DTF – (data transfer file – often created by hobo temperature data)
- CGM – Associated with Lotus Works (Lotus 123) – this was an old graph format.

Database 3 files:

- DBF- old Dbase 3 files – Open in Excel
- DBF are also Arcview files (look like a table)
- DBT – a form of a Dbase 3 file which is like a shape file in Arcview. (Probably associated with a given database.) Database text file.

Excel:

- XLS – Excel – saving in Excel 97 click yes Microsoft Excel Workbook in the Save As Type box

Lotus 123

- WK1 – Old Lotus Notes 123 (Open these files Lotus 123 as Excel and excel will incorporate FMT and FM3 files
- WK3 – Old Lotus Notes 123
- FMT – Impress addin
- FM3 – Impress addin

Autocad

- DWG – Autocad Drawing Database
- DWL – Database file Locking Info (part of autocad)
- CCM – Ccmail documents

Access Database files:

- .mdb – Microsoft Access database
- .mde - Microsoft Access database that may contain Visual Basic for Applications (VBA) files. Files are compiled and cannot be viewed or edited. You may find these with software that uses Access as the main database, but does not allow you to do any editing to the program.

Presentation:

- PPT – Microsoft Powerpoint

Graphic Files:

- MOV – A movie file. Can be viewed in QuickTime (freeware download from the internet) or another movie viewer.
- AI – Adobe Illustrator file
- CDR – CorelDraw file
- PSD – Adobe Photoshop file
- PMD – Adobe Page Maker file
- EPS, PNG, JPG, GIF, BMP, TIF – All common graphic image files (raster) that can be opened in many different software including: an internet browser, Adobe products, Corel products, ArcView, etc. Your best option just for viewing will most likely be a browser.

Text files:

- .txt – standard text files, opens in word processor programs (Word, WordPerfect), Notepad, Wordpad, etc.
- .csv – comma delimited files, typically used to export data. Information can be viewed in Notepad, Wordpad, Excel, or Access.
- .prn – Space delimited files, typically used to export data. Information can be viewed in Notepad, Wordpad, Excel, or Access.
- .met – a metadata file, but is the same as a text file. The .met helps to make it distinguishable from other text files. Information can be viewed in Notepad, Wordpad, Word, WordPerfect, etc.

Word Processor Files:

- .doc – Microsoft Word
- .wpd – WordPerfect file. Can also be opened and converted to Word

Program files:

- .exe – Usually starts a program. Be cautious when clicking on this. Only do so if you know what it is. You can attempt to open it in Notepad or Wordpad to look around.
- .bat – Usually starts a program in DOS as a "batch" job. Again, be cautious when clicking on this and only do so if you know what it is. This file can be opened and edited in Notepad or Wordpad. An example of this being used is to run a batch job of converting metadata files (.met) into the web files (.html, .xml, .sgml).

# Appendix G:
# Cheat Sheets: Metadata

# Cheat Sheet: Creating a Keyword List for SMMS

**Author(s) of Sheet:** Wendy Bryden, Kenai Fjords National Park
Dorothy Mortenson, Southwest Alaska Network

**Website:** none

**Purpose:** SMMS allows the user to import a thesaurus for use in the keywords, using the eXtensible Markup Language (XML). This is particularly helpful in ensuring names are spelled correctly and consistently. In the case of the place name keywords, the Inventory & Monitoring Program wanted to use an existing list of place names that were stored in an Access database. This cheat sheet describes how to take an exported a keywords list from Access and import it into the SMMS database with the appropriate XML code.

**ASSUMPTION:**
A Microsoft Access database exists with the following table:
Table Name: tbl_allparks
Fields: ID, autonumber
geoname, text, 50, Place name from USGS, Dictionary of Alaska
desig, text, 10, Feature designation
county, text, 35, County or Borough
elevation_ft, number, Elevation in feet
park_code, text, 4, NPS 4 letter Park Code
is_inside, text, 50, Is the place located entirely outside the park boundary (Inside, Outside, Both_in_out)

For this exercise, geoname and park_code are necessary.

**STEP 1:**
Export to a text file the place names list from Access.

- Create a Query in Access of the following, using the SQL View:

```
SELECT "<LIST_OF_KEYWORDS><![CDATA[ " & [geoname] & "]]></KEYWORD>"
AS Keyword
FROM tbl_allparks
WHERE (((tbl_allparks.park_code)="ALAG"));
```

In this example, ALAG park code is used. Adjust the SQL statement accordingly in the WHERE statement for another park.

- Save and view the query
- Export results of Access query to a text file using comma delimiters.

**STEP 2:**
Prepare the file

- In Notepad or Wordpad, delete the first line that says "LIST_OF_KEYWORDS"
- first put all of the keywords on one line and delete the " in the process, so it looks like:

```
<KEYWORD><![CDATA[ Nonvianuk River]]></KEYWORD><KEYWORD><![CDATA[
Alagnak River]]></KEYWORD><KEYWORD><![CDATA[ Branch
River]]></KEYWORD><KEYWORD><![CDATA[ Kukaklek
Lake]]></KEYWORD><KEYWORD><![CDATA[ Kvichak River]]></KEYWORD>
```

- Create the file before_key_temp.txt with the following on one line:

```
<?xml
version='1.0'?><THESAURI_KEYWORD_LOOKUP><PROFILE_TYPE><THESAURI_T
YPE><typehere in caps(iePLACE OR
THEME)><THESAURUS><THESAURUS_NAME><![CDATA[filenamehere]]></THESA
URUS_NAME><KEYWORDS>
```

- Create the file after_key_temp.txt with the following on one line:

```
</KEYWORDS></THESAURUS></THEME or place make sure this matches
beginning></THESAURI_TYPE></PROFILE_TYPE></THESAURI_KEYWORD_LOOKU
P>
```

- Add the text file before_key_temp.txt to the beginning of the document. Be sure to replace the type box with the type of keyword file. For example, PLACE or THEME. (This goes after THESAURI_TYPE><)
- Also put the name of the thesuarus you are creating in the space marked filenamehere. (This is after <THESAURUS_NAME><![CDATA[filenamehere]]
- Add the text file after_key_temp.txt Change the list type to PLACE OR THEME to match the type at the beginning of the document.
- Save all the changes as one text document. Save the text document as an .xml document.
- The results for our example should look like, all on one line:

```
<?xml
version='1.0'?><THESAURI_KEYWORD_LOOKUP><PROFILE_TYPE><THESAURI_TYPE
><PLACE><THESAURUS><THESAURUS_NAME><![CDATA[ALAG
Placenames]]></THESAURUS_NAME><KEYWORDS><KEYWORD><![CDATA[Nonvianuk
River]]></KEYWORD><KEYWORD><![CDATA[Alagnak
River]]></KEYWORD><KEYWORD><![CDATA[Branch
River]]></KEYWORD><KEYWORD><![CDATA[Kukaklek
Lake]]></KEYWORD><KEYWORD><![CDATA[Kvichak
River]]></KEYWORD></KEYWORDS></THESAURUS></PLACE></THESAURI_TYPE></P
ROFILE_TYPE></THESAURI_KEYWORD_LOOKUP>
```

- Save final file as .xml file.

**Step 3:**

Import into SMMS

- Open SMMS program
- Go to Tools -> Thesaurus/Keyword Administration
- Select the type you want to import (theme, place, etc.)
- Select Import at the bottom of the page and browse to and import the correct .xml file.

# Cheat Sheet: Notes on using the SMMS Software and Completing FGDC Metadata

**Author(s) of Sheet:** Wendy Bryden, Kenai Fjords National Park
Dorothy Mortenson, Southwest Alaska Network

**Website:** Suggestion: http://www.fgdc.gov/
Workbook: http://www.fgdc.gov/metadata/meta_workbook.html

**Purpose:** Use the FGDC Metadata Workbook for detailed descriptions of what should be entered into each field. Use the SMMS help files for more software or FGDC specific questions. This cheat sheet describes an abbreviated description as it pertains to the Inventory & Monitoring Program Data Mining efforts. These efforts include completing the minimum FGDC metadata for existing information. It should be noted for any NEW data, full FGDC metadata should be done where feasible. Refer to the Workbook for more complete instructions.

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**SMMS HOW TO:**

**To change datasets:**

- Tools –> Database –> connection type –> chose radial button Microsoft Access data base – >Select Next
- Use the Browse button to select the correct database.
- Files used:
  - smms_LACL.mdb – Lake Clark NP&P database
  - smms_KEFJ.mdb – Kenai Fjord NP database
  - smmsdata.mdb – original database.
- Use Finish to select it.

**Deleting records from a dataset:**

- File –> Delete follow directions

**Searching SMMS:**

Use the Metagate button – gate symbol located to the right of the drop down list, and box with Template – Standard.

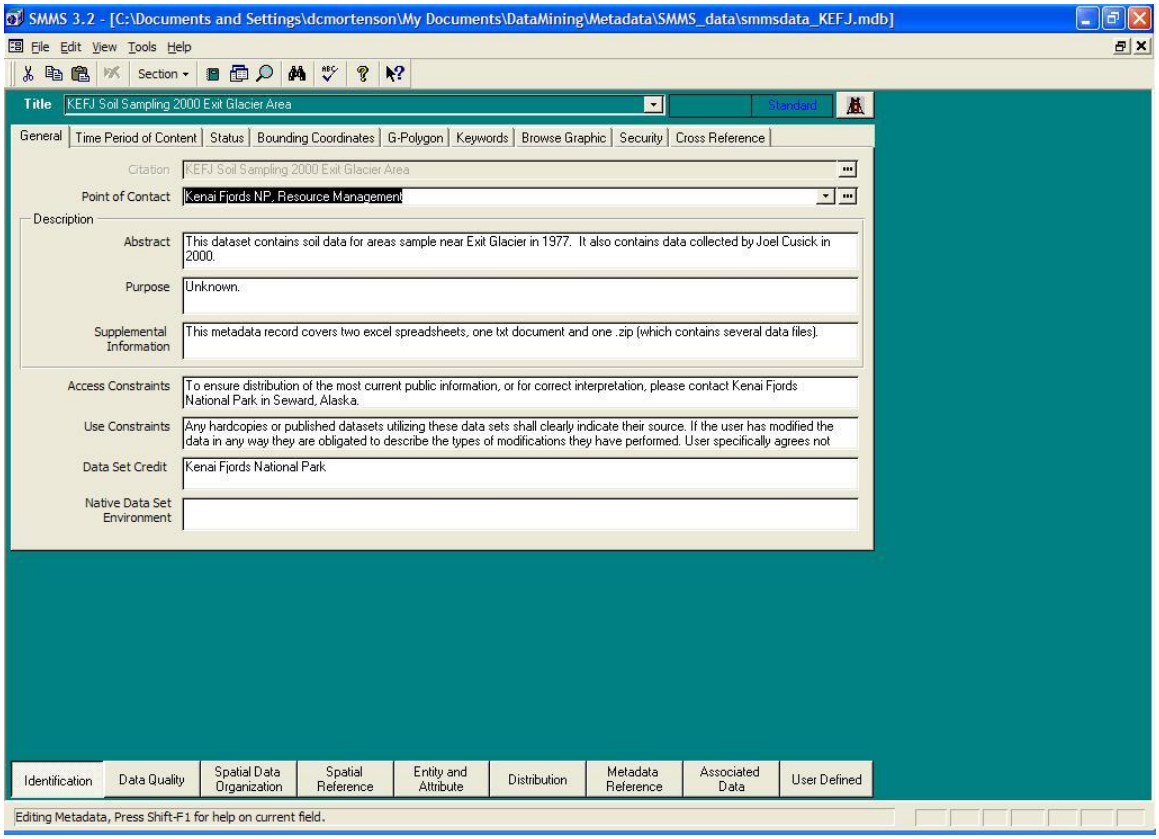
**Move a record from one dataset to another:**

- File -> Export ->Select record name
- Select radial button for SMMS Encoded Format (.sef)
- Select a destination directory – (create a folder in my documents as a holding point if necessary)
- Open the destination dataset (see "To change datasets" above)
- File -> Import
- Browse to the location of the file and select Open.

**Getting started with a new record:**

- File -> New – Create a New Metadata Record Menu
- Type – select Metadata Record radio button
- Title – Type in your new title (see section 1)
- Check box "Create From" and select the parks template (i.e., KEFJ Kenai Fjords NP Data Template)
- Select All
- Okay

Figure 1: Screen snap shot of SMMS Section 1



**SECTION 1: IDENTIFICATION**
Complete the IDENTIFICATION section as thoroughly as possible

**General Tab:**

*Title:*
Name by which the data set is known. Start with the park code (i.e., LACL or KEFJ). This will assist in naturally sorting records when all records are combined at the network or regional level. Be complete a possible, making the title unique – include year, if this helps (i.e., LACL Bear Study 2000, LACL Bear Study 2001, etc.) The title alone should give the user a good idea of the information.

*Citation:*
- Click on the three dots beside the Title.
- General Tab:
    - Originator: fill in park name or individual who developed data set
    - Publication Date: when data set was published (Use Unpublished material or Unknown, if not published)
    - Edition: the version
    - Geospatial Data Presentation Form: tells what kind of data it is, such as:
        - Excel - use "spreadsheet"
        - Access database – use "tabular digital data"
        - See workbook, section 8.6 for additional options
    - Online Linkage – Online link goes here; Put in the path to where the files are located for in-house purposes, but take these out for the metadata to go onto the clearinghouse. If data is public and available for download, but the URL here.
- Series Information Tab: most likely nothing here
- Publication Information Tab:
    - Publication Place: Name of city and state where data published or released
        - LACL - Port Alsworth, Alaska
        - KEFJ – Seward, Alaska
        - Etc.
    - Publisher: Name of the park. For example: USDI National Park Service, Kenai Fjords National Park
- Source Citation Information Tab:
    - Source Scale Denominator: Scale of maps
    - Type of Source Media: If the original came from a source, such as a CD or tape, enter it here.
    - Currentness Reference:
        - Ground condition – date of the data pertains to when it was true on the ground (i.e., such as the dates the field work was done)
        - Publication date - date of the data pertains to when it was true when the data was published (i.e., such as the source from a book dated 1999.)
    - Date: Use YYYYMMDD

*Point of Contact:*
- Click on the three dots beside the citation
- Complete the point of contact information, or if it exists, select from list
- Make the point of contact person generic, if possible, by using the position rather than an individual's name.

*Description:*
- Abstract: Narrative of the dataset
- Purpose: Summary of intentions with which data set developed
- Supplemental Information: Any other information helpful to describe the dataset

*Access Constraints:*
- Use the standard text used in GIS metadata UNLESS it is sensitive, such as park only, nps only. State why it is sensitive, such as archeology, cave, law enforcement, paleontology, T&E, other. If there is a specific law you can cite, please include it here.
- For example: For Park Use Only
- Example of Standard Text:
    - *To ensure distribution of the most current public information, or for correct interpretation, please contact Kenai Fjords National Park in Seward, Alaska.*

*Use Constraints*:
- Use the standard text used in GIS metadata UNLESS it is sensitive, such as park only, nps only. State why it is sensitive, such as archeology, cave, law enforcement, paleontology, T&E, other.
- For example: This file contains site locations to a T&E species
- Example of Standard Text:
    - *Any hardcopies or published datasets utilizing these data sets shall clearly indicate their source. If the user has modified the data in any way they are obligated to describe the types of modifications they have performed. User specifically agrees not to misrepresent these data sets, nor to imply that changes they made were approved by the National Park Service.*

*Dataset Credit:*
- Give credit where credit is due

**Time Period Content Tab:**

*Currentness Reference:*
- Ground condition – date of the data pertains to when it was true on the ground (i.e., such as the dates the field work was done)
- Publication date - date of the data pertains to when it was true when the data was published (i.e., such as the source from a book dated 1999.)

*Date:* date of the content.

**Status Tab:**

*Progress:*
- Check drop down lists

*Maintenance:*
- Check drop down lists

**Bounding Coordinates Tab:**

- Unless known, use the general park boundary coordinates for the park. Does not have to be exact, but it should be inclusive
- Kenai Fjord NP
    - West_Bounding_Coordinate: -155.4817
    - East_Bounding_Coordinate: -151.2596
    - North_Bounding_Coordinate: 61.7487
    - South_Bounding_Coordinate: 59.516
- Lake Clark NP&P
    - West_Bounding_Coordinate: -155.4817
    - East_Bounding_Coordinate: -151.2596
    - North_Bounding_Coordinate: 61.7487
    - South_Bounding_Coordinate: 59.516

**G-Polygon Tab:**

- Skip for non-geospatial data.

**Keywords Tab**:

*Theme Keywords:*

- Use the imported National Park Service thesaurus
- Always include: National Park Service and NPS
- Use plural; Use lowercase unless a proper name
- Classify as: physical, biological, cultural, or human use, where possible
- Classify as: inventory/inventories or monitoring, where possible

*Place Keywords:*

- Use the imported Park Placenames thesaurus
- Always include: Alaska, the park code, and the park full name (i.e., Katmai National Park and Preserve)

**Browse Graphic Tab:**

- Add a graphic file, if it helps to illustrate the dataset

**Security Tab: IMPORTANT TO COMPLETE**

*Security Classification System*:
Use the same classification as the NPS's Dataset Catalog.

- National Park Service

Security Classification:

- Need to decide the classification on a case by case basis.
- Options are:
    - Public
    - Park
    - NPS Only

Security Handling Description:
Corresponding options to the above are:

- Available to the general public
- Available for anyone within the Kenai Fjords National Park (or name of other park)
- Available for anyone within the National Park Service

**Cross Reference Tab:**

- Information about other related data sets - optional

**SECTION 2: DATA QUALITY (optional)**

- Complete only for very good datasets – not necessary in every dataset
- Refer to the FGDC Workbook or the SMMS help files for more information

**SECTION 3: SPATIAL DATA ORGANIZATION INFO (optional)**

- Complete only for geospatial datasets not already documented
- Refer to the FGDC Workbook or the SMMS help files for more information

**Section 4: SPATIAL REFERENCE (optional)**

- Complete only for geospatial datasets not already documented
- Refer to the FGDC Workbook or the SMMS help files for more information
- This may include information collected from a GPS still in tabular form. Complete only if this information is known.
    - Horizontal Coordinate System – Geographic Coordinates Units (if in latitude/longitude)
    - Geodetic Model – Enter the datum information here
    - Vertical Coordinate System – Enter the reference frame or system from which altitudes or depths are measured.

**SECTION 5: ENTITY AND ATTRIBUTES SECTION (optional)**

- Bonus points here!
- Complete only for very good datasets – not necessary in every dataset
- Refer to the FGDC Workbook or the SMMS help files for more information
- SMMS provides some help in adding attributes, though not for tabular data. See the SMMS help for more details.
- Use the Entity and Attribute Overview for an overall description or listing of attributes

## SECTION 6: DISTRIBUTION

**General Tab:**

- Distribution Method – Use predefined info; This should be a one time set up for each park/division within the park. Use a generic position, such as Lake Clark NP&P, Resource Management as contact
- Resource Description – label or name by which dataset can be requested from distributor
- Technical Prerequisites – any technical capabilities needed for the dataset to be provided
- Distribution Liability – Add the standard text, unless otherwise specified:
- Example of Standard Text:
    - *The National Park Service shall not be held liable for improper or incorrect use of the data described and/or contained herein. These data and related graphics (i.e. GIF or JPG format files) are not legal documents and are not intended to be used as such. The information contained in these data is dynamic and may change over time. The data are not better than the original sources from which they were derived. It is the responsibility of the data user to use the data appropriately and consistent within the limitations of geospatial data in general and these data in particular. The related graphics are intended to aid the data user in acquiring relevant data; it is not appropriate to use the related graphics as data. The National Park Service gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is strongly recommended that these data are directly acquired from an NPS server and not indirectly through other sources which may have changed the data in some way. Although these data have been processed successfully on computer systems at the National Park Service, no warranty expressed or implied is made regarding the utility of the data on other systems for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data.*

## SECTION 7: METADATA REFERENCE

**General Tab:**

*Metadata Date*:

- Date created

*Metadata Review Date*:

- Date someone reviewed it

*Metadata Future Review date:*

- Date metadata should be reviewed again for updates. Set for a year from now.

*Contact*:

- Contact of the person completing the metadata. Use the three dots to the right of the contact to add a new contact person.

*Metadata Use constraints:*

- Use the same that is used for GIS data:
    - *If the user has modified the data in any way they are obligated to describe the types of modifications they have performed in the supporting metadata file. User specifically agrees not to imply that changes they made were approved by the National Park Service.*

**OTHER EXTNETIONS IN SMMS:**

**ASSOCIATED DATA**

- Use the Associate button to tie the metadata to an associated GIS layer. If you do this the program uses the GIS layer to fill in metadata – Allows you to associate the data set with the record that defines it.
- Select Associate – Select the type of data you are associating. Next browse to the document to set the path.
    - Select Geographic if decimal degrees
    - Select Planer if projected
    - (Horizontal Datum usually NAD27 – (Makes a .jpg file)

**USER DEFINED**

For the Inventory & Monitoring Program Data Mining effort, we created three User Defined fields, using the Drop-down lists.

- Park Code – select the appropriate park code
- Sensitivity
    - NPS only
    - Park only
    - Public
- In-house Metadata – corresponding definition of the sensitivity:
    - AKSO - metadata to AKSO is acceptable
    - LACL (or park code) – Keep metadata in-house
    - WASO – metadata to WASO is acceptable

**NEXT STEP:**

After the metadata has been completed, follow these steps:

- Review all of the metadata for consistency, Check for spelling errors
- Export all the metadata as text files:
    - File -> Export ->
    - Select all records
    - Select FGDC Encode Ascii (.txt) radio button
    - Okay
    - Save to a work folder
- Run the MP tool on these files and make corrections to the original SMMS database
- Repeat the above export when the corrections have been made until the metadata records pass the MP error check
- Rename and save the metadata record in the same place as the datasets.
- Request park staff review the metadata.
- Park staff may want to keep the work folder for a consolidated place of all metadata records.
- Deliver final SMMS database to the Network Database Manager for further processing to the internet.

**Maintenance:**

- Discuss with park staff what the best method of maintenance would be. This will be park specific.

# Cheat Sheet: Using Metadata Parcer (MP) to Check SMMS Metadata for FGDC Compliant Errors

**Author(s) of Sheet:** Wendy Bryden, Kenai Fjords National Park
Dorothy Mortenson, Southwest Alaska Network

**Website:** Suggestion: http://www.fgdc.gov/
Download: http://geology.usgs.gov/tools/metadata/tools/doc/mp.html

**Purpose:** After the metadata is completed, it needs to be checked for errors to ensure compatibility with the FGDC content standards. Using the mp tool provided by the FGDC will check for errors. Note: Getting mp to work is sometimes a bit tricky. If you run into problems or questions, contact the GIS support person for your office.

**Step 1:**
Prepare a workspace

- Ensure you have mp installed on your computer. Search for mp.exe
- If you do NOT have mp installed on your computer, you may obtain it by visiting: http://geology.usgs.gov/tools/metadata/tools/doc/mp.html
  Or by contacting your support office GIS contact person.
- Create a working directory
  /Metadata_park (use park 4 letter code)
  - /Errors
  - /Input
  - /Output
  - /Process

**Step 2:**
Exporting the metadata

- Open the SMMS 3.2 Application
- Select the metadata record from the drop down list which you wish to check for errors
- From the main menu select File –> Export
- Be sure the correct record is selected. Under File Type on the right hand side of the box select FGDC Encoded Ascii (*.txt)
- Select OK
- Select the destination working directory
- Select OK
- SMMS will export a .txt version of the metadata record. The name of the file will be the same as the title.

**Step 3:**
Run mp to check for errors

```
C:\FGDCmeta\tools\MP\mp –e ../errors/file1.err ../Input/file1.txt
C:\FGDCmeta\tools\MP\mp –e ../errors/file1.err ../Input/file2.txt
C:\FGDCmeta\tools\MP\mp –e ../errors/file1.err ../Input/file3.txt
…
```

You may want to create a batch file to run through your list.

- Open DOS window and navigate to the Input directory
- Dir * > filelist.txt

- In Notepad, open the filelist.txt and modify as needed with search and replace to create a list of the commands as written above. Save as check_errors.bat
- At the same DOS prompt, type check_errors.bat

**Step 4:**
Checking the metadata

- The .err file will tell you what elements of the metadata need to be fixed.
- Use SMMS to make the changes and run the error checking process again to be sure you have corrected all errors.

Common Errors

- Part five Entity and Attribute – General tab. (5.2.2) Often Wendy was filling in the first block of this – Entity and Attribute Overview. If you fill it in you must also add the word None to the second block – Entity and Attribute Detail Citation if you do not intend on filling in this information.

- Part six Distribution Fees 6.4.3 – in Standard Order Process Under the default Lake Clark NP&P Distribution - and under the tab Standard Order Process [Digital] we added under the block Fees: Call or e-mail.

- Part one or eight Identification –Under the first tab General under the Citation the second tab Series Information – if the first part Series Name is filled in the second block called Issue Identification must also be filled in. Under the third tab Publication Information – fill the first bock Publication Place in with the town name a comma and Alaska spelled out. Fill the second block in with a Publisher name (commonly NPS and the park name) as in: National Park Service, Lake Cark National Park and Preserve.

- Under the third tab Status - fill in Progress with the proper term picked from the drop down. If you fill this in you must also fill in the next block down Maintenance and Update Frequency. Use the drop down for the appropriate response.

- Under the eighth tab Security - Fill in the first block Security Classification System with National Park Service. The second block down Security Classification should be filled in with one of the three options: Park only (LACL only); NPS Only; Available to the General Public. The third block Security Handling Description should follow the information filled in the second block Security Classification it should read with one of the three options:
    - Available for anyone with the National Park Service
    - Available for anyone working for Lake Clark National Park and Preserve
    - Available to the general public.

- Under tab seven Metadata Reference - Under the general tab the blocks for Metadata Date, Metadata Review Date, and Metadata Future Review Date need to be filled in. Dorothy will fill in the Metadata Review date when she checks records so it can remain empty. The Metadata date is the date the SMMS record is created and the Metadata Future Review Date should be the default of 1/1/2004.

- Under tab six Distribution - Under the fourth tab Available Time Period these blocks must be filled in. If you do not know use the default Unknown for both Calendar Date and Time of Day.

- Publication date format – dates must be in this format: YYYYMMDD.

- 9.1.1 Error – can be corrected in the following location
  Distribution – Available time period  Date/time  Calendar date – select unknown

**Step 5:**
Checking the content

- Once the metadata record passes the mp test, review in the HTML version or the TXT version for content, making sure the content makes sense and is consistent. Creating the HTML and TXT version are described in the following steps.

**Step 6:**
Run mp for clearinghouse and website

- In the /Process directory, create the batch_LACL.bat file (replace with park code) with the list of filenames.
  Batch_LACL.bat

```
C:\FGDCmeta\tools\MP\mp -c config_SWAN.cfg ../metadata/file1.met
C:\FGDCmeta\tools\MP\mp -c config_SWAN.cfg ../metadata/file2.met
C:\FGDCmeta\tools\MP\mp -c config_SWAN.cfg ../metadata/file3.met
…
```

- Copy the following files into the /Process directory (files listed at the end of this cheat sheet):
  - /graphics – where any graphics for the header or footer for the HTML version are stored. In this case meta_banner.jpg and meta_footer.jpg are used.
  - Batch_LACL.xls – a spreadsheet used to generate the batch_LACL.bat file
  - Config_SWAN.cfg
  - Filenames.txt – a directory list of all the files in the directory (dir *.met > filenames.txt)
  - Meta_style.css – Cascade style sheet used for the HTML
- Shortcut to creating the batch file:
  - Create the filenames.txt  by typing at the DOS prompt:
    dir *.met > filenames.txt
  -
- Navigate to the /Inbox.
- Rename the exported record to a short version of the name with the extension .met
- Windows will ask the following – If you change a filename extension the file may become unusable.  Are you sure you want to change it? Answer Yes.
- Run the batch_LACL.bat file by double clicking on it or by opening DOS, navigating to the file, then type in: batch_LACL.bat
- You can confirm that you have met files there by typing dir *.met.
- Now you need to run the batch file.  After the following string C:\SHARE\Metadata\Tools\FGDCmeta\inbox (at the blinking cursor – type mp_akso file name without the extension)  For example: mp_akso temp2  where temp 2 is the file name. Hit enter.
- Several new files will be generated in the inbox including the metadata in several format types and an error folder which will be named: err_filename.html

**Step 7:**
Sorting the generated files.  All of the files from the previous step create files in the \Input directory.  These should be separated.

- In windows explorer, sort by type.  To do this, you must view explorer as "details"
- Move the .err to the errors directory
- Move the XML, HTML, SGML, and TXT files to the output directory

File: Config_SWAN.cfg
This file uses HTML tags to add a header and footer to the HTML files.

```
# This is the default configuration data encoded as a configuration
# file.  To modify any default conditions, alter one or more lines
# of this file and specify its name after -c on the mp command line.

# Note that anything that is not recognized is ignored without warning.
# So if you want to put something in here that you don't want mp to
# act on, alter the keyword in some way but keep the indentation.
# To show the use of the extensions keyword under input, I put it in
# preceded by the pound sign.  Same for output:tree.

# In this file I have commented out options that are used only in
# special circumstances.  For details on the config file, see
# <http://geology.usgs.gov/tools/metadata/tools/doc/config.html>

# Joel Cusick made modifications to header/footer section to redirect
# nps style sections - 2/9/01

# Dorothy Mortenson made modifications to header/footer 6/18/2003

input
    indent lax
    blanks keep
    #extensions /net/shark/d1/gis/asgdc/generatemeta/tools/parcer/ext/geo-age.ext
    #tips       /net/shark/d1/gis/asgdc/generatemeta/tools/parcer/ext/geo-age.tip
    #extensions /net/shark/d1/gis/asgdc/generatemeta/tools/parcer/ext/parts.ext
    #tips       /net/shark/d1/gis/asgdc/generatemeta/tools/parcer/ext/parts.tip
output
    errors %s.err
    #tree <file name>
    text
        file %s.txt
        indent "  "
        #top_level skip
    sgml
        file %s.sgml
        tags ps8
        blanks \n
        indent ""
        #skip_extensions
    xml
        file %s.xml
        blanks \n
        indent ""
        #skip_extensions
    html
        file %s.html
        faq %s.faq.html
        translate
        preformat >
        meta on
        body bgcolor="#CCCCCC" link ="#0000CC" vlink="#3333FF" alink="#009900"
        base http://www1.nature.nps.gov/im/units/nw01/Metadata/
        header
           <TABLE width="100%" border="0" cellspacing="0" cellpadding="0">
           <TR BGCOLOR="#000000">
           <td width="10"> </td>
           <td  valign="top">
           <a href="http://www1.nature.nps.gov/im/units/nw01/">
           <img
src="http://www1.nature.nps.gov/im/units/nw01/Metadata/graphics/Meta_banner.jpg"
           width="600" height="100" border="0" alt="National Park Service"></a>
           </TD>
           </TR>
           </table>
           <TABLE width="610" border="0" cellspacing="0" cellpadding="0">
```

```
            <TR bgcolor="#ffffff">
            <td width="10" bgcolor="#CCCCCC"> </td>
            <td width="10" bgcolor="#FFFFFF"> </td>
            <TD WIDTH="590" bgcolor="#ffffff">
            <font face="Tahoma,sans-serif" size ="-1">
         footer
            <BR>
            <hr noshade width="99%" align="left" size="1">
            <font size="-1">
            <a href="http://www.nps.gov/privacy.htm">Privacy &amp; Disclaimer</a> <BR>
            Author: <a href="mailto:dorothy_mortenson@nps.gov">Database Manager
</a><br>
            http://www1.nature.nps.gov/im/units/nw01/
            </font></td></tr></table>
            <TABLE width="100%" border="0" cellspacing="0" cellpadding="0">
            <TR BGCOLOR="#000000">
            <td width="10"> </td>
            <td  valign="top">
            <a href="http://www1.nature.nps.gov/im/units/nw01/">
            <img
src="http://www1.nature.nps.gov/im/units/nw01/Metadata/graphics/Meta_footer.jpg"
            width="600" height="55" border="0" alt="National Park Service"></a>
            </TD></TR></table>
         blanks "<P>\n"
```

## Meta_style.css

```
BODY.metabody {
	background-color : #CCCCCC;
	link:#0000CC;
	vlink:#3333FF;
	alink:#009900;
	text:#000000;
	margin-bottom : 0;
	margin-left : 0;
	margin-right : 0;
	margin-top : 0;
}
a:hover {  color: #3333FF; text-decoration: underline}
h6 {  font-family: Verdana, Arial, Helvetica; font-weight: normal}
h6 {  font-family: Verdana, Arial, Helvetica; font-style: normal; font-weight: normal}
.sitenav {  font-family: Arial, Helvetica, sans-serif; font-size: 0.8em; font-weight:
bold; color: #666633}
h4 {  font-family: Arial, Helvetica, sans-serif; font-size: .8em; font-weight: bold;
color: #666633}
h5 {
	font-family: Arial, Helvetica, sans-serif;
	font-size: .8em;
	font-weight: bold;
	color: #666699;
}
.bodypad {  font-family: Arial, Helvetica, sans-serif; font-size: 10pt}
.headline {  font-family: Arial, Helvetica, sans-serif; font-size: 1.3em; color: #FFFFFF;
left: 5px; clip:   rect(   ); top: 5px; font-weight: bold}
.caption {  font-family: Arial, Helvetica, sans-serif; font-size: .7em}
a:link {
	color: #666699;
	text-decoration: none
}
a:visited {  color: #666633; text-decoration: none}
.home {  font-family: Arial, Helvetica, sans-serif; font-size: .8em; font-weight: bold;
color: #FFFFFF}
.bodytext {
	font-family: Arial, Helvetica, sans-serif;
	font-size: 0.8em;
	color: #000000;
	margin-left : 20px;
}
h3 { font-family: Arial, Helvetica, sans-serif; font-size: 1.2em; color: #666633; left:
5px; clip: rect( ); top: 5px; margin-top: 10px; margin-bottom: 0px; font-weight: bold }
sheader {  font-family: Arial, Helvetica, sans-serif; font-size: .8em; font-weight: bold}
sidetext {  font-family: Arial, Helvetica, sans-serif; font-size: .7em}
h2 {
	font-family: Arial, Helvetica, sans-serif;
	color: Black;
	font-size: 1.3em;
	font-weight: bold
}
h1 {
	font-family: Arial, Helvetica, sans-serif;
	color: #666633;
	font-size: 1.4em;
	font-weight: bold
}
a:active {  color: #3333FF; text-decoration: underline}
```

# Appendix H:
# Cheat Sheets: Bibliography

# Cheat Sheet: NatureBIB Clean-up Procedures

**Author(s) of Sheet:** Wendy Bryden, Kenai Fjords National Park
Dorothy Mortenson, Southwest Alaska Network

**Website:** Suggestion: http://www1.nature.nps.gov/im/apps/npbib/index.htm
https://science1.nature.nps.gov/naturebib/
Requires user name and password

**Purpose:** This cheat sheet describes the procedures used to clean-up the records entered into NatureBIB Desktop version before submitting the records to the NatureBIB Oracle version. NatureBIB consists of two Access databases: one is the backend, where the data is actually stored, and the second is the front-end, which supplies the interface for entering and accessing the data. NatureBIB does not include an interface for editing records. Therefore edits need to be completed in the backend database of NatureBIB. It is recommended only those familiar with Access tables and databases and familiar with NatureBIB/bibliographies should proceed.

**Step 1:**
Create a backup of the backend database

**Step 2:**
Open the backend database

**Step 3:**
Review all tables and clean as appropriate, following these guidelines.

*Standardize keywords:*

- Open tbl_BIB_KEYWORD
- Sort on field keyword
- Review for consistency (i.e., use plural, Scientific first name was capitalized and the second name was not, etc.)
- Create a keyword list by creating a SQL query:

```
SELECT DISTINCT tbl_BIB_KEYWORD.Keyword
FROM tbl_BIB_KEYWORD;
```

*Complete Place Published:*

- Open tbl_BIB_MAIN
- Ensure all state names under PLACE_PUB used the two letter abbreviation

*Standardize Date Published:*

- Open tbl_BIB_MAIN
- Ensure format of the dates under DATE_PUB column are consistent: month day, year or month year with no comma

*Consistency in titles:*

- Open tbl_BIB_TITLE
- Check for consistency of capitalization - sentence style (only first words and proper names were capitalized.)

*Standardize Topic Areas:*
Originally the topic Area was not limited to a selected list of terms. Records needed to be reviewed to be consistent with the specified list of terms.

- Open tbl_BIB_TOPICAREAS
- Create the following SQL query to create a list of topic areas not on the original pick list:

```
SELECT DISTINCT tbl_BIB_TOPICAREAS.TOPICAREAS
FROM tbl_BIB_TOPICAREAS LEFT JOIN tbl_TopicAresa_LUT ON
tbl_BIB_TOPICAREAS.TOPICAREAS = tbl_TopicAresa_LUT.[Topic Areas]
WHERE (((tbl_TopicAresa_LUT.[Topic Areas]) Is Null))
ORDER BY tbl_BIB_TOPICAREAS.TOPICAREAS;
```

- Correct as needed

*Check spelling errors in Abstract:*

- Open tbl_BIB_ABSTRACT
- Click on the first record of the Abstract field (widen field if needed)
- Use the Microsoft spell check

*Check for errors with Authors:*
This is a little tricky in that you want the author name to be the same as what is written on the document. For example, one document might use the name John Doe, while another document might use the name John A. Doe. In looking through this table, you will not be able to make the correct determination. This check is only to check for obvious errors, such as obvious misspellings.

- Open tbl_BIB_NAMES
- Select the NAMES field and sort
- Look for obvious misspellings
- Look for consistency in spacing and abbreviations (i.e., Doe, J.A. vs. Doe,J. A.)
- Check the source for anything that stands out as odd.

*Add NRBIB to records:*
Each records needs to be classified as NRBIB, PALIOBIB, etc. in order for the report function to work in the application. The default for our efforts was put into NRBIB.

- Open BIB_SYS
- In the SYS_LIST column, NRBIB was added to all records

*Change or check document locations:*
In the case of Kenai Fjords National Park, the pathname of the electronic file had changed. There were edited before submitting. Aside of this, the pathnames should be reviewed for consistency as well:

- Open tbl_BIB_HOLD
- Select field CALL_NUM and sort
- Review list for consistency
- Select field NOTES_HOLD and sort
- This field is the name of the physical location.
- Use generic names (i.e., replace "Joe Doe's file drawer" with "Lake Clark National Park and Preserve - Headquarters - Resource Management File Cabinet")
- Check for consistency

# Appendix I: Reports

- SWAN Gazetteer
- SWAN Tabular Metadata Summary Report
- LACL Folder Descriptions

# Alagnak Wild River

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Alagnak River | STREAM | Inside |
| Branch River | STREAM | Inside |
| Kukaklek Lake | LAKE | Outside |
| Kvichak River | STREAM | Outside |
| Nonvianuk River | STREAM | Inside |

# Aniakchak National Monument & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Albert Johnson Creek | STREAM | Inside |
| Aleutian Range | RANGE | Both_in_out |
| Amber Bay | BAY | Outside |
| Aniakchak Bay | BAY | Outside |
| Aniakchak Crater | CRATER | Inside |
| Aniakchak Lagoon | BAY | Outside |
| Aniakchak Peak | SUMMIT | Inside |
| Aniakchak River | STREAM | Inside |
| Barbara (Squelish Creek) | STREAM | Both_in_out |
| Birthday (Tananapuk) Creek | STREAM | Both_in_out |
| Birthday Pass | GAP | Inside |
| Black Creek | STREAM | Outside |
| Black Nose | SUMMIT | Inside |
| Blue Violet Creek | STREAM | Outside |
| Cape Ayutka | CAPE | Inside |
| Cape Horn | CAPE | |
| Cape Kumlik | CAPE | Inside |
| Cape Kunmik | CAPE | Both_in_out |
| Cinder (Shagon) River | STREAM | Both_in_out |
| Cub Creek | STREAM | Inside |
| Eagle Island | ISLAND | Outside |
| Elephant Head Point | CAPE | Inside |
| Elephant Mountain | SUMMIT | Inside |
| Garden Island | ISLAND | Outside |
| Half Cone | OTHER | Inside |
| Hidden Creek | STREAM | Inside |
| High Creek | STREAM | Inside |
| Home Creek | STREAM | |
| Jaw Mountain | SUMMIT | Inside |
| Kujulik Bay | BAY | Outside |
| Kumlik Island | ISLAND | Outside |
| Lava Creek | STREAM | Inside |
| Main Creek | STREAM | Inside |
| Meloy Creek | STREAM | |
| Meshik Lake | LAKE | Inside |
| Meshik River | STREAM | Both_in_out |
| Misery Creek | STREAM | Outside |
| Mountain Creek | STREAM | |
| Mud (Hook) Creek | STREAM | Both_in_out |
| Mystery Creek | STREAM | Inside |
| North Fork Aniakchak River | STREAM | Inside |
| North Fork Yantarni Creek | STREAM | Outside |
| Northeast Creek | STREAM | Inside |
| Old Creek | STREAM | Outside |
| Pacific Ocean | OTHER | Outside |
| Painter Creek | STREAM | Outside |
| Pinnacle Mountain | SUMMIT | Inside |
| Plenty Bear Creek | STREAM | Both_in_out |

# Aniakchak National Monument & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Pumice Creek | STREAM | Both_in_out |
| Rainbow Creek | STREAM | Inside |
| Ray Creek | STREAM | Inside |
| Reindeer Creek | STREAM | Both_in_out |
| Reindeer Creek (North River) | STREAM | Outside |
| Rudy Creek | STREAM | Outside |
| Shoe Creek | STREAM | |
| Surprise Lake | LAKE | Inside |
| The Garden Wall | RIDGE | Inside |
| The Gates | GAP | Inside |
| The Twins | SUMMIT | Inside |
| Vent Mountain | SUMMIT | Inside |
| Village Creek | STREAM | Inside |
| Waterfall Creek | STREAM | |
| West Creek | STREAM | Inside |
| Wiggly Creek | STREAM | Inside |
| Wind Creek | STREAM | |
| Wolf Creek | STREAM | Outside |
| Wolverine Creek | STREAM | Inside |
| Yantarni Bay | BAY | Outside |
| Yantarni Creek | STREAM | Outside |

# Katmai National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Aguchik Island | ISLAND | Outside |
| Aguligik Island | ISLAND | Inside |
| Akumwarvik Bay | BAY | Both_in_out |
| Alagnak Wild River | STREAM | Both_in_out |
| Alagogshak Creek | STREAM | Inside |
| Alaska Peninsula | OTHER | Both_in_out |
| Amalik Bay | BAY | Inside |
| American Creek | STREAM | Inside |
| Angle Creek | STREAM | Inside |
| Ashivak | LOCALE | Outside |
| Atmo Mountain | SUMMIT | Inside |
| Baked Mountain | SUMMIT | Inside |
| Barrier Range | RANGE | Inside |
| Battle Lake | LAKE | Inside |
| Battle Lake Cabins | LOCALE | Inside |
| Bay Of Islands | ISLAND | Inside |
| Bear Island | ISLAND | Inside |
| Becharof National Wildlife Refuge | LOCALE | Outside |
| Becharof Wilderness Area | OTHER | Outside |
| Belinda Creek | STREAM | Outside |
| Big Kashvik Creek | STREAM | Inside |
| Big River | STREAM | Inside |
| Broken Mountain | SUMMIT | Inside |
| Brooks Camp | LOCALE | Inside |
| Brooks Fall | FALLS | Inside |
| Brooks Falls Trail | TRAIL | Inside |
| Brooks River | STREAM | |
| Buttress Range | RANGE | Inside |
| Cape Atushagvik | CAPE | Inside |
| Cape Atushagvik | CAPE | Inside |
| Cape Chiniak | CAPE | Inside |
| Cape Douglas | CAPE | Inside |
| Cape Gull | CAPE | Inside |
| Cape Ilktugitak | CAPE | Inside |
| Cape Kubugakli | CAPE | Inside |
| Cape Kuliak | CAPE | Inside |
| Cape Nukshak | CAPE | Inside |
| Cape Ugyak | CAPE | Inside |
| Contact Creek | STREAM | Both_in_out |
| Contact Peak | SUMMIT | Both_in_out |
| Cook Inlet | BASIN | Outside |
| Crater Lake | LAKE | Inside |
| Crevice Creek | STREAM | Outside |
| Dakavak Bay | BAY | Inside |
| Dakavak Lake | LAKE | Inside |
| Devils Cove | BAY | Inside |
| Devils Desk | SUMMIT | Inside |
| Douglas Reef | BAR | Inside |

# Katmai National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Douglas River | STREAM | Inside |
| Dumpling Mountain | SUMMIT | Inside |
| Dumpling Mountain Trail | TRAIL | Inside |
| Emerald Lake | LAKE | Outside |
| Enchanted Lake Lodge | LOCALE | Inside |
| Falling Mountain | SUMMIT | Inside |
| Fourpeaked Glacier | GLACIER | Inside |
| Fourpeaked Mountain | SUMMIT | Inside |
| Fulton Falls | FALLS | Inside |
| Fultons Falls | FALLS | Inside |
| Funnel Creek | STREAM | Inside |
| Gas Creek | STREAM | Both_in_out |
| Geographic Harbor | BAY | Inside |
| Gertrude Creek | STREAM | Both_in_out |
| Gertrude Peak | SUMMIT | Both_in_out |
| Gorge Creek | STREAM | Inside |
| Granite Peak | SUMMIT | Both_in_out |
| Grosvenor Lake Lodge | LOCALE | Inside |
| Grosvenor Portage Trail | TRAIL | Inside |
| Hagelbarger Pass | GAP | Inside |
| Hallo Bay | BAY | Inside |
| Hallo Creek | STREAM | Inside |
| Hallo Glacier | GLACIER | Inside |
| Hammersly Camp | LOCALE | Inside |
| Hammersly Lake | LAKE | Inside |
| Hardscrabble Creek | STREAM | Inside |
| Hidden Harbor | BAY | Inside |
| Hook Creek | STREAM | Inside |
| Hook Glacier | GLACIER | Inside |
| Idavain Lake | LAKE | Inside |
| Ikagluik Creek | STREAM | Inside |
| Iliuk Arm Naknek Lake | LAKE | Inside |
| Ilktugitak | ISLAND | Inside |
| Iron Springs Lake | LAKE | Inside |
| Kaflia Bay | BAY | Inside |
| Kaguyak | LOCALE | Inside |
| Kaguyak Crater | CRATER | Inside |
| Kamishak Bay | BAY | Outside |
| Kamishak River | STREAM | Inside |
| Kashvik Bay | BAY | Inside |
| Katmai Bay | BAY | Inside |
| Katmai Canyon | VALLEY | Inside |
| Katmai Lakes | LAKE | Inside |
| Katmai Pass | GAP | Inside |
| Katmai River | STREAM | Inside |
| Katmai Rock | ISLAND | |
| Katmai Village Site | LOCALE | Inside |
| Kejulik Mountains | RANGE | Both_in_out |

# Katmai National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Kejulik Pass | GAP | Inside |
| Kejulik River | STREAM | Both_in_out |
| Kenai Peninsula Borough | LOCALE | Both_in_out |
| Kinak Bay | BAY | Inside |
| King Salmon Creek | STREAM | Both_in_out |
| King Salmon River | STREAM | Outside |
| Kiukpalik Island | ISLAND | Inside |
| Knife Creek | STREAM | Inside |
| Knife Creek Glaciers | GLACIER | Inside |
| Kukak | LOCALE | Outside |
| Kukak | LOCALE | Inside |
| Kukak Bay | BAY | Inside |
| Kukak Point | CAPE | Inside |
| Kukak Volcano | SUMMIT | Inside |
| Kukaklek Lake | LAKE | Inside |
| Kuliak Bay | BAY | Inside |
| Kulichkof Island | ISLAND | Inside |
| Kulik Lake | LAKE | Inside |
| Kulik Lodge | LOCALE | Inside |
| Lake Brooks | LAKE | Inside |
| Lake Camp | LOCALE | Inside |
| Lake Coville | LAKE | Inside |
| Lake Grosvenor | LAKE | Inside |
| Little Kamishak River | STREAM | Both_in_out |
| Mageik Creek | STREAM | Inside |
| Mageik Landslide | AREA | Inside |
| Margot Creek | STREAM | Inside |
| Margot Falls | FALLS | Inside |
| Martin Creek | STREAM | Inside |
| McNeil Lake | LAKE | Outside |
| McNeil River | STREAM | Outside |
| McNeil River State Game Sanctuary | PARK | Outside |
| Mirror Lake | LAKE | Inside |
| Missak Bay | BAY | Inside |
| Moraine Creek | STREAM | Inside |
| Mount Cerberus | SUMMIT | Inside |
| Mount Denison | SUMMIT | Inside |
| Mount Douglas | SUMMIT | Inside |
| Mount Griggs | SUMMIT | Inside |
| Mount Ikagluik | SUMMIT | Inside |
| Mount Juhle | SUMMIT | Inside |
| Mount Katmai | SUMMIT | Inside |
| Mount Katolinat | SUMMIT | Inside |
| Mount Kelez | SUMMIT | Inside |
| Mount Kubugaki | SUMMIT | Both_in_out |
| Mount La Gorce | SUMMIT | Inside |
| Mount Mageik | SUMMIT | Inside |
| Mount Martin | SUMMIT | Inside |

# Katmai National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Mount Pedmar | SUMMIT | Inside |
| Mount Stellar | SUMMIT | Inside |
| Murray Lake | LAKE | Inside |
| Naknek Lake | LAKE | Inside |
| Naknek River | STREAM | Both_in_out |
| Nanuktuk Creek | STREAM | Inside |
| Narrow Cove | BAY | Inside |
| Ninagiak Island | ISLAND | Inside |
| Ninagiak River | STREAM | Inside |
| Noisy Mountain | SUMMIT | Inside |
| Nonvianuk Camp | LOCALE | Inside |
| Nonvianuk Lake | LAKE | Inside |
| Nonvianuk Lake | LAKE | Inside |
| Nonvianuk River | STREAM | Inside |
| North Arm Naknek Lake | LAKE | Inside |
| North Creek | STREAM | |
| North Fork Paint River | STREAM | Outside |
| Novarupta | CRATER | Inside |
| Nukshak Island | ISLAND | Inside |
| Oakley Peak | SUMMIT | Inside |
| Observation Mountain | SUMMIT | Inside |
| Painted Mountain | SUMMIT | Inside |
| Pecks Creek | STREAM | Outside |
| Pfaff Peak | SUMMIT | Inside |
| Pilot Knob | SUMMIT | Outside |
| Pilot Lake | LAKE | Outside |
| Pirate Lake | LAKE | Both_in_out |
| Rainbow River | STREAM | Inside |
| Red Mountain | SUMMIT | Both_in_out |
| Reindeer Lake | LAKE | Outside |
| River Lethe | STREAM | Inside |
| Russian Anchorage | BAY | Inside |
| Savonoski River | STREAM | Inside |
| Serpent Tongue Glacier | GLACIER | Inside |
| Shakun Islets | ISLAND | Inside |
| Shakun Rock | ISLAND | Inside |
| Shaw Island | ISLAND | Inside |
| Shelikof Strait | CHANNEL | Outside |
| Snowy Mountain | SUMMIT | Inside |
| Soluka Creek | STREAM | Inside |
| South Fork Kamishak River | STREAM | Inside |
| Spectacle Lake | LAKE | Inside |
| Spotted Glacier | GLACIER | Inside |
| Strike Creek | STREAM | Both_in_out |
| Sugarloaf Mountain | SUMMIT | Both_in_out |
| Sukoi Bay | BAY | Inside |
| Swikshak | LOCALE | Inside |
| Swikshak Lagoon | BAY | Inside |

# Katmai National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Swikshak River | STREAM | Inside |
| Takayofo Creek | STREAM | Both_in_out |
| Takli Island | ISLAND | Inside |
| The Knife Creek Glacier | GLACIER | Inside |
| Three Forks | LOCALE | Inside |
| Tiny Island | ISLAND | Inside |
| Topographers Peak | SUMMIT | Inside |
| Trident Volcano | SUMMIT | Inside |
| Ukak River | STREAM | Inside |
| Valley of Ten Thousand Smokes | VALLEY | Inside |
| Walatka Mountains | RANGE | Inside |
| Windy Creek | STREAM | Inside |
| Wolverine Falls | FALLS | Inside |
| Yori Pass | GAP | Inside |
| Yugnat Rocks | BAR | Inside |

# Kenai Fjords National Park

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Abra Cove | BAY | Outside |
| Addison Creek | STREAM | Private_Inside |
| Addison Glacier | GLACIER | Inside |
| Addison Lake | LAKE | Private_Inside |
| Agnes Cove | BAY | Outside |
| Aialik Bay | BAY | Outside |
| Aialik Cape | CAPE | Inside |
| Aialik Glacier | GLACIER | Inside |
| Aialik Peninsula | CAPE | Inside |
| Aligo Point | CAPE | Inside |
| Anchor Glacier | GLACIER | Inside |
| Ariadne Cove | BAY | Outside |
| Ariadne Island | ISLAND | Outside |
| Babcock Creek | STREAM | Private_Inside |
| Bayview School | SCHOOL | |
| Bear Cove | BAY | Outside |
| Bear Glacier | GLACIER | Inside |
| Bear Glacier Point | CAPE | Inside |
| Bear Lake | LAKE | Inside |
| Bear Mountain | SUMMIT | Outside |
| Bear Point | CAPE | Inside |
| Beautiful Island | ISLAND | Outside |
| Beauty Bay | BAY | Outside |
| Beehive Island | ISLAND | Outside |
| Berger Bay | BAY | Outside |
| Berger Island | ISLAND | Outside |
| Black Bay | BAY | Outside |
| Black Mountain | SUMMIT | Inside |
| Boulder Creek | STREAM | Outside |
| Bradley Lake | LAKE | Outside |
| Brown Mountain | SUMMIT | Outside |
| Bulldog Cove | BAY | Outside |
| Callisto Head | CAPE | Outside |
| Callisto Peak | SUMMIT | Outside |
| Cape Horn | CAPE | |
| Cataract Cove | BAY | Outside |
| Chance Cove | BAY | Outside |
| Chance Lagoon | BAY | Outside |
| Chat Cove | BAY | Outside |
| Chat Island | ISLAND | Outside |
| Chernof Glacier | GLACIER | Both_in_out |
| Cheval Island | ISLAND | Outside |
| Cheval Narrows | CHANNEL | Outside |
| Chiswell Islands | ISLAND | Outside |
| Cliff Bay | BAY | Outside |
| Cloudy Cape | CAPE | Inside |
| Cloudy Mountain | SUMMIT | Inside |
| Coleman Bay | BAY | Outside |

# Kenai Fjords National Park

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Cottonwood Creek | STREAM | Inside |
| Crater Bay | BAY | Outside |
| Cup Cove | BAY | Outside |
| Delight Lake | LAKE | Private_Inside |
| Delight Spit | OTHER | Private_Inside |
| Desire Lake | LAKE | Private_Inside |
| Dinglestadt Glacier | GLACIER | Both_in_out |
| Division Island | ISLAND | Outside |
| Dixon Glacier | GLACIER | Both_in_out |
| Dora Island | ISLAND | Outside |
| Dora Passage | CHANNEL | Outside |
| East Arm Nuka Bay | BAY | Outside |
| Erratic Island | ISLAND | Outside |
| Exit Glacier | GLACIER | Inside |
| Ferrum Creek | STREAM | Inside |
| Fire Cove | BAY | Outside |
| Frozen Rock | ISLAND | Outside |
| Granite Cape | CAPE | Outside |
| Granite Island | ISLAND | Outside |
| Granite Passage | CHANNEL | Outside |
| Grewingk Glacier | GLACIER | Both_in_out |
| Gulf of Alaska | OTHER | Outside |
| Harbor Island | ISLAND | Outside |
| Harding Ice Field | GLACIER | Both_in_out |
| Hardover Point | CAPE | Outside |
| Harrington Point | CAPE | Private_Inside |
| Harris Bay | BAY | Outside |
| Harris Peninsula | CAPE | Private_Inside |
| Harris Point | CAPE | Private_Inside |
| Holgate Arm | BAY | Outside |
| Holgate Glacier | GLACIER | Inside |
| Holgate Head | SUMMIT | Inside |
| Home Cove | BAY | Outside |
| Hoof Point | CAPE | Outside |
| Hub Rock | ISLAND | Outside |
| Iceworm Peak | SUMMIT | Inside |
| Indian Glacier | GLACIER | Outside |
| James Lagoon | BAY | Outside |
| Kachemak Creek | STREAM | Outside |
| Kachemak Glacier | GLACIER | Both_in_out |
| Kenai Mountains | RANGE | Both_in_out |
| Killey Glacier | GLACIER | Outside |
| Kitten Pass | CHANNEL | Outside |
| Kvasnikoff Falls | FALLS | Inside |
| Lechner Glacier | GLACIER | Inside |
| Lowell Creek | STREAM | Outside |
| Lowell Glacier | GLACIER | Both_in_out |
| Lower Delusion Lake | LAKE | Inside |

# Kenai Fjords National Park

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Marathon Mountain | SUMMIT | Outside |
| Martin Creek | STREAM | Outside |
| Matushka Island | ISLAND | Outside |
| McArthur Cove | BAY | Outside |
| McArthur Pass | CHANNEL | Outside |
| McCarty Fiord | BAY | Outside |
| McCarty Glacier | GLACIER | Inside |
| McCarty Lagoon | BAY | Outside |
| McMullen Cove | BAY | Outside |
| Midnight Cove | BAY | Outside |
| Mikes Bay | BAY | Outside |
| Moonlight Bay | BAY | Outside |
| Moose Creek | STREAM | Inside |
| Morning Cove | BAY | Outside |
| Moss Point | CAPE | Inside |
| Mount Benson | SUMMIT | Outside |
| Mount Benson | SUMMIT | Outside |
| Mount Diablo | SUMMIT | Private_Inside |
| Mount Diablo | SUMMIT | Private_Inside |
| Natoa Island | ISLAND | Outside |
| No Name Island | ISLAND | Outside |
| North Arm Nuka Bay | BAY | Outside |
| Northeastern Glacier | GLACIER | Inside |
| Northwestern Fiord | BAY | Outside |
| Northwestern Glacier | GLACIER | Inside |
| Northwestern Lagoon | BAY | Outside |
| Northwestern Moraine | BAR | Outside |
| Nuka Bay | BAY | Outside |
| Nuka Glacier | GLACIER | Outside |
| Nuka Island | ISLAND | Outside |
| Nuka Passage | CHANNEL | Outside |
| Nuka Point | CAPE | Outside |
| Nuka River | STREAM | Both_in_out |
| Nuka Rock | ISLAND | Outside |
| Ogive Glacier | GLACIER | Inside |
| Otter Cove | BAY | Outside |
| Outer Island | ISLAND | Outside |
| Paguna Arm | BAY | Outside |
| Palisade Lagoon | BAY | Outside |
| Palisade Peak | SUMMIT | Inside |
| Paradise Cove | BAY | Outside |
| Paradise Creek | STREAM | Inside |
| Pedersen Glacier | GLACIER | Inside |
| Pederson Lagoon | BAY | Outside |
| Petes Pass | CHANNEL | Outside |
| Petrof Glacier | GLACIER | Both_in_out |
| Petrof Lake | LAKE | Outside |
| Petrof Point | CAPE | Outside |

# Kenai Fjords National Park

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Phoenix Peak | SUMMIT | Both_in_out |
| Pilot Harbor | BAY | Outside |
| Pilot Rock | ISLAND | Outside |
| Pinnacle Rock | ISLAND | Outside |
| Placer Creek | STREAM | Inside |
| Pony Cove | BAY | Outside |
| Porcupine Cove | BAY | Outside |
| Portlock Glacier | GLACIER | Outside |
| Quartz Bay | BAY | Outside |
| Quicksand Cove | BAY | Outside |
| Rabbit Island | ISLAND | Outside |
| Race Point | SUMMIT | Outside |
| Ragged Island | ISLAND | Outside |
| Redman Creek | STREAM | Inside |
| Redstone Glacier | GLACIER | Inside |
| Resurrection River | STREAM | Both_in_out |
| Ripple Cove | BAY | Outside |
| Roaring Cove | BAY | Outside |
| Sandy Bay | BAY | Outside |
| Shelter Cove | BAY | Outside |
| Skee Glacier | GLACIER | Inside |
| Skilak Glacier | GLACIER | Outside |
| Slate Island | ISLAND | Outside |
| Southwestern Glacier | GLACIER | Inside |
| Split Glacier | GLACIER | Inside |
| Spruce Creek | STREAM | Both_in_out |
| Squab Island | ISLAND | Outside |
| Steep Point | CAPE | Inside |
| Storm Mountain | SUMMIT | Inside |
| Striation Island | ISLAND | Outside |
| Summit Creek | STREAM | Outside |
| Sunlight Glacier | GLACIER | Inside |
| Surok Point | CAPE | Inside |
| Surprise Bay | BAY | Outside |
| Taroka Arm | BAY | Outside |
| Taroka Lake | LAKE | Inside |
| Taz Basin | BAY | Outside |
| Three Hole Bay | BAY | Outside |
| Three Hole Point | CAPE | Inside |
| Thunder Bay | BAY | Outside |
| Toe Point | CAPE | Outside |
| Tonsina Bay | BAY | Outside |
| Tonsina Creek | STREAM | Both_in_out |
| Tooth Cove | BAY | Outside |
| Truuli Glacier | GLACIER | Outside |
| Tustumena Glacier | GLACIER | Both_in_out |
| Twin Islands | ISLAND | Outside |
| Two Arm Bay | BAY | Outside |

# Kenai Fjords National Park

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Upper Delusion Lake | LAKE | Inside |
| Upper Russian Lake | LAKE | Outside |
| Verdant Cove | BAY | Outside |
| Verdant Island | ISLAND | Outside |
| West Arm Nuka Bay | BAY | Outside |
| Westdahl Cove | BAY | Outside |
| Wildcat Cove | BAY | Outside |
| Wildcat Pass | CHANNEL | Outside |
| Wosnesenski Glacier | GLACIER | Both_in_out |
| Yalik Bay | BAY | Outside |
| Yalik Glacier | GLACIER | Both_in_out |
| Yalik Point | CAPE | Private_Inside |

# Lake Clark National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Aho Glacier | GLACIER | Both_in_out |
| Alaska Range | RANGE | Both_in_out |
| Aleutian Range | RANGE | Both_in_out |
| Alexy Lake | LAKE | Outside |
| Another River | STREAM | Inside |
| August Hill | SUMMIT | Inside |
| Bachatna Creek | STREAM | Outside |
| Bear Creek | STREAM | Inside |
| Beaver Creek | STREAM | Both_in_out |
| Big River Lakes | LAKE | Outside |
| Big River Lobe Double Glacier | GLACIER | Both_in_out |
| Black Glacier | GLACIER | Both_in_out |
| Black Peak | SUMMIT | Both_in_out |
| Blacksand Creek | STREAM | Outside |
| Blockade Lake | LAKE | Outside |
| Blue Lake | LAKE | Inside |
| Bonanza Hills | OTHER | Outside |
| Boulder Creek | STREAM | Inside |
| Brooks Creek | STREAM | Inside |
| Brown Mountain | SUMMIT | Inside |
| Camp Point | CAPE | Outside |
| Cannery Creek | STREAM | Both_in_out |
| Canyon Creek | STREAM | Outside |
| Cape Shishkin | CAPE | Private_Inside |
| Caribou Lakes | LAKE | Inside |
| Chekok Creek | STREAM | Outside |
| Chekok Lake | LAKE | Both_in_out |
| Chi Point | CAPE | Private_Inside |
| Chigmit Mountains | RANGE | Both_in_out |
| Chilikadrotna River | STREAM | Both_in_out |
| Chilligan River | STREAM | Both_in_out |
| Chinitna Bay | BAY | Outside |
| Chinitna River | STREAM | Outside |
| Chisik Island | ISLAND | Outside |
| Chokotonk River | STREAM | Inside |
| Chulitna Bay | BAY | Private_Inside |
| Chulitna River | STREAM | Outside |
| Clam Cove | BAY | Outside |
| Clearwater Creek | STREAM | Outside |
| College Creek | STREAM | Inside |
| Copper Mountain | SUMMIT | Inside |
| Crescent Lake | LAKE | Inside |
| Crescent River | STREAM | Inside |
| Crystal Creek | STREAM | Outside |
| Currant Creek | STREAM | Inside |
| Dam Creek | STREAM | Both_in_out |
| Difficult Creek | STREAM | Inside |
| Double Glacier | GLACIER | Both_in_out |

# Lake Clark National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Double Glacier | GLACIER | Inside |
| Double Peak | SUMMIT | Inside |
| Drift River | STREAM | Both_in_out |
| Drift River Lobe Double Glacier | GLACIER | Inside |
| East Glacier Creek | STREAM | Inside |
| Fish Village | PPL | Outside |
| Fishtrap Lake | LAKE | Inside |
| Flat Island | ISLAND | Private_Inside |
| Fossil Point | CAPE | Outside |
| Glacier Fork Tlikakila River | STREAM | Inside |
| Glacier Spit | BAR | Outside |
| Gladiator Basin | VALLEY | Inside |
| Goldpan Peak | SUMMIT | Inside |
| Groundhog Creek | STREAM | Outside |
| Gull Island | ISLAND | Outside |
| Hardenburg Bay | BAY | Inside |
| Harriet Creek | STREAM | Both_in_out |
| Herbs Lagoon | BAY | Outside |
| Hickerson Lake | LAKE | Inside |
| Hoknede Mountain | SUMMIT | Outside |
| Holland Creek | STREAM | Inside |
| Horn Creek | STREAM | Inside |
| Horn Mountain | SUMMIT | Inside |
| Hungryman Creek | STREAM | Inside |
| Igitna River | STREAM | Inside |
| Iliamna Point | CAPE | Inside |
| Iliamna River | STREAM | Outside |
| Iliamna Volcano | SUMMIT | Inside |
| Iniskin Peninsula | CAPE | Outside |
| Iniskin River | STREAM | Outside |
| Johnson Glacier | GLACIER | Inside |
| Johnson River | STREAM | Both_in_out |
| Kasna Creek | STREAM | Inside |
| Kenibuna Lake | LAKE | Both_in_out |
| Keyes Point | CAPE | Outside |
| Kijik | LOCALE | Inside |
| Kijik Lake | LAKE | Both_in_out |
| Kijik Mountain | SUMMIT | Inside |
| Kijik River | STREAM | Inside |
| Knutson Creek | STREAM | Outside |
| Koksetna River | STREAM | Both_in_out |
| Kontrashibuna Lake | LAKE | Inside |
| Kristin Creek | STREAM | Both_in_out |
| Lachbuna Lake | LAKE | Inside |
| Lake Clark | LAKE | Inside |
| Lake Clark Pass | GAP | Inside |
| Lake Fork Crescent River | STREAM | Inside |
| Lateral Glacier | GLACIER | Inside |

# Lake Clark National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Left Fork West Glacier Creek | STREAM | Inside |
| Lenore Hill | SUMMIT | Inside |
| Little Lake Clark | LAKE | Inside |
| Little Mulchatna River | STREAM | Both_in_out |
| Little Polly Creek | STREAM | Private_Inside |
| Long Lake | LAKE | Outside |
| Lower Tazimina Lake | LAKE | Outside |
| Magnetic Island | ISLAND | Inside |
| Marsh Creek | STREAM | Outside |
| Max Lake | LAKE | Outside |
| Merrill Pass | GAP | Inside |
| Merrill River | STREAM | Inside |
| Middle Glacier Creek | STREAM | Both_in_out |
| Miller Creek | STREAM | Inside |
| Millett Creek | STREAM | Outside |
| Montana Bill Creek | STREAM | Outside |
| Moose Pasture Pass | GAP | Inside |
| Mount Nick | SUMMIT | Inside |
| Mulchatna River | STREAM | Both_in_out |
| Neacola Mountains | RANGE | Both_in_out |
| Neacola River | STREAM | Inside |
| Necons River | STREAM | Both_in_out |
| Negro Lake | LAKE | Outside |
| Newhalen River | STREAM | Outside |
| Nondalton | PPL | Outside |
| North Fork Big River | STREAM | Both_in_out |
| North Fork Crescent River | STREAM | Inside |
| North Fork Tlikakila River | STREAM | Inside |
| North Twin | SUMMIT | Inside |
| Old Village (Abandoned) | LOCALE | Inside |
| Open Creek | STREAM | Inside |
| Ospook Creek | STREAM | Inside |
| Otter Lake | LAKE | Inside |
| Park Creek | STREAM | Outside |
| Pickerel Lakes | AREA | Outside |
| Pile River | STREAM | Both_in_out |
| Polly Creek | STREAM | Inside |
| Port Alsworth | PPL | Inside |
| Portage Bay | BAY | Private_Inside |
| Portage Creek | STREAM | Inside |
| Portage Lake | LAKE | Inside |
| Ptarmagin Creek | STREAM | Outside |
| Range Mountains | Range | Both_in_out |
| Red Creek | STREAM | Inside |
| Red Glacier | GLACIER | Inside |
| Red River | STREAM | Inside |
| Redoubt Creek | STREAM | Both_in_out |
| Redoubt Point | CAPE | Inside |

# Lake Clark National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Redoubt Volcano | SUMMIT | Inside |
| Right Fork West Glacier Creek | STREAM | Inside |
| Roadhouse Mountain | SUMMIT | Both_in_out |
| Rock Creek | STREAM | Outside |
| Rusty Mountain | SUMMIT | Inside |
| Saddle Mountain | SUMMIT | Inside |
| Seal Spit | CAPE | Outside |
| Shamrock Glacier | GLACIER | Outside |
| Shark Tooth Hill | SUMMIT | Inside |
| Shelter Cove | BAY | Outside |
| Shelter Creek | STREAM | Inside |
| Silver Salmon Creek | STREAM | Both_in_out |
| Silver Salmon Lakes | LAKE | Inside |
| Sinking Creek | STREAM | Outside |
| Sixmile Lake | LAKE | Outside |
| Skwentna River | STREAM | Outside |
| Slope Mountain | SUMMIT | Inside |
| Snipe Lake | LAKE | Inside |
| Snowcap Mountain | SUMMIT | Outside |
| Snug Harbor | BAY | Outside |
| South Currant Creek | STREAM | Inside |
| South Fork Big River | STREAM | Outside |
| South Fork Kuskokwim River | STREAM | Outside |
| South Twin | SUMMIT | Inside |
| Spring Lakes | AREA | Inside |
| Spring Point | CAPE | Inside |
| Squarehead Cove | BAY | Outside |
| Squirrel Creek | STREAM | |
| Stoney River | STREAM | Both_in_out |
| Styx River | STREAM | Outside |
| Summit Creek | STREAM | Inside |
| Summit Lake | LAKE | Inside |
| Takoka Creek | STREAM | Inside |
| Tanaina Glacier | GLACIER | Both_in_out |
| Tanalian Falls | FALLS | Inside |
| Tanalian Falls Trail | TRAIL | Both_in_out |
| Tanalian Mountain | SUMMIT | Inside |
| Tanalian Point | CAPE | Outside |
| Tanalian River | STREAM | Inside |
| Tazimina River | STREAM | Inside |
| Telaquana Lake | LAKE | Inside |
| Telaquana Mountain | SUMMIT | Inside |
| Telaquana Pass | GAP | Inside |
| Telaquana River | STREAM | Both_in_out |
| Tex Peak | SUMMIT | Inside |
| The Tusk | PILLAR | Inside |
| Three Sisters Mountain | SUMMIT | Both_in_out |
| Tired Pup Creek | STREAM | Outside |

# Lake Clark National Park & Preserve

| NAME | Feature | Within Park Boundary |
|---|---|---|
| Tlikakila River | STREAM | Inside |
| Tlikakila River | STREAM | Inside |
| Tommy Creek | STREAM | Inside |
| Tommy Island | ISLAND | Inside |
| Tongue Glacier | GLACIER | Inside |
| Tooie Creek | STREAM | Both_in_out |
| Trail Creek | STREAM | Outside |
| Trail Creek | STREAM | Inside |
| Triangle Peak | SUMMIT | Inside |
| Tunkaleshna Creek | STREAM | Outside |
| Turner Bay | BAY | Private_Inside |
| Turquoise Lake | LAKE | Inside |
| Tuxedni Bay | BAY | Both_in_out |
| Tuxedni Channel | CHANNEL | Both_in_out |
| Tuxedni Glacier | GLACIER | Inside |
| Tuxedni National Wildlife Refuge | PARK | Outside |
| Tuxedni River | STREAM | Inside |
| Twin Lakes | LAKE | Inside |
| Two Lakes | LAKE | Inside |
| Umbrella Glacier | GLACIER | Inside |
| Upper Tazimina Lake | LAKE | Both_in_out |
| West Glacier Creek | STREAM | Inside |