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Project Information and Access System-Prototype

**Final Report for Study 01-154
USFWS Office of Subsistence Management
Fishery Information Services Division**

by

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and

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September 2004

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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ABSTRACT

As of 2001 there was no integrated archive or information management system for historic and newly collected data, estimates, project descriptions, reports, or contacts pertinent to management of subsistence fisheries throughout Alaska. Relevant data and information were and are managed by separate divisions within the State of Alaska's Department of Fish and Game, and by federal partners in subsistence management. Since information is often the desired end product of accessing data, establishment of a system that provided efficient access to information about projects, final reports, data summaries and contacts was proposed. An integrated and interactive system would reduce the time commitment by information management professionals to address information queries. A prototype of such an information system to demonstrate functionality and benefits is described. A budget analysis is also presented in regards to the cost of implementing and maintaining a fully developed interactive information access system for data relevant to the management of subsistence fisheries in Alaska.

Key words: Harvest Monitoring, Information, Data.

INTRODUCTION

During 2001 the State of Alaska's Department of Fish and Game (ADF&G) sought and obtained funding from the Office of Subsistence Management (OSM) of the US Fish and Wildlife Service (USFWS) to (1) convene a working group comprised of agency information management experts and other managers knowledgeable about the data and information relevant to subsistence fishery harvest monitoring, and information systems existing within their organizations; (2) develop an inventory of "centrally maintained" data and information relevant to subsistence fishery harvest monitoring; (3) recommend an interactive, integrated, and accessible information system to access centrally maintained subsistence fishery harvest data and information; and (4) develop a prototype of the recommended system. This report summarizes the results of this project (USFWS-OSM Fishery Information Systems Study-FIS 01-154).

At the start of this project there was no integrated archive or information management system for historic and newly collected data, estimates, project descriptions, reports, or contacts pertinent to management of subsistence fisheries throughout Alaska. Relevant data and information were and are managed by separate divisions within the State of Alaska's Department of Fish (ADF&G), and by new federal partners in subsistence management (e.g., US Fish and Wildlife Service's Office of Subsistence Management), with few linkages connecting information sources and a high likelihood of data inconsistencies between data sources. Another identified problem was that often only information management professionals could readily access these data and information sources, thereby increasing time and cost associated with meeting information requests. Data and information sources currently have a variety of access methods (i.e., proprietary software has been developed and used, and may not be web accessible), are maintained under disparate data management systems which may not interact, and have differing data and code structures. Although these information management systems may be well designed and suitable for their originally intended purpose, they are not readily accessible. A need existed to identify all data and information pertinent to Alaska subsistence fishery management; to evaluate and recommend development of an interactive, integrated, and accessible information system; and to determine a cost estimate for implementing such a system. It was envisioned at the start of this project that such a system would improve public and interagency communication, coordination, and cooperation in the area of data management and information sharing for fisheries resource and harvest monitoring and assessment, and could be expanded to include wildlife resource information in the future.

During development of the Subsistence Management Information Sharing Protocol between state and federal agencies (Appendix A1), it was apparent that providing direct access to all data might

not be possible, or even desirable under some circumstances. It was also obvious that none of the agencies had all of their data under central control. Some data sets were located in field offices, with local staff being most knowledgeable about these data and their limitations. Access to data without a clear understanding of how it was collected, and how it could or could not be used, potentially leads to misinformation and erroneous conclusions. Unrestricted access to certain data sets could also violate existing confidentiality restrictions. Since information is often the desired end product of accessing data, it would be beneficial to establish a system that provided efficient access to information about projects, final reports, data summaries, and contacts. An integrated and interactive system would be most beneficial because it would reduce the time commitment by information management professionals to address information queries. Thus, this project was expected to continue and expand on efforts initiated by the Information Sharing Protocol working group.

OBJECTIVES

The objectives of the original study proposal were to:

1. Convene a working group comprised of agency representatives with expertise in database design, computer hardware/software, and knowledge about pertinent historic and new data and information sources within their organization. This group will be charged with development of an inventory of centrally maintained data and information, and with making long-term recommendations for an interactive, integrated, and accessible information system.
2. Produce a report that documents current centrally maintained information sources and systems, and which also outlines a recommended process and budget for implementing an interactive, integrated, and accessible information system.
3. Develop a prototype of the recommended information system to demonstrate functionality and benefits. It is anticipated that the prototype will consist of an Internet GIS interface. The prototype will be based on ADF&G information and will include:
 - a) A searchable projects database to include project manager name, project description, objectives, location, and species affected.
 - b) A searchable contacts database to include staff names, titles, telephone numbers, mailing addresses, and email addresses.
 - c) A searchable publications database to provide access to abstracts and full-text reports.

LIMITATIONS

Attempts to address all of the study's original objectives were hampered by a number of unforeseen events, primarily related to personnel turnover within the project staff. Additional limitations included a temporary although significant discontinuation of accessibility to the Internet by two of the Federal cooperators due to legal action affecting all US Department of Interior agencies. These events interfered with the project to the extent that investigators left a substantive portion of the project's original funds unspent, that were subsequently returned to the funding agency. Correspondingly, portions of the objectives described above were not fully addressed. Additionally, parallel activities conducted by an interagency working group resulted in the "*Subsistence Management Information Sharing Protocol*," which substantively addressed the second objective of this project (see Appendix A1 for a copy of the protocol).

Accordingly, the results of this project primarily address objective 3, describing a prototype for a recommended information system. A generalized budget is also presented.

RESULTS

PROTOTYPE DESCRIPTION

A prototype web-accessed interface system was developed and implemented in order to demonstrate the recommended information system. The prototype consists of a main “home page” used to access the rest of the site (URL for prototype: <http://extra.sf.adfg.state.ak.us/fis/home/>¹), which consists of main title area, navigation links on the left frame of the page, and a “welcome/introduction” in the main part of the page (Figure 1). The welcoming and introductory text for the system provides a general description of the components of the system as well as providing clickable-links to the main portions of the prototype information access system (by design these links are redundant with the main navigational links provided in the left-hand side of the home page). All “child” navigational pages accessed from the home page are similarly organized.

The prototype of the Project Information and Access System consists of the following primary components (Figure 1), each of which is represented by the primary “child” pages for the demonstration web-site:

1. Searchable publications databases, providing access to abstracts and full-text reports for the following Alaska Department of Fish and Game depositories:
 - Subsistence Technical Papers (Figure 2 and Figure 3);
 - Sport Fish Report Series (Figure 4 and Figure 5); and
 - Sport Fish Operational Plans (Figure 6 and Figure 7).
2. A searchable projects database to include project manager name, project title, location, project description, and objectives (Figure 8 and Figure 9).
3. A searchable database of collected ADF&G Subsistence summary data, also known as the Community Profile Database (CPDB) (Figure 10, Figure 11, and Figure 12)².
4. A searchable contacts database to include staff names, titles, organization telephone numbers, mailing addresses, and email addresses (Figure 13, contact details example illustrated previously in Figure 9).

Some of the features of the recommended information and access system are demonstrated in the prototype as illustrated. For example, results from a search within the projects database section of the prototype (Figure 8) provide direct links to the contacts database (Figure 9). Conversely, many of the features of the recommended system are not implemented in the prototype due to the limited nature and scope of the prototype, as noted below.

¹ Prototype web site will only be accessible for a limited time following the publication of this report, as the data contained in the prototype is statically stored, whereas the information represented is dynamic in nature. The information in the prototype will be substantively outdated in the near future, and hence the decision to only make the prototype accessible for a limited (trial) period. Web pages and data sets associated with the web site have been provided on CD, but not commercially purchased software.

² The CPDB structure is diagrammed in Appendix A2, documenting the database structure as requested by the US Fish and Wildlife Service, Office of Subsistence Management.



Figure 1.-Main access page for the prototype Project Information and Access System.

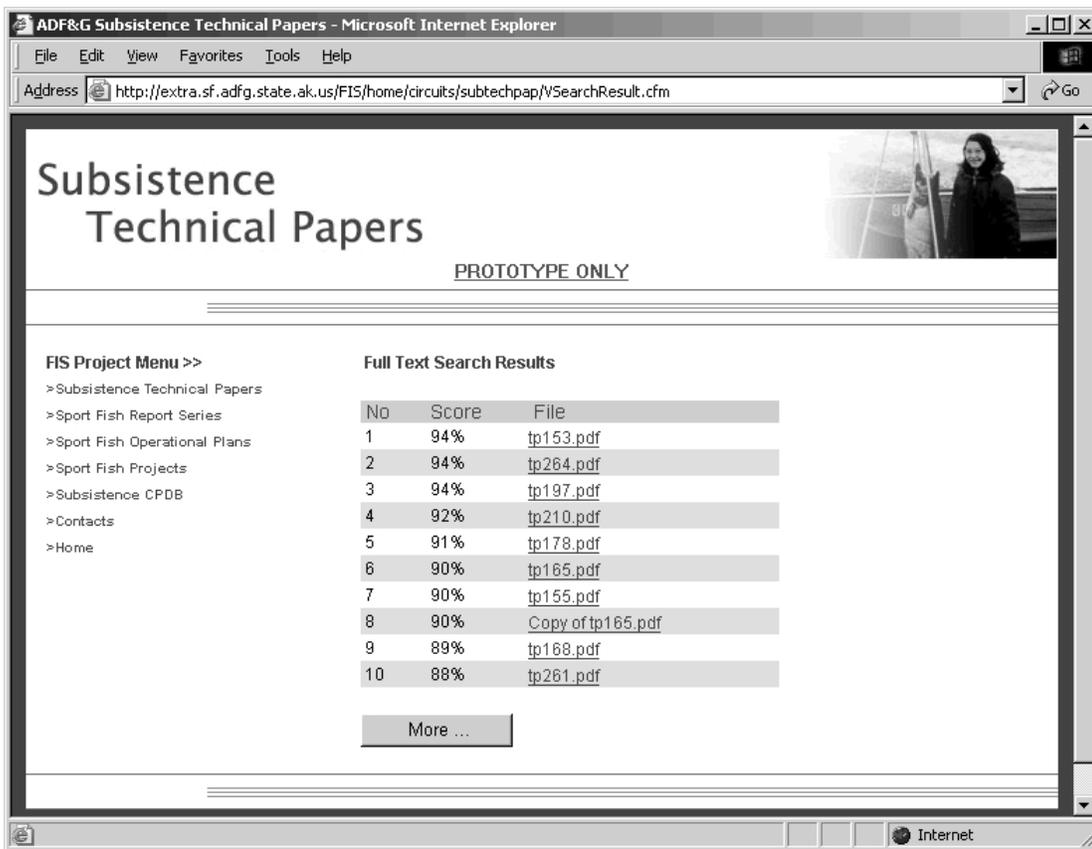
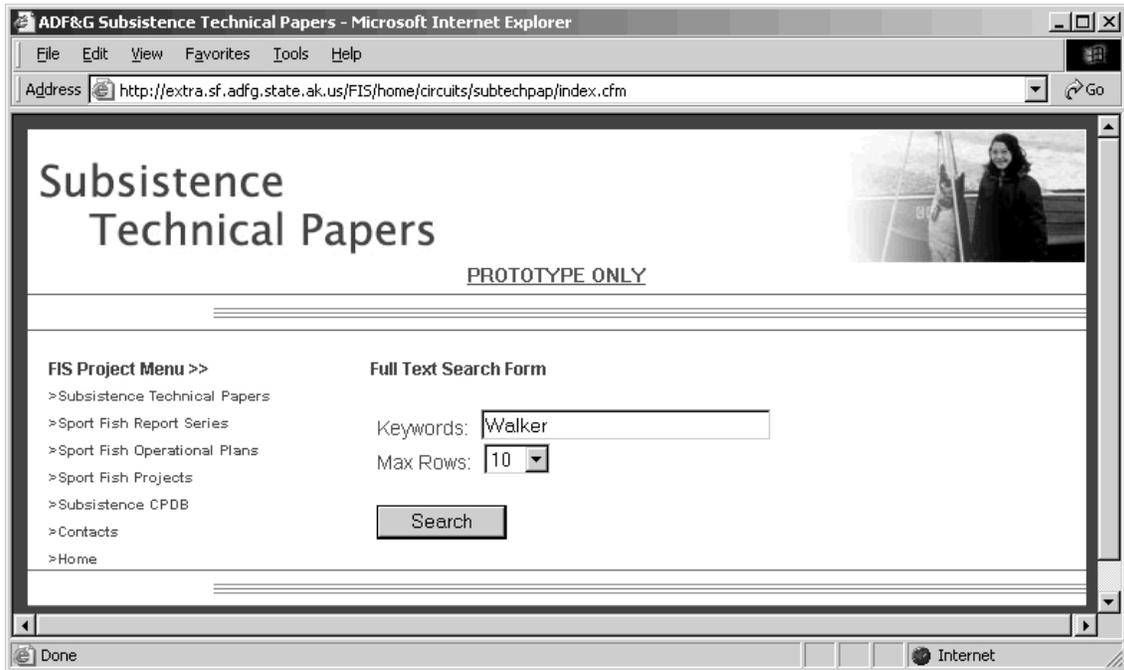


Figure 2.-The Subsistence Technical Papers page for the prototype Project Information and Access System, and a result-page from a “typical” search.

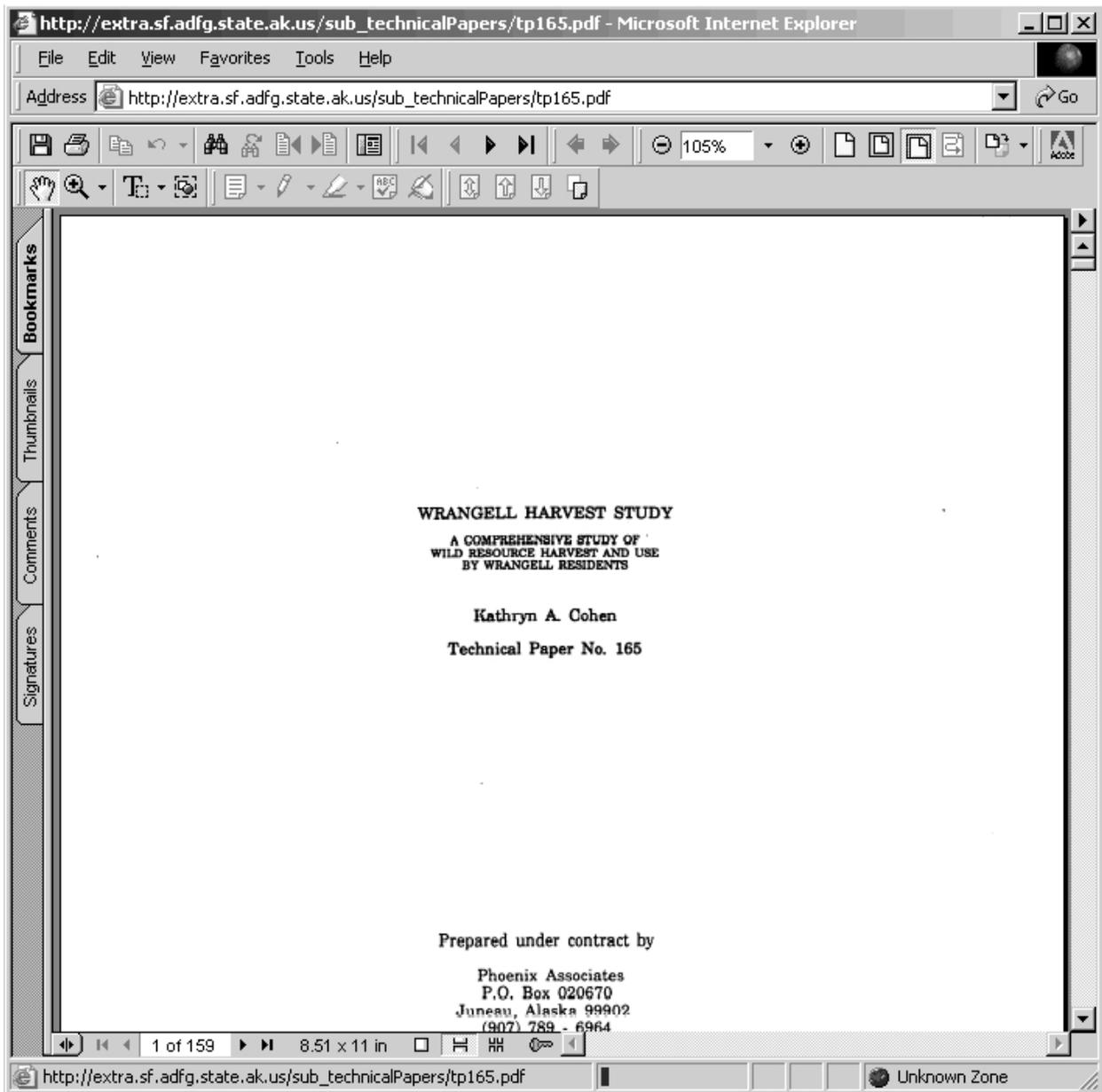


Figure 3.-Example of accessed paper from the Subsistence Technical Papers section of the prototype Project Information and Access System.

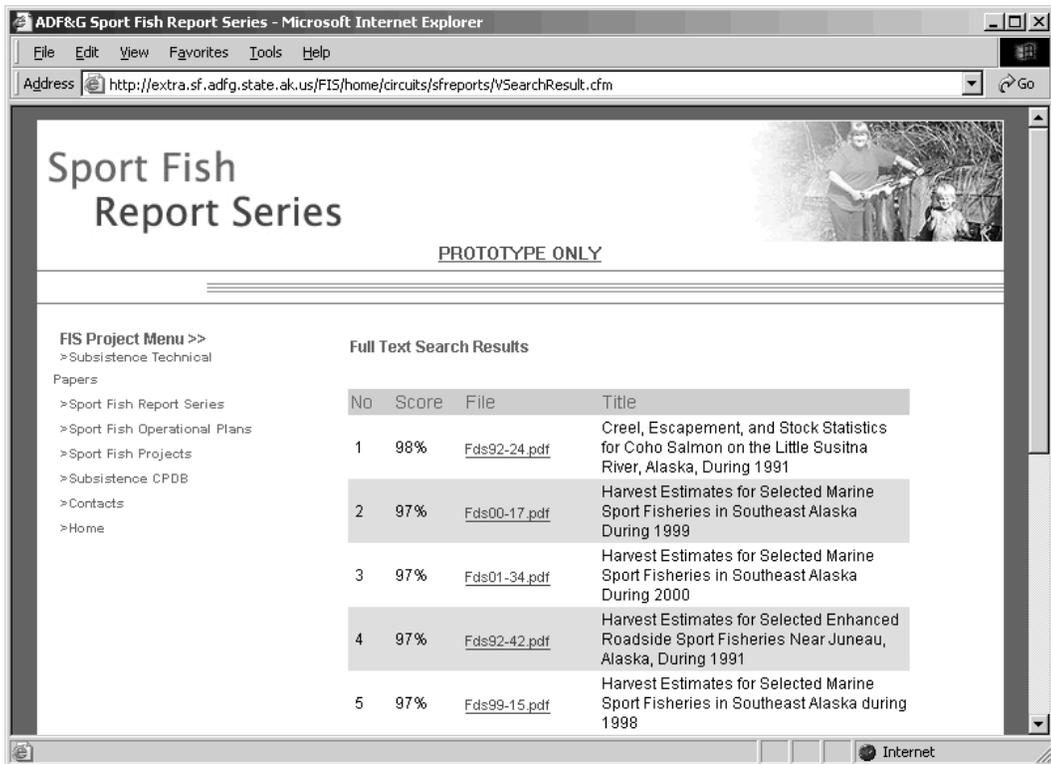
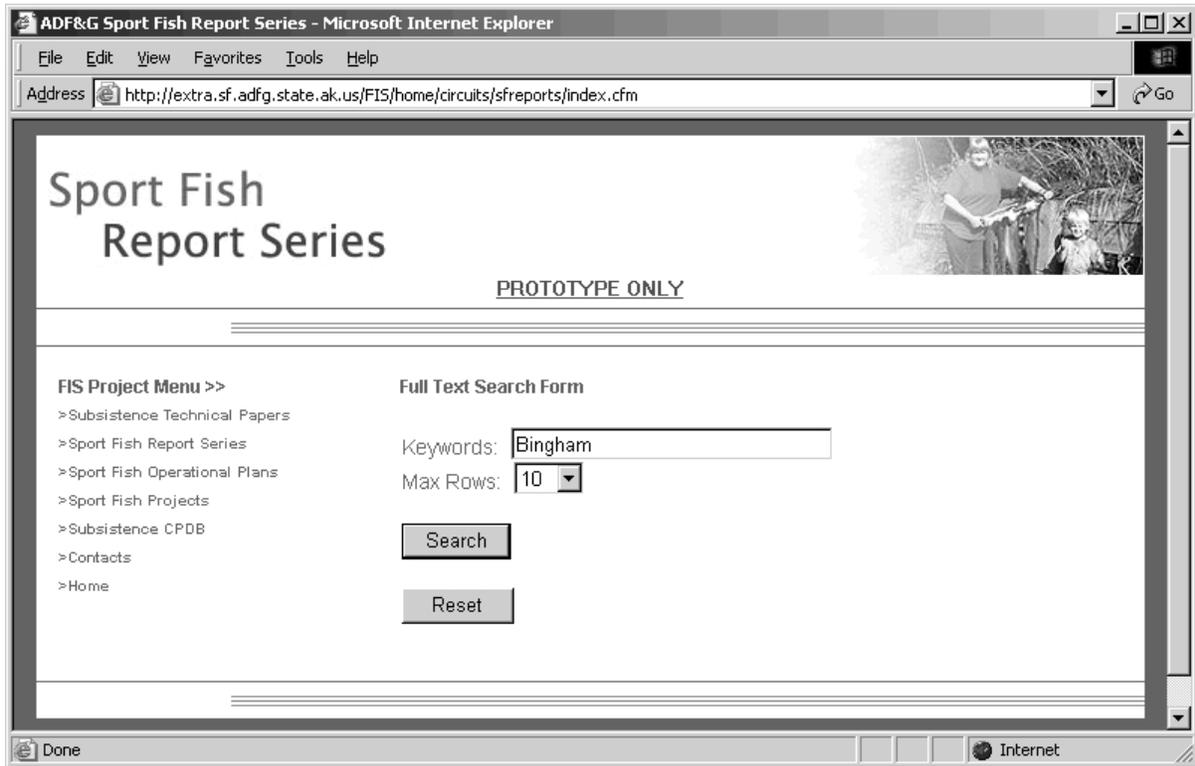


Figure 4.-The Sport Fish Report Series access page for the prototype Project Information and Access System, and a result-page from a “typical” search.

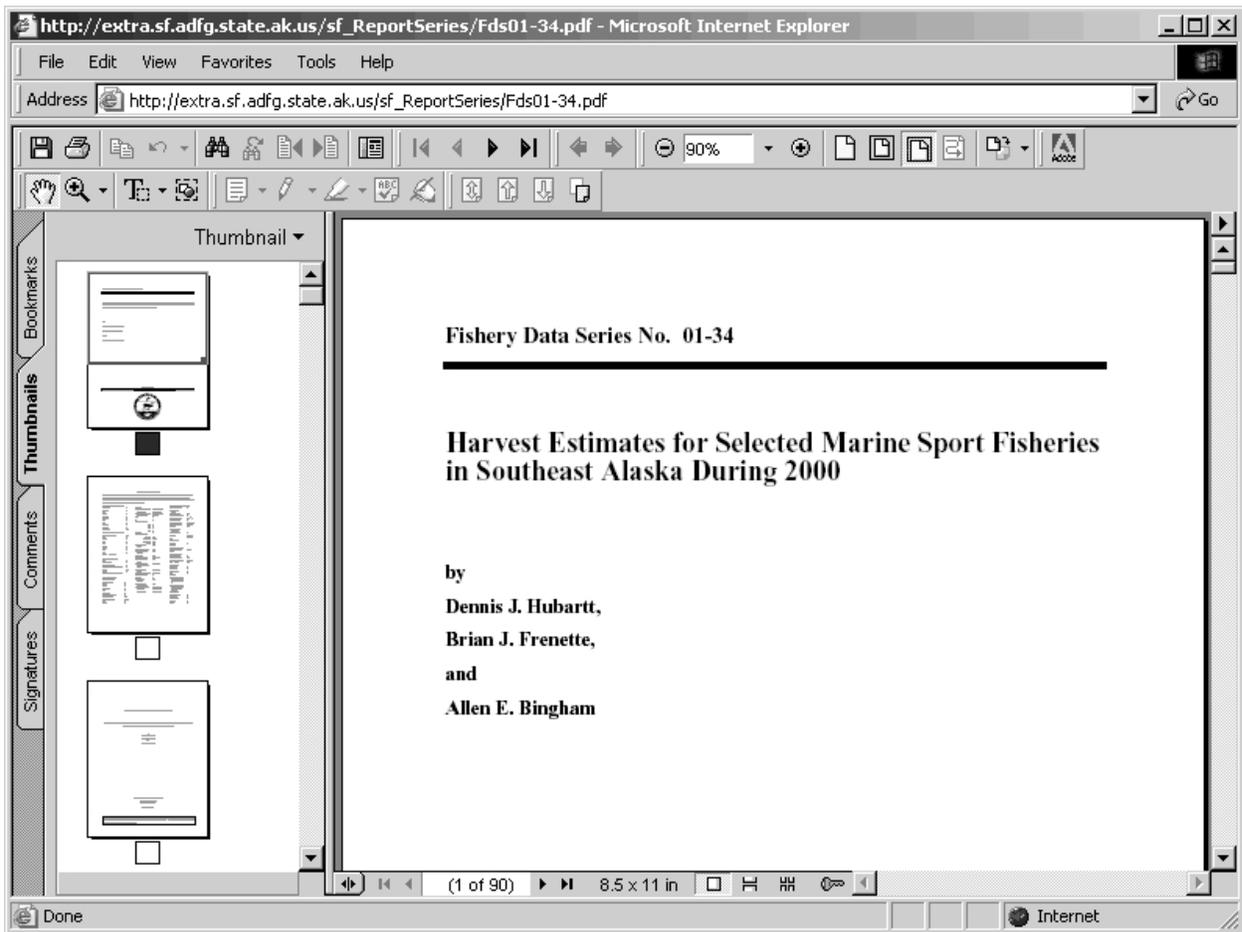


Figure 5.-Example of accessed paper from the Sport Fish Report Series section of the prototype Project Information and Access System.

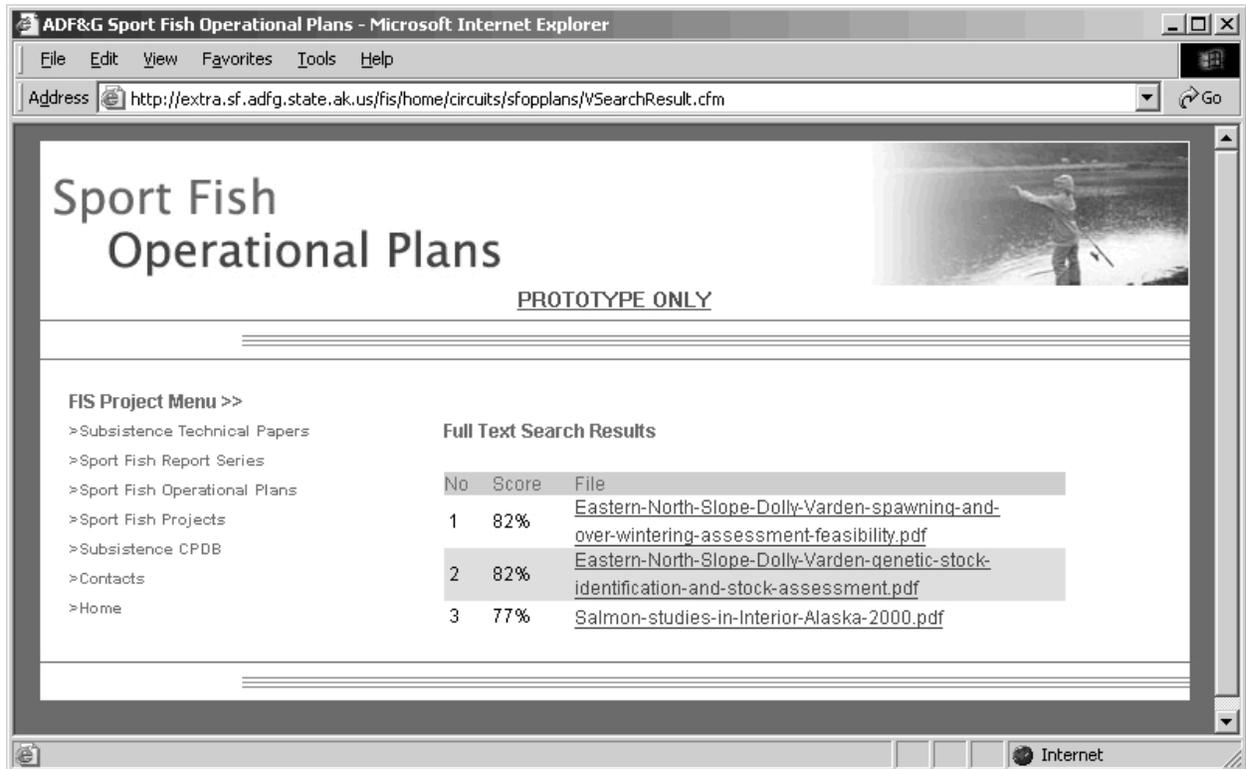
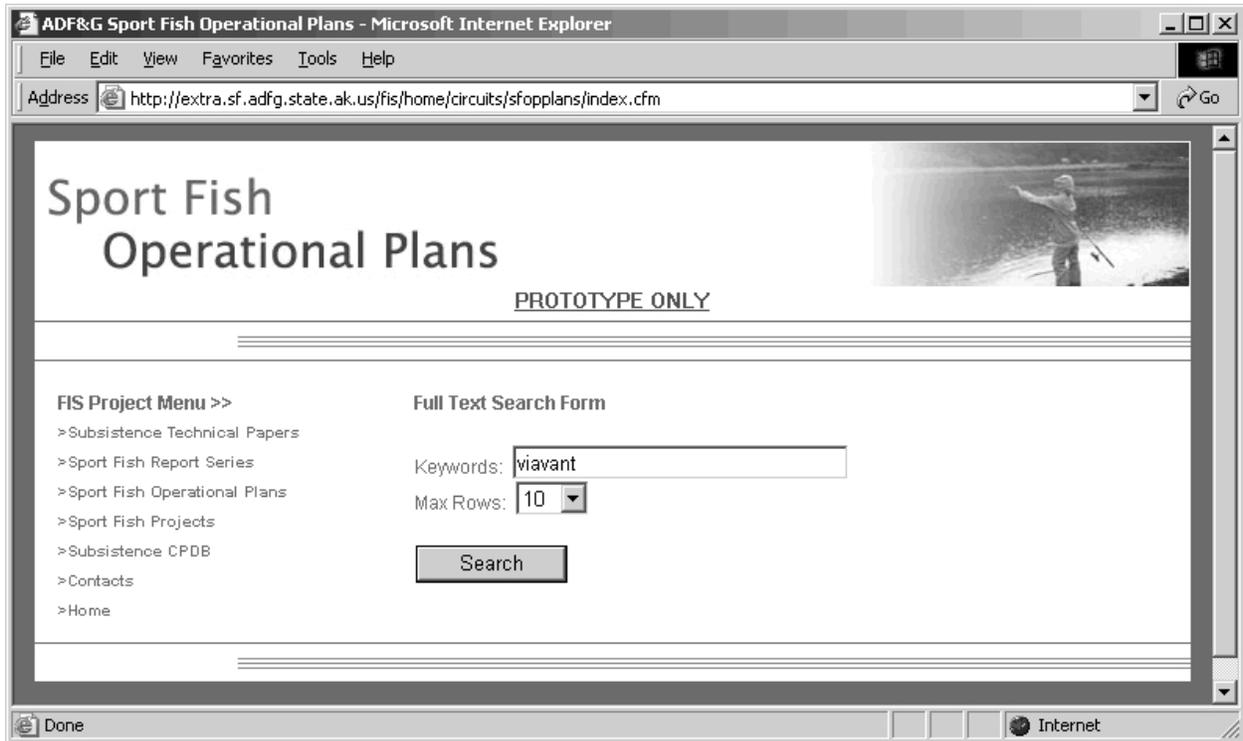


Figure 6.-The Sport Fish Operational Plans page for the prototype Project Information and Access System, and a result-page from a “typical” search.

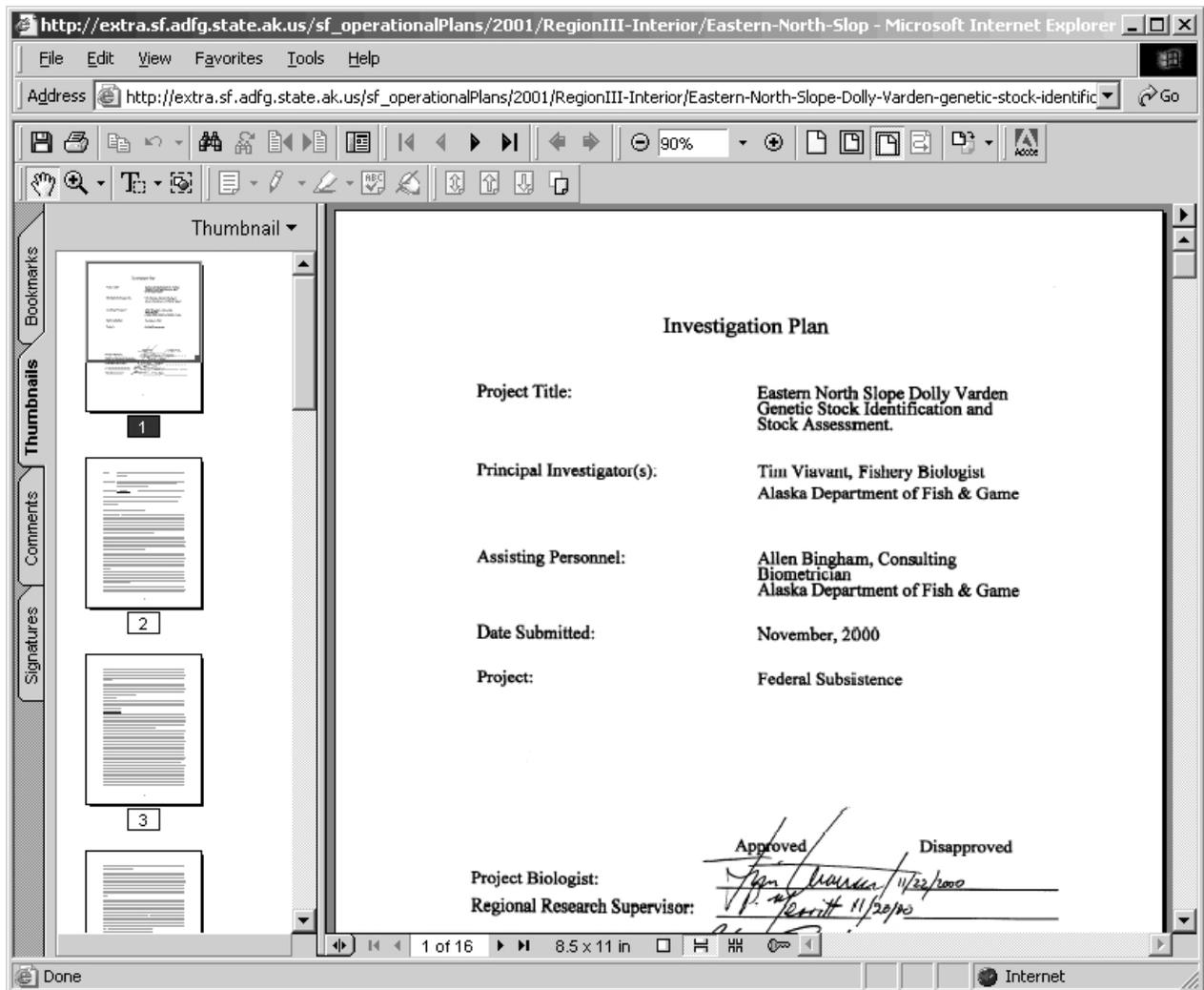


Figure 7.-Example of accessed paper from the Sport Fish Operational Plan section of the prototype Project Information and Access System.

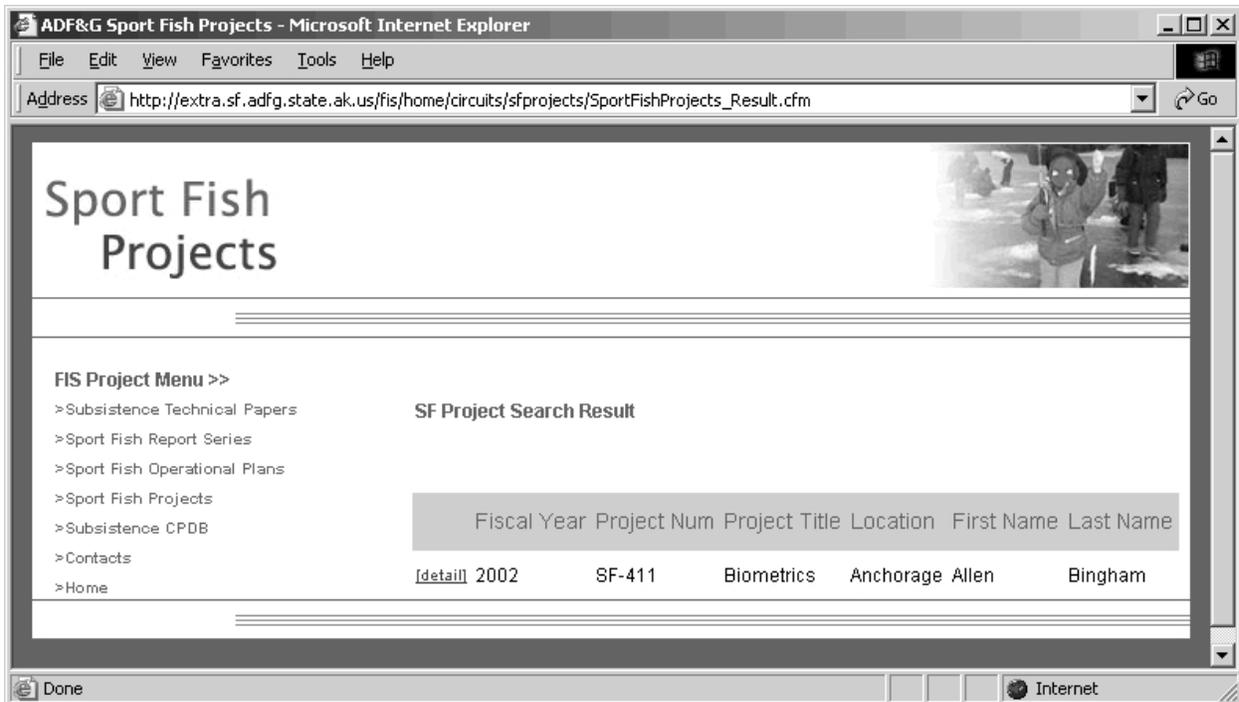
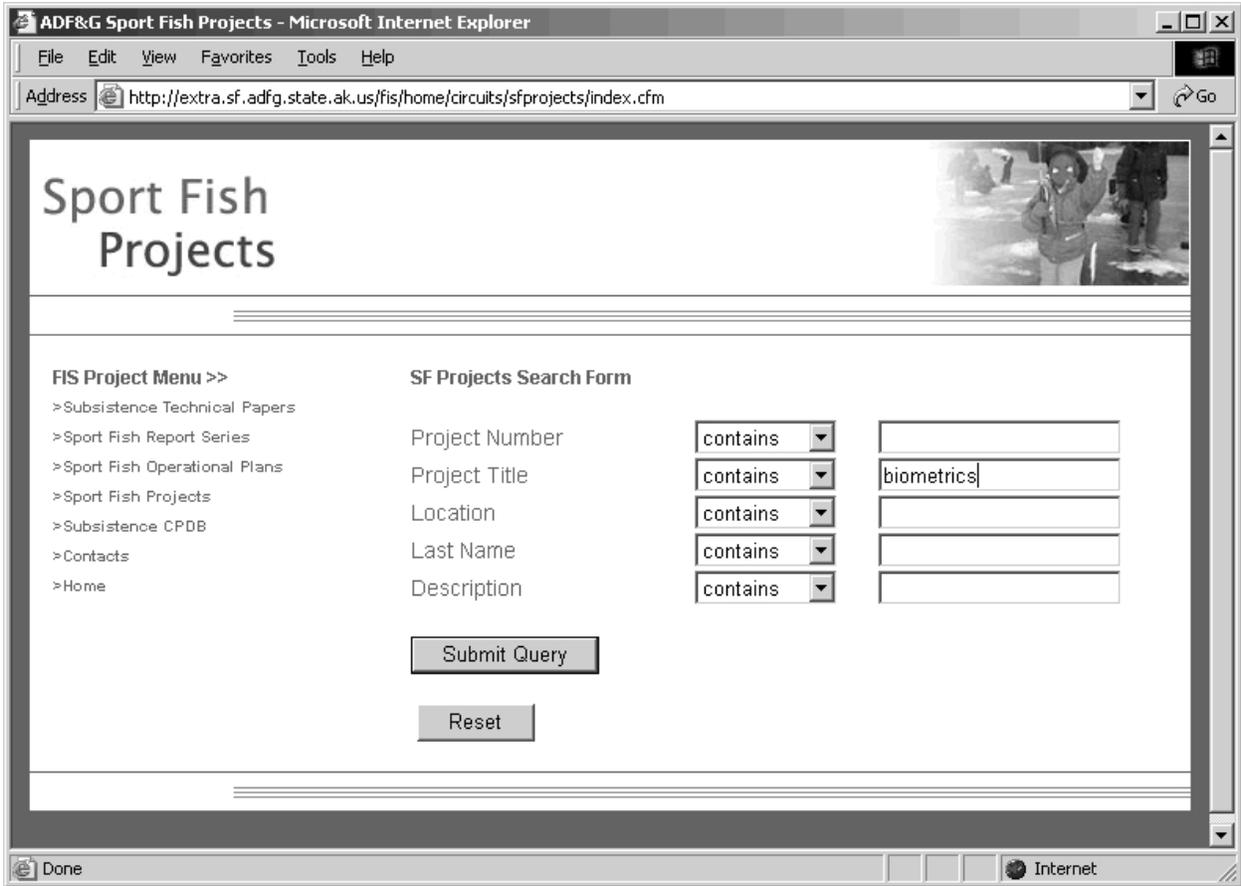


Figure 8.-The Sport Fish Projects page for the prototype Project Information and Access System, and a result-page from a “typical” search.

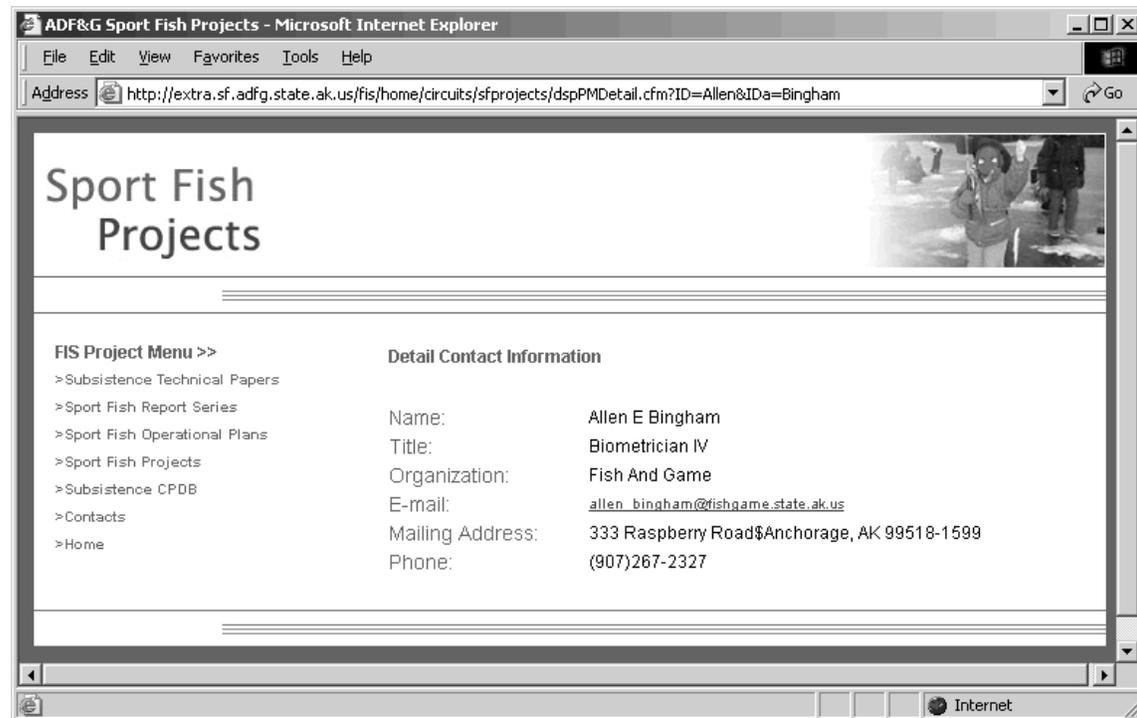
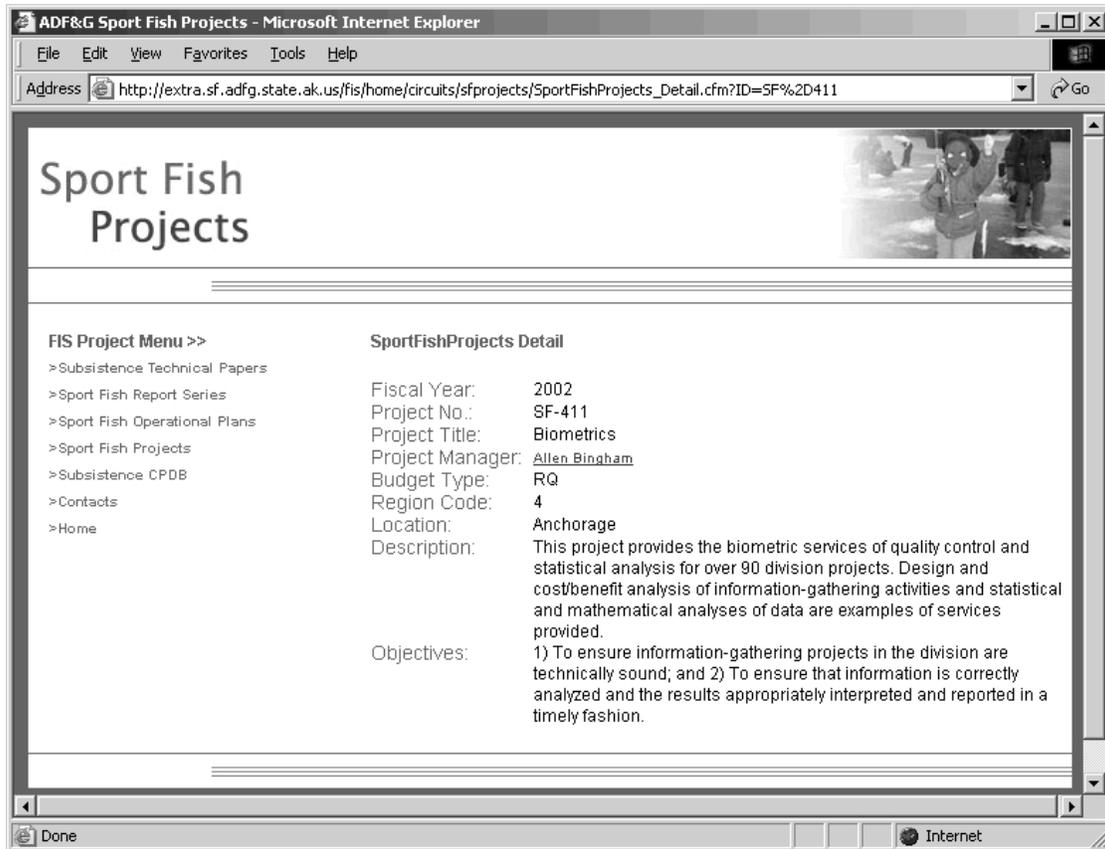


Figure 9.- Example of the Details Page from an accessed project from the Sport Fish Projects section of the prototype Project Information and Access System, and the Contacts Page for the corresponding example.

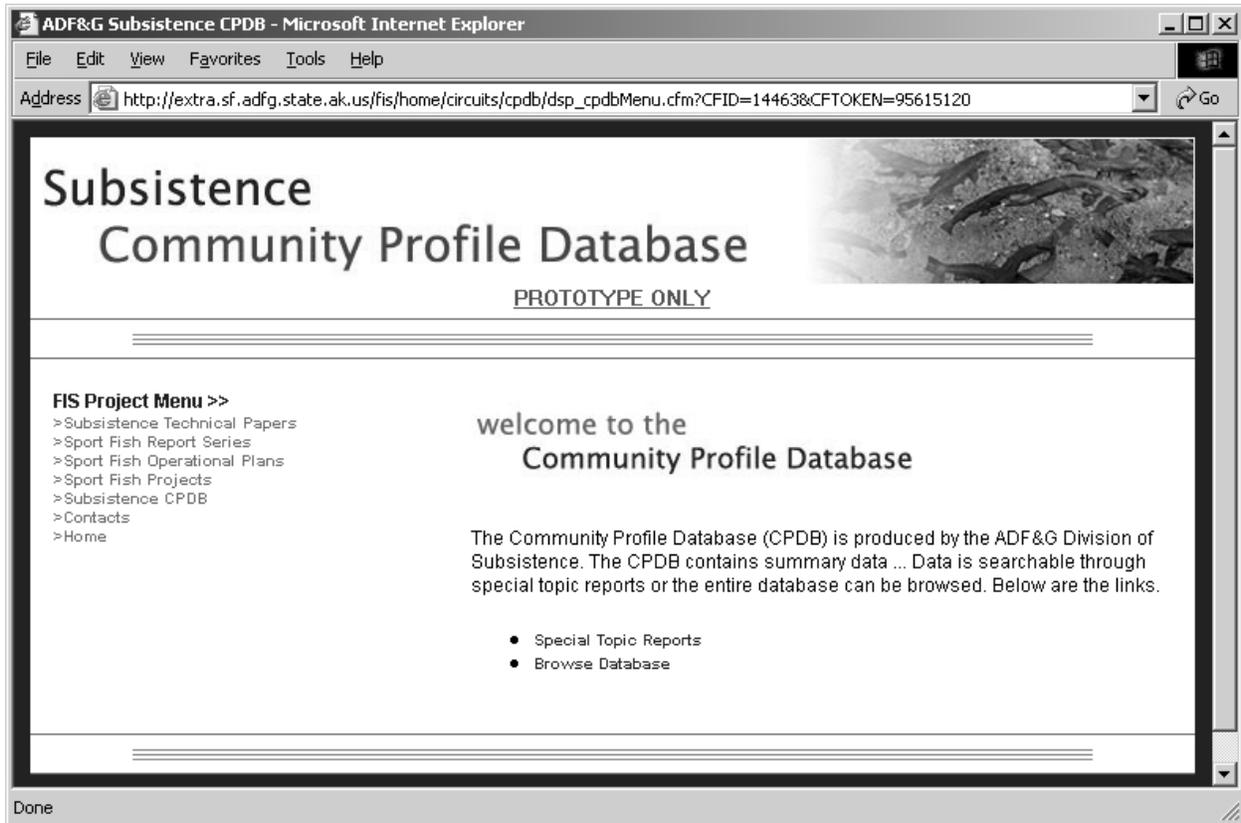
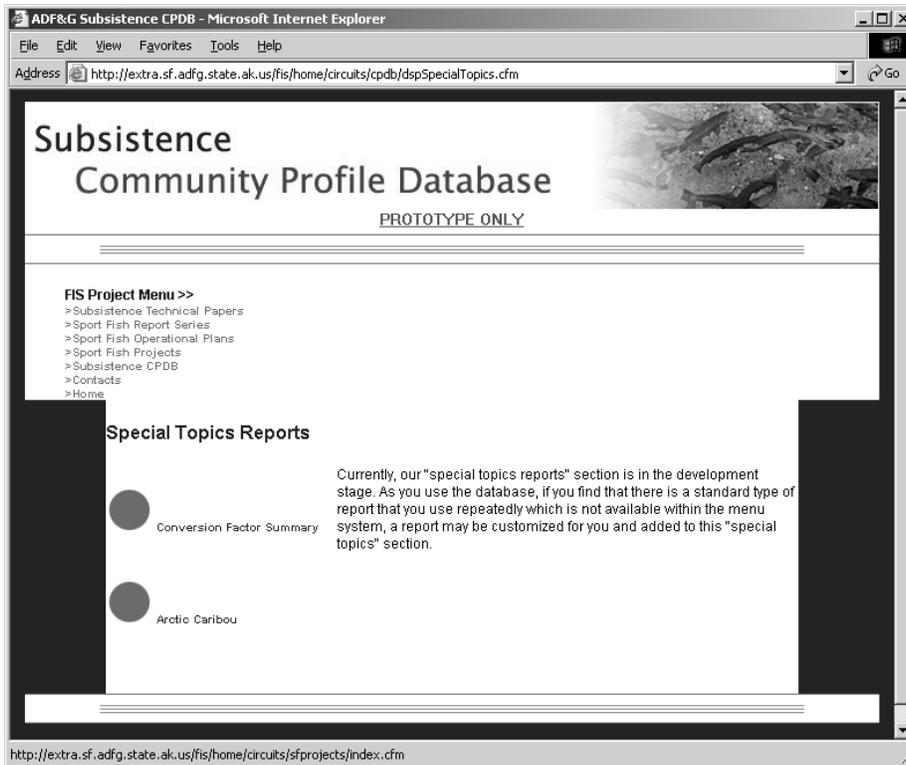


Figure 10.-The Subsistence Community Profile Database page for the prototype Project Information and Access System



The screenshot shows a web browser window titled "ADF&G Subsistence CPDB - Microsoft Internet Explorer". The address bar shows "http://extra.sf.adfg.state.ak.us/fis/home/circuits/cpdb/dspArcticCaribou.cfm". The main heading is "Subsistence Community Profile Database" with a sub-heading "PROTOTYPE ONLY". Below this is the title "ADF&G Community Profile Database" and "Community Harvest Summary - Arctic Caribou". A table follows with 13 columns: Community Name, Study Year, Resource, % HH Harvesting, Conversion Factor, Lower Confidence Limit, Upper Confidence Limit, Pounds Lower Confidence Limit, Number Pounds Harvested, Pounds Upper Confidence Limit, Average Pounds Per HH, and Average Pounds Per Capita. The table contains 12 rows of data for various Anaktuvuk Pass studies from 1990 to 1993.

Community Name	Study Year	Resource	% HH Harvesting	Conversion Factor	Lower Confidence Limit	Upper Confidence Limit	Pounds Lower Confidence Limit	Number Pounds Harvested	Pounds Upper Confidence Limit	Average Pounds Per HH	Average Pounds Per Capita
Anaktuvuk Pass	1990	Caribou, Male	52	127	301	356	38,183	41,688	45,192	587	133
Anaktuvuk Pass	1990	Caribou	55	0	549	634	64,976	69,964	74,951	985	223
Anaktuvuk Pass	1990	Caribou, Sex Unknown	5	117	7	14	870	1,267	1,665	18	4
Anaktuvuk Pass	1990	Caribou, Female	44	107	223	282	23,862	27,008	30,155	380	86
Anaktuvuk Pass	1991	Caribou, Female	25	107	96	154	10,237	13,339	16,442	188	49
Anaktuvuk Pass	1991	Caribou, Sex Unknown	1	117	1	5	43	286	529	4	1
Anaktuvuk Pass	1991	Caribou	51	0	478	612	58,684	66,712	74,738	940	245
Anaktuvuk Pass	1991	Caribou, Male	49	127	373	463	47,356	53,086	58,816	748	195
Anaktuvuk Pass	1993	Caribou, Male	41	127	276	350	35,073	39,743	44,414	497	129
Anaktuvuk Pass	1993	Caribou	43	0	487	661	57,781	67,713	77,645	846	219

Figure 11.-The Special Topic Reports selection page for the Subsistence Community Profile Database, and a result-page from one of the Special Topic Reports.

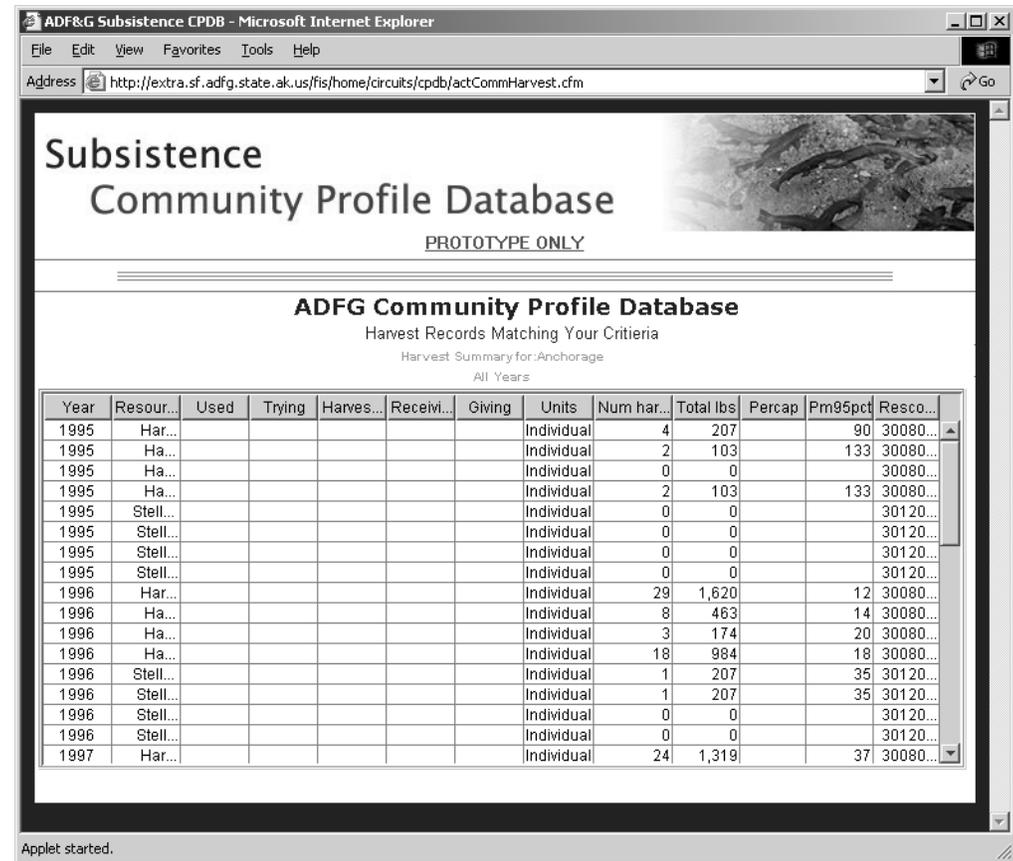
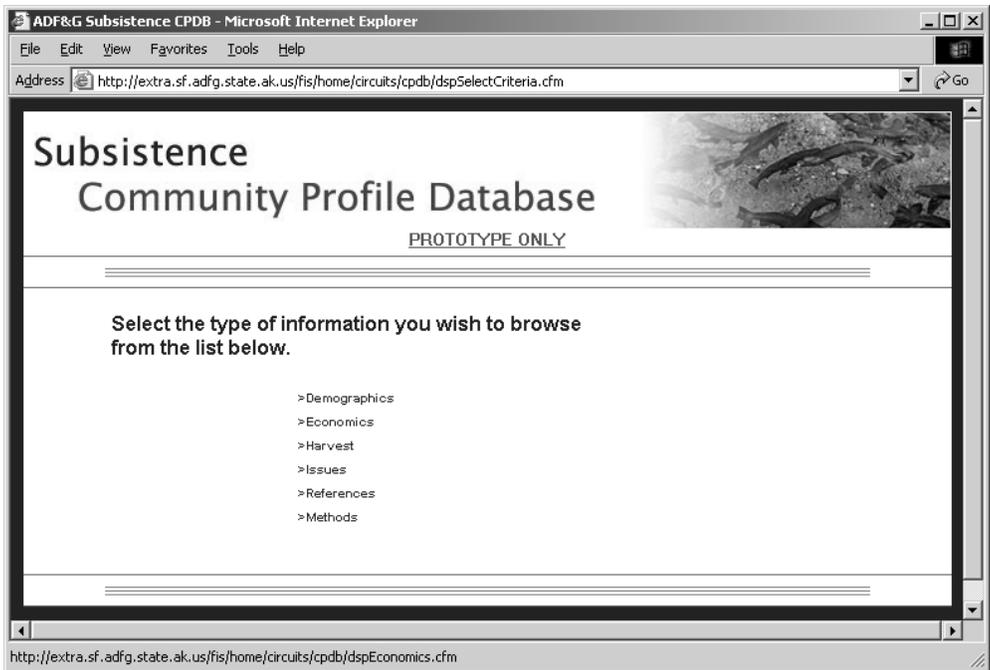


Figure 12.-The Browse Database criteria selection page for the Subsistence Community Profile Database, and a result-page from a “typical” browse selection.

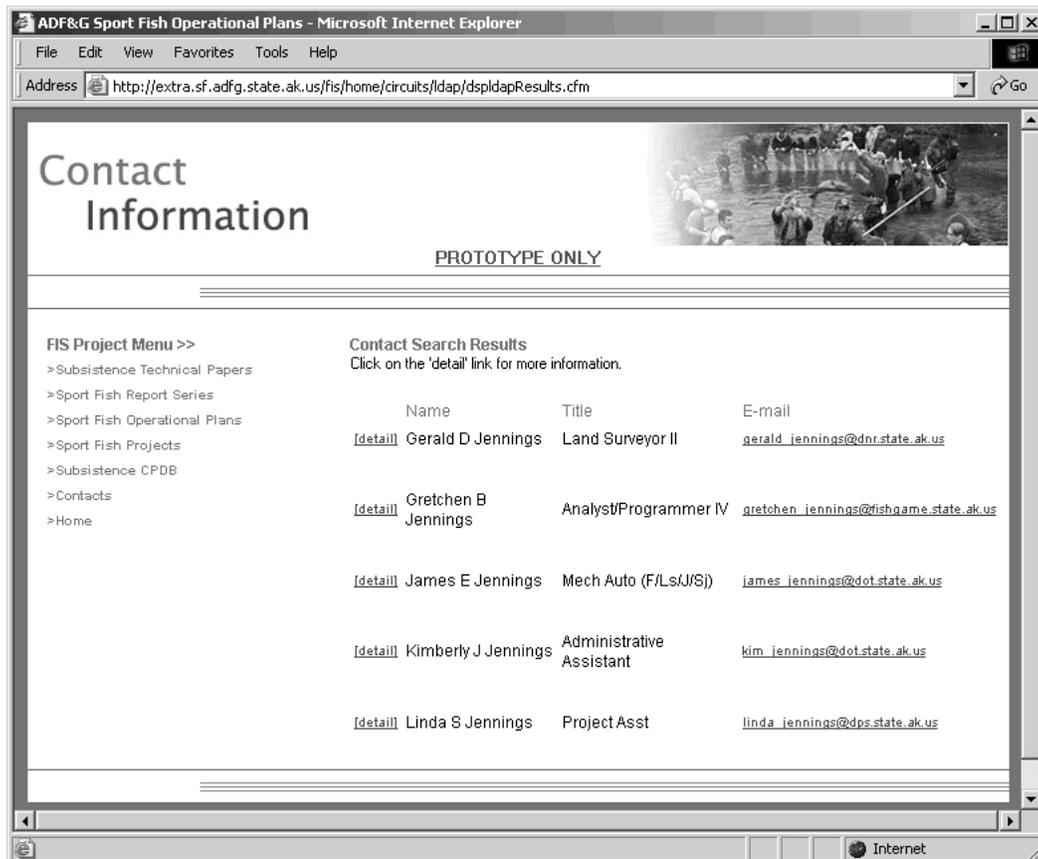
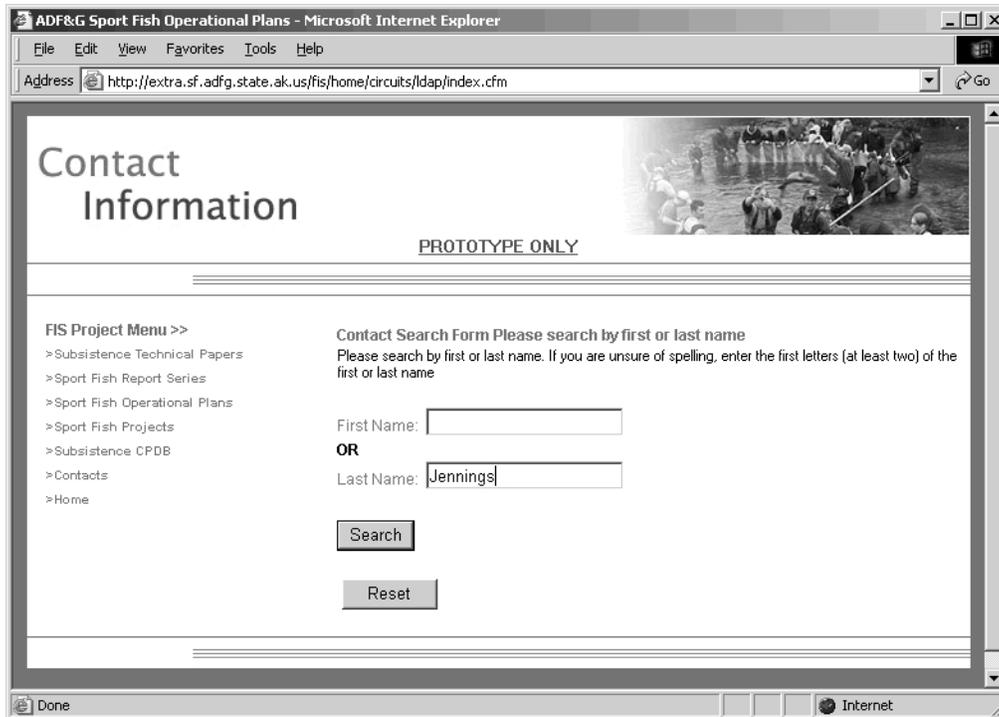


Figure 13.-The Contacts page for the prototype Project Information and Access System, and a result-page from a “typical” search.

PROTOTYPE LIMITATIONS

The prototype, as the name suggests, was developed merely to illustrate the basic elements of the recommended information system. Therefore, information in the prototype is not necessarily complete (for example only one year's worth of projects information entries are included in the projects database portion of the prototype). Additionally, interactive linkages between sections of the system are only rudimentary in nature; mostly due to the limitations of the static nature of information in the prototype. So for example, linkages between the projects database and the operational plans database or the report database are not implemented since the true linkages would span across many calendar years.

DESCRIPTION OF PROTOTYPE SYSTEM FEATURES

The online prototype system has been developed on servers cooperatively owned and managed by divisional information management programs situated in the Anchorage ADF&G office. These servers utilize the Microsoft Windows 2000 operating system. The web site is hosted by Microsoft Internet Information Server (IIS). Macromedia Cold Fusion MX Server (<http://www.macromedia.com/software/coldfusion/>) is used for interactive searching, retrieval, and presentation of information. In general, prototype databases are stored and managed under Microsoft SQL Server 2000 running on a dedicated server separate from the web site server. The contacts database is managed by the State of Alaska Department of Administration as part of its enterprise e-mail system, and is available for searching and retrieval through use of Lightweight Directory Access Protocol (LDAP). In developing the site, a "fusebox" approach (<http://www.fusebox.org/>) was used. Files available in Acrobat Portable Document Format (PDF) are stored as individual documents on the file server, but have structured records associated with them in database tables, and have been full-text indexed where possible and searchable through facilities of the Cold Fusion Server.

It should be noted that other Departmental and Agency web, database and GIS servers could be interlinked through a production site portal.

CONCLUSIONS AND RECOMMENDATIONS

An integrated information management system for historic and newly collected data, estimates, project descriptions, reports, or contacts pertinent to management of subsistence fisheries throughout Alaska would be beneficial to the various agencies responsible for management of these fisheries. Such a system, if implemented would improve public and interagency communication, coordination, and cooperation in the area of data management and information sharing for fisheries resource and harvest monitoring and assessment, and could be expanded to include wildlife resource information in the future.

As noted previously, providing direct access to all possible data sets developed and managed by an agency would not always be feasible, or even desirable under some circumstances (notably confidentiality concerns, among others). None of the agencies have all of their data under central control and many data sets are located in field offices, with only local staff being knowledgeable about these data and their limitations (see Appendix A1 for an inventory of data sources conducted during early 2002). Accordingly, the successful development of an integrated and interactive information access system would necessarily involve a substantial commitment of agency resources and corresponding staff working interactively as needed with a core group of dedicated project personnel. Interactive communication between dedicated project staff and other agency staff familiar with their agency's databases, systems, and protocols for access would be paramount to the

successful implementation of the information access system. Although commitment of agency resources and good communication among agencies would be necessary for the implementation of the information access system to succeed, the recommendations outlined below only focus on the technical aspects of the development of an integrated interactive information access system³.

FULL-IMPLEMENTATION SYSTEM DESCRIPTION

The components of an interactive, integrated, and accessible information system to access centrally maintained subsistence fishery harvest data and information would minimally include the following components (databases):

- A searchable budget-based projects database to include project manager name, project description, objectives, location, and species affected. This database should additionally include structured information on project operational plans if available, and links to PDF copies of the plans.
- A searchable information access database providing either dynamic or static access to information stores maintained by the host or owner agency⁴.
- A searchable publications database to provide access to structured information about the publication, abstracts and full-text reports. Links should also be provided to PDF copies of available publications.
- A searchable contacts database to include staff names, titles, telephone numbers, mailing addresses, and email addresses.

The information access system should have built-in cross-linkage capabilities among these component databases. Additionally, the design features for the information access system should include the following desirable capabilities:

- Access features for information that is dynamic in nature:
 - Dynamic-automatic access/updating if possible; and
 - Scheduled updating if dynamic updating not possible (static nature of information in the system would be clearly identified).
- Access features for non-dynamic (or static) information:
 - Automatic access/updating still desirable, since “owners” of the information would be responsible for proper maintenance of the data stores, corrections, etc.; and
 - Scheduled updating if dynamic updating not possible.
- Access features for archival type of information (for example names and contact information of project leaders whose contact information is no longer valid say due to retirement, etc.):
 - Periodic local capture and storing of information from dynamic or scheduled updating of information, so archival-type of information is available for future access when original source information is updated or no longer valid.

³ Although the substantial commitment of agency resources is identified as a necessary element to the development of an integrated information access system, this report should not be construed as a promise to commit any of the agencies' (ADF&G, US FWS, etc.) resources for the development of such a system.

⁴ Similar to the Subsistence Community Profile Database (CPDB) implemented in the prototype system described in this report.

- Linkages among information sources:
 - Linkage capabilities need to be built into the system from original project conception; and
 - Linkages should be dynamic in nature, so for example when a plan is developed for a project the information associated with the plan is interactively accessible from the Projects data base portion of the system.
- All informational databases should have corresponding metadata (i.e., description of the information, for example the source of the information, the structure of the database, limitations of the data, etc.), which should be easily accessible within the access system.
- Data should be retrieved and available for download in formats desired by users.

The cost of immediately revising existing information systems for conformity and ease of access would be prohibitive. However, it is recognized that it is in the best interest of an agency, other agencies, and the public to provide better access to information. In the short term, facilitating access to existing information systems and translating structures, codes, etc. as needed through intercommunication would be the most cost effective approach. As information systems evolve, consideration should be given to provision of improved access and conversion to uniform standards. It is recognized that these information systems must each address primary mission goals; consideration of the goals of this project and incorporation of improved access and standardization would greatly add value to these information systems.

COST ANALYSIS

The cost of development and maintenance of an interactive, integrated, and accessible information system to access centrally maintained subsistence fishery harvest data and information is provided below. The provided budget should be viewed as a rough guideline only of direct project related costs (i.e., not including costs related to cooperating agency involvement⁵). The true cost of implementing such a system will necessarily depend upon a number of factors that could not be factored into the budget outlined below (e.g., if information currently only available in paper files were to be captured by project staff for electronic storage-retrieval then costs would rise substantially). The budget described below uses job classifications currently available in the State of Alaska's Workplace Alaska hiring system, and as such the costs would be substantively different if implemented by one of the other non-State agencies⁶. Additionally, administrative overhead charges are not included in the cost analysis.

The two main components of the budget include the cost for (1) implementation of the system, followed by the cost for (2) maintenance of the system. System implementation would probably span two to three full years and the budget is developed assuming a three year system implementation timeline. Overall project implementation costs total approximately \$689,000 over all three years (Table 1). Comparatively, maintenance cost of the system is envisioned at about \$168,000 per year. These costs represent the amounts needed to provide and support an information portal to other servers and databases maintained by other agencies or in other locations. They also do not include

⁵ As noted previously, substantial commitment of agency resources is identified as a necessary element to the development of an integrated information access system, but the budget provided here does not include these indirect expenses.

⁶ Additionally, the job classes used in developing the cost analysis are meant to be only suggestive of the type of activities staff would be responsible for implementing. The actual job classes that would be used may vary substantively depending upon the sub-unit within an agency in which the project would be situated.

the costs of operation of the other servers and databases, or the long-term costs of fully converting existing information systems to full uniformity and accessibility.

Table 1.-Direct project cost budget for implementation and maintenance of interactive, integrated, and accessible information system to access centrally maintained subsistence fishery harvest data and information.

Project Phase-Item	One-time or Annual Costs (K dollars)	Total Cost-for Project Phase (K dollars)
System Implementation (Three Years):		
One-time costs ^a :		
• Web-Server cost (hardware and software)	\$20.0	\$20.0
• Workstation, telecommunications, and software cost for project personnel (total for three staff) (hardware and software)	\$15.0	\$15.0
Project personnel costs (State of Alaska job classes) ^b :		
• Full-time Project Leader –Analyst/Programmer IV	\$85.0	\$255.0
• Full-time Web-programmer – Analyst/Programmer III	\$75.0	\$225.0
• Full-time Administrative Clerk II	\$43.0	\$129.0
Miscellaneous Costs (e.g., travel, contractual, supplies)	\$15.0	\$45.0
Total Cost for Three-Year System Implementation:		\$689.0
System Maintenance (All costs are on an annual basis)		
Project personnel costs (State of Alaska job classes) ^b :		
• Full-time Project Leader –Analyst/Programmer IV	\$90.0	\$90.0
• Part-time Web-programmer – Analyst/Programmer III (assumes half-time on this project)	\$40.0	\$40.0
• Seasonal Administrative Clerk II	\$23.0	\$23.0
Miscellaneous Costs (e.g., travel, contractual, supplies, including repair and updates to system hardware-software)	\$15.0	\$15.0
Total ANNUAL Cost for System Maintenance:		\$168.0

^a Computer and telecommunication hardware and software are identified as “one-time” costs, however ongoing costs for repair and updating systems is included in the maintenance portion of the budget.

^b Costs for personnel are roughly given for a middle-range level of experience staffing level. Note, that for the system maintenance portion of the proposed budget “starting” salaries only are given.

ACKNOWLEDGMENTS

Our thanks go to Allen Howe whose foresight and interest in making information more accessible to agency staff and the public over the long-term and cost-effectively adding value to public services was instrumental in the conception and design of this project. Additional ADF&G staff assisted in a variety of ways during the development of the prototype information access system including but not limited to: Camie Homan who was instrumental in developing the web interface for the prototype access system; Kirk Brogdon who assisted in the administration of the web-site; Carmine Dicostanzo provided access to the ADF&G projects budget database and provided insight to the information management systems of the Division of Commercial Fisheries; Steve Schwartz, Linda Brannian, and Sue Merkouris (retired) assisted during the development phase of the project. Allen Howe and Kirk Brogdon are also gratefully acknowledged for their efforts related to the development of the Information Sharing Protocol (see Appendix A1). Our cooperators in the federal agencies were helpful in providing insight into the needs for an information access system; in particular the input from the following individuals were instrumental and appreciated: Calvin Casipit (US Forest

Service); Dave Nelson (US National Park Service); Jeff Cater, Chuck Miller and Vince McClain (USFWS Office of Subsistence Management); and Steve Klosiewski (USFWS Fishery Resource Division). Robert Clark and Joanne MacClellan (ADF&G Division of Sport Fish) and Vince McClain reviewed earlier drafts of this report and suggested revisions that improved upon it. The US Fish and Wildlife Service, Office of Subsistence Management initially provided \$150,000 in funding support for the project through the Fisheries Resource Monitoring Program, under agreement number 70181-1J333 with the Alaska Department of Fish and Game (ADF&G Cooperative Agreement 01-075).

APPENDIX A – BACKGROUND MATERIAL

Appendix A1.-Subsistence Information Sharing Protocol.

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Subsistence Management Information Sharing Protocol

The purpose of this protocol is to provide for the coordinated sharing, between the State of Alaska (State) and the Federal subsistence management program, of wildlife and fisheries resource harvest and assessment information. All parties to this protocol agree that biologically sound and effective management depends in part upon the identification and sharing of previously collected and newly obtained information affecting subsistence activities on waters under federal jurisdiction. Given this, the parties agree to share information required for subsistence management to the maximum extent possible.

Towards this end, all parties agree to:

- identify contacts for coordinating information exchange (refer to Addendum A);
- inventory and make available previously and newly collected information beginning with centrally located and maintained databases (refer to Addendum B and Addendum C);
- identify a process for coordinated information sharing;
- examine data information systems to identify efficiencies and to develop metadata standards (refer to Addendum D); and,
- identify budget requirements and funding strategies to implement the protocol.

All parties acknowledge that confidentiality may restrict the transferability and/or uses of certain information and agree to honor each other party's said confidentiality restrictions. A summary of the confidentiality restrictions for all parties is provided in Addendum E.

All parties acknowledge that certain unanalyzed, preliminary, or raw data are considered proprietary to the collection agency. The data collection agency may provide such data on a case-by-case basis when the intended use and application of the data is clearly conveyed by the requesting agency. When proprietary data are provided the requesting agency agrees to allow for joint review and consultation on the uses and interpretation of such information prior to public release. All parties also agree to abide by the *Principles for the Conduct of Research in the Arctic* as described in Addendum F.

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All parties acknowledge that information requests are also necessary for inseason management. The parties agree to share information required by managers to make inseason management decisions. Specific details regarding inseason management information sharing should be described as part of specific inseason management protocols.

Upon signing of the protocol all parties agree to establish a joint technical committee to coordinate and facilitate implementation of this protocol. Each party will identify members of this committee. The committee will be composed of no more than 5 state and 5 federal members who will annually review this protocol and activities and funding requests associated with it. The committee will also identify agency contacts to facilitate the sharing of information. Addendum A to this protocol lists agency contacts at the time of signing.

All parties agree that large requests for information could impact the agency from which the information is being requested. Therefore, all parties agree that it is beneficial to develop a process for guiding the request and transfer of information between the parties. Towards this end, all parties agree that requests should be specific and defined. Each request for information should specify the information being requested, the need and use for that information, and the date the information is needed. To avoid duplication and to assure coordination, requests should be submitted to the agency contacts specified in Addendum A. The agency to which the request is sent will assess the request and notify the requesting agency of its ability and intent towards fulfilling the request and the timeline it will follow. The parties also agree to annually review past requests for and uses of information and to adjust this protocol as necessary.

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Signatories:

Commissioner
Alaska Department of Fish and Game
Date: _____

Regional Director
US Fish and Wildlife Service
Date: _____

Associate Regional Director
National Park Service
Date: _____

State Director
Bureau of Land Management
Date: _____

Regional Director
Bureau of Indian Affairs
Date: _____

Regional Forester
US Forest Service
Date: _____

**ADDENDUM A
LIST OF CONTACTS**

Alaska Department of Fish and Game

Primary contacts are:

Commercial Fisheries Division:	Linda Brannian (907) 267-2118 linda_brannian@fishgame.state.ak.us
Sport Fish Division:	Kirk Brogdon (907) 267-2440 kirk_brogdon@fishgame.state.ak.us
Subsistence Division:	Gretchen Jennings (907) 267-2358 gretchen_jennings@fishgame.state.ak.us
Wildlife Conservation:	Steve Schwartz (907) 267-2246 steven_schwartz@fishgame.state.ak.us

Also, each division's Internet site includes a list of staff contacts with telephone numbers and email addresses. In some instances these lists contain working titles.

Federal Agencies

Bureau of Land Management	Dennis Tol (907) 271-3348 dennis_tol@blm.gov
USDA Forest Service:	Ben VanAllen (907) 790-7405 bvanallen@fs.fed.us
Bureau of Indian Affairs	Ida Hildebrand (907) 271-4138 ihildebrand@bia.gov
National Park Service	Janet Cohen (907) 644-3209 janet_cohen@nps.gov
USFWS Office of Subsistence Management	Karen Hyer (907) 786-3689 karen_hyer@fws.gov
USFWS Fishery Resource Division	Steve Klosiewski (907) 786-3523 Steve_klosiewski@fws.gov

ADDENDUM B**ALASKA DEPARTMENT OF FISH AND GAME
INVENTORY OF AVAILABLE INFORMATION**

The following inventory covers those data and information sources that are centrally collected and/or maintained by the Alaska Department of Fish and Game. Other data sets and information sources may be available from individual project leaders or other regional computer services sections.

COMMERCIAL FISHERIES DIVISION**Project Descriptions and Objectives.**

The budget request system used by the division includes a narrative description and objectives of funded projects and lists a budget manager by name and PCN number. Other fields of interest are legislative district, affected species, and affected fisheries (commercial, personal use, sport, and subsistence). Some of these fields are not always filled. This information is presently available in an SQL database. Operational plans for some projects may also be available. This database is published in the winter and submitted to the legislature for funding,

Intent to Operate Database.

The Intent to Operate and the Commercial Operator's Annual Report database, are part of the "Seafood 1" database that is maintained by the Computer Services Section in division headquarters. The Intent to Operate (ITO) database is a registration of all companies that wish to buy, process, and/or export seafood within the jurisdiction of the State of Alaska, and/or Exclusive Economic Zone (EEZ) Operators in federal water. Any person or company that wishes to be the first purchaser of seafood must complete an annual Intent to Operate form before they can receive code plates and fish tickets (landing receipts). The ITO database contains general information about company name, address, and phone number. It also contains a listing of fisheries that the company intends to participate in, types of processes that will be performed, and Management Areas where the company will be operating. Each company that files an ITO is identified by their Processor Code that comes from a license number issued by the Alaska Department of Revenue's Tax Accounting System (TAS) database. All licenses are issued under an individual's social security number or the companies federal Employer Identification Number (EIN), which are confidential data.

Intent to Operate listings are not considered complete until December 31st of each calendar year. Queries are run on an "ad hoc" basis throughout the year to provide listings of companies that wish to participate in fisheries in a particular area. Listings are provided to various State, Federal, and private agencies depending upon need. The most recent complete (ie. 1999) ITO listing is posted on the Division of Commercial Fisheries home page after the end of the calendar year.

Commercial Operator's Annual Report Entry (COAR).

The Commercial Operator's Annual Report (COAR) Database is a SQL database containing annual report information submitted by all fish buyers and processors in Alaska. Information available in the database goes back to 1984. The type of information can be divided into two categories- Buying and Production. Buying refers to what the processor buys from the fisher. Data includes area purchased, species and pounds bought, gear type used, and price paid. Production refers to what the processor sells to retailers. Data includes species, area, product type, process type, pounds sold and price paid. Presently the data are available through staff at division

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headquarters. Staff have been hired to convert this into an internet-based application. In the future, new Federal Regulations will require all motherships (floating processors) to also submit a Commercial Operator's Annual Report.

Fish and Shellfish Harvest (Fish Ticket) Systems.

This system includes the Historic Fish Ticket Reporting System (TIX) and the data entry of individual landing receipts from fishers. Data include an individual's catch (numbers/weight) by species, gear, and area. The division is currently moving each fishery's system (salmon, herring, groundfish, and shellfish) into an Oracle database where entry of fish tickets continues to occur in area offices. TIX can be queried by authorized staff remotely to generate catch reports or data extractions of interest. Confidentiality statutes limit access to this database. Non-agency requests are submitted to division headquarters and data are filtered to conform with confidentiality statutes. Queries to the TIX database are accepted on an "ad hoc" basis by Computer Services and completed "as time available". Request forms are posted on the division's web site for individuals and licensed fishers. Agency requests can be by letter, phone or email.

Hatchery Database.

All salmon hatcheries in Alaska send annual reports summarizing their activities to the division. The data within these reports are contained in an Access database dating back to 1964. Data includes information on hatchery salmon returns, releases and egg takes. Information from the Hatchery Program database is available from the division's Private Nonprofit program manager.

Reports.

The statewide commercial fisheries bibliographic database contains information on the following report series produced by division staff:

1. Technical Fishery Reports (1987-1995)
2. Technical Data Reports (1972-1987)
3. Fishery Research Bulletins (1987-1992)
4. Informational Leaflets (1961-1988)
5. Special Publications (1989 to present)
6. Regional Information Reports (all ADF&G regions, 1988 to present)
7. Alaska Fishery Research Bulletin (1994 to present)
8. Professional papers published by division staff in professional scientific journals produced outside of the Division of Commercial Fisheries (1988 to present).

Abstracts are available for most of the report series. The database is continually updated as new reports are produced. The goal for this database is on-line accessibility from ADF&G's Division of Commercial Fisheries web page via a searchable Internet interface.

Regional Information Reports are published annually; the number and subject of reports may vary from year to year. Two issues, summer and winter, of the Alaska Fishery Research Bulletin are published each year. The number, subject matter and publication schedule varies for Special Publications and Professional Publications. This database is not available to the general public beyond those publications authored by headquarters staff and available from the division's home page. Some regions have also posted on the web page listings of Regional Informational Reports.

Mariner Database.

The division is currently developing an oracle database to provide regional inseason summaries for Bristol Bay and Upper Cook Inlet commercial salmon fisheries. Data include stock monitoring projects and daily catch, effort, and escapement by area. The division envisions expanding this to other areas and including other biological data. Currently, the public can only view daily run summaries of catch and escapement via links to the division's home page. The database also maintains historical data for comparison and post-season queries by authorized staff.

This database does not have a schedule of reports other than forming the basis for data published in regional information reports.

Coded Wire Tag Lab Database.

The tag lab database includes records of all coded wire tagged salmon released on the west coast of North America as well as all anadromous releases of salmon from hatcheries in Alaska since 1968. Additionally, the database includes all recoveries of coded wire tagged salmon in Alaska including harvest type, date, area, gear and associated information. Hatchery operators and project leaders report information on salmon releases on an annual basis. Coded wire tagged salmon are recovered by ADF&G samplers or project leaders and shipped to the lab on a weekly basis, associated sampling data and results of tag recovery are typically updated within a week. The Coded Wire Tag Lab Database can be queried through an interactive web site at www.taglab.org.

The tag lab database is accessible to the public from the internet. This database does not have a schedule of reports other than forming the basis for data published in regional information reports.

SASPop Database.

The Status of Alaska Salmon Populations Geographic Information System (SASPop GIS) is a database of geo-referenced salmon escapement data coupled with a user-friendly ArcView query and map-making application. Begun as a federally funded project to capture salmon escapement data in South East Alaska, SASPop now includes salmon data from across the state through 1998 and 1999 in some areas. Though the project is no longer funded it is the division's goal to update this Oracle database annually with current year data.

The SASPop database is a statewide repository for a wide variety of escapement data. These escapement observations can be classified into four categories:

1. Presence/absence of salmon species in a stream
2. Annual escapement indexes for "stock." A stock is made up of those salmon populations that spawn within a geographic area, and is represented in the database as a collection of surveyed streams
3. Annual escapement estimates for a stream
4. Daily escapement observations.

In parallel with the database development is an effort to develop GIS basemaps, such as coastlines, salmon statistical areas, and digital topographic maps, so that the georeferenced escapement data can be mapped in context with other data. Currently only the Auke Bay Lab of the National Marine Fisheries Service has access to the database.

SPORT FISH DIVISION

Project Descriptions and Objectives.

The budget request system used by the division includes a narrative description and objectives of funded projects and lists a budget manager by name and PCN number. Other fields of interest are legislative district, affected species, and affected fisheries (commercial, personal use, sport, and subsistence). Some of these fields are not always filled. This information is presently in a database. Operational plans for these projects may also be available.

The project description and objectives database would be updated once per year after allocations are made. Operational plans are completed throughout the year, dependent on individual project schedules.

Mark-sense Data system.

The division has for several years collected much of its field data through use of mark-sense forms. These forms are processed centrally in Anchorage, data are transferred to project staff for review/correction, then returned to Research and Technical Services in Anchorage for archival purposes.

Data are added to this archive system as forms are received and processed.

Personal Use Salmon and Shellfish.

Since 1997 household permits and harvest reporting have been required for personal use shellfish and salmon dipnet in portions of Cook Inlet. Personal use and subsistence dipnet and fishwheel permits area also available for the Copper River area. The permit holder and reported harvest database are maintained in Anchorage by Research and Technical Services. Participation and harvest summaries are available by location, species, and year via a web-based interface.

The databases of harvest permits and harvest reports are updated as documents are received throughout the fishing season. A calendar year's information is typically finalized by the middle of the following calendar year.

Reports Database.

A searchable database of divisional reports published since 1987 is available via a public Internet application. This database includes publications such as the reports published as part of federal aid in sportfish restoration project report series as well as the Division's management and special projects reports series. The database is updated as reports are published and provides access to report abstracts, as well as full-text Adobe PDF files for each report.

The reports database is updated as new reports are published.

Sport Fishing Participation, Catch, Harvest.

The division has conducted an annual angler household survey since 1977 to estimate participation and harvest in Alaska sport fisheries. More recently, the survey also estimates catch (i.e., fish kept, plus those released). A public Internet application (release date: fall-winter 2000) provides access to the most recent estimates, as well as multi-year summaries. Agency access to query these databases and download Excel files is possible (the application is functional and currently used by divisional staff).

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Final estimates for a calendar year estimates are typically available during the fall of the following calendar year. An annual report for the calendar year is typically produced by the fall of the following calendar year.

Sport Fishing Guide and Business Registrations.

The division has managed annual sport fishing guide and business program since 1995. A public Internet application provides access to current year business registrations, including an indication of the areas in which the business intends to operate and a description of services offered. Agency access to query these databases and download Excel files is possible (the application is functional and currently used by divisional staff).

Registrations may be received at any time during the calendar year. The database is updated as new forms are received and processed.

Sport Fishing Saltwater Charter Logbooks.

The division has managed an annual saltwater charter logbook program each year since 1998. The program collects daily information by vessel for area fished, client information, effort, catch and harvest. A divisional intranet application provides access to the most recent statistics, as well as multi-year summaries. Agency access to query these databases and download Excel files is possible (the application is functional and currently used by divisional staff).

Logbook records may be received throughout the calendar year and approximately two weeks into the subsequent calendar year. The database is updated as new logbook forms are received and processed. An annual report for the calendar year is typically produced by the fall of the following calendar year.

Sport License Information.

The division has organized 1993-1999 sport license information to identify patterns of participation and use. Information organized includes unique angler and hunter identification, demographics, residency and point of sale.

The complete license file for a calendar year is received and processed by the division in the first quarter of the following calendar year.

SUBSISTENCE DIVISION

Baseline Harvest Surveys.

Since 1983 the division has conducted baseline harvest surveys in nearly 200 Alaskan communities that document the full breadth of wild resources use for subsistence. Information on demographics, employment patterns, and living expenses help place subsistence into a socio-economic context. The surveys follow a general standard format for which survey training manuals and codebook are available. The data have been stored in a number of database formats over the years and as SPSS save files. The unit of survey is typically the household. Access to these data requires suppression of potential identifiers to maintain the explicit confidentiality of respondents.

Special Harvest Surveys.

In addition to baseline surveys, the division has conducted special surveys on a variety of subsets of wild resources, most notably marine mammals, large land mammals, and birds in selected regions of the state. These data follow the same conventions as the baseline surveys. Access to

these data also requires suppression of potential identifiers to maintain the explicit confidentiality of respondents.

Technical Papers and Related Publications.

An Abstracts volume describing the content of technical papers and other publications is available for review on the Internet. All of the completed technical papers are currently available in PDF format on CD-ROM upon request. Work is in progress to make the publications available for downloading as PDF files from the Internet.

Community Profile Database (CPDB).

The results of the division's community surveys on subsistence harvests are summarized in the Community Profile Database by community and species. Contextual information on methods, demographics, employment, and resource issues is also provided. The CPDB is available for downloading as an Access 97 database from the Internet. The database is updated periodically upon completion of appropriate surveys. Future initiatives will provide for web-based queries of the information. The summarized content of the database does not have confidentiality concerns.

Subsistence harvest surveys are conducted on an as-needed basis contingent on funding. The division would prefer to have regional updates at least every five-years. As projects are completed they are added into the Community Profile Database and its GIS interface.

Subsistence Fisheries Harvest Database (SFHDB).

The Division of Subsistence has compiled subsistence harvests for fish (currently salmon and herring but ultimately all subsistence fish and shellfish species) using subsistence fishing permit and household surveys reporting systems. The goal is to provide a single source of subsistence fisheries harvest information currently distributed in a number of Division of Commercial Fisheries "Annual Management Reports". One component is the statewide estimate of subsistence harvest by species. The database is updated annually. The database is currently available on CD-ROM but will be made accessible for queries on the Internet upon completion.

The subsistence fisheries harvest database is updated annually. The database is being expanded to encompass all other subsistence species using existing permit and survey reporting systems established in regulation. Data on some personal use fisheries are also presented if they do not exist in non-subsistence areas. In addition, subsistence harvest estimates will be generated based upon the division's baseline harvest surveys to encompass all areas of the state where annual reporting is not required. The goal is to have annual updates and a statewide summary prepared within six months of the following year.

Subsistence Reports Database.

The printed version of the Abstracts volume are updated annually. Technical Papers and other division publications are converted to PDF files and added to the reports database for access via the Internet upon completion. CD-ROMs are produced with new publications on demand.

WILDLIFE CONSERVATION

Big Game Harvest Files.

The Division maintains a collection of database files containing reported harvest information for the big game species hunted in Alaska by regulatory year. Data files are available from regulatory years 1977 to 1999. The harvest files are a collection of hunt reports from drawing, Tier II, registration and general season hunts managed by the state. These data can be geographically referenced using the Division's Uniform Coding Units (UCUs) and Game Management Units. These files contain information on the hunter, the hunt, hunt location,

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success, effort and species hunted. These files contain wildlife harvest and usage information and in accordance with AS 44.99.350(2) contain personal information which are not disclosable by State law.

These files are updated annually. Preliminary previous regulatory year updates are available November 1st. Final previous regulatory years updates are available March 1st.

Brown and Black Bear Sealing Records.

The Division maintains a collection of database files containing the fur sealing records for brown and black bears harvested by hunters, killed in defense of life and property and bears killed by other means in Alaska. Data are available from regulatory years 1977 to 1999. These data can be geographically referenced using the Division's uniform coding units and Game Management Units. These files contain wildlife harvest and usage information and in accordance with AS 44.99.350(2) contain personal information which are not disclosable by State law.

These files are updated annually. Spring sealing certificates and previous regulatory year ages updates are available November 1st. Previous regulatory year updates are available February 1st. Fall sealing certificates and previous regulatory year ages updates are available May 31st.

Fur Sealing Records.

The Division maintains a collection of database files containing fur sealing records for furbearers. These data files are available for regulatory years 1984 to 1999. The fur sealing files are a collection of sealing records for six species of furbearers taken statewide. These data can be geographically referenced using the Division's uniform coding units and Game Management Units. The division also collects records pertaining to the acquisition of furbearers in the state and export from the state. These files contain wildlife harvest and usage information and in accordance with AS 44.99.350(2) contain personal information which are not disclosable by State law.

These files are updated annually. Previous regulatory year updates are available August 28th.

Bear Bait station registration database.

The Division maintains a database of registered black bear baiting stations used by hunters. The data files are available for regulatory years 1990 to 2000. These files contain applicant information and location of bait stations used during the hunting of black bears. These files contain wildlife harvest and usage information and in accordance with AS 44.99.350(2) contain personal information which are not disclosable by State law.

These files are updated annually. Previous regulatory year updates are available August 1st.

Proxy hunter registration database.

The Division maintains a database of hunters registering to hunt as proxies by regulatory year. The data files are available from regulatory years 1993 to 1999. These files contain wildlife harvest and usage information and in accordance with AS 44.99.350(2) contain personal information which are not disclosable by State law.

These files are updated annually. Previous regulatory year updates are available December 15th.

Hunt history database.

The Division maintains a database file of drawing, Tier II, registration and general season hunts occurring in the state by regulatory year. This data file contains the hunt numbers, location,

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season dates, bag limits emergency orders and hunt details for hunts from regulatory years 1981 to 1999.

These files are updated annually. Previous regulatory year updates are available September 1st.

GIS map, overlays and coverages database.

The Division maintains a digital library of state maps, area specific maps, overlays and assorted coverage's in various projections and formats. The Division has the ability to spatially link much of the data it collects using its UCU system and Geographic Information System software.

HABITAT AND RESTORATION DIVISION

Anadromous Streams Database.

This database contains locations of all streams in Alaska in which juvenile and adult anadromous fish have been found. The Division maintains a library of maps and overlays depicting this information.

Kenai River Habitat Database.

This database was contains information on land ownership, land use, riparian vegetation, and shoreline habitat in the Kenai River drainage. The Division maintains a library of maps and GIS overlays depicting this information.

ADDENDUM C

**FEDERAL AGENCIES
INVENTORY OF AVAILABLE INFORMATION**

USFWS FISHERY RESOURCES DIVISION

The following inventory covers those data and information sources that are centrally collected and/or maintained by the US Fish and Wildlife Service, Division of Fishery Resources. Other data sets and information sources may be available from individual Fishery Resource Offices or Refuge.

Project Descriptions and Objectives.

Current fishery project descriptions and objectives are listed on the Services regional home page <http://www.r7.fws.gov/fish/index.html>. Operational plans are directly available from the individual offices.

Reports.

Fishery reports produced by the Fishery Resource Division are listed on the Services regional home page <http://www.r7.fws.gov/fish/index.html>. The following reports are produced by the Services staff:

1. Technical Fishery Reports (1983-present)
2. Progress Reports (1989-present)
3. Data Series (1994-present)

The reports are available either in hard copy or Adobe PDF format. The database is continually updated as new reports are produced.

Mark-sense Data system.

The Service uses the State Sport Fish Divisions mark-sense forms where practical to archive resident fish species information. See the Sport Fish Divisions for a description

US NATIONAL PARK SERVICE

The NPS does not currently maintain a centrally located data and information source. Data sets and related biological information are maintained and may be available from individual NPS offices. NPS staff works closely with ADF&G counter parts in a number of areas throughout Alaska. Much of the biological information collected by NPS staff is given to ADF&G for incorporation into their databases.

National Park Service policy and the National Parks Omnibus Management Act of 1998 requires that park managers know the condition of natural resources under their stewardship and monitor long-term trends in those resources to fulfill the NPS mission. To effect policy and legislation, NPS has undertaken a program of inventory and monitoring of National Park System resources to establish baseline information to provide information on the long-trends in condition of National Park System resources.

This program was initiated in FY 2001. A major emphasis of the inventory and monitoring effort is to make information more readily available to decision makers and the public and to integrate natural resource information with other park operations such as interpretation and maintenance. Considerable resources will be allocated for improved information management, and several tools

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are being developed to make information more readily available to park managers and others for planning, management, and decision-making. GIS Internet applications would be an efficient tool to communicate information obtained through this program.

Additional information regarding goals, objectives and timelines for this program may be found at <http://www.nature.nps.gov/sfancy/>

USDA FOREST SERVICE

Channel Type Inventory – GIS layer displaying all water bodies and their channel type (Floodplain, Palustrine, Estuarine, High Gradient Contained, Alluvial Fan, Moderate Gradient Contained, Large Contained, Glacial Outwash, and Mixed Control Moderate Gradient.

Various other surveys: Steelhead Redd counts on some districts, snorkel steelhead counts on Craig Ranger District (POW island), salmon spawner counts in some streams where a fish pass has been constructed.

US BUREAU OF LAND MANAGEMENT

US BUREAU OF LAND MANAGEMENT

The BLM Field Office scientists conduct a wide variety of habitat assessment and resource survey and inventory activities throughout the year. Many of these are conducted in cooperation with the Alaska Department of Fish and Game, the US Fish and Wildlife Service and the North Slope Borough and the resulting data is often incorporated into other databases, particularly those maintained by ADF&G.

Examples of data collected by BLM scientists include, vegetation transects to monitor caribou/reindeer use in northwest Alaska, earthcover (water and vegetation) classifications for the National Petroleum Reserve-Alaska, and aquatic habitat and stream channel data on the Yukon River. Some of these data are formally compiled into Open File Reports, available in hard copy at the Alaska State Office. Raw data are maintained by individual scientists, and not compiled into electronic databases.

During FY 2002, the BLM will be compiling this “legacy” data from the working files of individual scientists into more readily accessible electronic form. Two student positions are dedicated to this effort. The Anchorage Field Office has initiated a preliminary database structure for wildlife survey information, called the “Wildlife Observation System.” Combining GIS and survey categories, this database provides a means to systematically compile and analyze observations of wildlife, including species, age, sex, and behavior, with observation conditions, and detailed location information.

As part of the Alaska Geospatial Data Committee and through a Memorandum of Agreement signed by State and Federal agencies, the BLM sponsors a broad multi-agency effort to create a hydrography data infrastructure for Alaska. This infrastructure includes the Alaska portion of the National Hydrographic data set (NHD), which is digital line data representing water. It also includes the Watershed Boundaries Data Set, which are polygon data representing watersheds at 6 different scales. The project to prepare these data for use as statewide standards in Alaska is called the Alaska Watershed and Stream Hydrography Enhanced Datasets (AWSHED) project.

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The purpose is to provide a uniform and consistent GIS base layer for water, standard database keys (or Ids) representing streams and lakes and a system of designations for watersheds termed Hydrological Units (HUC units) to the 6th level of refinement..

The BLM in Alaska is also developing the Aquatic Resources Information Management System (ARIMS) which is a larger data repository in which tabular data, on water quality, habitat characteristics, or spawning counts, can be associated with points or reaches of rivers.

These data infrastructures are in advanced stages of development, and will be fully operational within two years. To avoid duplication of effort, close coordination is needed between these efforts and other state and federal initiatives to compile and improve access to fisheries data.

USFWS OFFICE SUBSISTENCE MANAGEMENT

The Office of Subsistence Management has federal subsistence permit harvest information in hardcopy format (applications and hunt reports) for the years 1991-2000. The application and harvest data are compiled in an electronic database (FoxPro) for 1994 and on. This wildlife harvest data has been shared annually with ADF&G and ADF&G in return has provided their harvest information to us in a an electronic database format (FoxPro).

The Subsistence Office also utilizes community harvest data and GIS map information for community Subsistence Use Areas derived from studies conducted the ADF&G Subsistence Division. The community harvest data is found in the Community Profile Data Base (Access format) and updated each year. The GIS information from ADF&G is in ArcInfo format but can be also used by ArcView.

The Fisheries Information Services Division implements the Federal subsistence fisheries monitoring program. Initiated in 1999, this program funds new data collection on stock status and trends, subsistence fishery harvest patterns, and traditional ecological knowledge. Through the end of FY 2001, 117 projects, worth \$9.4 million have been funded.

The FIS program is also funding several projects focused on consolidating regional and statewide databases on fisheries stock information and subsistence harvest GIS, to promote compatibility, quality, and improved access to the data by managers, subsistence users, and the public.

Although the program is relatively new, FIS projects are beginning to produce new results. Many stock enumeration projects are now integrated into reporting systems within the watershed, for use during in-season management decisions. For most others, final reports will be published in existing technical paper series sponsored by the primary investigator's agencies, including the Alaska Department of Fish and Game, and the USFWS Fisheries Resources Offices. For a small number of projects that do not readily fit within existing publication series, FIS will publish a report series, to insure that results are widely available.

The FIS program maintains a website with titles, investigator contact information, and abstracts for all its funded projects. For many, electronic texts of progress and final reports are also available on the web.

ADDENDUM D

INFORMATION SYSTEM EFFICIENCIES AND METADATA STANDARDS

The parties agree that GIS Internet applications would be an efficient tool for information exchange. Such applications could be developed to provide direct access for the end user to: 1) efficiently assess availability of information, 2) obtain contacts for information that is not centrally archived, and ultimately, 3) query databases and extract information directly.

Development of a centralized and searchable database of projects and contacts would be an efficient first step toward cataloging information resources. A second important piece would be a searchable database of publications that provides direct access to abstracts and full-text reports. As this was developed, links to these reports could be incorporated in the project-contact database. The final step would be to integrate the contacts and reports databases with the project information databases via a GIS Internet application.

Each shared information resource should have associated with it the following supplementary fields.

- Project contact (Name, agency affiliation, email address, telephone number)
- Information summaries (e.g., formal or informal publications)
- Data manager contact
- Species coverage
- Geographic coverage
- Temporal coverage
- Update frequency
- Data format
- Information type (e.g., census, raw data, expanded estimates, statistical summaries)
- Confidentiality concerns

A proposal has been funded by the Office of Subsistence Management. This project is working towards updating the publications database. Work is also progressing on inter-divisional computing and sharing of resources, Sustainable Salmon project for Southeast, escapement goal policy implementation team (e.g., building a web site to support documentation of current policies), internet website development (e.g., inventory of standards and computing capacity at ADF&G locations), WAN database communications (e.g., exchange of data between ADF&G database servers in Juneau and Anchorage), and establishment of web accessible GIS data (e.g., working with Wildlife and Habitat on development and use ARC/IMS server in Anchorage).

ADDENDUM E

CONFIDENTIALITY RESTRICTIONS

State of Alaska

Under AS 16.05.815, state law prevents the transfer of certain information based on confidentiality. Such information includes, but is not limited to, personal information contained in fish and wildlife harvest and usage data; fish tickets; fish ticket computer runs; intents to operate; processor annual reports; log books or other catch records; and individual or vessel harvest records that are correlated to their harvest or effort.

Federal Government

The Privacy Act of 1974, 5 USC. § 552(a) et seq., prohibits a federal agency from disclosing any record about an individual contained in a system of records, except under certain limited circumstances. The term "record," as defined in the Privacy Act, means any item, collection, or grouping of information about an individual including, but not limited to, his education, transactions, and criminal or employment history. In addition, there are certain exceptions to the Freedom of Information Act, 5 USC. § 552, that allow a federal agency to decline to disclose certain information. This includes, but is not limited to, information exempted from disclosure by statute, trade secrets and commercial or financial information obtained from a person that is privileged or confidential, and records or information compiled for law enforcement purposes.

ADDENDUM F

PRINCIPLES FOR THE CONDUCT OF RESEARCH IN THE ARCTIC¹

<http://www.nsf.gov/pubs/1998/nsf9872/nsf9872.doc>

INTRODUCTION

All researchers working in the North have an ethical responsibility toward the people of the North, their cultures, and the environment. The following principles have been formulated to provide guidance for researchers in the physical, biological, behavioral, health, economic, political, and social sciences and in the humanities. These principles are to be observed when carrying out or sponsoring research in Arctic and northern regions or when applying the results of this research.

This statement addresses the need to promote mutual respect and communication between scientists and northern residents. Cooperation is needed at all stages of research planning and implementation in projects that directly affect northern people. Cooperation will contribute to a better understanding of the potential benefits of Arctic research for northern residents and will contribute to the development of northern science through traditional knowledge and experience.

These "Principles for the Conduct of Research in the Arctic" were prepared by the Interagency Social Science Task Force in response to a recommendation by the Polar Research Board of the National Academy of Sciences and at the direction of the Interagency Arctic Research Policy Committee. This statement is not intended to replace other existing Federal, State, or professional guidelines, but rather to emphasize their relevance for the whole scientific community. Examples of similar guidelines used by professional organizations and agencies in the United States and in other countries are listed in the publications.

IMPLEMENTATION

All scientific investigations in the Arctic should be assessed in terms of potential human impact and interest. Social science research, particularly studies of human subjects, requires special consideration, as do studies of resources of economic, and social value to Native people. In all instances. It is the responsibility of the principal investigator on each project to implement the following recommendations.

1. The researcher should inform appropriate community authorities of planned research on lands, waters, or territories used by or occupied by them. Research directly involving northern people should not proceed without their clear and informed consent. When informing the community and/or obtaining informed consent, the re-searchers should identify:
 - a. all sponsors and sources of financial support;

¹ These guidelines were prepared by the Interagency Social Science Task Force in response to a recommendation by the Polar Research Board of the National Academy of Sciences and at the direction of the Interagency Arctic Research Policy Committee

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- b. the person in charge and all investigators involved in the research, as well as any anticipated need for consultants, guides, or interpreters;
 - c. the purposes, goals, and time-frame of the re-search;
 - d. data-gathering techniques (tape and video recordings, photographs, physiological measurements etc.) and the uses to which they will be put;
 - e. foreseeable positive and negative implications and impacts of the research.
2. The duty of researchers to inform communities continues after informed consent has been obtained. Ongoing projects should be explained in terms understandable to the local community.
3. Researchers should consult with and, where applicable, include communities in project planning and implementation. Reasonable opportunities should be provided for the communities to express interests and to participate in the research.
4. Research results should be explained in non-technical terms and, where feasible, should be communicated by means of study materials that can be used by local teachers or in displays that can be shown at local community centers or museums.
5. Copies of research reports, data descriptions, and other relevant materials should be provided to the local community. Special efforts must be made to communicate results that are responsive to local concerns.
6. Subject to the requirements for anonymity, publications should always refer to the informed consent of participants and give credit to those contributing to the research project.
7. The researcher must respect local cultural traditions, languages, and values. The researcher should, where practicable, incorporate the following elements into the research design:
 - a. use of local and traditional knowledge and experience;
 - b. use of the languages of the local people;
 - c. translation of research results, particularly those of local concern, into the languages of the people affected by the research;
8. When possible, research projects should anticipate and provide meaningful experience and training for young people.
9. In cases where individuals or groups provide information of a confidential nature, their anonymity must be guaranteed in both the original use of data and in its deposition for future use.
10. Research on humans should only be under-taken in a manner that respects their privacy and dignity:
 - a. Research subjects must remain anonymous unless they have agreed to be identified. If anonymity cannot be guaranteed, the subjects must be informed of the possible consequences of be-coming involved in the research.

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- b. In cases where individuals or groups provide information of a confidential or personal nature, this confidentiality must be guaranteed in both the original use of data and its deposition for future use.
 - c. The rights of children must be respected. All research involving children must be fully justified in terms of goals and objectives and never undertaken without the consent of the children and their parents or legal guardians.
 - d. Participation of subjects, including the use of photography in research, should always be based on informed consent.
 - e. The use and deposition of human tissue samples should always be based on the informed consent of the subjects or next of kin.
11. The researcher is accountable for all project decisions that affect the community, including decisions made by subordinates.
12. All relevant federal, state and local regulations and policies pertaining to cultural, environmental, and health protection must be strictly observed.
13. Sacred sites, cultural materials, and cultural property cannot be disturbed or removed without community and/or individual consent and in accordance with federal and state laws and regulations.

In implementing these principles, researchers may find additional guidance in the publications listed below. In addition, a number of Alaska Native and municipal organizations can be contacted for general information, obtaining informed consent, and matters relating to research proposals and coordination with Native and local interests. Please contact the program director for Social Sciences at NSF's Office of Polar Pro-grams.

PUBLICATIONS

- Arctic Social Science: An Agenda for- Action. National Academy of Sciences, Washington, D.C., 1989.
- Draft Principles for an Arctic Policy. Inuit Circumpolar Conference, Kotzebue, 1986.
- Ethics. Social Sciences and Humanities Research Council of Canada, Ottawa, 1977.
- Nordic Statement of Principles and Priorities in Arctic Research. Center for Arctic Cultural Research, Umea, Sweden, 1989.
- Policy on Research Ethics. Alaska Department of Fish and Game, Juneau, 1984.
- Principles of Professional Responsibility. Council of the American Anthropological Association, Washington, D.C., 1971, rev. 1989.
- The Ethical Principles for the Conduct of Research in the North. The Canadian Universities for Northern Studies, Ottawa, 1982.

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The National Arctic Health Science Policy. American Public Health Association, Washington, D.C., 1984.

Protocol for Centers for Disease Control/Indian Health Service Serum Bank. Prepared by Arctic Investigations Program (CDC) and Alaska Area Native Health Service, 1990. (Available through Alaska Area Native Health Service, 255 Gambell Street, Anchorage, AK 99501.)

Indian Health Manual. Indian Health Service, US Public Health Service, Rockville, Maryland, 1987.

Human Experimentation. Code of Ethics of the World Medical Association (Declaration of Helsinki). Published in British Medical Journal, 2:177, 1964.

Protection of Human Subjects. Code of Federal Regulations 45 CFR 46, 1974,rev. 1983.

Appendix A2.-Database diagram for the Subsistence Community Profile Database (CPDB), a portion of the prototype project and information and access system. Final report prepared by the Alaska Department of Fish and Game for Study FIS 01-154, Office of Subsistence Management, Fisheries Resource Monitoring Program.

