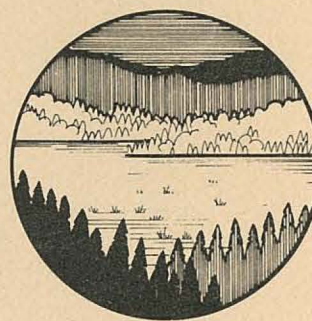
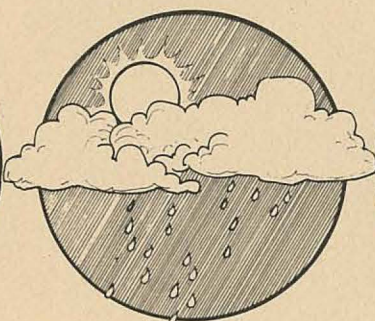
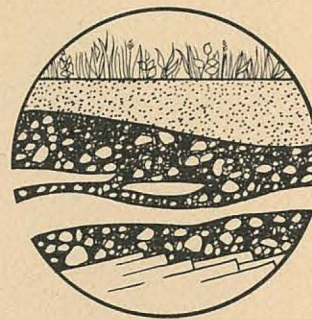
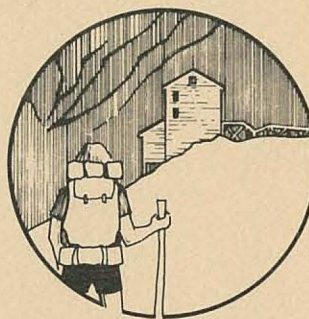


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susitna river basin RESOURCE BIBLIOGRAPHY



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Susitna River Basin RESOURCE BIBLIOGRAPHY

Supplement 1979

Alaska Department of Natural Resources
Division of Research and Development
Land and Resource Planning Section

In Cooperation with

the United States Department of Agriculture
(Soil Conservation Service, Forest Service,
Economic Research Service)

This project has been supported through
funding by the United States Department
of Agriculture, Soil Conservation Service.

Compiled by
DARCY LOCKHART

AUGUST 1979

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Anchorage, AK 99508-4614

the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion. The number of people aged 65 and over is expected to increase from 200 million to 400 million. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion.

PREFACE

This update of the Susitna River Basin Resource Bibliography partially fulfills a November 1978 cooperative agreement between the State of Alaska, Department of Natural Resources and the U.S. Department of Agriculture, Soil Conservation Service. The update was prepared for use in the cooperative study on the Susitna River Basin, the first in a series of federally funded Alaska Rivers Cooperative Studies.

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SUSITNA RIVER BASIN
RESOURCE BIBLIOGRAPHY
SUPPLEMENT

TABLE OF CONTENTS

<u>Sections</u>	<u>Page</u>
I. INTRODUCTION AND SUMMARY	3
STUDY AREA MAP	8
II. GEOLOGY	11
III. HYDROLOGY	63
IV. SOILS	119
V. VEGETATION	135
VI. FISH AND WILDLIFE	147
VII. RECREATION AND ARCHAEOLOGY	177
VIII. CLIMATE	197
IX. MISCELLANEOUS REFERENCES	207
A. LAND USE AND LAND STATUS	213
B. SOCIOECONOMIC	230



THE
FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE
WASHINGTON, D. C. 20535

MEMORANDUM FOR THE DIRECTOR

SUBJECT: [Illegible]

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introduction & summary

section I

This bibliography supplements the 1977 Susitna River Basin Resource Bibliography, an annotated collection of reports and projects relevant to natural resource management in the Susitna River Basin in southcentral Alaska. Natural resource data provides the foundation for planning and resource management decisions by local, state and federal agencies. Because these agencies need to have access to the most current information, it is important that the bibliography be periodically updated. This is particularly true of the Susitna Basin, where continuing study and research is taking place due to the area's rapid growth. Therefore, this supplement represents an important addition to the resource planning data base.

The supplement summarizes publications and projects initiated or completed since 1977. It does not contain citations included in the original bibliography except for those "ongoing" projects which have resulted in publications in the interim. As a result, the supplement should be used as a companion to the 1977 volume. Together, the two represent the available data for planning and management purposes in the region.

Both bibliographies are products of the Susitna River Basin Cooperative Study, a joint resource planning effort of the U.S. Department of Agricultural (USDA) and the Alaska Department of Natural Resources (DNR).

SUMMARY

Since the original bibliography was published, there have been extensive data additions to the soils, geology and hydrology categories. Much of this new information is in the form of regional assessments. Regional data is an important prerequisite for effective planning since it provides a basis for comparing resource values over large areas. New regional assessments include the Alaska Department of Fish and Game's statewide fishery and wildlife atlases, which are noted in the fish and wildlife section, and background material prepared for the Matanuska-Susitna Borough and proposed capital site. A large amount of social, economic and environmental information has recently been published for the capital site and some of this data can be extrapolated for areas where similar conditions exist. The supplement also includes information categories that have not had extensive study in Alaska before; for example, new sources are listed for solar energy and meteorology in the climate section and for LANDSAT vegetation mapping in the vegetation section.

The following is a brief summary of new information within each data category:

Geology -- The large amount of new material in this section, 37 citations, reflects the high level of interest in the basin's resources, particularly in site-specific areas. In addition, an effort was made to identify some of the relevant older publications not included in the original bibliography.

Hydrology -- Extensive hydrological work has been completed as part of the capital site environmental assessment program. Also, a U.S. Geological Survey regional hydrologic data compilation is now available. Many of the citations contained in this section report on the status of progress reports of studies listed as ongoing studies in the original bibliography, including the following:

- The Southcentral Alaska Water Resources Level B Study
- The Upper Susitna Hydrologic Development Project
- Floodplain Information Studies
- U.S. Geological Survey Basic Data Gathering Activities and Reports

Soils -- No complete soil surveys have been published since 1977, except for the capital site area. The supplement records progress on ongoing surveys being conducted by the U.S. Soil Conservation Service.

Vegetation -- Digitally processed vegetation mapping using remote sensing data is highlighted in the vegetation update. This type of analysis is relatively new to Alaska and was not underway when the original bibliography was published.

Fish and Wildlife -- Fish and wildlife sources cited in the 1977 bibliography consisted primarily of site-specific studies; however, important regional information is now available concerning the species, habitat and potential conflicts with human development. In addition, new information has been gathered on specific species and problems occurring in the Basin.

Recreation and Archaeology -- This section includes a wide variety of site oriented archaeological and recreational use analyses.

Climate -- Two projects concerning solar energy and meteorology highlight the climate section. This is a new and important area in national research, and no information was available for the Susitna Basin at the time of the original bibliography's publication.

Miscellaneous References -- This section has been divided into two subcategories: land uses/land status and socioeconomic. In the original bibliography, land use/land status information was peripheral to the main subject of research, natural resource data. The large amount of land use planning information compiled for the update reflects both the progress made in this area and the intense interest in the development of this region, especially reflected in reports prepared for the Capital Site Planning Commission and the Matanuska-Susitna Borough. These two entities have recently produced considerable amounts of useful and comprehensive data.

Since much of the hydrology and land use/land status information sources contain important socioeconomic data, a cross-reference was added for this category.

ORGANIZATION AND FORMAT

The bibliography is arranged in the following resource sections: geology, hydrology, soils, vegetation, fish and wildlife, recreation and archaeology, climate and miscellaneous references. Each section has three parts: 1) published information, 2) ongoing projects and 3) a cross-index for publications and projects relevant to the category, but annotated in another section of the bibliography.

The following are examples of the annotation format:

DESCRIPTIVE EXAMPLE: Published Information (Report or Map)

- Title:** Title of publication is underlined. Author; Agency, (date), (number of pages, illustrations).
- Area:** Geographic area covered by the study.
- Interest:** Each source is assigned number 1, 2, or 3 to indicate the relevance to resource management decisionmaking, where 1 is most relevant and 3 is least relevant. It should also be noted that the interest rating is not intended to be an evaluation of the source's overall quality.
- Maps:** Title and scales of all relevant maps are listed along with any necessary descriptions.
- Tables:** Relevant tables are listed or summarized.
- Description:** The contents of the publication are summarized.
- Availability:** Restrictions on data availability are noted. If the availability is not cited, at least one copy of the referenced publication has been placed in a special "Susitna Collection" shared by the USDA Soil Conservation Service and the Alaska Department of Natural Resources. When availability is cited, copies may be obtained as indicated.

DESCRIPTIVE EXAMPLE: Ongoing Project

Title: Project identification, (not necessarily the formal project name).

Contact: Name and address of person to contact for further information.

Area: Geographic area covered by the study.

Maps: Titles and scales of all relevant maps.

Tables: Relevant tables are listed or summarized.

Description: A short explanation of intent, scope, methodology and expected results of the project.

Status: Progress to date.

Duration: Anticipated completion date or length of study.

SUSITNA RIVER BASIN Cooperative Study Area

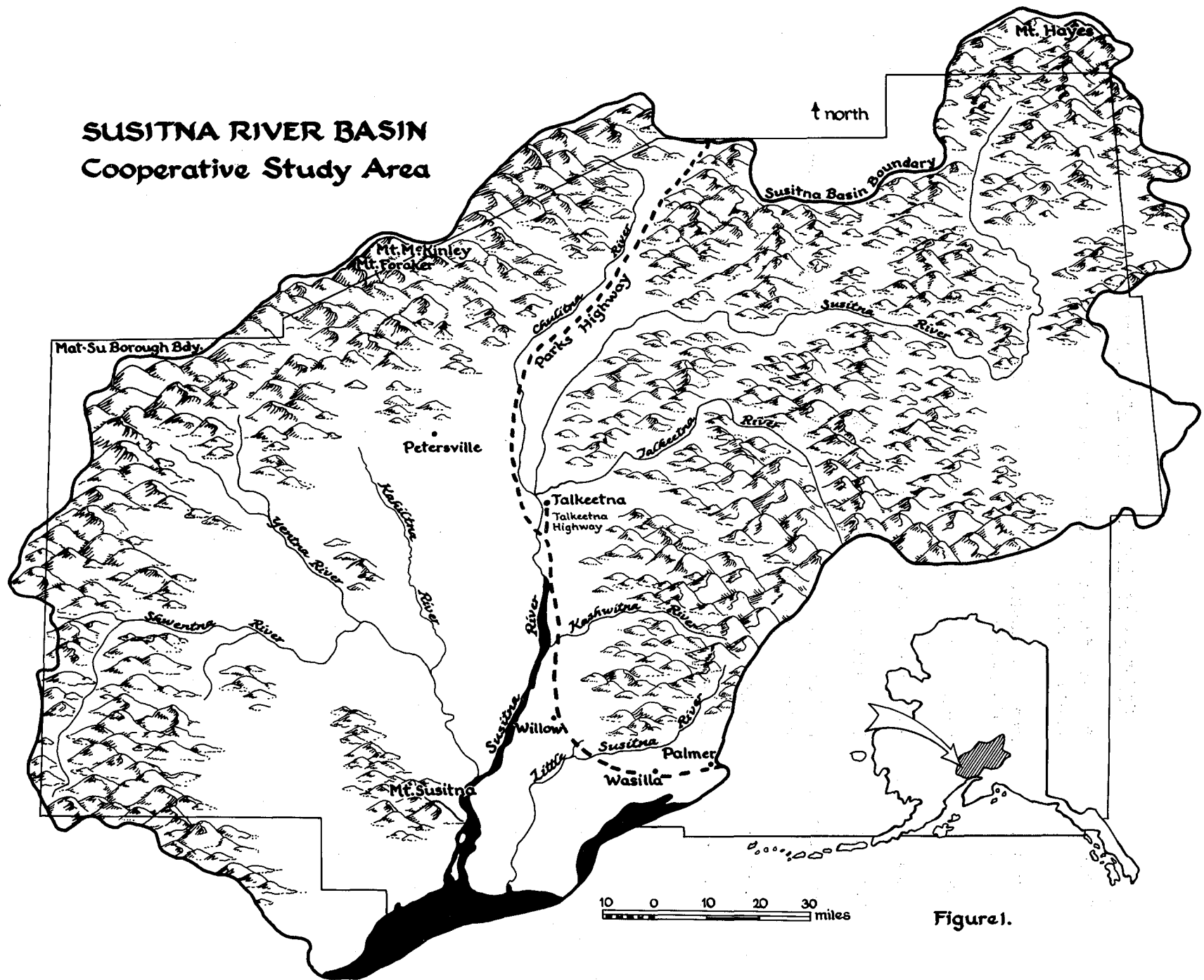


Figure 1.

CONTENTS: GEOLOGY

I. PUBLISHED INFORMATION

Page

A. COAL, OIL AND NATURAL GAS STUDIES

1. Bedrock Geology and Coal Occurrences, Talkeetna-Kashwitna Area 19
2. Bituminous Coal Deposits in the Vicinity of Eska, Matanuska Valley Coal Fields 20
3. Comprehensive Bibliography and Index of Environmental Information for the Beluga-Susitna, Nenana, and Western Arctic Coal Fields 21
4. Feasibility Study of Mining Coal and Transportation by Slurry to the West Coast 22
5. Geologic Resource Evaluation of the Talkeetna River Area 23
6. Natural Gas Fields - Cook Inlet Basin 24
7. Reconnaissance of the Beluga River Coalfield 25
8. Resume of Information on Alaskan Bituminous Coals with Particular Emphasis on Coking Characteristics 26
9. The Reserve Base of U. S. Coals by Sulfur Content 27

B. MINERALOGY

1. Investigation of the Bailey Copper Prospect, Willow Creek Mining District 28
2. Location of Anomalous Concentration of Metals in Alaskan Placer Concentrate Samples 29
3. Mineral Appraisal of Lands Adjacent to Mt. McKinley National Park 30
4. Mineral Appraisal of Certain Alaska National Interest Lands, Proposed Lake Clark National Park 31
5. The Mineral Potential of Alaska's Mt. McKinley Region, A Summary Report 32
6. Mineral Resource Maps dealing with the Talkeetna Mountains Quadrangle (AMRAP) USGS 33
7. Sampling a Gold-Copper Deposit, Golden Zone Mine, Southcentral Alaska 35



geology

section II

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GEOLOGY: PUBLISHED INFORMATION, continued

C. RECONNAISSANCE GEOLOGY

	<u>Page</u>
1. <u>Gravity Survey of Beluga Basin and Adjacent Areas, Cook Inlet Region</u>	36
2. <u>Reconnaissance Geologic Materials Map of the New Capital Site and Vicinity</u>	37
3. <u>Reconnaissance Geologic Materials Map of the Talkeetna-Kashwitna Area</u>	38
4. <u>Reconnaissance Geology of the New Capital Site and Vicinity</u>	39
5. <u>Reconnaissance Geology of the Talkeetna-Kashwitna Area</u>	40

II. ONGOING PROJECTS

1. Alaska Mineral Resource Assessment Program (AMRAP)	43
2. Analysis of Faults in the Matanuska and Susitna Valleys	45
3. Assessment of Active Faults and Earthquake Potential Based upon Holocene Activity, Upper Cook Inlet	46
4. Beluga Coal Project	47
5. Embankment Dams on Permafrost	48
6. Environmental Analysis of the Upper Susitna River Basin Using Landsat Imagery	49
7. Geophysical Profiles across the Bruin Bay Fault System, West Side Cook Inlet Basin	50
8. Hydrological Baseline Studies of Beluga Coal Area	51
9. Landsat Imagery and Application in Alaska (AMRAP)	52
10. Seismic-induced Liquification Potential of Surficial Deposits	53
11. Surficial Geology and Geologic Hazards of the Hatcher Pass Recreation Area	54
12. Surficial Geology Mapping and Hazards Identification on West Side Cook Inlet	55
13. Surficial Geology of the Eastern Susitna River Basin	56
14. Surficial Geology of the Matanuska and Susitna Valleys	57

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the statistical analysis performed.

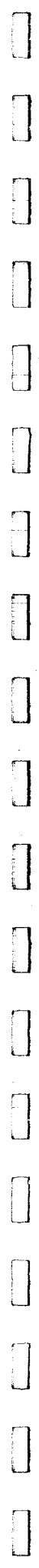
3. The third part of the document presents the results of the study. It includes a series of tables and graphs that illustrate the findings of the research. The data shows a clear trend of increasing activity over time.

4. The fourth part of the document discusses the implications of the findings. It suggests that the results have significant implications for the field of study and may lead to further research in this area.

5. The fifth part of the document concludes the study. It summarizes the main findings and provides a final statement on the importance of the research.

GEOLOGY: ONGOING PROJECTS, continued

	<u>Page</u>
15. Talkeetna Mountains Quadrangle (AMRAP)	58
16. West Side Cook Inlet Geophysical Studies	59
III. CROSS-INDEX	60



I. PUBLISHED INFORMATION: GEOLOGY



Title: Bedrock Geology and Coal Occurrences, Talkeetna-Kashwitna Area, Susitna River Basin, Alaska. McGee D. L.;
Alaska Department of Natural Resources, Division of
Geological and Geophysical Surveys, Open-File Report
107E, 1978.

Area: Talkeetna-Kashwitna area. Area covers portions
of Montana Creek, Sheep Creek, Kashwitna River and
Little Willow Creek drainages.

Interest: Level 2.

Maps: (Scale 1:63,360).

Description: This map identifies quaternary deposits, silt,
claystone, sand, gravel and till of fluvial and glacial
origin. Areas considered likely to contain coal are
also indicated. Field reconnaissance was conducted in
1976.

Title: Bituminous-Coal Deposits in the Vicinity of Eska,
Matanuska Valley Coal Field, Alaska. Jolley, Theodore R.,
Albert L. Toenges and Louis A. Turnbull; USDI, Bureau
of Mines, Report of Investigation 4838, February, 1952
(87 pp., illus.).

Area: Eska Creek Area. North Side of the Matanuska River
in the foothills of the Talkeetna Range.

Interest: Level 2.

Maps: Mines and geologic maps of Matanuska coal field,
including Eska, Wishbone and Evans Jones plants.

Tables: Reserved in the vicinity of the Eska mine, and analysis
of coal cores.

Description: This report is an assessment of the reserves of
the bituminous coal beds of the Matanuska coal field.
Only one mine was in operation at the time, and it has
been inactive for many years.

Brief descriptions include topography, climate and
aerial description, with character of the coal and coal
beds as well as geology of the area.

The study area is not in the immediate Susitna Drainage,
but the information is still fairly complete, although
dated.

Title: Comprehensive Bibliography and Index of Environmental Information for the Beluga-Susitna, Nenana, and Western Arctic Coal Fields, 3 vols. Report for U.S. Department of Energy, Washington, D.C. by University of Alaska, Arctic Environmental Information and Data Center, 1978/79.

Area: Beluga-Susitna coal fields.

Interest: Level 1.

Maps: Volume 1 includes three maps at a scale of 1:500,000 which provide an index of environmental information and indicate place names that are specifically defined in the reference.

Description: This bibliography contains author, geographic place name, earth science, taxonomic and keyword indexes. It was compiled to facilitate access to environmental information pertinent to three major coal areas in Alaska.

Title: Feasibility Study of Mining Coal and Transportation by Slurry to the West Coast. Anderson, Donald; USDI, Bureau of Mines, Open File Report 17(1,2)-78, January, 1978, (35 pp., illus.) V. 1 - App. Cook Inlet Coal: Economics of Mining and Marine Slurry Transport. Hennagin, Brian David, (95 pp., illus.) V. 2--Report (1,2) prepared under contract for the Bureau of Mines by the University of Washington, Dept. of Mining, Metal, and Ceramic Engineering, Seattle, WA.

Area: Cook Inlet coal field in the Tyonek quadrangle--Beluga coal.

Interest: Level 1-2. The extensive subbituminous coal deposits near Cook Inlet have received considerable attention currently because of their size, nearness to tidewater and low sulfur content.

Maps: Location of mine site, map of Chuitna coal area and pipeline route, terrain profile of proposed pipeline route.

Tables: Beluga coal quality, slurry pipeline data, ship data, cost summary.

Description: The report evaluates mining and transportation costs to move Cook Inlet coal to Washington State as a slurry. It gives a general description of Beluga coal deposits and follows a mine site delivery of coal during all of the steps of mining, slurry transportation, delivery and final steps to usable, available coal at the delivery site. Costs are developed per ton of clean coal and final costs are given in million BTUs.

Title: Geologic Resource Evaluation of the Talkeetna River Area, Susitna Basin, Alaska. Reger, McGee, Carver & Hackett; Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, 1977-78.

Area: Talkeetna-Kashwitna River areas including west flank of Talkeetna Mountains.

Interest: Level 1.

Maps: Four maps are included at a scale of 1:63,360.

1. AOF 107G - Simple Bouguer Gravity Map of Talkeetna-Kashwitna River Area.
2. AOF 107H - Aeromagnetic Map of Talkeetna-Kashwitna River Area.
3. AOF 107I - Provisional Geophysical Interpretation of Simple Bouguer Gravity Map, Talkeetna-Kashwitna River Area.
4. AOF 107J - Preliminary Geological Interpretation (Basement Complex) of Aeromagnetic Map Talkeetna-Kashwitna River Area.

Tables: Tabulated gravity data.

Description: This report is a summary of present knowledge of geologic resources in the Talkeetna-Kashwitna area. Ten townships are ranked in their relative order of probable abundance of oil, natural gas, coal, hard rock minerals and construction materials.

Title: Natural Gas Fields--Cook Inlet Basin, Alaska.
Blasko, Donald P.; USDI, Bureau of Mines, Open-File
Report 35-74, September, 1974, (29 pp., illus.).

Area: The study area includes: The Cook Inlet Fields,
particularly the West Side Cook Inlet fields near to
the Susitna River mouth area where it drains into Cook
Inlet. Fields such as Beluga River, Ivan River, North
Cook Inlet, Albert Kaloa and Moquawkie might be considered
in the drainage and/or estuarine area (particularly
Ivan and Beluga River natural gas fields).

Interest: Level 2.

Maps: 1. Natural gas fields in the Cook Inlet Basin, Alaska.
2. Generalized tertiary stratigraphy of the Cook
Inlet Basin, Alaska.

Tables: Although not listed as tables, the data on each field
are listed in a semitabular form so that the material
is easily recognized and available.

Description: The material on Cook Inlet gas resources summarizes and
consolidates material from several other reports and
includes some previously unpublished gas analyses.
Reserves are estimated, production figures are given
and other miscellaneous material is included.

Title: Reconnaissance of the Beluga River Coal Field, Alaska.
Maloney, R. P.; USDI, Bureau of Mines. Report of
Investigation 5430, 1958 (18 pp., illus.).

Area: The Beluga River coal field is located in the Redoubt district, Spurr subdistrict (mining districts) and lies between 61°30'N. and 61°51'N. lat., and 151°00'W. and 151°35'W. long.; about 10-15 mi. east of Triumvirate and Capps Glaciers, and 20 mi. SW of Mt. Susitna.

Interest: Level 2.

Maps: Coal outcrops and cross sections of the coal field and geologic location map of the Beluga River Coal Field. The usual index map included. 10 maps.

Tables: One table. Analysis of samples from Beluga River, Coal Creek and Tyonek beds.

Description: Because of the belief that the field might have economic significance, in 1957 the bureau investigated the Beluga field to determine extent of the coal deposits, location and thickness of beds and methods believed then most favorable for developing large reserves of strippable coal.

Descriptions include the topography, geology and ecology of the area as well as economic assessment of the coal beds.

Title: Resume of Information on Alaskan Bituminous Coals with Particular Emphasis on Coking Characteristics. Warfield, Robert S.; USDI, Bureau of Mines; Open File Report 11-67, 1967, (20 pp.).

Area: Statewide.

Interest: Level 2.

Description: This is a summary report on available information, with particular emphasis on coking characteristics. Report is general in subject matter, dealing as it does with Alaskan bituminous coal fields, but gives a section to the Matanuska coal field--including Wishbone Hill, Chickaloon and Anthracite Hill districts.

Title: The Reserve Base of U. S. Coals by Sulfur Content (in Two Parts). 2. The Western States. Hamilton, Patrick A., D. H. White, Jr., and Thomas K. Matson; USDI, Bureau of Mines, Information Circular 8693, 1975, (322 pp., illus.).

Area: Not precisely defined. Given in the Bureau of Mines IC 8531 (Strippable Reserves of Bituminous Coal and Lignite in the U. S., 1971) as Susitna, Broad Pass and Matanuska. Shown on index map included in both publications.

Interest: Level 2. Because of low sulfur content of the Alaskan coals, interest could be fairly high for development during energy conservation periods.

Maps: Coal fields of Alaska.

Tables: Bituminous coal reserve base; lignite reserve base; subbituminous coal reserve base.

Description: The Bureau of Mines report delineates the coal reserve base of the various coals by mining method and sulfur content. The basis for the reserve base estimation and analytical data was the Fuels Availability System data bank, derived from publications of the Bureau of Mines, U. S. Geological Survey, state agencies, private publications, and company data. The reserve base presented involved totalling measured, indicated and inferred coal down to 3000 feet.

Title: Investigation of the Bailey Copper Prospect, Willow Creek Mining District, South-Central Alaska. Maloney, Raymond P.; USDI, Bureau of Mines, Open File Report 3-66, (7 pp., illus.).

Area: Reed Creek in the Little Susitna River Basin SW corner of Talkeetna Mountains.

Interest: Level 3.

Maps:

1. Index, Bailey prospect;
2. Location map of prospect;
3. Geologic map of Bailey prospect, showing other prospects and general area.

Tables: Two tables: chemical analyses of samples; spectroscopic and petrographic analyses.

Description: In 1963 a reconnaissance examination was made of the prospect as part of the bureau's mineral investigation program. The area has been an important producer of gold, and molybdenum prospects have been reported. Mineralization was detected and reported. A drilling program was recommended to determine the size, grade and character of the minerals. Values were found for bornite, chalcopyrite, covellite, molybdenite, gold and silver.

Title: Location of Anomalous Concentrations of Metals in Alaskan Placer Concentrate Samples. Thomas, Bruce I. and C. L. Sainsbury; USDI, Bureau of Mines; Open-File Report 56-76, 1976.

Area: Samples considered anomalous plotted in the following areas of the Susitna River drainage: Anchorage, Gulkana, Lake Clark, Mt. McKinley, Talkeetna, Talkeetna Mts.

Interest: Level 3.

Maps: As described in title. 39 clear overlays for 1:250,000-scale Alaska topographic quadrangle maps. Quadrangles included within the study area are: Anchorage, Talkeetna, Talkeetna Mountains.

Description: Original samples, panned from stream sediments across much of Alaska, were collected by the U.S. Geological Survey between 1895 and 1953. The Bureau of Mines identified samples considered anomalous, plotted them with anomalous metal values coded in ranges of parts per million and indexed by sample numbers. 25 different metals concentrates such as copper, lead, zinc, etc., are plotted. The overlays could serve as a useful tool in detecting lode deposits upstream from the sample location.

Title: Mineral Appraisal of Lands Adjacent to Mt. McKinley National Park, Alaska. C. C. Hawley and Associates, for the USDI, Bureau of Mines, Open File Report 24-78, March, 1978, (184 pp., illus.).

Area: Mt. McKinley National Park and proposed extensions on all sides.

Interest: Level 1-2.

Maps: 10 maps: General location map, Mt. McKinley Park--showing management boundaries and mineral districts, generalized geologic map with general structural index map, sample, claim and mineral deposit maps of various mining areas showing local geology, sketch map of some prospects, profiles of geochemical and magnetic data, location of claims maps.

Tables: Twenty-four tables including: indices of mineral deposits in quadrangle areas (i.e., Healy-Talkeetna Mts., Talkeetna) and various mining districts and areas: Kantishna, Mt. McKinley, Yentna; annotated bibliographies of main mineral occurrences in the areas of interest; results of analyses; and summaries of reserves.

Description: The authors had previously examined and explored mineral deposits and mineral trends in the study area and in adjacent lands as well as acquired much data from other firms. This data was supplemented by intensive field work in the proposed additions. Field investigations within the present park were forbidden.

The study was carried on as requested by the Federal-State Land Use Planning Commission for Alaska through the Bureau of Mines Alaska Field Office Center by funds augmented by special congressional appropriations. The report contains all data available from government and industry sources and the new data resulting from field studies on mineral deposits and trends.

Title: Mineral Appraisal of Certain Alaska National Interest Lands, Proposed Lake Clark National Park: A Summary Report. Lambeth, Robert H.; USDI, Bureau of Mines, Open-File Report 114-78, 1978, (18 pp., illus.).

Area: Proposed Lake Clark National Park--part of which lies in the Tyonek and Lime Hills quadrangles and is part of the Susitna drainage area.

Interest: Level 1-2.

Maps:

1. Index map of the proposed Lake Clark National Park.
2. Map of the proposed Lake Clark National Park.
3. Generalized geology map of the proposed Lake Clark National Park.
4. Mineral prospects, occurrences and anomalies in the proposed Lake Clark National Park.
5. Mineral potential map of the proposed Lake Clark National Park.

Description: This document presents results of a reconnaissance examination of the Lake Clark region by the Bureau of Mines in 1976 and 1977 to identify and evaluate mineral deposits and mineralized areas. The report summarizes and presents findings on data developed from the survey and from background research and includes estimates of favorability for discovery of mineral deposits similar to those mined elsewhere.

The estimates and data accumulated by this study indicated mineralization in the northern half of the region in three areas favorable for (1) tin and uranium deposits and copper-lead-zinc deposits; (2) porphyry-copper-molybdenum deposits with associated lead-zinc-silver-gold deposits; and (3) molybdenum or molybdenum-tungsten porphyry deposits. Other deposits are also indicated for other parts of the region.

Title: The Mineral Potential of Alaska's Mt. McKinley Region:
A Summary Report. Hawley, C. C., for the Bureau of
 Mines, USDI, Open File Report 117-78, 1978, (18 pp.,
 illus.).

Area: Mt. McKinley region; including Kantishna, Chulitna,
 Yentna, and Tonzona and rapid reconnaissance of terrain
 not previously reported, i.e., the southwest flank of
 Mt. McKinley.

Interest: Level 1.

Maps: 1. Location of the Mt. McKinley area.
 2. Generalized geologic map of Mt. McKinley area and
 vicinity with structural index map.
 3. Summary of economic geology in the Mt. McKinley
 area.

Tables: Classification of mineral deposit types with examples
 in the Mt. McKinley area.

Description: These summary reports are issued by the Bureau of Mines
 in order to acquaint planners and the public with some
 identification of new mineral areas, allow for better
 appraisal of known mineral areas and to suggest areas
 where further data are needed for evaluation. They
 cover areas of interest in (d)(2) and possible (d)(2)
 land.

A survey of mineral potential in the Mt. McKinley,
 Alaska region indicates that mineral deposits and
 occurrences are relatively abundant. Known deposits
 occur mainly outside the present boundary of Mt. McKinley
 National Park. Three major mineral belts or trends are
 indicated: Chulitna-Yentna, Kantishna and Dall.

Title: Mineral Resource Maps Dealing with the Talkeetna Mountains
Quadrangle. Alaska Mineral Resource Assessment Program
(AMRAP), USGS.

Area: Talkeetna Mountains.

Interest: Level 1.

Description: The following are USGS quadrangle maps. They are listed by author, open-file number and date of publication.

1. Karlson, Curtain, Cooley & Garnezy, OF 77-530, 1977. Geochemical maps of selected elements and results of spectrographic analyses for heavy-mineral concentrates from the western half of the Talkeetna Mountains quadrangle, Alaska.
2. MacKevett, Singer & Holloway, OF 78-1-E, 1978. Maps and tables describing metalliferous mineral resource potential of southern Alaska.
3. Decker & Karl, OF 77-169-E, 1977. Preliminary aeromagnetic map of eastern part of southern Alaska.
4. Steele & LeCompte, OF 78-558-D, 1978. USGS map showing interpretation of Landsat imagery of the Talkeetna Mountains quadrangle, Alaska.
5. Csejtey & Miller, OF 78-558-B, 1979. Map and table describing metalliferous and selected nonmetalliferous mineral deposits, Talkeetna Mountains quadrangle, Alaska.
6. Miller, Curtin & Csejtey, OF 78-558-G, 1979. Map showing geochemical distribution and abundance of silver in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
7. Miller, Curtin & Csejtey, OF 78-558-K, 1979. Map showing geochemical distribution and abundance of molybdenum in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
8. Miller, Curtin & Csejtey, OF 78-558-E, 1979. Map showing geochemical distribution and abundance of tin in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.

9. Miller, Curtin & Csejtey, OF 78-558-M, 1979. Map showing geochemical distribution and abundance of chromium in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
10. Miller, Curtin & Csejtey, OF 78-558-I, 1979. Map showing geochemical distribution and abundance of copper in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
11. Miller, Curtin & Csejtey, OF 78-558-J, 1979. Map showing geochemical distribution and abundance of lead in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
12. Miller, Curtin & Csejtey, OF 78-558-N, 1979. Map showing geochemical distribution and abundance of tungsten in heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
13. Miller, Curtin & Csejtey, OF 78-558-O, 1979. Map showing geochemical distribution and abundance of barium in heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
14. Miller, Curtin & Csejtey, OF 78-558-H, 1979. Map showing geochemical distribution and abundance of gold in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
15. Miller, Curtin & Csejtey, OF 78-558-L, 1979. Map showing geochemical distribution and abundance of bismuth in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
16. Miller, Curtin & Csejtey, OF 78-558-P, 1979. Map showing geochemical distribution and abundance of arsenic in heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.
17. Miller, Cooley, O'Leary, Garnezy, Csejtey, Smith & Cleveland, OF 78-1052, 1978. Analyses of geochemical samples from the Talkeetna Mountains quadrangle, Alaska.
18. Miller, Curtin & Csejtey, OF 78-558-F, 1979. Map showing geochemical distribution and abundance of zinc in stream sediments and heavy-mineral concentrates, Talkeetna Mountains quadrangle, Alaska.

Title: Sampling a Gold-Copper Deposit, Golden Zone Mine, South-Central Alaska. Mulligan, J. J., R. S. Warfield and R. R. Wells; USDI, Bureau of Mines, Open-File Report 9-67, 1967, (59 pp.).

Area: A 6-mile-long sulfide deposit belt, straddling the West Fork of the Chulitna River in the Healy quadrangle, 2 to 6 miles south of Mt. McKinley National Park. The belt extends from Costello Creek to Long Creek in the southwest corner of the Healy quadrangle.

Interest: Level 3. Difficult drilling work brought the drilling to a close before sufficient data was accumulated (cost being prohibitive) to estimate probable reserves. The drilling was done in 1950 and 1951. Though data is not sufficient for an accurate estimation and the work done is old, it may be of interest, with other data, in giving an idea of mineralization in the area.

Maps: Index map showing location, general area of mine/mine location map, geologic map of the Golden Zone mine and other nearby prospects, plan, assay and drill hole maps.

Tables: 16 tables. Of particular interest: production record of the Golden Zone mine, weather data for Summit, Alaska, unpatented lode claims of the Golden Zone and adjacent prospects, analyses records, log of drill holes, core recovery.

Description: The deposits are related to small diorite and diorite porphyry stocks and dikes. Gold and silver associated with other mineral pyrites and galena occur within the diorite-porphyry stock.

Short descriptions of location, climate and accessibility (of that time as well as history) of mining in the area, and production may make this worth examination.

Title: Gravity Survey of Beluga Basin and Adjacent Areas, Cook Inlet Region, Southcentral Alaska. Geologic Report 49, Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, (10 pp.). 3 maps by S. W. Hackett, 1977.

Area: Cook Inlet, Beluga, Susitna and Yentna basins, upper Shelikof Trough.

Interest: Level 1. Structural geology and natural resource (petroleum) potential.

Maps:

1. Geologic map.
2. Structural cross sections and geophysical profiles.
3. Simple Bouger gravity map (Scale: 1:500,000).

Tables:

Tabulated gravity data.
Tabulated ground magnetic data.

Figures:

1. Location of study area.
2. Cenozoic basin outline.
3. Gravity stations in Beluga Basin and adjacent areas.
4. Major Mesozoic and Cenozoic tectonic elements in the Cook Inlet region.
5. Generalized geologic map of Southcentral Alaska based on ERTS-1 photo interpretation and available geologic and geophysical data.
6. Major structural features of Southcentral Alaska.
7. ERTS-1 mosaic photo of upper Cook Inlet region.
8. Generalized Tertiary isopach map of the Cook Inlet region delineating the probable thickness of Tertiary sedimentary rocks; Beluga, Susitna and Yentna basin isopachs inferred from geophysical data.

Description: This study was conducted partially to eliminate a regional gravity data void in Southcentral Alaska, to gather and interpret the regional gravity and magnetic data over the Upper Cook Inlet Region; to trace the major structural features throughout the area and to delineate the basement configuration and gross thickness of tertiary sediments in the northern portion of the Shelikof Trough.

Availability: Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
P.O. Box 80007
College, Alaska 99708

Alaska Department of Natural Resources
Division of Lands, Southcentral District Office
3327 Fairbanks
Anchorage, Alaska 99501

Title: Reconnaissance Geologic Materials Map of the New Capital Site and Vicinity. Reger, Richard D., Cheri L. Carver; Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, Open-File Report #113B (1978).

Area: Willow capital relocation site.

Interest: Level 2.

Maps: 1:63,360-scale base map is taken from USGS Anchorage (C-7)(C-8)(D-7)(D-8), Tyonek (C-1)(D-1) quadrangles.

Tables: A chart is presented which indicates the relative probability of locating good deposits of each construction material in the various map units.

Description: Potential availability of various construction materials in geologic-materials map units at capital site and vicinity is presented.

Title: Reconnaissance Geologic Materials Map of the Talkeetna-Kashwitna Area, Susitna River Basin, Alaska. Reger, Richard D., Cheri L. Carver; Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, DGGS Open-File Report #107B, 1978.

Area: Talkeetna-Kashwitna area, Susitna River Basin. The area includes portions of Montana, Sheep and Little Willow Creeks and the Kashwitna River drainages.

Interest: Level 2.

Maps: (Scale 1:63,360.)

Description: This map shows the geologic materials in the Talkeetna-Kashwitna area. It indicates the location of geologic materials such as sand and gravel, peat, volcanic rock and sandstone deposits. The map is based on field reconnaissance conducted and aerial photograph interpretation completed in 1976.

Title: Reconnaissance Geology of the New Capital Site and Vicinity. Reger, Richard D.; Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, Open-File Report #113A, 1978.

Area: Willow capital relocation site.

Interest: Level 2.

Maps: 1" = 1 mile; base map is taken from USGS Anchorage, (C-7), (C-8), (D-7), (D-8) Tyonek (C-1), (D-11) quadrangles.

Description: This map shows bedrock formations of the Willow capital relocation site and vicinity. It is based on field reconnaissance conducted in 1977 and aerial photograph interpretation completed in 1978.

Title: Reconnaissance Geology of the Talkeetna-Kashwitna Area,
Susitna River Basin, Alaska. Reger, Richard D.; Alaska
Department of Natural Resources, Division of Geological
and Geophysical Surveys, Open-File Report #107A, 1978.

Area: Talkeetna-Kashwitna area including portions of Montana,
Sheep and Little Willow Creeks and Kashwitna River
drainages.

Interest: Level 2.

Maps: (Scale 1:63,360.)

Description: This map shows geological formations in the Talkeetna-
Kashwitna area and is based on field reconnaissance and
aerial photograph interpretation completed in 1976.

II. ONGOING PROJECTS: GEOLOGY



Title: Alaska Mineral Resource Assessment Program (AMRAP).

Contact: Henry C. Berg, USGS
Branch of Alaskan Geology
345 Middlefield Road
Menlo Park, California 94025
(415) 323-8111, ext. 2266.

Area: Statewide.

Description: The Alaska Mineral Resource Assessment Program (AMRAP) began in 1975 in response to public and private concern about the classification, allocation and development of Alaska's lands. One objective of the program, based on a 1:250,000-scale quadrangle format, is a systematic assessment of terrains having high economic mineral potential. The other objective, based on a 1:1,000,000-scale map format, is a synoptic mineral appraisal of mainland Alaska. Informally termed "RAMRAP" (Regional AMRAP), this appraisal has been completed and published.

Geologists from the Alaska Division of Geological and Geophysical Surveys and the University of Alaska are also participants in the AMRAP program.

Of importance to the Susitna basin are these general resource assessment reevaluations:

- New potential resources of molybdenum, chromite, gold and tin were discovered in the Talkeetna quadrangle.
- Significant increases were recognized in size of copper deposits in the Talkeetna Mountains quadrangle.

Status: More than 100 AMRAP-sponsored research reports on geology, geochemistry, geophysics and mineral resources are published to date. The following reports and maps pertaining to AMRAP are currently available through USGS.

1. Geologic map of Talkeetna quadrangle. 1977 (1978). MF-870-A.
- *2. Interpretation of Landsat imagery of the Talkeetna quadrangle, Alaska, by W. C. Steele and N. R. D. Albert. 1978. MF-870-C.
3. Mineral resources of the Talkeetna quadrangle. 1978. MF-870-D.
4. Geochemical and generalized geologic map showing distribution of gold and silver, Talkeetna quadrangle, Alaska. 1978. MF-870-E.

5. Geochemical and generalized geologic map showing distribution of tin, tungsten, and beryllium, Talkeetna quadrangle, Alaska. 1978. MF-870-F.
6. Geochemical and generalized geologic map showing distribution and abundance of copper, lead, zinc, and molybdenum in the Talkeetna quadrangle, Alaska. 1978. MF-870-G.
7. Geochemical and generalized geologic map showing distribution of chromium and nickel, Talkeetna quadrangle, Alaska. 1978. MF-870-H.
8. Maps showing mineralogical data for nonmagnetic heavy-mineral concentrates in the Talkeetna quadrangle, Alaska, by Tripp and others. MF-870-I.
9. Surficial deposits, Talkeetna quadrangle, Alaska. 1978. MF-870-J.

*Annotated in this bibliography.

Title: Analysis of Faults in the Matanuska and Susitna Valleys.

Contact: Ross Schaff
Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys
3001 Porcupine Drive
Anchorage, AK 99501

Area: Matanuska and Susitna basins and surrounding foothills.

Description: The objective of this project is to prepare a structural geologic map of the area indicating all known or suspected faults, their history of movement and type or amount of displacement. Emphasis shall be on identifying faults that have been active during the past 10,000 years.

Status: A short article summarizing the results of trenches across the Castle Mountain fault is part of DGGs Geologic Report 61. Another article entitled, "Preliminary Stress Analysis Along the Castle Mountain Fault, Central Matanuska Valley, Alaska" has been submitted to the Journal of Geophysical Research.

Duration: Ends June 30, 1979.

Title: Assessment of Active Faults and Earthquake Potential
Based upon Holocene Activity, Upper Cook Inlet.

Contact: Dr. R. G. Updike
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
Anchorage, Alaska

Area: Upper Cook Inlet.

Description: This project is an examination and mapping of fault
lineaments in upper Cook Inlet region with detailed
examination of activity during the last 10,000 years to
assess potential recurrence of movement along faults
and thus shallow-focus earthquakes in the upper Cook
Inlet area.

Status: Initiated 1979.

Duration: Two years.

Title: Beluga Coal Project.

Contact: Benno J. G. Patsch
Project Engineer
2500-ONE California Street
San Francisco, CA 94111

Area: Beluga coal field.

Description: This project is an ongoing economic feasibility and marketing study for developing the Beluga coal fields for nine-month power generation or for export.

Status: Ongoing.

Duration: Continuing.

Title: Embankment Dams on Permafrost.

Contact: Mr. Francis Sayles, Research Civil Engineer
Geotechnical Research Branch
U. S. Army Cold Regions Research and Engineering
Laboratory
Hanover, NH 03755

Area: Upper Susitna River basin.

Description: With the increasing development of the Arctic and sub-Arctic and Alaska, in particular, the need for constructing earth structures and reservoirs on permafrost will necessarily increase. At the present time plans are being prepared for a combined flood control and hydroelectric development for the Susitna River basin in Central Alaska. Some of the alternative dam sites for this development are in permafrost, and all the reservoirs involve permafrost. In the past the Corps of Engineers has built small water supply dams for remote sites in permafrost areas, and it is expected that this activity will continue in the future.

Other government agencies and private organizations will require information for construction of dams on permafrost, e.g., Public Health Service, Alyeska, etc. There is every reason to believe that additional structures will be founded on permafrost in the future.

Limited technical information is available in North America for design, construction and maintenance of safe, economical, water-retaining embankments on permafrost and for the preservation of natural permafrost slopes in a safe stable condition when they are subjected to thermal degradation, frost action, flooding and the actions of ice. The problems of excavating, hauling and placing earth and rock materials in permafrost areas, where the season of above-freezing air temperatures is very limited, impose many severe cost and feasibility constraints.

Specific research is needed in the following areas: thermal effects; seepage control; stability and settlement; spillways on permafrost; construction; site selection; hydrology; hydraulic control works; instrumentation; erosion control; water quality; environmental effects and enhancement; frost action.

Status: Proposal Stage.

Duration: 4-5 years.

Title: Environmental Analysis of the Upper Susitna River Basin
Using Landsat Imagery.

Contact: Lawrence Gatto, Carolyn Merry, Harlan McKim,
Daniel Lawson, Jerry Brown
U. S. Army Cold Regions Research and Engineering
Hanover, NH 03755

Area: Upper Susitna River basin.

Description: The overall objective was to evaluate the utility of Landsat imagery for obtaining environmental data for preconstruction planning and design. The following maps were made from Landsat interpretations: drainage network, lakes, glaciers and snowfields, lineaments, surficial geologic materials and poorly drained areas. Landsat imagery has limited use for detailed mapping of surficial geologic materials, of lakes smaller than 4000 m and of small glaciers. It is very useful when regional geologic information is limited or unavailable.

Status: Preparation of final report.

Duration: April 1977 to summer 1979.

Title: Geophysical Profiles Across the Bruin Bay Fault System,
Westside Cook Inlet Basin, Alaska.

Contact: Steve Hackett
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
3001 Porcupine Drive
Anchorage, Alaska 99501

Area: Cook Inlet basin, Southcentral Alaska.

Description: The study objective is the acquisition of semidetailed gravity data across the Bruin Bay Fault system from Mt. Susitna to Tuxedni Bay. The data will assist in defining this hidden structural feature along the west side of Cook Inlet Petroleum Province.

Status: Continuing.

Duration: Ongoing.

Title: Hydrological Baseline Studies of Beluga Coal Area.

Contact: William Long
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
3001 Porcupine Drive
Anchorage, Alaska 99501

Area: Beluga area.

Description: This is a long-term project which involves collection of water data--surface, ground and water quality--for predevelopment resource information.

Status: Data collection is in progress: discharge stations, test wells and water quality sampling are underway.

Duration: Approximately five years.

Title: LANDSAT Imagery and Applications in Alaska (AMRAP).

Contact: Nairn R. D. Albert
U. S. Geological Survey
345 Middlefield Road
Menlo Park, CA 94025
(415) 323-8111, ext. 2025.

Area: Statewide.

Description: The principal objectives of this project are: to furnish AMRAP team leaders and principal investigators with state-of-the-art Landsat materials for reconnaissance purposes; to provide unique geologic, structural and tectonic information relevant to mineral resource assessment for each AMRAP quadrangle and to construct a controlled 1:1,000,000-scale Lambert conformal false-color Landsat mosaic of Alaska.

The types of Landsat products used are: (1) black and white, single-band Landsat mosaic of Alaska; (2) computer-enhanced false color, color ration, simulated color and first-derivative black-and-white images; and (3) interactive computer displays allowing detailed analysis of specific areas.

Status: Talkeetna quadrangle manuscript is in review. Talkeetna Mountains quadrangle has been processed and is being analyzed. Actual construction of the 1:1,000,000-scale mosaic of most of Alaska is ready to begin as of spring, 1979.

Title: Seismic-induced Liquefaction Potential of Surficial Deposits, Susitna Lowlands.

Contact: Dr. R. G. Updike
Alaska Department of Natural Resources,
Division of Geological and Geophysical Surveys
Anchorage, Alaska

Area: Susitna Lowlands and southern Matanuska Valley.

Description: Utilizing surficial geologic maps, existing subsurface data and newly acquired field data, surficial deposits of the area will be assessed for potential failure due to liquefaction induced by strong motion seismic events.

Status: Begun January, 1979 and thus only in preliminary stages.

Duration: Approximately two years.

Title: Surficial Geology and Geologic Hazards of the Hatcher Pass Recreation Area.

Contact: Richard D. Reger
Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys
Box 80007
College, Alaska 99708

Area: Proposed Hatcher Pass Recreation Area in SW Talkeetna Mts.

Description: Based on detailed field observations and air photo interpretation, DGGs is preparing geologic reports evaluating the geologic hazards and including 1:24,000-scale maps of geology, materials and hazardous areas.

Status: Field mapping and photo interpretation of Little Susitna River drainage has been completed.

Duration: Scheduled for completion in FY 81.

Title: Surficial Geology Mapping and Hazards Identification on
West Side Cook Inlet.

Contact: Jim Riehle
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
3001 Porcupine Drive
Anchorage, Alaska 99501

Area: Tuxedni Bay to Beluga River from Cook Inlet shoreline
to Chigmit Mountain front.

Description: (1) Air photo interpretation.
(2) Field checking to produce a geologic map.
(3) Interpretation.

Status: To begin summer, 1978.

Duration: Summer, 1978-summer, 1979.

Title: Surficial Geology of the Eastern Susitna River Basin.

Contact: Richard D. Reger
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
Box 80007
College, Alaska 99708

Area: Susitna River-Matanuska River basin between Susitna River as far north as Talkeetna and west and south flanks of Talkeetna Mts., extending up Matanuska Valley to vicinity of Jonesville.

Description: DGGS is mapping surficial geology and bedrock using aerial photographs and field data. Geologic and geologic-materials maps will be prepared at a scale of 1:63,360 for parts of the following quadrangles: Anchorage C-6, C-7, C-8, D-7, D-8; Tyonek A-1, A-2, B-1, B-2, C-1, C-2, D-1; Talkeetna Mts. A-6, B-6 and Talkeetna A-1, B-1.

Status: Preliminary field work and photo interpretation has been completed. Final plotting has been done for 65% of area.

Duration: Scheduled for completion in FY 81.

Title: Surficial Geology of the Matanuska and Susitna Valleys.

Contact: Richard D. Reger
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
Box 80007
College, Alaska 99708

Area: Palmer to west of Wasilla.

Description: Project objective is to map surficial deposits utilizing aerial photographs and field checking. Geologic and geologic-materials maps will be prepared for each of 13 1:25,000-scale orthophoto maps provided by the USGS [Anchorage C-6SW, C-7SE, C-7SW, C-8SE, C-8SW, C-8NW, B-7NW, B-8NE, B-8NW, and Tyonek B-1SE, B-1NE, C-1SE and C-1NE].

Status: Field work and initial photo interpretation is completed. Geology is plotted for 8 of 13 quads. Anchorage C-8SE quad is being drafted for publication.

Duration: Scheduled for completion in FY 81.

Title: Talkeetna Mountains Quadrangle (AMRAP).

Contact: U. S. Geological Survey
Skyline Building
508 2nd Avenue
Anchorage, Alaska

Area: Talkeetna Mountains quadrangle.

Description: The objective of this project is the evaluation of the mineral resources of the Talkeetna Mountains quadrangle through reconnaissance geologic, geochemical, geophysical and telegeologic mapping.

Status: Field work has been completed. Portions of this project are complete. A list of those reports can be found under "Mineral Resources" of the GEOLOGY section of this bibliography. Remaining reports are scheduled for completion late summer of 1979.

Title: West Side Cook Inlet Geophysical Studies.

Contact: Steve Hackett, Geophysicist
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
3001 Porcupine Drive
Anchorage, Alaska 99501

Area: Tuxedni Bay to Beluga River from Cook Inlet shoreline
to Chigmit Mountain front.

Description: Study objective is acquisition of regional gravity data
to help define major fault zones (Bruin Bay Fault
System) within the western portions of the Shelikof
Trough. This is a continuation of the Beluga Basin
Project.

Status: DGGs is planning to acquire new gravity data in
conjunction with geologic projects along the western
shore of Cook Inlet and to acquire enough data to
publish a report on Castle Mountain-Bruin Bay Fault
System in 1980, summarizing all geophysical and geological
knowledge of the region.

Duration: 1978-1980 field seasons.

III. CROSS-INDEX: GEOLOGY

See HYDROLOGY SECTION for annotations of the following:

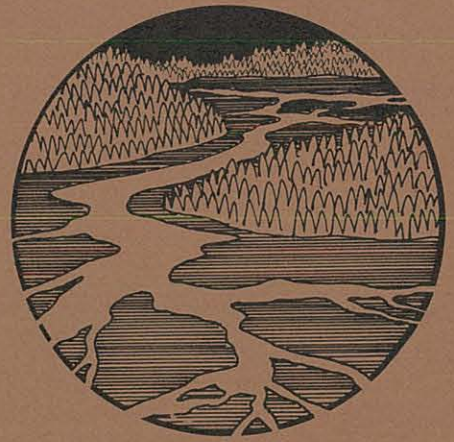
<u>LANDSAT Mapping - Level B Study</u>	84
Water Resources of the Matanuska-Susitna Valley Area	108

See MISCELLANEOUS REFERENCES SECTION for annotations of the following:

<u>Alaska Coastal Land Status Atlas</u>	213
<u>Geotechnical Studies: Geologic Materials and Hazards Analysis, New Capital Environmental Assessment Program, Source Document No. 3</u>	221
<u>Goose Bay to Point MacKenzie Highway Corridor Route Reconnaissance</u>	215
<u>Matanuska-Susitna Comprehensive Development Plan</u>	217
<u>Natural Site Conditions, New Capital City Planning Process Background Report, No. 4</u>	224

See VEGETATION SECTION for annotations for the following:

Acquisition System Verification and Transfer (ASVT) Project or Denali Remote Sensing Project	143
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hydrology

section III

CONTENTS: HYDROLOGY

I. PUBLISHED INFORMATION

	<u>Page</u>
A. HYDROPOWER RELATED	
1. <u>Alaskan Electric Power, An Analysis of Future Requirements and Supply Alternatives for the Railbelt Region</u>	71
2. <u>Electric Power Needs Assessment, Phase I Technical Memorandum, Level B Study</u>	72
3. <u>Final Environmental Assessment Record, Susitna Hydropower Feasibility Study</u>	73
4. <u>The Politics of Hydroelectric Power in Alaska: Rampart and Devil's Canyon - A Case Study</u>	74
5. <u>Power Market Analysis - Upper Susitna River Project</u>	75
6. <u>Power Requirements Study, Alaska 2 Matanuska</u>	76
7. <u>Southcentral Railbelt Area, Alaska, Upper Susitna River Basin Supplemental Feasibility Report, Hydroelectric Power and Related Purposes</u>	77
B. FLOODING	
1. <u>Alaska Communities Flood Hazard and Pertinent Data</u>	78
C. GROUNDWATER	
1. <u>Data on Wells in the Matanuska-Susitna Borough Area</u>	79
2. <u>Electrical Resistivity Survey, Water Well Site Selection Study, Capital Relocation Site, Willow</u>	80
3. <u>Guide to Groundwater Data, Cook Inlet Basin</u>	81
D. SURFACE WATER	
1. <u>Surface Water Records of Cook Inlet Basin</u>	82
E. WATER RESOURCE MANAGEMENT, GENERAL INFORMATION	
1. <u>Alaska Water Assessment Summary Report</u>	83
2. <u>Landsat Mapping, Level B Study</u>	84
3. <u>Summary of Water Supplies at Alaskan Communities</u>	85



HYDROLOGY: PUBLISHED INFORMATION continued

	<u>Page</u>
4. <u>Sewage Facilities Plan for City of Wasilla</u>	86
5. <u>Water Facilities Plan for City of Wasilla</u>	87
6. <u>Water Resources of Alaska</u>	88
7. <u>Water Resources Data for Alaska</u>	89
8. <u>Water Supply Needs Assessment, Phase I Technical Memorandum, Level B Study</u>	91
9. <u>Water Quality Needs Assessment, Phase I Technical Memorandum, Level B Study</u>	92

II. ONGOING PROJECTS

1. Hydrologic Data Compilation for the Cook Inlet Area	95
2. Matanuska Electric Association 115 KV Transmission Line	96
3. Matanuska-Susitna Boroughwide Flood Insurance Study	97
4. National Stream-Quality Accounting Network	98
5. Southcentral Alaska's Economy and Population, 1965-2025, Level B Study	99
6. Southcentral Water Resources Study, Level B Study	100
7. Southcentral Water Resources Study, Phase I, II	102
8. Southcentral Water Resources Study, Phase III, IV, V	103
9. Upper Susitna River Basin Hydropower Feasibility Study	104
10. Wasilla Sewer System	105
11. Wasilla Water System	106
12. Watana and Devils Canyon Hydroelectric Power Site Study	107
13. Water Resources of the Matanuska-Susitna Valley Area	108
14. Water Quality Assessment of Lakes in the Palmer-Wasilla Area	109
15. WATSTORE Computer System	110
16. Willow Creek Expanded Floodplain Information Study	113

1. The first part of the report is a general introduction to the project.

2. The second part of the report is a detailed description of the methodology used.

3. The third part of the report is a discussion of the results of the study.

4. The fourth part of the report is a conclusion and a list of references.

5. The fifth part of the report is an appendix containing additional data and figures.

6. The sixth part of the report is a bibliography of the literature cited.

7. The seventh part of the report is a list of the authors' names and affiliations.

8. The eighth part of the report is a list of the titles of the papers presented.

9. The ninth part of the report is a list of the names of the speakers.

10. The tenth part of the report is a list of the names of the organizers.

11. The eleventh part of the report is a list of the names of the sponsors.

12. The twelfth part of the report is a list of the names of the participants.

13. The thirteenth part of the report is a list of the names of the reviewers.

14. The fourteenth part of the report is a list of the names of the editors.

15. The fifteenth part of the report is a list of the names of the publishers.

16. The sixteenth part of the report is a list of the names of the distributors.

17. The seventeenth part of the report is a list of the names of the retailers.

18. The eighteenth part of the report is a list of the names of the wholesalers.

19. The nineteenth part of the report is a list of the names of the manufacturers.

20. The twentieth part of the report is a list of the names of the suppliers.

21. The twenty-first part of the report is a list of the names of the customers.

22. The twenty-second part of the report is a list of the names of the distributors.

23. The twenty-third part of the report is a list of the names of the retailers.

24. The twenty-fourth part of the report is a list of the names of the wholesalers.

25. The twenty-fifth part of the report is a list of the names of the manufacturers.

26. The twenty-sixth part of the report is a list of the names of the suppliers.

27. The twenty-seventh part of the report is a list of the names of the customers.

28. The twenty-eighth part of the report is a list of the names of the distributors.

29. The twenty-ninth part of the report is a list of the names of the retailers.

30. The thirtieth part of the report is a list of the names of the wholesalers.

HYDROLOGY: ONGOING PROJECTS continued

	<u>Page</u>
17. Willow Creek Companion Study	114
III. CROSS-INDEX	115



I. PUBLISHED INFORMATION: HYDROLOGY



Title: Alaskan Electric Power, An Analysis of Future Requirements and Supply Alternatives for the Railbelt Region.

Battelle Pacific Northwest Laboratories for Alaska
Department of Commerce and Economic Development, Division
of Energy and Power Development, and the Alaska Power
Authority, Final Report Vol. I, II, March, 1978.

Area: Railbelt Region: Cook Inlet Region including the Kenai Peninsula and Anchorage, Matanuska and Susitna valleys and the Fairbanks North Star Borough.

Interest: Level 1.

Maps: Numerous, dealing with range of utility and industrial consumption, utility annual load, utility sales, cost analysis and load-resource analysis.

Tables: Numerous, dealing with utility sales, utility peak load, industrial load, existing and planned installed capacity, comparative capital and operating costs various types of facilities, load-resource analysis, levelized cost power generating option at 0%, 4% and 7% inflation rate.

Description: This report has as objectives: to provide an integrated analysis of alternatives for meeting the electric power requirements anticipated for the railbelt region of Alaska, to provide background or reference information for Alaska policy makers and planners as well as the general public, to identify the economic and state and federal policy considerations and uncertainties that influence power system planning and to indicate the sensitivity of power costs to these variables.

Volume II is an appendix which includes the following:

- A - Supporting detail, power requirements forecasts.
- B - Hydroelectric project discussions.
- C - ECOST 2 Model listing.
- D - Power cost computation case details.
- E - Schematic outline of the Clean Air Act.

Title: Electric Power Needs Assessment. Phase I Technical Memorandum, Southcentral Water Resources Level B Study, March, 1979.

Area: Southcentral Alaska.

Interest: Level 1.

Maps:

1. Utility market areas.
2. Annual population, employment and utility customers.
3. Energy sector ratios and annual energy generated or sold.
4. Annual energy use per capita and per customer.
5. Energy forecasts.
6. Peak load forecasts.
7. Installed capacity and power needs forecast.

Tables:

1. Summary of existing generating capacity 1977.
2. 1977 installed nameplate capacity - MW.
3. Electrical load data 1970 through 1977.
4. Net generation.
5. Average annual utility growth summaries.
6. Subregion populations - historic and projected.

Description: This technical memorandum is a draft assessment of present and future electric power needs in Southcentral Alaska. The study period is generally 1975 through 2025, with emphasis on mid-term problems and needs through the year 2000. The southcentral region is divided into four hydrologic subregions--Anchorage, Cook Inlet, Kodiak-Shelikof, and Gulf of Alaska. Existing power facilities are inventoried, demands projected, the need for new generating capacity assessed and forecast methodologies are explained in detail. (See page 100 for a description of the Level B Study.)

Title: Final Environmental Assessment Record, Susitna Hydropower Feasibility Study, USDI, Bureau of Land Management, Anchorage, Alaska, February, 1979.

Area: Upper Susitna River Basin, Watana and Devils Canyon project areas.

Interest: Level 1.

Maps: Seven support maps are included dealing with Watana and Devils Canyon projects, hydrology and transmission corridors and access route corridors.

Description: This report is a support document to an application Alaska Power Authority has filed with BLM to conduct a hydroelectric feasibility analysis for the upper Susitna River basin. If authorized, the feasibility analysis will deal with engineering, economic, social and biological aspects of the proposed project. The environmental impacts and ways to minimize and mitigate adverse impacts of the proposed activities are examined in detail.

Title: The Politics of Hydroelectric Power in Alaska:
Rampart and Devil Canyon--A Case Study. Naske, Claus M.,
and William R. Hunt; Institute of Water Resources,
University of Alaska, 1978.

Area: Yukon, Susitna, Cook Inlet, Eklutna.

Interest: Level 3.

Description: This report was funded by U. S. Department of Interior,
Office of Water Research and Technology. The interplay
of political forces in contemplated hydro development
in Alaska is discussed. An analysis of the construction
of Eklutna Dam is included as an appendix.

Title: Power Market Analysis, Upper Susitna River Project.
(Draft), Department of Energy, Alaska Power
Administration, January, 1979.

Area: Anchorage-Fairbanks Railbelt Area.

Interest: Level 1.

Maps:

1. Upper Susitna River basin project--feature site location.
2. Upper Susitna River project areas presently served by railbelt utilities.
3. Energy sector ratios Anchorage-Cook Inlet areas and annual energy generated or sold Anchorage-Cook Inlet area.
4. Annual energy use per capita and per customer.
5. Annual population, employment and utility.
6. Anchorage-Cook Inlet area energy forecast.
7. Anchorage-Cook Inlet area peak load forecast.
8. Total railbelt area energy forecast.

Tables: Numerous, dealing with railbelt area generation capacity, basic power and energy forecasting data, cost analysis.

Description: This report updates the previous power market analyses provided for the Corps of Engineers 1976 Interim Feasibility report on the proposed Upper Susitna River Hydroelectric Project.

The report includes a new set of load projections for the railbelt area through the year 2025 and a review of alternative sources of power. Load-resource and total power system cost analyses were prepared for different scenarios under various assumptions to determine effects on power rates. The appendix lists previous studies and a bibliography.

Title: Power Requirements Study, Alaska 2 Matanuska.
USDA, Rural Electrification Administration, Matanuska
Electric Association, Palmer, Alaska, May, 1978, (25 pp.).

Area: Matanuska Valley and contiguous areas, primarily extending
along the Parks and Glenn Highways.

Interest: Level 2.

Tables: 1. Population projections for the Matanuska-Susitna
Borough.
2. Projected effect of natural gas fuel prices on
wholesale energy.

Description: This staff report of the rural electrification
administration was conducted with the assistance of the
Matanuska Electric Association to identify power
requirements for the Matanuska-Susitna Borough. It is
an analysis of social and economic factors affecting
the Matanuska Cooperative service area with regard to
energy demands.

Title: Southcentral Railbelt Area, Alaska, Upper Susitna River Basin, Supplemental Feasibility Report, Hydroelectric Power and Related Purposes. U. S. Army Corps of Engineers, February, 1979, (47 pp.).

Area: Upper Susitna River basin, Watana and Devils Canyon project areas.

Interest: Level 1.

Maps: Six maps are included dealing with dam site plans of Watana and Devils Canyon proposed projects. Scale (1:725,000) 1" = 11½ miles approx.

Description: This supplemental feasibility study was initiated to reevaluate the economic justification of the proposed upper Susitna River Basin hydropower development and is not a comprehensive document. The report consists of a main section which responds to specific comments and suggestions offered by the Office of Management and Budget and supporting appendix which corresponds directly to the sections of Appendix I of the 1976 Interim Feasibility Report. Annotation of the 1976 Interim Feasibility Report can be found on page 146 of the Susitna River Basin Resource Bibliography.

Title: Alaska Communities Flood Hazard and Pertinent Data.
U. S. Army Corps of Engineers, Cook Inlet Subregion,
November 8, 1977.

Area: Southcentral.

Interest: Area 2.

Description: This is a computer printout which presents data by community on flood hazards. Data recorded include population, number of houses, number of houses in flood hazard areas, public facilities in flood hazard areas, transportation, economic activities, power supply, sewage treatment systems, flood insurance, flood history of river, discussion of existing flood hazard maps and comments on the specific flood hazards of the area.

Title: Data on Wells in the Matanuska-Susitna Borough Area,
Alaska. U. S. Geological Survey, Open-File Report,
1968, (25 pp.).

Area: Matanuska-Susitna Borough.

Interest: Level 2.

Maps: Selected wells in a part of the Matanuska-Susitna
Borough area.

Tables: Record of wells in the Matanuska-Susitna Borough area;
logs of wells in the Matanuska-Susitna Borough area;
chemical analysis of wells in the Matanuska-Susitna
Borough area.

Description: This report contains data obtained from wells on
Susitna Borough area extending from Palmer to Talkeetna,
Alaska. Data on depth, depth to water level, diameter,
and yield of 125 wells is tabulated. Also presented
are 32 well logs and 14 chemical analyses of well water.

Title: Electrical Resistivity Survey, Water Well Site Selection Study Capital Relocation Site, Willow, Alaska. Prepared for CH2M Hill Alaska, Inc., by Harding-Lawson Associates, November, 1978.

Area: Capital relocation site along the Deception Creek drainage.

Interest: Level 2.

Maps: Location map (Scale 1:25,000).

Tables: Numerous, dealing with electrical resistivity soundings.

Description: This report describes an electrical resistivity survey conducted to determine the depth and extent of water-bearing materials to aid in locating water wells which would supply the proposed capital relocation site. An appendix is included.

Title: Guide to Ground Water Data, Cook Inlet Basin, Alaska.
 Freethey, Geoffrey W., U. S. Geological Survey Open-File
 Basic Data Report 78-439, 207 (3 pp.) maps.

Area: The Cook Inlet Hydrologic Sub-region

Interest: Level 2.

Maps: Ground Water site locations, Lower Cook Inlet and Upper
 Cook Inlet - 1:250,000 scale.
 Ground Water site locations, Anchorage and Vicinity -
 1:48,000 scale.
 Insets - Ground Water Site locations, Willow and Vicinity,
 Palmer-Wasilla and Vicinity, Eagle River and Vicinity,
 Kenai-Soldotna and Vicinity, Homer and Vicinity -
 1:125,000 scale.

Tables:

1. Cross-reference list of numbers and names used
 when referring to groundwater sites.
2. Types of groundwater quality records.
3. Index of groundwater quality records.
4. Current U. S. Geological Survey observation wells
 in the Cook Inlet Basin.
5. List of selected publications by the U. S. Geological
 Survey personnel containing groundwater data for
 the Cook Inlet Basin.

Description: The report contains a guide for use by planners,
 developers and managers for locating and obtaining
 groundwater data within the Cook Inlet Hydrologic
 Subregion. The report describes types of groundwater
 data available, the U. S. Geological Survey's site
 identification and location procedure and the basic
 means of storage and retrieval of groundwater data in
 the WATSTORE computer system.

Title: Surface Water Records of Cook Inlet Basin, Alaska.
through September 1975: Scully, David R.; Larry S. Leveen
and Raymond S. George; U. S. Geological Survey Open-file
Basic Data Report 78-498, 1978, (102 pp.).

Area: The Cook Inlet Hydrologic Sub-region.

Interest: Level 2.

Maps: Location map of gaging stations, crest-stage
partial-record stations and miscellaneous discharge
measurement sites in the Cook Inlet Hydrologic Sub-region.

Description: This report presents compilation of miscellaneous
discharge, daily discharge and monthly and annual mean
discharge of streams within the Cook Inlet Hydrologic
Subregion. It also contains a tabulation of periodic
and continuous water temperature measurements and a
complete record of seepage investigations.

Title: Alaska Water Assessment Summary Report. Alaska Water Study Committee, August, 1977, (183 pp.).

Area: Statewide.

Interest: Level 2.

Maps: Numerous, dealing with climatic zones, hydrologic subregions, Alaska land status, water and related land problem areas with seven areas of major significance.

Tables: Numerous, dealing with socioeconomic characteristics, volumetric requirements (water withdrawals), volumetric requirements (consumptive use of water), water supplies, instream flow needs.

Description: The Summary Report was the final step in the Alaska Water Assessment Project. It presents a summary of previous steps in the assessment and sets out the Alaska Region's views on relative importance and priorities for addressing water problems together with conclusions and recommendations for solving Alaska's water and related land resource problems.

Title: LANDSAT Mapping, Level B Study, Alaska Geophysical Institute, 1979.

Area: Cook Inlet Subregion and localized areas in the Gulf of Alaska Subregion.

Interest: Level 1.

Maps: Land cover, land form and geologic hazard maps at 1:63,360 and 1:25,000.

Description: This remote sensing mapping project was completed for the Land Use Management Committee by the Alaska Geophysical Institute. It includes major portions of the lower Susitna Basin, with maps available at a scale of 1:63,360 and 1:25,000. The series includes land cover (vegetative classes) and interpretative mapping of land forms and geologic hazards. Its utility is in interpreting land suitability for various purposes and in identifying resource areas. (See page 100 for a description of the Level B Study.)

Availability: Copies of the original mylar overlays are available from Bureau of Land Management, Federal Building, Anchorage, Alaska.

Title: Summary of Water Supplies at Alaskan Communities, Cook Inlet Subregion, Resource Planning Team, Joint Federal-State Land Use Planning Commission, July, 1973.

Area: Southcentral Alaska.

Interest: Level 2.

Maps: Scale 1 $\frac{1}{4}$ " = 50 miles.

1. Index map of planning regions and subregions, climatic zones, mean.
2. Minimum temperature, January, mean maximum temperature, July.
3. Mean annual precipitation, permafrost and glaciers.
4. Runoff, mean annual peak runoff, mean annual low monthly runoff, summer normal suspended sediment concentration.
5. Alaska regional and area breakdown in square miles, availability of groundwater.

Tables:

1. Maximum, minimum monthly and mean stream runoff by regions and subregions of the state.
2. Estimated suspended sediment loads and yields at selected points on Alaskan rivers.

Description: This report is a brief summary of the climate, geology, permafrost conditions and glaciers, settlement patterns, groundwater availability, surface water availability, the sediment load of streams and the chemical quality of both groundwater and surface water of the Cook Inlet Subregion. Data on communities in the subregion include availability of power, the presently used water supply, sewage facilities, known potential hazards, the availability of water quality analysis and subsurface data in the community and a brief statement of the future potential for water supply development.

Data is also given by community on population and community waste disposal facilities and water availability.

Title: Sewage Facilities Plan for City of Wasilla.
R & M Consultants, Wasilla, Alaska, March, 1978.

Area: Wasilla.

Interest: Level 2.

Maps: General location map (Scale 1:63,360).

Charts dealing with population projections; basic components of the biological treatment systems; overall treatment system evaluation matrix; proposed treatment facility plan.

Tables: Numerous tables indicating population projections, cost summary, capital cost and salvage values.

Description: This report presents a preliminary facility plan for construction of a sewage collection and treatment works for the City of Wasilla. It has not been implemented as of spring, 1979.

Title: Water Facilities Plan.
City of Wasilla, R & M Consultants, October, 1977.

Area: Wasilla.

Interest: Level 2.

Tables: 1. Population projections 1976-2000.
2. Water consumption information.
3. Fire flow requirements.
4. Summary of well water chemical analyses in the Wasilla area.

Description: The purpose of this study was to review alternatives and recommend a master plan for the development of a water system for the City of Wasilla. Identified in the study are domestic and fire flows, the residential distribution and storage requirements, water sources, supply, quality and treatment.

Title: Water Resources of Alaska.
USGS, Water Resources Division, Alaska District Open-File Report, 1971, (60 pp.).

Area: Statewide.

Interest: Level 2.

Maps: Numerous, dealing with hydrologic subregions, climatological data, geology data, largest rivers in Alaska, runoff data, distribution of principal lakes, generalized availability of groundwater, representative quality of surface water, and of groundwater.

Tables: 1. Population of the state of Alaska by subregions.
2. Climatological data.
3. Major rivers, Alaska region and runoff rates of selected streams in the subregion.
4. Major lakes, Alaska region.

Description: This report summarizes the existing information on the water resources in Alaska and describes the availability and quality of surface and groundwater and their quality. Climatological factors and physical features that affect the occurrence of water are briefly discussed. The report presents the available water data in a regionalized format. A comprehensive bibliography of reports published on water resources in the state is also included.

Title: Water Resources Data for Alaska (Summary).
U.S. Geological Survey.

Area: Statewide.

Interest: Level 1.

Description: An annual publication, Water Resource Data for Alaska gives basic data for quantity and quality of surface water and, in some cases, groundwater, in the state. The most recent edition is cited as a Water-Data Report (AK-75-1). The earlier volumes in this series do not have this title in the publication format and have no series number but are very similar in other respects. Listed below is an outline of the series of publications.

Title

Surface Water Records for Alaska, 1961-64

Water Quality Records for Alaska, 1964

Water Resources Data for Alaska, 1966-78

The following description exemplifies information included in these reports:

1. Gauging station records: daily discharge in cubic feet per second and short description of the physical location of the site.
2. Discharge at crest-stage partial-record stations. Includes description of location, the drainage area size, the period of record, annual maximum gauge height and discharge amount.
3. Discharge measurement at miscellaneous sites.

The above data are available for these surface-water stations within the Susitna Basin:

- Knik River near Palmer
- Caribou Creek near Denali
- Little Susitna River near Palmer
- Maclaren River near Paxson
- Susitna River at Gold Creek
- Talkeetna River near Talkeetna
- Skwentna River near Skwentna

Water quality records include chemical quantities (for 13 chemicals) and temperature by sample site. Analyses of surface-water samples are for miscellaneous sites.

Suspended sediment analyses generally include a) discharge (CFS); b) sediment concentration (ppm); c) sediment discharge (tons per day) and d) suspended particle size.

Title: Water Supply Needs Assessment. Phase I Technical
Memorandum, Southcentral Alaska Water Resources Level B
Study, 1979.

Area: Southcentral Alaska. Three subregions: Kodiak, Cook
Inlet and Gulf of Alaska.

Interest: Level 1.

Maps: 1:250,000 scale maps of principal water users and
priority streams for instream flow maintenance. Also
numerous other smaller-scale maps concerning various
topics.

Tables: Numerous water use tables for communities and industries.

Description: The study is a comprehensive overview of Southcentral
Alaska's current and future water needs. It includes
an inventory of the region's ground- and surface-water
resources and existing public and private water systems.
Projections are made for municipal, industrial and
private-domestic demand. (See page 100 for a description
of the Level B Study).

Title: Water Quality Needs Assessment Phase I, Technical
Memorandum, Southcentral Water Resources Level B Study,
March, 1979, (132 pp.).

Area: Southcentral Alaska.

Interest: Level 1.

Maps: Locations of gaging west of 150° longitude.

Tables: Numerous, dealing with water quality projections,
potential water quality problems, calculated effluent
loading for southcentral region, projections of municipal
waste-water treatment facilities, water quality and
water discharge records at six different locations.

Description: This report describes the southcentral region and
inventories the area's water quality. Water quality
demands, needs and conflict assessment are presented as
well as current strategies for protecting water quality
and abating pollution. Water quality standards, points
source management programs, governmental controls for
nonpoint source pollution and areas with most need of
protection are discussed. A case study of Palmer
dealing with projections of municipal waste-water
treatment facilities is also included. An appendix is
presented. (See page 100 for a description of the
Level B Study.)

II. ONGOING PROJECTS: HYDROLOGY



THE UNIVERSITY OF CHICAGO

Title: Hydrologic Data Computation for the Cook Inlet Area.

Contact: David Scully
U.S. Geological Survey
Water Resources Division
1209 Orca Street
Anchorage, Alaska 99501

Area: Cook Inlet Hydrologic Subregion.

Description: The purpose of this project is the collection, compilation and synthesis of all USGS data in the Cook Inlet Hydrologic Subregion. Data will be presented in a hydrologic atlas format and published in open file under the title, A Summary of the Water Resources, Hydrologic Atlas.

Status: Data has been compiled and the atlas is due to be published during summer, 1979.

Title: Matanuska Electric Association 115 KV Transmission Line.

Contact: Kirk Morgan, Lands Project Officer
Southcentral District
Alaska Division of Forest, Land and Water Management
Alaska Department of Natural Resources
Anchorage, Alaska

Area: Willow-Wasilla Area.

Description: Matanuska Electric Association has received a letter of entry from the State and constructed the southern half of a 115 KV transmission line to Willow. The power line will run from Teeland Substation near Wasilla to Willow, crossing the Parks Highway north of Houston; the northern half will be constructed in the winter of 79-80.

The project is part of a long-range program by MEA to increase power to the Susitna Valley. Another phase of the program calls for a line to continue to Talkeetna by the fall of 1981.

Projected demand for power in the Susitna Valley and load forecasts--not including the future capital site--have been prepared by MEA.

Maps indicating the transmission line right-of-way, the location of an existing 138 KV line and substation sites are available. The Southcentral District Office has additional detailed information on the MEA proposal. Refer to ADL 79951.

Status: A letter of entry has been issued. Pending the receipt of an as-built survey, the right-of-way permit will be issued.

Duration: The southern half of the line to Willow has been completed. The northern half will be cleared and constructed in the winter of 1979-80.

Title: (Proposed) Matanuska-Susitna Borough-wide Flood Insurance Study.

Contact: Paul Pinard
U.S. Army Corps of Engineers
Anchorage, Alaska

Area: Entire Matanuska-Susitna Borough, communities over 100 population.

Description: In compliance with the Flood Disaster Protection Act (1973) the Flood Insurance Administration has requested the Corps of Engineers to conduct the flood insurance study.

Detailed hydrologic computations will depend on funding; but delineation, extent and magnitude of the 100-year flood is anticipated.

Previous flood insurance investigations have relied on available mapping, photos or testimony to delineate the 100-year flood.

Status: Project has been funded in part only. To date, the project has involved Willow, Deception and Little Susitna Rivers and will be completed October, 1979.

Duration: Ongoing.

Title: National Stream-Quality Accounting Network (NASQAN)

Contact: Pat Still
USGS
Water Resources Division
218 E. Street
Anchorage, AK 99501

Area: Southcentral Alaska - Susitna River Basin.

Description: Periodic suspended-sediment samples are collected
at the Susitna River at Susitna Station.

Status: Continuing.

Duration: Ongoing.

Title: Southcentral Alaska's Economy and Population, 1965-2025, Southcentral Alaska Water Resources Level B Study.

Contact: Dan Wilkerson
Alaska Department of Environmental Conservation
Southcentral Alaska Water Resources Level B Study
P.O. Box 3276 DT
Anchorage, Alaska 99501

Area: Southcentral Alaska

Description: This study is an econometric base study of the Southcentral Region prepared in conjunction with the Economic Task Force by the Institute of Social and Economic Research, U.A.A. It provides a historical perspective of regional economic and population growth along with a set of control projections of economic and population growth through 2025. It was designed to enable resource planners to identify future demands for water and related land resources in the Southcentral Region and in each of the Subregions, Cook Inlet, Gulf of Alaska and Kodiak-Shelikof.

Status: The base study is complete and copies are available on request.

Duration: Completed. It is anticipated that up-dates may be accomplished in the future, perhaps annually.

Title: Southcentral Alaska Water Resource Level B Study.

Contact: Dan Wilkerson
Alaska Department of Environmental Conservation
Southcentral Alaska Water Resources Level B Study
P.O. Box 3276 DT
Anchorage, Alaska

Area: Southcentral Alaska - Cook Inlet Subregion.

Description: The Southcentral Alaska Water Resource Study is part of a nationwide program to encourage the conservation, development and utilization of water and related land resources on a comprehensive and coordinated basis by all levels of government and private interests. Under the auspices of the U.S. Water Council, three planning study levels were identified. Level A was designed to determine the extent of water and land needs and problems. Needs and problems of the Alaska region were presented in Alaska Water Assessment Summary Report (see page 83 of this bibliography for annotation).

The Summary Report is the precursor of the subsequent planning study level, Level B. Level B studies are reconnaissance-level studies of selected areas. The Southcentral Alaska Water Resources Study is a joint local, state and federal Level B planning effort focused on the Southcentral Region of Alaska. The study objectives are to address and prioritize problems and issues of regional importance; to evaluate the interrelationships of water and resource allocation and land use and to recommend strategies for development, management and conservation of water and related land resources. The third planning study level, Level C, deals with program or project feasibility studies conducted by a single governmental body to implement recommendations of Level A or Level B studies.

Planning efforts are at the Level B stage in the Southcentral Alaska Region. The Level B study of the Southcentral Alaska Water Resource Study has been divided into five phases: Phase I, Needs Assessment; Phase II, Single Purpose Plan; Phase III, Alternative Resource Management Strategies; Phase IV, Preliminary Draft Report and Draft Environmental Impact Statement; and Phase V, Report and Final Environmental Impact Statement.

Phase I and II are annotated in this bibliography on page 102.

Annotations of Phase III, IV and V can be found on page 103 of this bibliography.

Status: Phase I is incomplete; draft Phase I documents were published March, 1979. Phase II documents will be available summer, 1979. Phase III, IV, V are due to be developed during FY 80 and 81.

Duration: Phase I and II will continue through summer, 1979. Phases III, IV and V will conclude summer, 1981.

Title: Southcentral Water Resources Study-Phase I
Needs Assessment and Phase II Single Purpose Plans.
Level B Study.

Contact: Dan Wilkerson
Southcentral Water Resources-Level B Study
Management Team
Alaska Department of Environmental Conservation
Anchorage, Alaska 99501

Area: Southcentral Alaska.

Description: These documents provide an assessment of needs (1975-2025) and single purpose plans for meeting those needs. The planning sectors include Electric Power, Fish and Wildlife, Land Use Management, Water Supply, Water Quality and Recreation. They provide an assessment and planning strategies both on a regional and subregional basis for southcentral and Cook Inlet, Gulf of Alaska and Kodiak-Shelikof. They are the products of inter-agency technical work plan committees in conjunction with the management team. (See page 100 for description of Level B Study.)

Status: Incomplete; Draft Phase I documents available in May, 1979. Draft Phase II documents, available approximately June 15.

Duration: Phase I & II will be complete in the summer, 1979.

Title: Southcentral Water Resources Level B Study-Phases III, Alternative Resource Management Strategies; Phase IV, Preliminary Draft Report and Draft EIS; and Phase V, Report and EIS.

Contact: Dan Wilkerson or Jeff Richardson
Southcentral Water Resources Level B Study
Management Team
Alaska Department of Environmental Conservation
Anchorage, Alaska 99501

Area: Southcentral Alaska.

Description: These documents include an identification of conflicts among single purpose plans, alternative resource management strategies and response to public review of the strategies with selection of a recommended strategy. A preliminary draft report will then be prepared along with a preliminary draft environmental impact statement. A final report and EIS will be completed, representing the findings and conclusions of the study. (See page 100 for a description of the Level B Study.)

Status: Incomplete; will be developed during federal FY 80 and 81.

Duration: To be concluded spring/summer, 1981.

Title: Upper Susitna River Basin Hydropower Feasibility Study.

Contact: Mr. Charles Bickley
U.S. Army Corp of Engineers
Anchorage, Alaska

Area: Susitna River Basin.

Description: The Susitna Hydropower Feasibility Study was authorized by PL 94-587, entitled, "Water Resources Development Act of 1976," enacted on 22 October 1976. The authorizing legislation provided for two options for the conduct of Phase I studies. The two options are as follows: The Corps of Engineers could undertake the studies as a federally funded project or as a state funded project based on a request from the State of Alaska. The State of Alaska, Alaska Power Authority, has requested the Corps of Engineers (COE) to proceed with studies based on a 1976 feasibility report by the COE which outlined a number of alternatives for developing the hydropower potential of the Upper Susitna Basin and identified the most economical scheme as a two-dam complex, one at Watana and one at Devils Canyon.

Status: The State of Alaska has proposed legislation pending, which would fund the COE for initiation of studies that could lead to power-on-line at Watana in 1994.

Title: Wasilla Sewer System.

Contact: Erling Nelson, City Clerk
P.O. Box 430
Wasilla, Alaska 99687

Area: City of Wasilla.

Description: Project objective is the development of a sewer facilities plan and master plan for the city and area north and east of Wasilla Lake.

Status: Facilities plan approved by DEC, EPA approval pending.

Duration: Indefinite.

Title: Wasilla Water System.

Contact: Erling Nelson, City Clerk
P.O. Box 430
Wasilla, Alaska 99687

Area: City of Wasilla.

Description: This project is the development of a water facilities plan and master water system for the City of Wasilla.

Status: The facilities plan is completed and the City Council is presently searching for the best method to implement this plan.

Duration: Indefinite.

Title: Watana and Devils Canyon Hydroelectric Power Site Study.

Contact: Pat Still
USGS
Water Resources Division
218 E. Street
Anchorage, Alaska 99501

Area: Southcentral Alaska - Susitna River Basin.

Description: Periodic suspended-sediment samples are collected at the Susitna River near Denali and Susitna River at Gold Creek.

Status: Continuing.

Data are published on an annual basis in the "Water Resources Data for Alaska."

Duration: Ongoing.

Title: Water Resources of the Matanuska-Susitna Valley Area.

Contact: William Long
Alaska Department of Natural Resources
Division of Geological and Geophysical Surveys
3001 Porcupine Drive
Anchorage, Alaska 99501

Area: Wasilla Area.

Description: Project objectives are to make map presentations of groundwater, surface water and aquifer stratigraphy information. A surficial geology map of the area at 1:63,360 will be included in the final report.

Status: Data gathering.
Groundwater atlas ready for drafting.

Duration: Ongoing.

Title: Water Quality Assessment of Lakes in the Palmer-Wasilla Area, Alaska: Lucile, Wasilla, Cottonwood, and Finger Lakes.

Contact: Charlotte Chastain
Department of Environmental Conservation
338 Denali
Anchorage, AK 99501

Area: Palmer-Wasilla.

Description: Lakes were sampled in late summer, 1978 for temperature, specific conductance, dissolved oxygen, pH, total phosphate, total nitrate, total Kjeldahl nitrogen, and fecal coliform bacteria.

Status: Discontinued.

Duration: One year.

Title: WATSTORE Computer System.

Contact: Jilann Brunette
U.S. Geological Survey
218 E. Street
Anchorage, Alaska 99501

Area: Statewide.

Description: WATSTORE is a computerized storage and retrieval system for water resources data maintained by the Water Resources Division of the U.S. Geological Survey. The central computer is in Reston, Virginia and is accessed through terminals around the country. In Alaska there is one terminal in Juneau, which USGS shares with the Forest Service, National Marine Fisheries Service and Bureau of Mines. The Alaska terminals are hooked into the system via a telecommunications network. Data is filed in the system according to common characteristics (e.g., groundwater sites, stream gaging stations, etc.) and data collection frequencies (e.g., daily, annual, etc.).

Daily Values File. This file stores data collected on a daily basis or through the use of continuous recording devices whose data can be reduced to a daily value. The type of information entered in the file includes streamflow measurements, reservoir volumes, water temperatures, sediment concentrations, water tables and others.

Peak Flow File. This file stores annual maximum streamflow data and water levels (at a scale graduated in meters or feet) for surface water stations operated USGS and other agencies (Forest Service, National Oceanic and Atmosphere Administration, etc.) in Alaska.

The data can be returned on an entering agency basis (i.e., one could retrieve only that information entered by Department of Natural Resources) or on a collective basis (i.e., all the information entered by USGS, Department of Environmental Conservation, Department of Natural Resources, Department of Fish and Game, etc.) on a specific area.

Water Quality File. This file is maintained in WATSTORE independently of the previously mentioned files. However, lab analyses are capable of being cross-referenced to the Water Quality File and water valuable table levels cross-referenced to the Daily Value Files.

Common forms of WATSTORE output include the following:

Computer-printed tables which list the actual data are the most common output.

Computer printed graphs, such as bar graphs, line graphs and site-location maps, can be produced by the line printer.

Statistical analyses, such as regression analyses, variance and correlations, can be performed.

Digital plotting can be done with an off-line printer to produce hydrographs, contour maps of water table levels, x-y point plots and others. (NOTE: This capability is not available at the Alaska terminals due to the cost of the telecommunications link and the slow speed of the off-line plotter as compared to the line printer. However, the local USGS offices can have digital plotting performed at their regional offices at Menlo Park, then mailed to Alaska.)

Primary locational entries into the WATSTORE files are by latitude and longitude, but they are also designated by township and range down to the quarter-quarter-quarter section (10 acres).

Investigations are underway to determine if stream hydrology information could be stored and retrieved on a river-mile or drainage basin basis. All streams appearing on the Alaskan topographic maps have been catalogued according to EPA's STORET stream coding system.

USGS has an agreement with EPA whereby all the WATSTORE water quality data is transferred into EPA's STORET system. However, STORET is not transferred into WATSTORE. An interface has been developed which will permit the access of STORET through a WATSTORE terminal.

All water quality measurements put into the system as a USGS entry must meet USGS standards. For example, information on nitrates or phosphorus in waters must be done by the standard chemical analysis procedures for those parameters which are accepted by USGS. If a chemical measurement was entered by ADNR, ADEC, or ADF&G, for example, and if it was not known that their analytical standards were the same as USGS, then that data would be tagged ADNR, ADEC, and ADF&G in the output since they were the originating agencies. This would be of value in any event since a user may wish to

go directly to information and the tagging would serve as a type of index.

It is possible to have USGS produce a copy of the magnetic tape which includes all the water data stored for Alaska at any given time.

Status: Computerized storage for the Matanuska, Susitna and Knik drainage basins, the west shore of Cook Inlet and the Kenai Peninsula is complete.

Duration: This is an ongoing, cooperative system for storage and retrieval of data that requires continual input.

Title: Willow Creek Expanded Flood Plain Information Study

Contact: Ken Hitch
U.S. Army Corps of Engineers
Anchorage, Alaska

Area: Willow and Deception Creek drainage basins.

Description: The Willow Creek Expanded Plain Information Study, as requested by the State of Alaska and authorized by the Office of the Chief of Engineers, Corps of Engineers, provides a detailed data base including topography, flooding potential, existing and future land use, animal and vegetation habitat, soil conditions and hydrologic data. An analysis was made of existing conditions and two future conditions normal development in year 2000 and a state capital in year 2000. The study also provides the capability of a continuing means of analysis as alternative development plans are proposed. The study area is the 241 square miles making up the Willow and Deception Creek drainage basins, approximately 30 air miles north of Anchorage.

Status: Ongoing.

Duration: Scheduled for publication August, 1979.

Title: Willow Creek Companion Study.

Contact: Paul Pinard
District Engineer
U.S. Army Corps of Engineers
Anchorage, Alaska

Area: Lower Susitna River basin.

Description: The purpose of the study is to delineate the floodplains immediately adjacent to Deception Creek, Willow Creek and the Little Susitna River. An attempt will be made to delineate the 10, 50, 100 and 500-year floods.

Development schemes, ranging from complete development of the floodplain to no development of the floodplain, will be studied to determine the ramifications of various potential growth schemes. The State will be asked to provide the criteria for the growth scenarios; for example 20 and 50-year levels of potential development within the study area. In return, the corps will model basin changes in hydrology economics and other environmental factors based on the growth criteria. The Capital Site Planning Commission will be asked for input the potential growth scenarios.

The Companion Study will incorporate data and maps generated for the unpublished Little Susitna Flood Plain Information Report.

Status: The Alaska District, Corps of Engineers has received approval from the Office of the Chief of Engineers to proceed with the Companion Study.

Duration: The project is expected to be concluded by October 1979.

III. CROSS-INDEX: HYDROLOGY

See FISH AND WILDLIFE SECTION for annotations of the following:	<u>Page</u>
<u>Fisheries and Habitat Investigation of the Susitna River - A Preliminary Study of the Potential Impacts of the Devil's Canyon and Watana Hydroelectric Projects</u>	157
<u>Moose Movements and Habitat Use Along the Upper Susitna River</u>	161
<u>Raptor Studies Along the Proposed Susitna Powerline Corridors</u>	162
<u>Upper Susitna Moose Population Study</u>	163
See GEOLOGY SECTION for annotation of the following:	
Hydrological Baseline Studies of Beluga Coal Area	51
See MISCELLANEOUS REFERENCES SECTION for annotations of the following:	
<u>Stream Gaging and Water Quality, Nancy Lake Limnological Study, New Capital Environmental Assessment Program, Source Document No. 1</u>	219
<u>Well Water Availability, Surface and Subsurface Drainage, New Capital Environmental Assessment Program, Source Document No. 1</u>	219
<u>Natural Site Conditions, New Capital City Planning Process Background Report No. 4</u>	224
<u>Point MacKenzie Industrial Siting Study</u>	231
<u>Water Sources, New Capital City Planning Process Background Report No. 5</u>	224
<u>Environmental Guidelines and Assessment, Permits and Procedures, New Capital City Planning Process Background Report No. 11</u>	227
The Metropolitan Anchorage Urban Study	242



soils

section IV

CONTENTS: SOILS

I.	PUBLISHED INFORMATION	<u>Page</u>
1.	<u>Soils of the Capital Relocation Site</u>	123
2.	<u>Soils of the Skwentna Area</u>	124
II.	ONGOING PROJECTS	
1.	Denali Trails Area Soil Survey	127
2.	Soils of the Capital Relocation Site	128
3.	Willow Area Detailed Soil Survey	129
4.	Yentna Soil Survey Area	130
III.	CROSS-INDEX	131

I. PUBLISHED INFORMATION: SOILS

Title: Soils of the Capital Relocation Site, Alaska,
USDA, Soil Conservation Service, 1978, (118 pp.).

Area: Willow capital relocation site.

Interest: Level 1.

Maps:

1. Index to map sheets (scale 1:63,360).
2. Map sheets 1-8: aerial photos with soil names symbolized.
3. Soil and water features.

Tables:

1. Engineering properties and classifications.
2. Physical and chemical properties of the soil.
3. Soil and water features.
4. Building site development.
5. Sanitary facilities.
6. Water management.
7. Construction materials.
8. Recreation development.
9. Map legend, acreage and proportionate extent of the soils.

Description: This soil survey was conducted by the Soil Conservation Service at the request of the Matanuska-Susitna Borough to provide soils information for planners, engineers and others involved in the capital relocation project. The survey provides location of soils on maps, a brief description of soil types in the area, a description of representative examples of each kind of soil identified in the area as well as information about properties of the soils pertinent to engineering applications and suitability and limitation of the soils for various uses.

Availability: A copy of the survey is available from the Soil Conservation Service.

Title: Soils of the Skwentna Area, Alaska. Schoephorster, Dale B. and Clarence C. Widenfeld, USDA Soil Conservation Service.

Area: Skwentna.

Interest: Level 1.

Maps: Skwentna area photo with soil mapping unit symbols on delineations (1:13,680 scale).

Tables:

1. Engineering classification.
2. Physical and chemical properties of soils.
3. Soil and water features.
4. Sanitary features.
5. Building site development.
6. Construction materials.
7. Water management.
8. Recreational development.
9. Soil classification.
10. Acreage and proportionate extent.

Description: This report contains a general description of the area, an explanation of how soils are mapped and classified, a description of the soils, engineering applications and classifications of the soils.

Ten (10) soil series are recognized in twenty-one (21) mapping units covering 12,800 acres.

Availability: This is an In Service Publication, and limited copies are available.

II. ONGOING PROJECTS: SOILS

Title: Denali Trails Area Soil Survey
(Denali Area Soil Survey)

Contact: Louis A. Fletcher
State Soil Scientist
USDA-Soil Conservation Service
2221 East Northern Lights Blvd., Suite 129
Anchorage, Alaska 99504
(907) 276-4246

Watershed Program Manager
Bureau of Land Management
(907) 277-1561

Area: Upper Susitna sub-basin

Description: The Soil Conservation Service is conducting soil investigations in the Denali Highway (Alaska Highway 8) area as part of a cooperative agreement with the Bureau of Land Management.

The primary purpose of the soil study is to provide information on area soil properties to assist in the management of off-road vehicle use in this remote area. The soil studies will help in assessing suitability of relocating off-road trails or roads to other routes of less impact and in assessing the problems found in existing locations (e.g., permafrost, ground instability, etc.). Soil limitations are based on features of undisturbed soil.

The soil study may serve the secondary purpose of assisting the BLM in testing the correlation between LANDSAT imagery and soil patterns as part of an ongoing remote-sensing BLM project in the same area.

The SCS soil surveys include the following: a) The Butte Lake Trail, 4,500 acres; b) Butte Creek Trail, 5,000 acres; c) Hatchet Lake area, 1,500 acres; d) a large area from the Denali Highway north to Seven Mile Lake including Land Mark Gap Lake, 40,000 acres; e) Phalarope and g) Maclaren River site, 640 acres. Geomorphic features in several areas along the Denali are also being mapped.

The BLM is providing funding and transportation (via helicopter), and SCS is providing the manpower for the cooperative project.

Status: Preliminary maps are completed, and text prepared.
In-house publication by BLM.
SCS publication pending.

Title: Soils of the Capital Relocation Site Alaska.

Contact: Louis A. Fletcher
State Soil Scientist
USDA-Soil Conservation Service
2221 East Northern Lights Blvd., Suite 129
Anchorage, AK 99504
(907) 276-4246

Area: Approximately 100 square miles. Located in Susitna River valley near Willow, Alaska.

Description: The Soil Conservation Service has completed detailed (order 2) soil survey in and around the state capital relocation area at the request of Matanuska-Susitna Borough to provide soil information to planners, engineers and others involved in the project.

Report will provide description, location, classification and interpretation of soils in the area.

Status: Mapping complete; test prepared; publication in progress. Expected to be available late spring, 1979.

Title: Willow Area Detailed Soil Survey.

Contact: Louis A. Fletcher
State Soil Scientist
USDA-Soil Conservation Service
2221 East Northern Lights Blvd., Suite 129
Anchorage, Alaska 99504
(907) 276-4246

Area: Willow sub-basin.

Description: The Willow Area Soil Survey will provide evaluations of soil conditions to aid in selecting locations for highways, buildings, recreation sites, airports. Basic engineering properties of soils will be given.

The Soil Conservation Service completed a preliminary survey from the north boundary of the capital site to the south side of Kashwitna by fall, 1977.

Status: Northern extension of this survey would begin late summer, 1979. There is no estimate on when mapping for this area would be completed.

Duration: Field season 1979 through 1980.

Title: Yentna Soil Survey Area.

Contact: Louis A. Fletcher
State Soil Scientist
USDA-Soil Conservation Service
2221 East Northern Lights Blvd., Suite 129
Anchorage, Alaska 99504
(907) 276-4246

Area: Susitna River basin west of Susitna River. South of Dutch Hills to Cook Inlet.

Description: Detailed (order 2) soil survey will provide soil description, classification and interpretations. Base maps are aerial photos of scale of 1:24,000. The study area size is approximately three million acres.

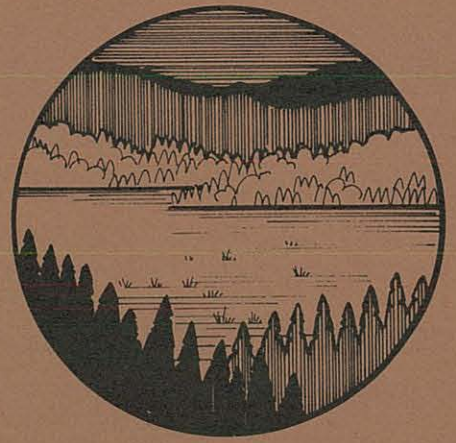
Status: 700,000 acres mapped field season 1978. 700,000 to 800,000 acres to be mapped annually until completed.

Duration: 1978 through 1981. Publication scheduled in 1982.

III. CROSS-INDEX: SOILS

	<u>Page</u>
See MISCELLANEOUS REFERENCES SECTION for annotations on the following:	
<u>Goose Bay to Point MacKenzie Highway Corridor Route Reconnaissance</u>	215
<u>Matanuska-Susitna Comprehensive Development Plan</u>	217





vegetation

section V

CONTENTS: VEGETATION

	<u>Page</u>
I PUBLISHED INFORMATION	
1. <u>Vegetation Management Impact Analysis</u>	139
II ONGOING PROJECTS	
1. Acquisition System Verification and Transfer Project (Denali Remote Sensing Project)	143
III CROSS-INDEX	144



I. PUBLISHED INFORMATION: VEGETATION



Title: Vegetation Management Impact Analysis. U.S. Department of Transportation, Federal Railroad Administration, Alaska Railroad, Anchorage, Alaska, 1977.

Area: Along the route of the Alaska Railroad.

Maps: Geographic location map of route. Scale: 1" = 16 miles.

Description: This report is an impact analysis of an established method of managing vegetation in the right-of-way of the Alaska Railroad. Technical data and on-site photographs are included to illustrate and support management methods.

II. ONGOING PROJECTS: VEGETATION

Title: Acquisition System Verification and Transfer (ASVT)
Project or [Denali Remote Sensing Project].

Contact: Lou Waller, Alaska Project Manager
or Kevin Meyer, Remote Sensing Specialist
Anchorage District Office
Bureau of Land Management
4700 E. 72nd Avenue
Anchorage, AK 99507

Area: Project area covers approximately two million acres
along the Denali Highway in Southcentral Alaska. Two
other project areas are located in Arizona and Idaho.

Description The ASVT project is a multisite analysis of the utility
of LANDSAT digital and manual processing for wildland
vegetation and geologic feature mapping. The project
is designed to allow comparisons to be made between
conventional aerial photography interpretation techniques
and new technology involving LANDSAT satellite imagery.
Evaluations or aerial photography interpretations of
1:120,000 and 1:30,000 color infrared photography;
LANDSAT 1:250,000 color images; LANDSAT digital analysis;
and ground inventories are being made to quantify the
cost effectiveness and quality of the resulting
interpretation products for wildland resource management.

Status: The Denali phase of the project is now undergoing
digital analysis product review. Products from manual
interpretation effects were field checked during the
summer of 1978. Activities over the next nine months
will center on evaluating the accuracy of digitally
classified vegetation maps.

Duration: The second phase of the ASVT project is now underway in
Arizona. The third phase is expected to begin during
1980. The Phase I final report is expected to be
completed late in 1979.

III. CROSS-INDEX: VEGETATION

	<u>Page</u>
See FISH AND WILDLIFE SECTION for annotations on the following:	
Wetland Inventory-Susitna River Basin	173
See HYDROLOGY SECTION for annotations on the following:	
<u>LANDSAT Mapping, Level B Study</u>	84
See MISCELLANEOUS REFERENCES SECTION for annotations on the following:	
<u>Matanuska-Susitna Development Plan</u>	218
<u>Moose Habitat Analysis, New Capital City Environmental Assessment Program, Source Document No. 2.</u>	220



fish & wildlife

section VI

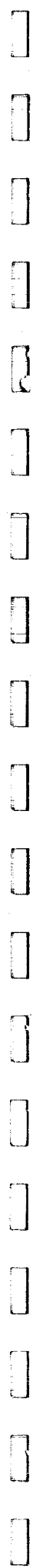
CONTENTS: FISH AND WILDLIFE

I. PUBLISHED INFORMATION	<u>Page</u>
1. <u>Alaska's Fisheries Atlas, Volumes I and II</u>	153
2. <u>Alaska's Wildlife and Habitat, Volume I</u>	154
3. <u>Alaska's Wildlife and Habitat, Volume II</u>	155
4. <u>Fish and Wildlife Needs Assessment, Phase I Technical, Level B Study</u>	
5. <u>Fisheries and Habitat Investigations of the Susitna River - A Preliminary Study of the Potential Impacts of the Devils Canyon and Watana Hydroelectric Projects</u>	157
6. <u>Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Upper Cook Inlet</u>	158
7. <u>Lower Susitna Valley Moose Population Identity Study</u>	159
8. <u>Moose - Calf Mortality Study</u>	160
9. <u>Moose Movements and Habitat Use Along the Upper Susitna River</u>	161
10. <u>Raptor Studies Along the Proposed Susitna Powerline Corridors, Oil Pipeline and in the Yukon and Colville River Regions of Alaska</u>	162
11. <u>Upper Susitna River Moose Population Study</u>	163
 II. ONGOING PROJECTS	
1. Coastal Fish and Wildlife Resource Profile	167
2. Inventory and Cataloging of Sport Fish and Sport Fish Waters of the Copper River, Prince William Sound, and the Upper Susitna River Drainage	168
3. Inventory and Cataloging of Sport Fish and Sport Fish Waters in Upper Cook Inlet	169
4. Moose Research	170



[The text in this section is extremely faint and illegible. It appears to be a multi-paragraph document, possibly a letter or a report, but the specific words and sentences cannot be discerned.]

FISH AND WILDLIFE: ONGOING PROJECTS continued	<u>Page</u>
5. Nelchina Moose Calf Mortality Study	171
6. Nelchina Yearling Moose Mortality Study	172
7. Wetland Inventory - Susitna River Basin	173
III. CROSS-INDEX	174



I. PUBLISHED INFORMATION: FISH AND WILDLIFE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Title: Alaska's Fisheries Atlas, Vol. I and II. State of Alaska, Department of Fish and Game, 1978.

Area: Statewide.

Interest: Level 1.

Maps: Numerous maps at a scale of 1:63,360 presenting fish distribution and important habitat. Quadrangles presented within the Susitna Basin are: Anchorage, Tyonek, Talkeetna and Talkeetna Mountains.

Description: Both volumes of the atlas are divided into three sections.

1. Fish Species Accounts--This section presents a general life history of each fish, species distribution in Alaska, and the general habitat requirements of each species.
2. Area Accounts--A general description of each regulatory area as well as specific information regarding distribution, timing and the human uses of each species within the area is provided in this section. Volume I deals with commercial fisheries management areas while Volume II is confined to sport fish regulatory areas.
3. Fish Distribution Maps--Distribution of each species maps at a scale of 1:63,300 is shown. These maps show seasonal changes in distribution and important habitat.

Title: Alaska's Wildlife and Habitat, Vol. I. State of Alaska,
Department of Fish and Game, 1973.

Area: Statewide.

Interest: Level 1.

Maps: Numerous maps at a scale 1:63,360 (reduced) showing wildlife distribution and important habitat. Quadrangles pertinent to the Susitna Study area are: Anchorage, Tyonek, Talkeetna, Talkeetna Mountains.

Description: This volume has four parts:

1. Physiography--This section discusses each of the 12 physiographic regions of Alaska in terms of topography, climate, geology and general vegetational characteristics.
2. Wildlife Species Accounts--A general life history, species distribution and general habitat requirements are presented for the following species categories: terrestrial mammals, marine mammals, waterfowl and seabirds and invertebrates.
3. Wildlife Distribution Maps--Maps at a scale of 1:63,360 (reduced) show distribution of each species as well as seasonal changes and critical habitat areas when possible.
4. Game Management Unit Accounts--This section presents a general description of each game management units, specific information on historic and present distribution and abundance and human uses in the unit. Specific and critical habitat requirements of each species in the unit have been emphasized as well as land-use considerations and recommendations for land-use plans.

Title: Alaska's Wildlife and Habitat, Vol. II. State of
Alaska, Department of Fish and Game, 1978.

Area: Statewide.

Interest: Level I.

Maps: Numerous maps at a 1:63,360 scale (reduced) presenting wildlife distribution and habitat. Quadrangles pertinent to Susitna Study Area are: Anchorage, Tyonek, Talkeetna, Talkeetna Mountains.

Description: The body of this volume has three major divisions:

1. Wildlife Species Accounts--A general life history of each species, species distribution, general habitat requirements and human uses is presented in this section. Species are separated into the following categories: furbearers, small game, raptors and seabirds.
2. Game Management Accounts--This section is arranged by geographic area and species. It presents a general description of each game management unit and information regarding historic and present distribution, abundance and human uses within each unit.
3. Wildlife Distribution--This section is arranged by geographic area and species and presents the distribution of each species at a scale of 1:63,360.

Title: Fish and Wildlife Needs Assessment, Phase I Technical Memorandum, Southcentral Alaska Water Resources Level B Study, 1979.

Area: Cook Inlet, Kodiak, Shelikof, Gulf of Alaska.

Interest: Level 1.

Maps:

1. Study area (scale $2\frac{1}{2}$ " = 200 miles).
2. Water resources council, Level B Study, Cook Inlet subregion (scale $2\frac{1}{2}$ " = 100 miles).
3. Game management units.
4. Cook Inlet commercial fishery districts.

Tables: Numerous, dealing with current and projected needs, demands on various wildlife resources.

Description: This technical memorandum presents an inventory of existing resources needs within the southcentral region. Regulatory and management tools to protect and manage the resource and to resolve user conflicts are presented. Appendices are included dealing with methodology for assessment supply and demand of fish and wildlife resources, subsistence and essential fish and wildlife use areas. (See page 100 for description of the Level B Study.)

Title: Fisheries and Habitat Investigations of the Susitna River - A Preliminary Study of Potential Impacts of the Devils Canyon and Watana Hydroelectric Projects.
Riis, James C., Nancy V. Friese; Alaska Department of Fish and Game, 1978.

Area: Upper Susitna River.

Interest: Level 1.

Description: This study was conducted as part of a biological information gathering effort to enable the Alaska Department of Fish and Game to prepare a comprehensive biological study plan in the event a final environmental impact study is made to determine the feasibility of constructing the proposed Watana and Devils Canyon dams. Biological data was obtained on indigenous fish populations, and water quality and quantity investigations were conducted with respect to the existing aquatic habitat of the Susitna River drainage.

Title: Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Upper Cook Inlet, Vol. 19.
Watsjold, David; Alaska Department of Fish and Game,
Annual Performance Report, Federal Aid in Fish Restoration,
1978.

Area: Susitna and Matanuska Valleys - Includes east side
tributaries of the Susitna River, tributaries of Talkeetna
River and portions of the Chulitna River drainage.

Interest: Level 2.

Maps: One map showing portions of the Big Lake Drainage.

Tables: 16 tables dealing with information on spawning populations
of chinook and coho salmon, and data on stocked lakes
of the Susitna Valley.

Description: This project is presented in an annual report found in
Federal Aid in Fish Restoration Annual Report of
Performance, Job. No. G-I.D. It encompasses a wide
variety of cataloging and inventory studies covering a
period from July 1, 1977 to June 30, 1978. The report
of the project presents information on chinook and coho
salmon spawning populations in various drainages. Also
included are population characteristics of chinook
salmon in Willow Creek, Montana Creek and Chulitna
River. Information on fish stocked in various Susitna
Valley lakes is included. Life history investigations
of coho salmon in the Big Lake drainage are discussed
in this report.

Title: Lower Susitna Valley Moose Population Identity Study.
Final Report. Didrickson, J. C. and K. P. Taylor;
Federal Aid in Wildlife Restoration. Alaska Department
of Fish and Game, 1978, (20 pp.).

Area: Peters-Dutch Hills portion of Game Management Unit 16A
(Lower Susitna River Basin).

Interest: Level 2.

Maps: 5 maps showing locations and migrations of 49 female
moose. (Scale 1:250,000)

Tables: 3 tables showing sex, age and productivity of 49 adult
female moose.

Description: This is a study of seasonal movements, home ranges,
calf production and survival in 49 adult female moose.
These moose were marked with individually identifiable
collars, including 24 radio transmitter collars. A
total of 706 observations of these moose indicated that
three separate winter ranges were used: Kahiltna
Glacier Moraines, Peters Hills burn and Bunco-Home Lake
area on the Tokositna River.

Title: Moose-Calf Mortality Study. Game Management Unit 13,
Project Progress Report, Ballard, W. B. and
K. P. Taylor, Federal Aid in Wildlife Restoration,
1978.

Area: Headwaters of Susitna River and Mendeltna Creek.

Interest: Level 2.

Maps: One map showing study areas, three maps showing locations
of brown bears observed.

Tables: Five tables showing measurements, blood values, bacterial
cultures of calf moose; mortality factors and movements
of cows and calves in relation to mortality.

Description: This report records the results of a study on neonatal
moose calf mortality. By radio collaring 54 newborn
moose calves in two study areas, causes of calf mortality
were determined. Predation (mostly by brown bears)
accounted for 90 percent of the natural mortality.
Thirty-five of the 54 collared calves died during this
study.

Title: Moose Movements and Habitat Use Along the Upper Susitna River. Taylor, Kenton P. and Warren B. Ballard; Alaska Department of Fish and Game, January, 1979 (20 pp.).

Area: Upper Susitna River within the Watana damsite area.

Interest: Level 2.

Maps:

1. Identifying moose movements in the study area.
2. Seven maps indicating previous range and 1978 locations of radio-collared moose along the Susitna River in seven locations.

Tables:

1. Range size, number of radio locations and minimum number of river crossings of radio-collared moose along the Susitna River.
2. Number of observations of radio-collared moose in vegetation types along the Susitna River in October, 1976 and December, 1977.

Description: The report is a progress report to the Alaska Power Authority of a study conducted in the vicinity of the proposed Susitna hydropower project. Moose movements during the study period, April, 1978 through September, 1978, were monitored through use of radio collars.

Title: Raptor Studies Along the Proposed Susitna Powerline Corridors, Oil Pipeline and in the Yukon and Colville River Regions of Alaska. White, Clayton M., and Tom J. Cade for U.S. Fish and Wildlife Service, Bureau of Land Management, National Park Service, Arctic Institute of North America and American Museum of Natural History, 1976, (28 pp.).

Area: Susitna Dam sites and the proposed power line corridor along the Parks Highway, Anchorage to Talkeetna to Cantwell to Carlo Creek.

Interest: Level 2.

Tables: One table pertinent to the study is presented: Itinerary of Travel for the Susitna Dam Power Transmission Corridor, 1975--listing date, time, aircraft and pilot and area surveyed.

Description: The purpose of the study relating to the Susitna River Basin was to determine the distribution, density and status of falcon populations in specific areas of human activity in order to assess and predict potential disturbances and to make recommendations to help mollify such impacts. An aircraft reconnaissance survey of falcon habitat was conducted along the proposed power line corridor from the Susitna Dam Site projects.

Title: Upper Susitna River Moose Population Study. Project Progress Report, Ballard, W. B. and K. P. Taylor, Federal Aid in Wildlife Restoration, 1978, (62 pp.).

Area: Upper Susitna Basin.

Interest: Level 2.

Maps: 17 maps showing movements and home ranges of individual moose--(Scale: 1" = 4 miles).

Tables: 7 tables showing measurements, pregnancy status, blood chemistries, ages handling histories and serial resightings of collared moose.

Description: This project progress report deals with indentification of populations and subpopulations of moose occupying upper Susitna River Basin.

A total of 105 adult cow moose were captured and marked with individually identifiable collars, including 40 radio transmitter collars. Tentatively, four separate populations of moose were identified. Their seasonal movements are described and discussed. Included is an appendix entitled, "Moose Movements and Habitat Use on the Susitna River and Its Relationships to the Proposed Susitna River Hydroelectric Project."

II. ONGOING PROJECTS: FISH AND WILDLIFE

Title: Coastal Fish and Wildlife Resource Profile for
Southcentral Alaska.

Contact: David L. Spencer
University of Alaska
Arctic Environmental Information and Data Center
707 A Street
Anchorage, AK 99501
or
Greg Konkel
U.S. Department of Interior
Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, AK 99503

Area: Southcentral Alaska.

Description: The project's objective is to identify critical wildlife
habitats of the region and seek out conflicts that could
occur between wildlife resources and man-made development
by the year 2000. The critical wildlife areas and
relationships will be displayed on large graphic illustrations
and maps.

Status: Research is completed and graphic production is underway.

Duration: 10/78-5/79

Title: Inventory and Cataloging of Sport Fish and Sport Fish Waters of the Copper River, Prince William Sound, and the Upper Susitna River drainages.

Contact: Fred T. Williams
Alaska Department of Fish and Game
Box 47
Glennallen, AK 99588

Area: Upper Susitna River Drainage, Copper River Drainage and Prince William Sound.

Description: Lake and stream surveys, area of lakes, volume, depth, fish species present, fish food grade, drainage are examples of information being obtained through this project. Similar information is gathered from selected streams. During 1977 considerable effort was expended surveying lakes in the area and all the primary tributaries to the Upper Susitna River.

Status: This is an ongoing project; however, little effort is planned in the Upper Susitna in 1979.

Duration: Several years.

Title: Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Upper Cook Inlet.

Contact: David Watsjold
Alaska Department of Fish and Game
P.O. Box 794
Palmer, Alaska 99645

Area: Susitna and Matanuska Valleys - Includes east side tributaries of Susitna River, tributaries of Talkeetna River and portions of the Chulitna River drainage.

Interest: Level 2.

Description: Data collected on this project will be presented in an annual report found in Federal Aid in Fish Restoration, Annual Report of Performance, Job No. G-I-D., Vol. 20. This job encompasses many different types of projects that are conducted each year.

In the Susitna River Basin, inventories are being conducted on all clearwater streams to assess adult salmon spawning populations. Detailed work is presently being conducted on Willow Creek and Little Susitna River. Salmonoid life history studies are being conducted on these streams. Studies are aimed at determining salmonoid growth rates, migration patterns of fry and smolt, habitat preferences and species composition in various habitat types. Willow Creek and Little Susitna River will be gaged shortly to determine flow patterns. Thermograph data have been and will continue to be collected on Montana, Willow and Caswell creeks as well as Little Susitna River. Limited water chemistry data are available for these streams.

Many of the lakes in the Susitna Basin have been surveyed and these data are available from Alaska Department of Fish and Game. Surveys usually include bottom contouring, water analysis, species composition and description of inlets and outlets.

Status: Volume 20 is due to be published September 1979. The project is a continuing program through 1980.

Title: Moose Research

Contact: Don McKnight, Research Chief
Department of Fish and Game
Division of Game
Juneau, AK 99801

Description: The moose, because of its extreme importance to Alaskans and the nuances involved in its management, receives a disproportionately large share of research effort. These studies can be classified as intensive and extensive, with the former being conducted at the Moose Research Center (MRC) on the Kenai Peninsula and the latter being field studies throughout the state.

MRC Studies: Currently under study is moose physiology and behavior. This work is designed to mesh with studies of moose habitat conducted by the U.S. Fish and Wildlife Service. The main emphasis in FY 79 is measuring the effects of various blood parameters which can be used to assess the condition of moose.

Investigation and evaluation of techniques which would be applicable to moose management are long-term research projects at MRC.

Field Studies: The bulk of these studies are designed to delineate various moose herds and determine the habitats seasonally used by these herds. Current activities are being conducted on the southern Kenai Peninsula, Nelchina Basin, Alaska Range foothills and the Susitna Valley.

Duration: Through FY 80.

Title: Nelchina Moose Calf Mortality Study.

Contact: Dr. Don McKnight
Alaska Department of Fish and Game
Division of Game
Juneau, AK 99801

Area: Headwaters of Susitna River.

Description: Neonatal (from birth to age 3 months) mortality of moose calves is determined by radio collaring newborn calves and monitoring radio signals which indicate when the calves have died.

Status: This study terminated on June 30, 1979.

Duration: This was a two year study.

Title: Nelchina Yearling Moose Mortality Study.

Contact: Dr. Don McKnight
Alaska Department of Fish & Game
Division of Game
Juneau, Alaska 99801

Area: Headwaters of Susitna River.

Description: Yearling moose will be fitted with mortality activated radio collars. These animals will be monitored to determine rates and causes of mortality.

Status: This study began in spring, 1979.

Duration: This will be a two year study.

Title: Wetland Inventory-Susitna River Basin

Contact: Gary Hickman
U.S. Department of Interior
Fish and Wildlife Service
1011 E. Tudor Rd.
Anchorage, AK 99503

Area: Susitna River Basin covering Anchorage, Tyonek, Talkeetna Mountain quadrangles.

Description: This project is a wetland inventory based on computer-aided interpretation of LANDSAT data, supported by high-altitude, color infrared aerial photography, low level aerial reconnaissance and ground data. Maps of the above quadrangles at 1:250,000 scale will be published.

Status: Publication of the Anchorage quadrangle wetlands map is expected spring 1979. Field work in this area will continue through summer 1979 and maps of the other quadrangles should be published within the next year. Publication of an operational manual delineating procedures and techniques used for the inventory will be published within the next 18 months.

Duration: Through 1980.

III. CROSS-INDEX: FISH AND WILDLIFE

	<u>Page</u>
See HYDROLOGY SECTION for annotations of the following:	
<u>Final Environmental Assessment Record, Susitna Hydropower Feasibility Study</u>	73
See MISCELLANEOUS REFERENCES SECTION for annotations of the following:	
<u>Alaska Coastal Land Status Atlas</u>	213
<u>Environmental Guidelines, and Assessment, Permits and Procedures, New Capital City Planning Process Background Report No. 11</u>	227
<u>Fisheries Studies, New Capital City Environmental Assessment Program, Source Document No. 2.</u>	
<u>Matanuska-Susitna Borough Comprehensive Development Plan</u>	217
<u>Point MacKenzie Industrial Siting Study</u>	231

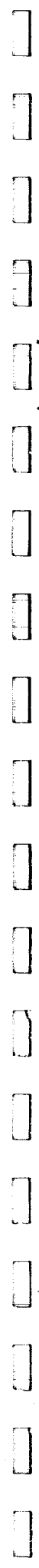


recreation & archaeology

section VII

CONTENTS: RECREATION AND ARCHAEOLOGY

I.	PUBLISHED INFORMATION	<u>Page</u>
1.	<u>Archaeology Survey in the Willow/Wasilla Area</u>	181
2.	<u>Recreation Needs Assessment, Phase I Technical Memorandum, Level B Study</u>	182
3.	<u>Trails in the Matanuska-Susitna Borough</u>	183
II.	ONGOING PROJECTS	
1.	Alexander Creek River Analysis	187
2.	Archaeological Reconnaissance in the Susitna Basin	188
3.	Community and Regional Recreation Resource Assessments	189
4.	Historic Use of the Susitna River and Its Tributaries	190
5.	Little Susitna River Analysis	191
6.	Recreation Use and Land Use Patterns Assessments	192
7.	Tokositna Recreation Development	193
III.	CROSS-INDEX	194



I. PUBLISHED INFORMATION: RECREATION AND ARCHAEOLOGY

Title: Archaeological Survey in the Willow/Wasilla Area.
Reger, Douglas R.; Alaska Department of Natural Resources,
Division of Parks, 1979, (20 pp. plus illustrations).

Area: Willow/Wasilla/Susitna Station.

Interest: Level 2.

Maps: Two quadrangle maps (scale 1:250,000) of archaeological/
historic sites in areas covered by Tyonek and Anchorage
quadrangles.

Eight photographs.

Description: This report lists known archaeological sites and those
historical sites listed on the National Register of
Historic Places within the Willow/Wasilla area.

Title: Phase I Technical Memorandum, Recreation Needs Assessment. Southcentral Alaska Water Resources Level B Study, March 1979.

Area: Cook Inlet, Kodiak-Shelikof and Gulf of Alaska.

Interest: Level 1.

Figures:

1. The Recreation Planning Formula.
2. Mapping Diagram.
3. Cook Inlet Recreation Inventory.
4. Recreation Needs Formula.
5. Cook Inlet Recreation Demand.
6. Cook Inlet Recreation Needs.

Tables:

1. Cook Inlet 1978 Recreation Inventory.
2. Cook Inlet 1985 Demand Projections.
3. Cook Inlet 1985 Needs Projections.
4. Cook Inlet 2000 and 2025 Demand Projections.

Description: This technical memorandum contains a detailed assessment of current and projected demands on the needs of recreation resources in Southcentral Alaska. Included in the report is a description of the Southcentral region, an inventory of recreational resources, recreation demands, needs and conflict assessment and a listing of governmental agencies managing and/or owning the recreational lands. Appendices are included. (See page 100 for a description of the Level B Study.)

Title: Trails in the Matanuska-Susitna Borough.
Tucker, Robert; Matanuska-Susitna Borough, 1979.

Area: Matanuska-Susitna Borough.

Interest: Level 2.

Maps: Matanuska-Susitna Borough vicinity map.
Trail head maps are provided for nine trails.

Description: This booklet provides a listing of 57 public trails in the borough. In all cases, the trail starting point is described. In many cases, more detailed information is included, such as scenery, wildlife, vegetation and geologic attractions along the trail.

II. ONGOING PROJECTS: RECREATION AND ARCHAEOLOGY



Title: Alexander Creek River Analysis

Contact: Jack Mosby
Heritage Conservation & Recreation Service
1011 E. Tudor, Suite 297
Anchorage, AK 99503
277-1666

Area: Alexander Creek from Alexander Lake to the Susitna River.

Description: In cooperation with the State of Alaska, Division of Parks, HCRS has completed a field examination and is in the process of preparing a wild and scenic river analysis of the entire Alexander Creek.

Status: Field work completed 1978.
Report in preparation.

Duration: August 1978 to October 1979.

Title: Archaeological Reconnaissance in the Susitna Basin.

Contact: Douglas Reger
Alaska Department of Natural Resources
Division of Parks
Anchorage, Alaska

Area: 1978 Willow/Wasilla Area
1979 Deshka River/Petersville Road

Description: This project is a reconnaissance level survey aimed at making a small sampling of archaeological sites in the Susitna Basin Study area.

Status: Ongoing.

Title: Community and Regional Recreation Resource Assessments

Contact: Nat Goodhue
State-Wide Recreation Services
Division of Parks
Alaska Department of Natural Resources
619 Warehouse Ave.
Anchorage, Alaska 99501
(907) 274-4676

Area: Statewide

Description: The Division of Parks is conducting an assessment of the supply and demand of recreation resources in the Susitna River Basin. The assessment will project recreation needs in the basin through 2025. The Division of Parks will make recommendations as to how these needs can be met.

Status: Field work and research are to continue through December, 1979.

Duration: Through March, 1980

Title: Historic Use of the Susitna River and Tributaries.

Contact: Richard O. Stern/Terry Cole
Title Administration, Lands Section
Alaska Division of Forest, Land & Water Management
323 East 4th Avenue
Anchorage, Alaska 99501
(907) 279-5577

Area: Entire Susitna River drainage.

Description: In the determination of ownership of inland submerged lands, the historic uses of the water bodies figures importantly. This project will provide data to establish and defend the State's position of its ownership of the beds of nontidal navigable waters in the Susitna River drainage.

Data to be collected includes: historic uses, physical characteristics, Native uses and place names, contemporary uses.

Project presentation will be in the form of a final report documenting the above data with supporting maps, graphics and other appropriate information.

Status: Planning stage. Research design and preparation. Will probably be contracted with University of Alaska, Fairbanks, Dr. James Kari and James Fall. If not contracted, will be done in-house by Cole and Stern under the general supervision of Ron Swanson, Navigability Project Leader.

Duration: Through spring/summer, 1979.

Title: Little Susitna River Analysis.

Contact: Kevin Apgar
Heritage Conservation & Recreation Service
1011 E. Tudor, Suite 297
Anchorage, AK 99507
277-1666

Area: Little Susitna River - the entire river.

Description: In cooperation with the State of Alaska, Division of Parks, HCRS has completed a field examinations and is in the process of preparing a wild and scenic river analysis of the entire Little Susitna River.

Status: Field work completed 1978.
Report in preparation.

Duration: August 1978 to October 1979.

Title: Recreation and Land Use Patterns Assessments

Contact: Dave Stephens
Land and Resource Planning Section
Division of Research and Development
Alaska Department of Natural Resources
323 E. 4th Ave.
Anchorage, Alaska 99503
(907)279-5577

Area: Recreation use patterns assessment: Matanuska-Susitna
Borough. Land use patterns assessment: Susitna River
and Beluga River Basins.

Maps: All areas have been covered at the 1:250,000 scale. In
addition, areas which have greater levels of activity
(primarily the lowland areas of the Matanuska and
Susitna Valleys) have also been mapped at the 1:63,360
scale. Blueline or brownline copies can be made
available upon request.

Description: As part of the Joint U.S.D.A.-D.N.R. Susitna River
Basin Cooperative Study, the Land and Resource Planning
Section is conducting a study of present and potential
land and recreation use patterns in the areas stated
above.

The recreation study, in cooperation with the State
Division of Parks, will be based on working sessions
and personal interviews with user groups and government
agencies which provide recreation services.

The land use study will be based upon field work,
aerial photos, published reports and interviews with
local residents, flight operators and government staff.

Papers which summarize land and recreation use patterns
and discuss other topics relevant to the area's use
patterns will be available in the Land and Resource
Planning Section Library.

An atlas which includes both recreation and land use
information may be printed before the end of 1979.

Status: Research will be completed by September, 1979.

Duration: Through December, 1979.

Title: Tokositna Recreation Development

Contact: Vicky Sung
Division of Parks
Alaska Department of Natural Resources
619 Warehouse Ave.
Anchorage, Alaska 99501
(907) 274-4676

Area: Tokositna

Description: The Tokositna project is an evaluation of the feasibility of constructing visitor facilities in the Mt. McKinley area, at a site south of the Tokositna River. The project is being conducted jointly by the Alaska Division of Parks and the National Park Service in a four part process. Part one is a market analysis and economic feasibility study; part two is a ski area development feasibility study; part three is an environmental analysis of the site; part four will be a comprehensive development plan.

Status: Ongoing.

Duration: Findings will be presented to the state legislature by January, 1980.

III. CROSS-INDEX: RECREATION AND ARCHAEOLOGY

See GEOLOGY SECTION for annotations of the following:

<u>Page</u>	
54	<u>Surficial Geology and Geologic Hazards of the Hatcher Pass Recreation Area</u>

See MISCELLANEOUS REFERENCES SECTION for annotations of the following:

227	<u>Environmental Guidelines and Assessment, Permits, and Procedures, New Capital City Planning Process Background Report, No. 11.</u>
217	<u>Matanuska-Susitna Borough Comprehensive Development Plan</u>
229	<u>Our New Capital City: A Report to the People of Alaska</u>
226	<u>Outdoor Recreation Resources, New Capital City Planning Process Background Report, No. 8</u>



climate

section VIII

CONTENTS: CLIMATE

	<u>Page</u>
I. ONGOING PROJECTS	
1. Incoming Solar Radiation Measurement	201
2. Solar Energy Meteorology	202
II. CROSS-INDEX	203



I. ONGOING PROJECTS: CLIMATE

Title: Incoming Solar Radiation Measurement

Contact: James L. Wise
Univeristy of Alaska
Arctic Environmental Information and Data Center
707 A Street
Anchorage, Alaska 99501

Area: Anchorage.

Description: Continuous measurements of incoming solar radiation on a horizontal surface and a plane inclined 61 degrees to the horizontal have been made at 707 A Street, Anchorage, Alaska since October, 1978. This data is on file at AEIDC for use in solar energy conversion system applications.

Status: There are approximately five months of data available. Hourly values of incoming solr radiation have been computed. However, there are also temperature and wind records on strip charts since September, 1978.

Duration: Ongoing and is expected to continue for the next three to five years.

Contact: James L. Wise
University of Alaska
Arctic Environmental Information and Data Center
707 A Street
Anchorage, Alaska 99501

Area: Statewide.

Description: The project is an analysis of solar radiation based on 22 to 23 years of observations for Annette, Bethel, Matanuska, Fairbanks and Barrow. The project also includes a method for estimating the solar radiation at the surface if the cloud cover between sunrise and sunset is known in sufficient detail.

Status: Analysis is complete and the report is being prepared for printing.

Duration: Nearly complete as of spring, 1979.

II. CROSS-INDEX: CLIMATE

Page

See MISCELLANEOUS REFERENCES SECTION for annotations of the following:

Meteorology and Air Quality Studies, New Capital City
Environmental Assessment Program, Source Document No. 4

221





miscellaneous references

section IX

CONTENTS: MISCELLANEOUS REFERENCES

I. PUBLISHED INFORMATION	<u>Page</u>
A. LAND USE AND LAND STATUS	
1. <u>Alaska Coastal Land Status Atlas</u>	213
2. <u>A Study of the Area Served Including Transportation, Economy, Population Characteristics, and Education, Matanuska-Susitna College</u>	214
3. <u>Goose Bay to Point MacKenzie Highway Corridor Route Reconnaissance</u>	215
4. <u>Land Use Management Needs Assessment, Phase I Technical Memorandum, Level B Study</u>	216
5. <u>Matanuska-Susitna Borough Comprehensive Development Plan, Phase I</u>	217
6. <u>Matanuska-Susitna Borough Comprehensive Development Plan, Phase II</u>	218
7. <u>New Capital City Environmental Assessment Program</u>	219
8. <u>New Capital City Planning Process Background Reports</u>	223
9. <u>Our New City - A Report to the People of Alaska</u>	229
10. <u>Overall Economic Development Plan - Matanuska-Susitna Borough - Annual Report 1978</u>	230
11. <u>Point MacKenzie Industrial Siting Study</u>	231
12. <u>The Urban Fringe - Methods of Land Use Direction</u>	232
13. <u>Susitna Basin Cooperative Study - Plan of Work</u>	233
B. SOCIOECONOMIC CROSS-INDEX	234

MISCELLANEOUS REFERENCES, continued

II. ONGOING PROJECTS	<u>Page</u>
1. Coastal Zone Information Dissemination System	237
2. Federal-State Land Use Planning Commission Final Report	238
3. Matanuska-Susitna Borough Coastal Resource District Program	239
4. Matanuska-Susitna Borough Comprehensive Development Plan, Phase III	240
5. Matanuska-Susitna Borough Comprehensive Development Plan, Phase IV	241
6. The Metropolitan Anchorage Urban Study	242
7. Southcentral Land Use Plan	243
III. CROSS-INDEX	244



I. PUBLISHED INFORMATION: MISCELLANEOUS REFERENCES



Title: Alaska Coastal Land Status Atlas. Planning and Research Section; Alaska Department of Natural Resources, 1977.

Area: The atlas includes a total of 95 quadrangle maps; the Tyonek and Anchorage quadrangles are pertinent to the study area.

Interest: Level 2.

Maps: 95 maps - 1:250,000 scale - USGS quadrangles.

Description: The Atlas is composed of a series of three overlays, each showing resource uses and jurisdiction boundaries. These are as follows:

Land Status - 1) Federal lands; including park, forest, monument and wildlife refuge boundaries. 2) State lands; including parks, game refuges, game sanctuary, recreation areas, critical habitat, tentatively approved/patented land boundaries, city boundaries, management rights/patented land and tideland patents. 4) Private lands; interim conveyance/patented and tideland patents.

Subsurface Use - 1) Uplands; including boundaries of permits (coal), leases (coal and oil), mining claims, rights-of-way and classification (oil and gas). 2) Tidelands; permits (offshore prospecting), leases (oil and gas), and classifications (oil and gas).

Surface Use - 1) Uplands; including permits leases, public interest lands and classified lands. 2) Tidelands with permits, leases and classifications.

Title: A Study of the Area Served Including Transportation, Economy, Population Characteristics, and Education; Matanuska-Susitna College. University of Alaska, Arctic Environmental Information and Data Center, 1979.

Area: Statewide: Specifically the service area of Matanuska-Susitna Community College.

Interest: Level 2.

Tables: This report contains several tables dealing with population characteristics, education background, economy and transportation.

Description: This report is a study of economic factors, available transportation types, population estimates and educational background of the area served by Matanuska-Susitna Community College.

Title: Goose Bay to Point MacKenzie Highway Corridor Route Reconnaissance. R & M Consultants, Wasilla, 1979.

Area: West side of Knik Arm extending from Point MacKenzie to north of Goose Bay.

Interest: Level 2.

Maps:

1. Vicinity and location map.
2. Road Service Study Area.
3. Alternate Routes, Goose Bay to Point MacKenzie.
4. Projected Point MacKenzie Access Traffic Growth Rate.
5. Typical Section of Proposed Roadway Improvement.
6. Typical Section of Proposed Pioneer Roadway Improvement.

Tables:

1. Climatic Data.
2. Estimated Average Daily Traffic.
3. Summary of Alignment and Grade Design Criteria.
4. Estimated Construction Cost for Proposed Access Roads to Point MacKenzie.
5. Alternate Route Comparison.

Description: This report defines possible highway route corridors from Goose Bay to Point MacKenzie; evaluates geologic and soil conditions along each corridor; estimates construction costs for roads within each corridor and discusses possible environmental effects of roads within those corridors and makes recommendations with regard to development of alternate highway routes. Appendices are included.

Title: Land Use Management Needs Assessment.
Phase I Technical Memorandum, Level B Study, Alaska
Water Study Committee, March 1979.

Area: Southcentral Alaska

Interest: Level 1

Tables: Numerous tables concerning crop land, timber land, and
grazing land availability and needs.

Description: This report, as part of the Level B Study, assesses
present and future land use needs in Southcentral
Alaska, particularly with respect to crop land, timber
land and grazing land. (See page 100 for description
of Level B Study.)

Title: Matanuska-Susitna Borough Comprehensive Development Plan, Phase I: Background Report. Matanuska-Susitna Borough, April, 1978 (pp. 245).

Area: Matanuska-Susitna Borough.

Interest: Level 1.

Maps: Numerous, dealing with a variety of information such as soils, mineral resources, recreation sites, forested areas, wildlife habitat.

Tables: Numerous, dealing with a climatic, demographic and economic data.

Description: This report is not a policy document. It is a narrative, statistical, graphic report about social, economic and physical conditions in the Matanuska-Susitna Borough.

Availability: Copies are available through the Matanuska-Susitna Borough office.

Title: Comprehensive Development Plan, Phase II - Goals Statement.
Matanuska-Susitna Borough, April, 1978, (44 pp.).

Area: Entire Matanuska-Susitna Borough.

Interest: Level 1.

Maps: Several, including a vicinity map, climatic data power use and cost data, demographic information and resource maps.

Tables: Numerous.

Description: The goals are based upon a series of 13 public meetings held throughout the borough during the last half of 1977. Through open discussion and use of a questionnaire, issues related to assets, significant community problems and goals were identified. The purpose of this program was to define planning goals and objectives for each community and the Borough in general. Planning goals guide the preparation of land use, public facility and transportation plans.

Availability: Copies of the plan are available from Matanuska-Susitna Borough.

Title: New Capital Environmental Assessment Program, Phase I.
Capital Site Planning Commission, December, 1978.

Area: Capital relocation site at Willow.

Interest: Level 1.

Description: The New Capital Environmental Assessment Program was conducted to assess particularly important environmental features of the new capital site in Willow. In a five-volume study, prepared by a variety of authors, the report attempts to assess the Willow environment and provide base data for future environmental studies, particularly near areas of proposed intensive development. The report was also intended to be used by the Capital Site Planning Commission for any possible modifications in the Capital Site Development Plan. In several of the volumes portions are prepared by separate authors, but each volume focuses upon a specific environmental resource. The first four volumes assess hydrologic resources, wildlife, geologic materials and meteorology and air quality, while the fifth volume is a summary and analysis of material presented in the previous four volumes.

Source Document #1 - Stream Gaging and Water Quality, Nancy Lake Limnological Study. USGS Water Resources Division, December, 1978.

Tables: Summary of water quality information; values for indicator bacteria.

Maps: Location map; preliminary bathometric map; water quality data.

Description: The overall purpose of this study was to evaluate the quality and quantity of surface water resources near Willow and to identify sensitive areas which would be adversely affected by development. Those conducting the study made a preliminary environmental assessment of the area over a three-month period but emphasized that a more thorough study would have to be conducted before an adequate environmental assessment could be completed.

Source Document #1 - Well Water Availability, Surface and Subsurface Drainage, CH2M Hill.

Maps: Principal surface water drainage basins; watershed boundary maps; bathymetric data; generalized groundwater table contour map; depth to water table; soil conservation service soil map.

Tables: Bathymetric data; land areas within designated watersheds; summary of soil properties and soil suitability of capital site soils; depth to water summary of test hole digging; electrical resistivity soundings; well data compilation.

Description: The intent of this study was to identify the surface and subsurface water characteristics of the capital site, emphasizing areas of potential development. More specifically, the objects were to investigate the area's groundwater potential to meet the City's water needs and to locate near surface groundwater posing potential impediments to development. In addition, the report studied surface water movement, the depth of groundwater, and the physical characteristics of lakes in the proposed park area.

Source Document #2 - Fisheries Studies. Alaska Department of Fish and Game.

Area: Entire Willow Creek Drainage including all tributaries. Nancy Lake drainage including Lilly Creek, Lake Creek and Unnamed Creek. Various lakes within the same area.

Maps: Three maps show the area studied.

Tables: There are 17 tables in the text.

Description: The primary objectives of the study is to assess the fisheries resources in the capital site area to determine the impact of development. The report includes an economic assessment of fishery resources in the study area. Abundance and distribution of resident species are discussed. Physical and chemical characteristics of the drainages are analyzed.

There are 90 pages in the appendix, which includes all field notes, volumetric maps, physical descriptions of watersheds, identification of flora, detailed descriptions of areas studied, stream measurements, etc.

Source Document #2 - Moose Habitat Analysis
U.S. Soil Conservation Service.

Maps: Vegetation type maps--1:25,000, 1:63,360; both derived from high altitude aerial photography and enlarged.

Tables: Numerous charts dealing with habitat suitability for moose in various ground cover types.

Description: This study was conducted to gather data for the environmental assessment program of the New

Capital Site Planning Commission. The objective of the study was to map representing types of vegetation on the capital site, using a vegetation classification that will allow for future evaluation of the wildlife habitat in the area. This report presents tables and analyses regarding major vegetation types, annual forage productivity for moose browse.

Source Document #3 - New Capital City Environmental Assessment Program Geotechnical Studies, Geologic Materials and Hazards Analysis, R & M Consultants.

Tables: Terrain unit properties and engineering interpretations; soil erosion potential based on slope and geologic materials; calculated return interval for earthquakes occurring at various radial distances from the capital site; comparison of return intervals for earthquakes occurring within 75 kilometers of Fairbanks, the capital site and Anchorage.

Maps: Terrain unit map; slope map; geologic materials; erosion potential; geologic hazards synthesis map; winter trail area.

Description: This report's objectives were to collect geotechnical data for use in an environmental assessment of the capital site and to provide a foundation for future geotechnical studies. Additional goals were to assess potential geologic hazards, such as seismic disturbance, slope stability and erosion potential, which could assist in revision of the capital site plan. The report also includes descriptions of the area's soil and bedrock, subsurface soils, bedrock units, slope identification and geologic materials.

Source Document #4 - Meteorology and Air Quality Studies.

Maps: Numerous figures on individual impact of cogeneration plants, individual impact of district heating plants, combined impact of cogeneration plant and district heating plant.

Tables: Numerous, including:

1. Stack parameters and emission rates.
2. Estimated maximum concentration of sources meeting preliminary design criteria.
3. Estimated maximum concentrations of sources meeting EPA good engineering stack height design.
4. Estimated maximum concentrations of sources.

Description: This report is an assessment of potential air pollution in the new capital based on meteorological and air quality studies done by Dames & Moore Consultants. An appendix is included.

The second portion of the report deals with installation of snow depth measurement stations by the U.S. Soil Conservation Service requested by the commission to provide data on snow depth and snow pack water content.

Source Document #5 - Staff Report.

Area: Willow.

Maps: Development plan evaluation map identifies areas proposed for medium- and low-density housing and transit served housing as well as composite development limitations of geological hazards. (Scale 1:25,000).

Description: This report provides a summary and analysis of the important preliminary results of Phase I of the Environmental Assessment Program, planning implications of those results and recommendations for further continuation of the Environmental Assessment Program beyond Phase I.

Title: New Capital City Planning Process Background Reports
1-14. Alaska Capital Site Planning Commission,
March, 1978.

Area: Willow capital relocation site.

Interest: Level 1.

Description: The Capital Site Planning Commission was a citizens advisory board appointed by the governor and given the legislatively mandated task of presenting a development plan including full cost estimates and financing recommendations for the construction of a new capital city. Its responsibility was to serve as a planning staff under the assumption that a new capital city would be built. The detailed development plan developed by the commission encompassed a wide variety of issues dealing with designing a new city. Environmental and socioeconomic aspects of the plan were presented. In many areas the existing information had to be tailored to the demands of the Willow project. The following is a list and brief description of the 14 background reports. They are a compilation of the data gathered and recommendations by the commission for the development of the Willow site.

#1. Introduction and Overview, Enabling Legislation, the Commission, History of the Move, Planning Process, Consultants and Table of Contents. This report introduces the commission and its members and presents a summary and overview of the tasks and objectives of the planning commission.

#2. Analysis of State Government.
Leonard Lane Associates.
This background report presents the space needs and relationship requirements for government facilities to be built in Willow. It also identifies those state government positions which would be appropriately relocated and presents a schedule for such a relocation.

#3. Program Components for the New City.
Rivkin Associates.
The fundamental ingredients of the new city are described in this report. Its people, its (physical) environment, the social, cultural and economic services and activities are all components which are dealt with.

#4. Natural Site Conditions.
R & M Consultants.

Maps: Numerous, including terrain units maps, slope identification, geotechnical limitations to building construction.

Tables: 1. Terrain Units of the Capital Site.

Description: This report deals with three aspects of the natural conditions of the proposed capital site: terrain and geotechnics, hydrology and climatology.

The terrain and geotechnic portion presents a general geotechnical investigation of the townsite area, including a slope identification study, a study of geotechnical limitations to building construction, identification of geotechnical hazards and a terrain unit map.

The hydrology portion analyzes the hydrologic conditions of the proposed site run off patterns, storm system requirements, potential storage of surface runoff, erosion potential and flood hazard.

The meteorological analysis presented is based on temperature records, satellite thermal infrared photos, general meteorological principals, weather tabulations and an analysis of on-site terrain and vegetation.

#5. Water Sources.
R & M Consultants

Maps: Surface and Groundwater Potential, Recommended Alternative, Alternative Water Supply 1, Alternative Water Supply 2, Alternative Water Supply 3.

Tables: Tables include information on preliminary water supply requirements, basic data on lakes and streams near the site and cost estimates on alternative water sources.

Description: This study was conducted to evaluate the supply of water in the Willow area and to determine which of the possible alternatives would most cheaply meet Willow's needs. Groundwater, Willow Creek and the Susitna River were the alternative water supply sources considered. The report concluded that groundwater should be used during the construction camp phase, and that eventually water should be pumped from Willow Creek to Twelvemile Lake via a gallery, and the water should then be run from the lake to the capital site by gravity.

#6. Energy & Utilities
Mark Fryer & Associates

Maps: Figures for the community cogeneration, heating and electrical generation unit;

1. District heating demand by year.
2. Annual electric use and local generation (cogeneration plant).
3. Capital cost of district heating and cogeneration facilities.
4. Oil-fired/coal-fired heat generation cost analysis.
5. Annual temperature duration curve.
6. Annual district heating demand requirements.
7. Cost of various space heating energy sources.
8. Conceptual layout of basic energy utilities.

Tables: Tables in the energy utilities unit are:

1. Energy costs and density--Alaskan fuels.
2. Real Alaskan energy price Southcentral Alaska.
3. Project cost of thermal energy \$10°BTU FOB Willow.
4. Cogeneration plant characteristics.
5. Heating energy demand requirements.

Description: This report consists of five parts, each an individual unit prepared by a different consulting firm. The units are:

1. Sewage Treatment and Disposal Alternative for the New Capital City.
2. Solid Waste Disposal Alternatives for the New Capital City.
3. Description of Energy Utilities for the New Capital City at Willow.
4. Community Cogeneration, Heating and Electrical Generation.
5. Communications.

In each instance, the reports delineate alternatives for meeting the capital site's needs; in some cases a proposed alternative is recommended to the Capital Site Planning Commission.

#7. Transportation
Alaska State Department of Transportation, Bull,
Field, Volkman & Stockwell/Sedway-Cooke, Conradt.

Maps/Figures: Numerous--traffic projections and alternative routing systems.

Description: The Regional Transportation Planning Division of the Alaska Department of Transportation and Public Facilities presents plans and cost estimates for air, rail, and highway access to the proposed capital site. An appendix is included which contains a Parks Highway realignment map, compilation of bids and transportation phasing and funding schedule.

The second part of this report was prepared by a private consulting firm and is a traffic and transit plan analysis for the new capital site.

#8. Outdoor Recreation Resources
State of Alaska, Alaska Youth Conservation Corps

Maps: Outdoor Recreation Resources at Proposed Willow Site.

Description: This report was the result of field work conducted in the Willow area to identify potential community parks, regional parks, recreation areas, natural areas and watersheds and greenbelt buffer zones and preserves. Twenty-three such areas in the Willow vicinity are identified and described, and a brief description of site vegetation is given. Recommendations for the use of each area is given.

#9. Financial Plan and Detailed Economic Projections,
Parts A and B.
The American City Corporation and Dean-Witter-Reynolds, Inc., Hanscomb Associates.

This report presents a description of the relevant costs involved in centralizing the state government at Willow. Taken under consideration are the scheduling of projected cash flows, the designation of accounts and methods by which they could be portrayed, reviewed and changed as necessary due to change of assumptions or newly revealed facts. Sources of funding or investment to meet the costs are also identified. Detailed costs are presented on an annual basis to reflect a phased development and governmental move.

#10. Socio-Economic Impact Analysis for Juneau and
the Matanuska-Susitna Borough
Rivkin Associates

As assessment of the socioeconomic impact of the state capital relocation to Willow on the Matanuska-Susitna Borough as well as the impact the Borough would have on the capital are presented in this report. Impacts to be felt by the Matanuska-Susitna Borough are identified as: pre-construction, secondary employment, housing

market, development patterns and impacts on schools. In discussing the impact the Borough would have on the capital, the report considered the following: overlapping markets and need for city-borough transportation lines, competition for secondary employment and challenge to commercial development in the capital. Profiles of the borough under the scenario of rapid growth are presented. The profiles address issues related to population growth; development plans and patterns; community services and facilities to be provided and environmental protection concerns.

#11. Environmental Guidelines and Assessment, Permits and Procedures.

Thomas Dowell, Jr.

Tables:

1. Estimate of Environmental Assessment Costs.
2. Cost Analysis--Hydrological and Geotechnical.
3. Cost Analysis--Biological.
4. Cost Analysis--Meteorological.
5. Air Quality and Noise Analysis.
6. Project Management.

Description: This report contains materials dealing with the issues of environmental policy with regard to the use of land, cost assessments, impacts and agency review and permit approval processes.

The main body of this report describes Willow's existing environmental studies and review processes is included. A complete and detailed environmental assessment was not done because funds necessary and the length of time needed to gather data were inadequate.

A brief description of state and federal requirements for environmental studies and review processes is included. A complete and detailed environmental assessment was not done because funds necessary and the length of time needed to gather data were inadequate.

#12. Implementation Plan, Development Start-up 1978-82, Construction Industry Assessment.

The American City Corporation, William King & Associates.

This report describes how the implementation plan was prepared and what its conceptual basis is. An overview of the plan is presented and management strategy and organization for the implementation is discussed. An

assessment of the building industry's capacity to meet the needs of the development schedule is also presented.

#13. Legislative Package

The American City Corporation with Ely, Guess and Rudd, Wohlforth and Flint.

The body of this report is draft legislation considered necessary to implement the relocation plan as proposed by the planning commission.

#14. Design Guidelines, Lifestyle and Environment

Richard Morehouse with Mark Fryer & Associates

This report discusses planning and design principles which should be followed in implementing the development plan. Focus is placed on decision making at the project level, and standards are offered to assist in design of streets, paths and neighborhoods.

Title: Our New Capital City: A Report to the People of Alaska.
The New Capital Site Planning Commission, 1978, (28 pp.).

Area: Willow.

Interest: Level 1.

Maps: Numerous maps and sketches of Willow area and capital site plan.

Tables: State government positions slated to be located in Willow; Summary of state funding requirements.

Description: This was a supplement to many Alaskan newspapers, prepared to inform citizens of the capital move process and plans for a new capital in Willow. Included are descriptions of the regional setting, the general development plan, a closeup of downtown, the government center, housing and community life, parks and recreational facilities, the bus and auto system, utilities, the financial plan and other factors affecting the capital move. Many graphics are included depicting the city's eventual appearance and organization.

Title: Overall Economic Development Plan: 1978 Annual Report,
Matanuska-Susitna Borough, 1978.

Area: Entire Matanuska-Susitna Borough.

Interest: Level 1.

Maps: Vicinity map of the borough.

Tables: Numerous: demographic data, climatic data.

Description: The Overall Economic Development Plan is an annual report on economic conditions in the Matanuska-Susitna Borough. The 1978 addition is more complete than previous reports because of information available from the Capital Site Planning Commission.

Availability: The section of the report titled, "Trends and Changes in the Economy" is available for distribution from the borough offices.

Title: Point MacKenzie Industrial Siting Study. Environmental Services, Ltd., 1978.

Area: Point MacKenzie

Interest: Level 1.

Maps: 1. Vicinity map.
2. Availability of groundwater
3. Fish and wildlife critical habitat areas.

Tables: Tables presented deal with water supply water quality and climatological data.

Description: This report presents baseline data for potential economic development of the Point MacKenzie area. A brief study of the physical, social and biological amenities of the area surrounding Point MacKenzie is included.

Title: The Urban Fringe: Methods of Land Use Direction.
McCabe, Janet; Federal-State Land Use Planning Commission
for Alaska, May, 1978.

Area: The study utilizes the Matanuska-Susitna Valley as a
case study to raise issues and problems relevant to the
urban fringe land use around Alaskan communities.

Interest: Level 1.

Description: The report is a staff analysis prepared for the
Federal-State Land Use Planning Commission. It is one
in a series of studies designed to obtain background
information for land planning and policy recommendations.
The report addresses aspects of land use patterns,
planning goals and techniques for land use direction on
the urban fringe. Techniques discussed are land ownership,
zoning, differential taxation, acquisition of development
rights and transfer of development rights.

Recommendations on how to achieve a desirable land use
pattern on the urban fringe are offered.

Title: Susitna Basin Cooperative Study, Plan of Work.
U.S. Department of Agriculture in cooperation with the
State of Alaska, February, 1979.

Area: Susitna Basin is that area bounded by the Cooper River
Basin and Matanuska River Basin on the east, the Tanana
River Basin on the north, the Kuskokwim River Basin on
the west and the Cook Inlet on the south.

Interest: Level 1.

Maps: 1. Susitna River Subbasins (scale 1" = 30 miles
approx. [reduced]).
2. Willow and Talkeetna Subbasin (scale 1" = 15 miles
approx. [reduced]).
3. Susitna River Subbasins and State Priority Areas
(scale 1" = 30 miles approx. [reduced]).

Tables: Numerous tables are included: organizational charts,
inventory and analysis of each resource, evaluation of
alternative resource uses.

Description: The Cooperative River Basin Study is a resource planning
effort of Alaska Department of Natural Resources and
U.S. Department of Agriculture conducted to develop
basic land and water resource planning information.
The work plan for the study is designed to refine and
supplement the existing resource information by collecting
and analyzing new field data, to analyze and evaluate
potential alternative resource uses and to provide
guidelines for the resolution of conflicting resource
uses.

B. SOCIOECONOMIC CROSS-INDEX

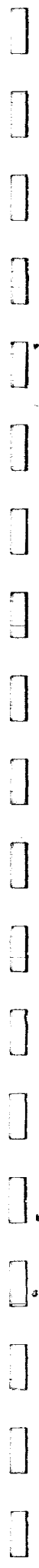
See Land Use and Land Status Section of MISCELLANEOUS REFERENCES SECTION for annotations of the following:

	<u>Page</u>
<u>A Study of the Area Served Including Transportation, Economy, Population Characteristics, and Education, Matanuska-Susitna Community College</u>	214
<u>Matanuska-Susitna Borough Comprehensive Development Plan</u>	217
<u>Overall Economic Development Plan - Matanuska-Susitna Borough Point MacKenzie Industrial Siting Study</u>	230
<u>Socioeconomic Impact Analysis for Juneau and the Matanuska-Susitna Borough, New Capital City Planning Process Background Report No. 10.</u>	226

See HYDROLOGY SECTIONS for annotations of the following:

<u>Alaskan Electric Power, An Analysis of Future Requirements and Supply Alternatives for the Railbelt Region</u>	71
<u>Power Market Analysis</u>	75
<u>Southcentral Railbelt Area, Alaska, Upper Susitna River Basin Supplemental Feasibility Report, Hydro-Electric Power and Related Purposes</u>	77
<u>Southcentral Water Resources Study, Phase I Needs Assessment and Phase II Single Purpose Plans</u>	102

II. ONGOING PROJECTS: MISCELLANEOUS REFERENCES



Title: Coastal Zone Information Dissemination System.

Contact: Linda Perry Dwight
University of Alaska
Arctic Environmental Information and Data Center
707 A Street
Anchorage, AK 99501

Description: The purpose of this system is to provide assistance for informed coastal management decisions by state and local governments through a multidisciplinary approach to data interpretation, packaging and dissemination of general coastal information and ACMP products.

Status: Ongoing.

Duration: Continuing.

Title: Federal-State Land Use Planning Commission Final Report

Contact: Esther Wunnicke, Federal Co-Chairman
Federal-State Land Use Planning Commission

Area: Statewide.

Description: The chapter on regional planning summarizes and maps planning work throughout Alaska and would be a useful way of obtaining a quick overview of planning encompassing the Susitna Basin.

Status: Draft report--ready by May, 1979.
Final report--summer, 1979.

Title: Matanuska-Susitna Borough "Coastal Resource District Program."

Contact: Rodney Schulling
Matanuska-Susitna Borough Planning Department
Palmer, Alaska

Area: Matanuska-Susitna Borough coastal lands.
Planning Program: Lands below 1000 ft. elevation.
Management Program: Lands below 200 ft. elevation.

Description: The District Coastal Management Program is directed at local needs. This program will be a part of the statewide coastal management program upon adoption by Alaska Coastal Policy Council. Pending legislation may extend due date from 12/79 to 12/81.

Status: Incomplete: Management Program due 12/79; Planning Program ongoing.

Title: Comprehensive Development Plan
"Phase III - Regional Concept Plan"
Matanuska-Susitna Borough

Contact: Matanuska-Susitna Borough
Palmer, Alaska

Area: Entire Matanuska-Susitna Borough.

Description: This plan is based upon a second series of eight community meetings held throughout the borough during the last half of 1978. For each of the community meetings, an individual conceptual plan has been prepared. Each plan is comprised of a series of transparent overlay maps and written material which attempt to consolidate general information by community. Phase III attempts to illustrate on maps and with words how the problems, assets and aspirations of borough residents might be achieved today and in coming years.

Status: Incomplete, under review of the planning commission.
1978-79 (approximately 100 pages).

Title: Comprehensive Development Plan
"Phase IV - Land Development Code"
Matanuska-Susitna Borough

Contact: Matanuska-Susitna Borough
Palmer, Alaska

Area: Entire Matanuska-Susitna Borough.

Description: Phase IV is based upon the information gained during the first three phases. It is designed to use a permitting system instead of zoning to guide growth.

Status: Incomplete; Tentative draft under review by planning commission and borough assembly during 1979.

Title: The Metropolitan Anchorage Urban Study.

Contact: William Lloyd
U.S. Army Corps of Engineers
Anchorage, Alaska

Area: Anchorage Bowl, Chugiak-Eagle River, Point MacKenzie to Palmer-Wasilla.

Description: The Metropolitan Anchorage Urban Study (MAUS), as authorized by resolutions of House and Senate Congressional committees on public works, is directed to provide a plan for the development, utilization and conservation of water and related land resources in the metropolitan region of Anchorage, Alaska. The study area has been defined based on the anticipated limits of urbanization over the 50-year time frame of the study and on the unique characteristics of water resource system development problems in the Anchorage area. It includes the Anchorage bowl (including military land), the Chugiak-Eagle River area, and the Point MacKenzie to Palmer-Wasilla portion of the Matanuska-Susitna Borough. A list of maps, reports and appendices is as follows:

1. Summary Report.
2. Water Supply.
3. Water Quality, Knik Arm-Upper Cook Inlet.
4. Water Quality Management of Snow Disposal Operations.
5. Storm Water Quality Management for Existing Urban areas.
6. Runoff Data Collection Report.
7. Anchorage Area Soil Survey.
8. Sanitary Sewage Facility Plan.
9. Sanitary Sewage Facility Plan Appendices.
10. Background Information Appendix.
11. Public Involvement Appendix and Comments Appendix.

Status: Four of the 11 volumes of the report are in press and will be ready for distribution. The remaining reports will be printed in late 1979.

Duration: This has been a three-year study done in conjunction with the Municipality of Anchorage, Alaska.

Title: Southcentral Land Use Plan

Contact: Lee Barkow
Anchorage District Office
Bureau of Land Management
Anchorage, Alaska 99507

Area: Southcentral Alaska.

Description: This plan provides a synopsis of current land use capability and opportunities for development. Land use allocations will be made to relieve conflicts and provide for identified demands.

Status: The land use analysis is in final draft. Socioeconomic analysis should be complete--summer, 1979. Project completion--January, 1980.

Duration: January, 1980.

III. CROSS-INDEX: MISCELLANEOUS REFERENCES

	<u>Page</u>
See HYDROLOGY SECTION for annotations of the following:	
<u>Sewer Facilities Plan for City of Wasilla</u>	86
<u>Water Facilities Plan for City of Wasilla</u>	87
See RECREATION AND ARCHAEOLOGY SECTION for annotation of the following:	
Recreation and Land Use Patterns Assessments	192