

**Final
Environmental Assessment
and
Resource Management Plan
Belle Fourche Reservoir**

June 2004



**U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region
Dakotas Area Office
Bismarck, North Dakota
Rapid City, South Dakota**





Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



Table of Contents

Finding of No Significant Impact	iv
Chapter 1: Introduction and Overview	1
Introduction and Scope	1
Proposed Federal Action.....	1
Purpose and Need	1
Authority for Resource Management Plans.....	2
Background of the Planning Area.....	2
Description.....	2
Management History.....	5
Reclamation and Managing Partners	6
Other Studies Relating to this Action	6
Issue Development.....	6
Issue Categories for the Belle Fourche Reservoir RMP	8
Chapter 2: Description of the Alternatives	13
Introduction.....	13
Alternative Development Process.....	13
Possible Management Actions.....	13
Planning Criteria	13
Land Use Categories for the Belle Fourche Reservoir	14
Land Use Category 1: Developed Recreation Area.....	14
Land Use Category 2: Primitive Recreation Area	15
Land Use Category 3: Wildlife Management Area	15
Land Use Category 4: Day Use Area.....	16
Land Use Category 5: Administrative Area	16
Management Common to All Alternatives	17
Alternative A - No Action	20
Alternative B - Minimum Facilities.....	23
Alternative C - Recreation Emphasis.....	27
Alternative D, Modified - Fish, Wildlife and Recreation	31
Environmental Commitments Common to all Alternatives.....	38
Alternatives and Actions Considered but not Evaluated in Detail	38
Chapter 3: Affected Environment and Environmental Consequences	47
Geologic and Paleontological Resources.....	47
Affected Environment.....	47
Environmental Consequences.....	50
Soils and Minerals	52
Affected Environment.....	52
Environmental Consequences.....	57
Water Quality.....	59
Affected Environment.....	59
Environmental Consequences.....	61
Water Quantity.....	62
Affected Environment.....	62
Environmental Consequences.....	67
Visual and Recreation Resources	67
Affected Environment.....	67
Environmental Consequences.....	74

Fisheries	82
Affected Environment.....	82
Environmental Consequences.....	85
Vegetation	85
Affected Environment.....	85
Environmental Consequences.....	90
Wildlife	91
Affected Environment.....	91
Environmental Consequences.....	92
Threatened and Endangered Species	94
Affected Environment.....	94
Environmental Consequences.....	96
Indian Trust Assets	96
Affected Environment.....	97
Environmental Consequences.....	98
Socioeconomics and Environmental Justice.....	99
Affected Environment.....	99
Environmental Consequences.....	104
Cultural Resources	107
Affected Environment.....	107
Environmental Consequences.....	112
Chapter 4: Consultation and Coordination	115
Public Involvement Summary.....	115
Distribution List.....	117
List of Preparers.....	118
Glossary of Terms.....	119
Implementation	120
References.....	124
Appendix A	Issue Statements/Goals and Opportunities
Appendix B	Possible Management Actions
Appendix C	Compliance with Environmental Laws and Regulations
Appendix D	Recreation Use Analysis and Methods for Determining Needed Facilities
Appendix E	Integrated Pest Management Plan
Appendix F	Scientific Names of Plants and Animals Used in the Document
Appendix G	Fire Management Plan Outline
Appendix H	Newsletters
Appendix I	Public Comments on the Draft EA/RMP and Responses

List of Tables

Table 1-1	Summary of Goal Categories for the Belle Fourche Reservoir	12
Table 2-1	Land Use Categories for Alternative A	20
Table 2-2	Land Use Categories for Alternative B.....	23
Table 2-3	Land Use Categories for Alternative C.....	27
Table 2-4	Land Use Categories for Alternative D, Modified	31
Table 2-5	Alternative Summary	40
Table 2-6	Alternative Effects Comparison.....	43

Table 3-1	Limitations for Soil Types	57
Table 3-2	Suitability for Soil Types.....	57
Table 3-3	Beneficial Uses for Lakes in South Dakota	60
Table 3-4	Existing Recreation Facilities	68
Table 3-5	Belle Fourche Reservoir Visitation.....	71
Table 3-6	Recreation Activities at Belle Fourche Reservoir	72
Table 3-7	Recreation Activity Participation Nationwide.....	73
Table 3-8	Fish Species in Belle Fourche Reservoir	83
Table 3-9	Fish Stocked in Belle Fourche Reservoir by SDGF&P	84
Table 3-10	Current Grazing Units.....	86
Table 3-11	Total Population by County	99
Table 3-12	Total Population by City in Butte County	99
Table 3-13	Number of Employees by Major Industry	100
Table 3-14	Unemployment by County	100
Table 3-15	Number of Businesses and Establishments.....	102
Table 3-16	Number of Industries and Establishments	102
Table 3-17	Poverty Statistics by County	103
Table 3-18	Population of Different Ethnic Groups for each County	103
Table 3-19	Population of Different Ethnic Groups for each City	104
Table 3-20	Cultural Time Periods Represented in the Northern Plains.....	108
Table 3-21	Alternative B- Summary of Sites and National Register Status	113
Table 3-22	Alternative C- Summary of Sites and National Register Status	113
Table 3-23	Alternative D- Summary of Sites and National Register Status	114

List of Figures

Figure 1-1	Belle Fourche Reservoir and Associated Lands- Overview	3
Figure 2-1	Alternative A - No Action	22
Figure 2-2	Alternative B - Minimum Facilities.....	26
Figure 2-3	Alternative C - Recreation Emphasis.....	30
Figure 2-4	Alternative D, Modified - Fish, Wildlife and Recreation	35
Figure 2-5	Alternative D - Rocky Point Detail.....	36
Figure 2-6	Roads Open to Public Use	37
Figure 3-1	Geology.....	49
Figure 3-2	State Soil Geographic Data.....	53
Figure 3-3	Shoreline Erosion.....	55
Figure 3-4	Slope Class.....	56
Figure 3-5	Belle Fourche Reservoir Allocations.....	63
Figure 3-6	Mean, Minimum and Maximum EOM Elevations	65
Figure 3-7	Mean Annual Elevations for Years 1952-2000	65
Figure 3-8	Reservoir Levels	66
Figure 3-9	Existing Land use.....	69
Figure 3-10	Infrastructure.....	70
Figure 3-11	Vegetation/Habitat	87
Figure 3-12	Noxious Weeds	88

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
DAKOTAS AREA OFFICE
BISMARCK, NORTH DAKOTA

FINDING OF NO SIGNIFICANT IMPACT
FINAL ENVIRONMENTAL ASSESSMENT

AND

RESOURCE MANAGEMENT PLAN
BELLE FOURCHE RESERVOIR
SOUTH DAKOTA

FONSI NUMBER DK-700-02-09

Recommended: Faye L. Steier Date: February 12, 2004
Preparer
Dakotas Area Office

Concur: J. E. Hall Date: May 10, 2004
Chief, Resource Management
Dakotas Area Office

Approved: Dennis E. Raintman Date: May 12, 2004
Area Manager
Dakotas Area Office

Resource Management Plan Selection and Finding of No Significant Impact Determination

The Bureau of Reclamation has completed a final environmental assessment (EA) and Resource Management Plan (RMP) for Belle Fourche Reservoir. The EA and RMP have been combined into one document. The purpose of the RMP is to protect and manage lands and resources associated with Belle Fourche Reservoir consistent with the authorized purposes of the reservoir which include irrigation, fish, wildlife, and recreation, with irrigation as the primary authorized use. The RMP will guide the management at the reservoir for the next 10 years.

Four alternatives, Alternative A - No Action, Alternative B - Minimum Facilities, Alternative C - Recreation Emphasis, and Alternative D - Fish, Wildlife and Recreation, were considered for the RMP in the draft EA/RMP. Public comments concerning the draft EA/RMP have been received, considered, and incorporated as appropriate. We have determined that Alternative D, Modified - Fish, Wildlife and Recreation, as described in the final EA/RMP, will become the final RMP for Belle Fourche Reservoir. This is a modification of the Alternative D described in the draft EA/RMP. It now contains many actions described in Alternatives B and C in order to better meet user needs. This alternative will not result in significant impacts to the human and natural environment; therefore, an environmental impact statement will not be prepared for this action.

Alternative D, Modified - Fish, Wildlife and Recreation, will provide for maximum protection and enhancement of natural resources and the scenic qualities of the reservoir while providing both developed and primitive recreation opportunities. This alternative was designed to address several issues. Most importantly, it addresses Reclamation's limited authority to manage for recreation. It will be implemented under an agreement with one or more managing partners, with only minimum improvements provided in areas where a managing partner is not available. It also addresses the issue of resource damage caused by off-road vehicle use and the difficulties of enforcement. It focuses on an improved road access system, with closure of excess roads. It concentrates camping improvements in a few areas rather than spreading camping around the shoreline.

Rocky Point and Gaden's Point will be categorized as Developed Recreation, with a combination of developed and primitive campsites, including group campsites. A boat ramp, comfort station, picnic shelters, and playground will also be provided. Primitive campsites will also be provided on the east side of the reservoir. This alternative will allow for additional developed campgrounds if needed. The wildlife management area will contain a boat ramp and numerous parking areas. A road plan will be implemented, and parking and day use areas will be established at locations around the reservoir.

Reasons for FONSI Determination

The reasons for the FONSI determination for Alternative D, Modified - Fish, Wildlife and Recreation, are summarized as follows.

1. This alternative will not impact the contract for irrigation water with the Belle Fourche Irrigation District. This contract is in effect until 2035 with the option to renew the contract at that time. The contract allows the District to use that amount of irrigation water that may be applied beneficially to eligible lands in accordance with good irrigation water practices consistent with South Dakota water laws.

2. All applicable Federal, State, and local environmental laws, regulations, and executive orders will be followed (Appendix C). This alternative includes compliance with laws and policies for exclusive use, accessibility, off-road vehicle use, land use authorizations, oil, gas, and mineral exploration, and control of noxious weeds, invasive species, and other pests. This is described on page 17 of the final EA/RMP.

3. Recreation developments may cause localized impacts to paleontological resources. These impacts will be offset by the beneficial impacts of law enforcement, rules and regulations, hardening campsites, and road improvements. Geology and paleontological resources are discussed on page 50 of the final EA/RMP.

4. Current impacts to soils from natural processes will continue. This alternative will reduce impacts to soils from off-road vehicle use. Hardening campsites and improving roads will have a beneficial impact. Impacts to soils are discussed on page 58 of the final EA/RMP.

5. This alternative will not affect the reservoirs ability to support the beneficial uses assigned to it to meet South Dakota water quality standards. Impacts to water quality are discussed on page 60 of the final EA/RMP.

6. This alternative provides adequate campsites to meet current and projected needs. The developed and primitive campsites will satisfy a variety of user groups. The increased conveniences on Rocky Point will increase the level of use and alter the visual setting somewhat but the primitive character of the area will be retained. Establishment of a camping time limit, adequate sanitary facilities, and regular law enforcement will improve the recreation experience and visitor safety.

The Wildlife Management Area will provide increased recreational opportunities for hunting, fishing, hiking, and day use. The road plan will provide adequate shoreline access for fishing and day use while protecting resources. Impacts to visual and recreation resources are discussed on page 79 of the final EA/RMP.

7. Approximately 125 acres of native prairie will be impacted by campsites and other developments. Overall impacts to vegetation, including wetlands, will be positive. A combination of grassland management tools will allow grassland and wetland conditions

to improve. Development of the road plan and designated campsites will reduce erosion and damage to vegetation. Impacts to vegetation are discussed on page 89 of the final EA/RMP.

8. Impacts to wildlife will be beneficial. The 1541 acre mitigation area will be moved to more suitable habitat. This habitat will improve from changes in grazing practices and enforcement of the road plan. Impacts to wildlife are discussed on page 92 of the final EA/RMP.

9. There will be no effect to threatened or endangered species. Impacts to threatened and endangered species are discussed on page 95 of the final EA/RMP.

10. There will be no impact to Indian Trust Assets. Impacts to Indian Trust Assets are discussed on page 97 of the final EA/RMP.

11. There will be no adverse impacts to socioeconomics or environmental justice. The economics of the Belle Fourche Irrigation District will not be impacted, as there will be no changes in water deliveries or project economics. Impacts to socioeconomics and environmental justice are discussed on page 105 of the final EA/RMP.

12. All stipulations of the National Historic Preservation Act (NHPA) and other applicable federal laws, regulations, and guidelines concerning cultural resources will be satisfied. Impacts to cultural resources are discussed on page 113 of the final EA/RMP.

Environmental Commitments

The following environmental commitments will be followed when implementing the RMP.

Projects associated with implementing the selected alternative may require an individual Department of the Army (404) Permit. An application will be submitted to the U.S. Army Corps of Engineers and the necessary permits obtained prior to any construction.

Reclamation will conduct all activities necessary to comply with Section 106 of the NHPA for all projects associated with the selected alternative. The preferred management treatment for cultural resources will be to avoid adverse effects to any identified historic properties in alternative project undertaking areas [36 CFR 800.4(d)].

If during the course of any activities associated with the undertaking, any districts, sites, buildings, structures, or objects are discovered, activities will cease in the vicinity of the resource, and the stipulations of 36 CFR Part 800.11 will be satisfied before activities in the vicinity of the previously unidentified property can resume.

If any threatened or endangered species were encountered during construction activities, Reclamation will initiate consultations with the U.S. Fish and Wildlife Service to determine appropriate steps to avoid any effects to these species, including cessation of construction.

CHAPTER ONE

Introduction and Overview

Introduction and Scope

The Bureau of Reclamation is the federal agency responsible for administering lands and resources associated with Belle Fourche Reservoir. The Rapid City Field Office of Reclamation's Dakotas Area Office is preparing a Resource Management Plan (RMP) for the reservoir. In accordance with the National Environmental Policy Act of 1969, as amended (NEPA); Reclamation is also preparing an Environmental Assessment (EA) for the RMP. These two processes have been combined in this document, which will be referred to as the EA/RMP.

This EA/RMP evaluates the impacts of three action alternatives and a no-action alternative. It is intended to help decision makers determine whether to issue a Finding of No Significant Impact (FONSI) or proceed with preparation of an Environmental Impact Statement. The selected alternative will become the RMP. This EA/RMP is programmatic; future site-specific NEPA compliance may be required for some of the actions proposed.

This EA/RMP does not present alternatives for reservoir water operations or lands within the Belle Fourche Irrigation District. There are legal and contractual commitments associated with water operations that are outside of the scope of the EA/RMP.

Proposed Federal Action

The proposed federal action is to approve and implement an RMP that will guide the management of resources at Belle Fourche Reservoir for the next 10 years.

Purpose and Need

The purpose of this action is protect and manage lands and resources associated with Belle Fourche Reservoir consistent with the authorized purposes of the reservoir which include irrigation, fish, wildlife and recreation with irrigation as the primary authorized use.

Recreational use has increased in recent years. Reclamation has entered into management agreements with the District and South Dakota Department of Game, Fish & Parks (SDGF&P) for land and recreation management at the reservoir. Reclamation has recently entered into an agreement with Butte County Sheriff's Office for law enforcement at the reservoir. There is a need for a comprehensive plan to provide a framework under which Reclamation can work with these or other managing partners to accommodate this increasing recreation use while protecting the natural resources of the reservoir and ensuring public safety.

The overall purpose of an RMP is to foster proper stewardship of public lands. The RMP will enable managers to make land use and resource management decisions that are consistent with overall management objectives and the needs of the public. It will assist land managers in minimizing conflicts among users, in complying with environmental and cultural resource laws, and in obtaining public support for the management of natural resources. It is intended to guide future development and use of resources while remaining flexible enough to allow resolution of day-to-day operational problems. The Belle Fourche RMP should achieve the following:

- *Identify issues and set forth goals and procedures for managing and administering resources on public lands.*
- *Establish use levels that protect resources and are compatible with the needs of the public, recognizing that there are legal and policy constraints which limit meeting these needs.*
- *Identify types of land use development that may be permitted.*
- *Provide a tool for land managers to assist in the proper administration, development, and management of public lands.*

Authority for Resource Management Plans

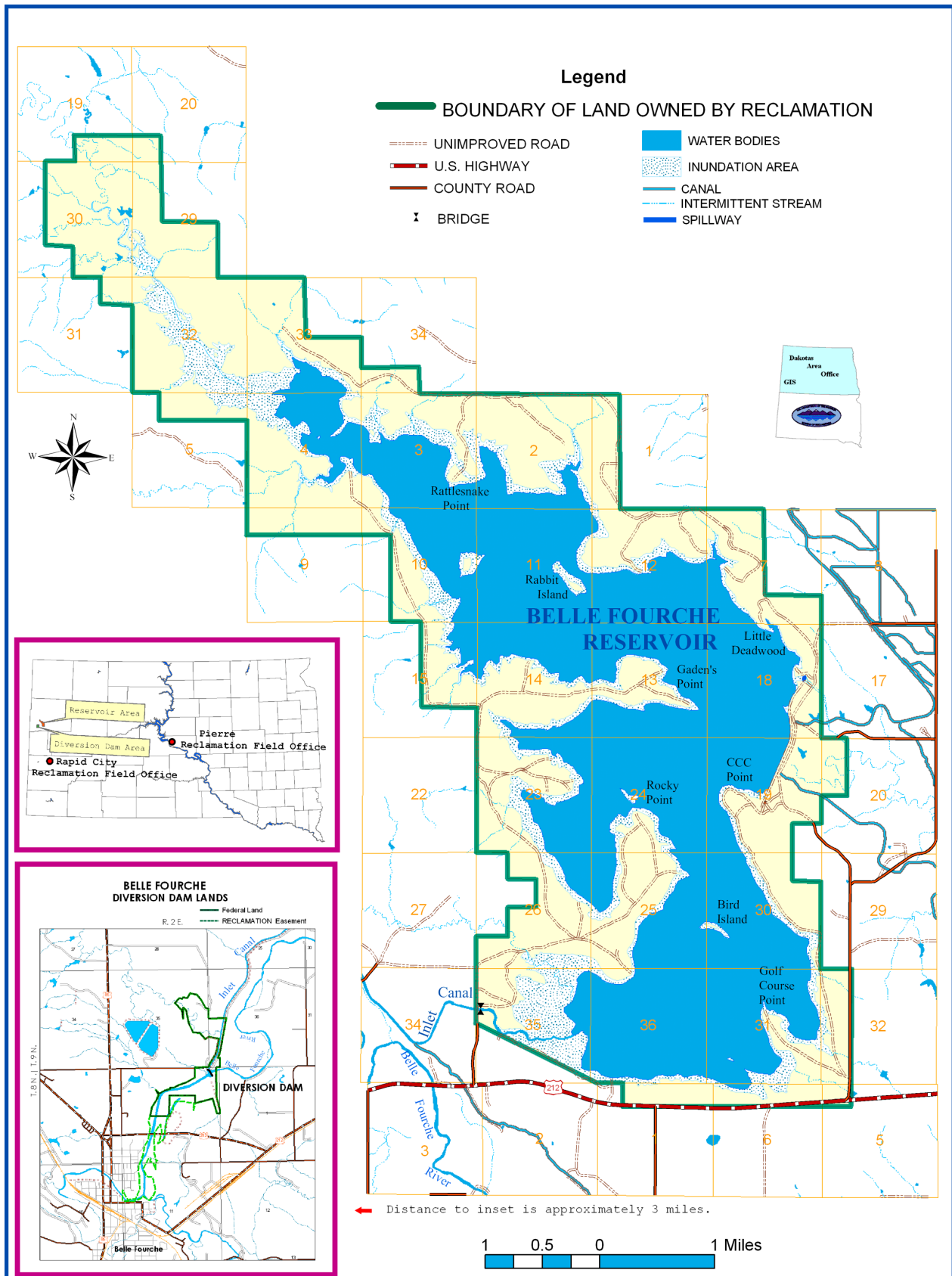
Title 28 of P.L. 102-575, Section 2805 (106 Statute 4690, Reclamation Recreation Management Act of October 30, 1992) provides Reclamation with authority to prepare RMPs. The act further provides that each RMP shall be consistent with applicable laws (including any applicable statute, regulation, or Executive Order), shall be developed in consultation with appropriate heads of federal and non-federal departments or agencies, the authorized beneficiaries of any Reclamation project, and with appropriate public participation. Each RMP shall provide for the development, use, conservation, protection, enhancement, and management of resources of Reclamation lands in a manner that is compatible with the authorized purposes.

Reclamation's Recreation Management Policy (LND P04) defines Reclamation's overall responsibilities and establishes the basic principles for planning, development, management, and protection of public recreation resources on Reclamation's lands and waters. One of the principles outlined in this policy is: "Conduct necessary planning studies, research, assessment, and public involvement processes, in conjunction with managing partners where possible, to provide recreation facilities commensurate with public needs and Reclamation responsibilities and objectives".

Background of the Planning Area

Description

Belle Fourche Reservoir is located in Butte County in western South Dakota northeast of the Black Hills and about 25 miles east of the Wyoming-South Dakota state border (Figure 1-1). The name Belle Fourche means "beautiful forks". French fur traders gave this name to the confluence of the Redwater and Belle Fourche Rivers, located at the present site of the town of Belle Fourche.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Overview Figure 1 - 1**

The reservoir is part of the Belle Fourche Unit. It was originally authorized for construction in 1904 as the Belle Fourche Project, one of Reclamation's earliest irrigation projects. The Project was reauthorized as the Belle Fourche Unit of the Pick-Sloan Missouri Basin Program in 1983 under Public Law 98-157. This act also provided construction appropriations for rehabilitation and betterment of irrigation facilities, recreation, and fish and wildlife.

The main features of the Unit are the Belle Fourche Diversion Dam, Inlet Canal, Belle Fourche Dam and Reservoir; North and South Canals, laterals, drains, and irrigated acres. The Diversion Dam is located on the Belle Fourche River about 1.5 miles northeast of the city of Belle Fourche, South Dakota. The Inlet Canal carries diverted water to Belle Fourche Reservoir, which is located on Owl Creek, a tributary of the Belle Fourche River.

The planning area (federal land administered and managed by Reclamation) addressed in the



Aerial view of Belle Fourche Reservoir with Bear Butte in center, July 1999

EA/RMP includes the Diversion Dam lands and Belle Fourche Reservoir lands (Figure 1-1). The structural aspects or the operation of the dams, the Inlet Canal, North and South Canals, laterals, drains, and irrigated acres will not be addressed in this EA/RMP.

Of the 263 acres of land associated with the Diversion Dam, 180 acres are federally owned land, 83 acres are federal easement. This land extends both north and south of

the Diversion Dam. North of the Diversion Dam, the land borders Crow Creek; south of the Diversion Dam it borders the Belle Fourche River.

Belle Fourche Dam is an earthen dam constructed across Owl Creek. It was previously known as Orman Dam, after Orman and Crook, the first construction company to work on building the dam. The dam forms Belle Fourche Reservoir, which has a water surface area of 8040 acres when the reservoir is at the top of conservation pool (full) and stores 192,077 acre-feet of water.

The reservoir is approximately 8 miles long with approximately 50 miles of shoreline. There are 6473 acres of federal land surrounding the reservoir. The total number of land acres within the planning area is 6653 (reservoir lands plus federally owned Diversion Dam lands). Detailed descriptions of resources at the reservoir can be found in Chapter 3, Existing Conditions.

Management History

Reclamation carried out the water operations and land management at the reservoir from 1904 until 1948. President T. Roosevelt designated the reservoir as a National Waterfowl Refuge in 1909. It did not prove to be prime waterfowl habitat, and the designation was removed in 1964.

Reclamation entered into an agreement with the District for development and management of a recreation area, “Orman Park”, at the reservoir in 1933. This park no longer exists.

By 1959, the reservoir was becoming a popular destination for boating and water skiing. Reclamation identified a need for construction of public facilities to resolve sanitation problems. In 1961, the National Park Service created a General Development Plan for recreational facilities at the reservoir. This plan was in the form of a map and list that identified proposed locations of recreation developments. In 1969, Reclamation entered into a management agreement with SDGF&P to allow them to develop and administer recreation facilities in accordance with this plan. The first recreation, fish and wildlife area at the reservoir was established in 1970, at Gaden’s Point. SDGF&P constructed roads to Gaden’s Point and Rocky Point on the west side of the reservoir, and to Golf Course Point on the east side of the reservoir (see Figure 1-1 for the location of these areas). They also constructed boat ramps and installed vault toilets and other basic facilities at Gaden’s Point and Rocky Point.

SDGF&P’s management responsibilities at the reservoir were expanded in 1991 to include the management of a 1541 acre wildlife management area. This area was established in partial fulfillment of Reclamation’s mitigation responsibilities as a result of the Rehabilitation and Betterment program which involved reconstruction and improvement of the irrigation facilities on the District. The wildlife management area included both Gaden’s Point and Rocky Point. This was managed by SDGF&P’s Wildlife Division until 1998, when increased recreation use prompted them to transfer the management to their Parks Division. The lack of developed roads, restrooms, designated camping areas, and law enforcement eventually created a difficult management situation for SDGF&P. They lacked the funding, staff and facilities to properly manage the increasing visitor use of the entire area. In 1999, they returned the management of 1020 acres on Gaden’s Point to Reclamation. They continue to manage 359 acres on Rocky Point for recreation and 164 acres on Owl Creek below the dam for wildlife purposes.

The District has administered livestock grazing leases on reservoir lands since 1954, through management agreements with Reclamation. The District continues to oversee 7 grazing leases on the remaining acres through their current agreement with Reclamation. This agreement also allows the District to issue permits or licenses, such as Special Use Permits to third parties on Reclamation lands following review and approval by Reclamation.

In 2000, Reclamation entered into a cooperative agreement with Butte County Sheriff’s Department to provide law enforcement at the reservoir. A deputy periodically patrols the roads and public use areas, monitors recreation use around the reservoir, and is available on an on-call as needed basis.

The reservoir boundary is fenced, and some of the fence which did not accurately follow the boundary has been recently rebuilt. The majority of the land adjacent to the reservoir is privately owned with smaller amounts of Bureau of Land Management and State of South Dakota land adjoining the northern portion of the reservoir. All of the private land is used primarily for ranching and agriculture. There are several residences adjoining the southern portion of the reservoir.

Reclamation and Managing Partners

Public Law 89-72, as amended, directs Reclamation to enter into partnerships with non-federal public entities to administer Reclamation lands for recreation and fish and wildlife management purposes. Reclamation may cost share with the partner in the development of recreation facilities and improvements. However, without a managing partner Reclamation may only provide minimum basic facilities that are required for public health and safety such as guardrails, turnarounds, and vault toilets.

Other Studies Relating to this Action

Fish and Wildlife Coordination Act Report, 1986 - This report, prepared by the U.S. Fish and Wildlife Service, evaluated the anticipated effects of the Rehabilitation and Betterment of the Belle Fourche Project on fish and wildlife resources. It identified mitigation opportunities and priorities, proposed enhancement to benefit fish and wildlife, and outlined future impact and mitigation analysis needs.

Belle Fourche/Keyhole Reservoirs Project Review Report, 1997- One of the purposes of this report, prepared by Reclamation was to identify potential opportunities for expanded benefits for wetlands, recreation, fish and wildlife for these two reservoirs. It concluded that a land management plan is needed for Belle Fourche Reservoir.

Issue Development

A detailed summary of the public involvement process is given in Chapter 4, Public Involvement Summary. Many issues, opportunities, and concerns were identified as a result of this process. These were organized into general issue categories, with numerous subcategories. An illustrated summary of these issues can be found beginning on page 8. A more detailed summary of the issues can be found in Appendix A.

The working group described in the public involvement summary developed goals and associated opportunities to address each issue. Goals were not developed for irrigation use, as water operations are outside of the scope of the EA/RMP. However, the group considered the fact that the reservoir's primary authorization is for irrigation when developing other goals. The goals "explore opportunities for open communication on water management" and "improve water quality" were later considered outside of the scope of the RMP and were not carried forward. Some of the issues were combined in order to develop a broad goal. Sanitation/Litter was considered under the goals for Recreation/Camping and General Resource Management.

Reservoir Access was considered under Road/System Management and Recreation/Camping. A summary of the goal categories is given in Table 1-1, a more detailed description of the goals and opportunities can be found in Appendix A.

Summary of Issue Categories for the Belle Fourche Resource Management Plan



Mixed grass prairie at Belle Fourche Reservoir

Development

There is currently very little development at the reservoir. There has been a steady increase in visitor use, yet there are very few facilities to handle this use. Many users of the reservoir would like the primitive character of the reservoir maintained while providing some improvements.

Irrigation Use

The primary authorization of the reservoir is for irrigation. This irrigation use results in fluctuations in the water levels. Any developments or uses of the reservoir need to be planned with irrigation use in mind. Some users have questioned whether it is worthwhile to invest in recreation improvements when water levels fluctuate.



South shore of the reservoir in October 2000



Outlet of the South Canal below Belle Fourche Dam

Fees

There are currently no fees for use of the reservoir. A fee system could help to improve roads, sanitation, and other services. While many users would not mind paying a fee for some improvements, there is concern that some users would not be able to afford a fee.

Road System

A system of gravel roads and trails exists at the reservoir. Some of the gravel roads are in poor condition. Trails have become established through unrestricted recreational use, resulting in many unnecessary trails and resource damage. A travel plan has never been developed for the area. Some users are concerned that improving roads will increase use.



Unauthorized track next to gravel road



Gaden's Point Road

Law Enforcement

Reclamation has contracted with the Butte County Sheriff's Office for law enforcement to prevent littering, vandalism, resource damage and underage drinking, provide visitor safety and regulate campsite occupation. However, the lack of site specific regulations at the reservoir makes it difficult for the sheriff or other law enforcement agencies to enforce regulations.



Shoreline litter

Sanitation/Litter

A sanitation problem exists at the reservoir. The few outhouses are outdated, not universally accessible, and in poor condition. There are no trash containers located outside of Rocky Point. Shoreline litter is a problem at certain times during the summer, and Reclamation does not have staff to pick up litter.



Outhouse located at the end of Gaden's Point



Full dumpster at Rocky Point



Undesignated camps near Belle Fourche Dam

Recreation/Camping

There is currently no designated camping at the reservoir. Without designated sites, it is difficult to monitor campsite occupation, control resource damage, and provide law enforcement. However, many users prefer the privacy and freedom that dispersed camping allows. Reclamation can provide minimum recreation improvements but is required to have a managing partner to cost-share and manage additional developments. Currently, Reclamation does not have a recreation managing partner for the entire reservoir, only for the Rocky Point area.

Reservoir Access

Currently, all of the reservoir lands are open to public use. Unrestricted access may conflict with wildlife uses, cause resource damage, and conflict with wildlife grazing. Many users are in favor of maintaining open access to reservoir lands and improving access for the elderly and disabled.



Unauthorized off-road vehicle use

Land Use

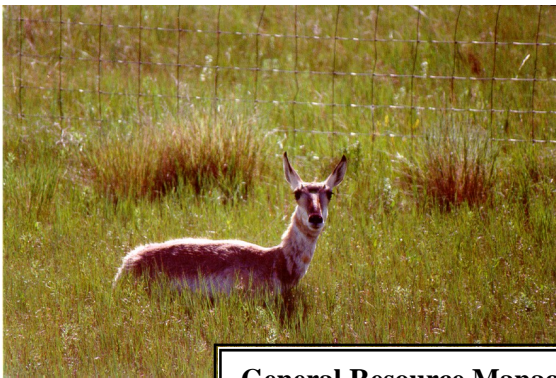
Off-road vehicle use is creating resource damage such as unauthorized tracks and trails. This use is not consistent with the federal regulation governing off-road vehicle use on Reclamation land. It is difficult to enforce this regulation because of the size of the reservoir and limited law enforcement personnel.



Aerial view of off-road vehicle track near dam



Off road vehicle track on Gaden's Point



Antelope

General Resource Management

Livestock grazing has been the primary management tool for the grasslands surrounding the reservoir. However, the current grazing system and management do not fully take into account the need to manage riparian areas, wildlife habitat and grasslands for optimum diversity and vigor.

Increased recreation use in the Rocky Point and Gaden's Point areas has made that area less desirable for development and enhancement of wildlife habitat.



Wetlands below Belle Fourche Dam



Livestock grazing on reservoir lands

Table 1-1- Summary of Goal Categories for the Belle Fourche Reservoir Planning Area

<p><u>Development</u> Provide a balance of uses and development levels while striving to maintain the rural character and protect the natural resources of the reservoir.</p>
<p><u>Fees</u> Develop an equitable fee structure system for the reservoir.</p>
<p><u>Road System/Management</u> Develop a comprehensive road plan.</p>
<p><u>Law Enforcement</u> Provide law enforcement for public safety and resource protection.</p>
<p><u>Recreation/Camping</u> Within the scope of legislative authority, provide adequate land based recreation facilities to meet demand within the constraints represented by the reservoirs limited land area and natural resource management needs. Provide flat water recreation opportunities.</p>
<p><u>Land Uses</u> Improve overall reservoir aesthetics.</p>
<p><u>General Resource Management</u> Recognize, develop and explore opportunities for cooperative management. Control soil and bank erosion when feasible in priority areas where erosion causes concern for water quality, safety and damage to capital improvements. Manage riparian and other sensitive areas. Manage wildlife habitat and meet responsibilities related to the Fish and Wildlife Coordination Act. Manage grasslands for plant diversity and vigor. Manage cultural resources.</p>

CHAPTER TWO

Description of the Alternatives

Introduction

The information presented in this chapter describes the resource management alternatives developed for Belle Fourche Reservoir. NEPA calls for consideration and evaluation of reasonable alternatives to a proposed action that meet the purpose, need, and objectives of the proposal. The Reclamation RMP team developed these alternatives. They represent different ways of addressing the issues and meeting the goals developed with the working group.

This chapter presents the process used to develop alternatives, defines land use categories, describes the alternatives in detail, and discusses actions and alternatives considered but not evaluated in detail.

Several important tables are included in this chapter to aid in understanding the alternatives. Table 2-5 provides a summary of the facilities and services provided under each alternative. Table 2-6 summarizes the impacts of each alternative to key resources in the planning area.

Alternative Development Process

Possible Management Actions

As a first step in forming alternatives, a list of possible management actions (Appendix B) was developed to address each issue and goal. This list includes opportunities identified by the working group. The possible actions were then combined into one or more action alternatives. Some management actions were not combined into an alternative but will be listed in Appendix B for future consideration.

Planning Criteria

Planning criteria were also considered when developing alternatives. These criteria were used to screen the alternatives to ensure that they were both legal and reasonable. The criteria used were:

- Does the alternative address the purpose and need, issues, goals and opportunities?
- Is the alternative feasible from a technical or economic standpoint?
- Is the alternative consistent with the authorized purposes of the reservoir?
- Does the alternative meet all applicable laws and regulations?
- Does the alternative protect and enhance the reservoir's natural resources?
- Can the alternative be implemented within the 10 year time frame of the plan?

Land Use Categories for Belle Fourche Reservoir

Land use categories are a key element in each alternative. They were developed to describe specific uses for different portions of the planning area. The alternatives each contain a combination of these land use categories and management actions. The following land use categories were created.

- Developed Recreation Area
- Primitive Recreation Area
- Wildlife Management Area
- Day Use Area
- Administrative Area

Land Use Category 1: Developed Recreation Area

Goal: Provide a recreation opportunity with visitor conveniences. Ensure public health and safety while preserving aesthetics and concentrating uses in order to protect natural resources. Overnight camping would only be permitted in designated campsites. These areas could contain three different types of campsites: designated primitive, semi-primitive, and developed.

- Designated primitive campsites would be widely dispersed, have only minimum site-hardening (gravel or mowing), no water, electricity or picnic tables. Basic fire-grates may be provided. If vault toilets are not provided, users would be required to have self-contained sanitary facilities.
- Semi-primitive and developed campsites would be located within traditional campgrounds. Semi-primitive campsites may be hardened with gravel or paving, and would have vault toilets, picnic tables, and fire-grates. Camping cabins and other movable lodging facilities would be allowed. A central water supply would be provided.
- Developed campsites would be hardened with gravel or paving, have picnic tables, fire-grates, a central water supply, electricity, and full-service comfort stations (toilets, hot and cold running water and, showers).

Roads would be paved or graveled and receive regular maintenance. Recreational vehicle dump stations may be provided. Trash dumpsters and containers would be provided. Day use areas could be present. They would contain picnic tables and established fire-rings with grills. Group shelters, swimming beaches, interpretive sites, and concessions may be included at these locations.

Campgrounds would be closed to all hunting. Livestock grazing would not be permitted in these areas. Vegetation management would emphasize the following goals:

- Reduce wildfire hazard.
- Provide shade and privacy.

- Retaining durable, drought resistant ground cover.
- Encourage the establishment of shrubs and trees on shorelines where desirable for shade or shoreline stabilization.
- Preserve aesthetics.
- Control noxious weeds and invasive plants.

Land Use Category 2: Primitive Recreation Area

Goal: Provide a recreation opportunity while maintaining wildlife habitat and natural plant communities outside of primitive camping areas.

Overnight camping would only be permitted in designated primitive campsites. Designated primitive campsites would be widely dispersed, have only minimum hardening (gravel or mowing), no water, electricity or picnic tables. Basic fire-grates may be provided. If vault toilets were not provided, users would be required to have self-contained sanitary facilities. A minimum number of trash dumpsters would be provided.

Primitive campsites would be accessible only by designated roads. Roads would be unimproved or have gravel surfaces and receive minimal maintenance. Materials sites such gravel borrow pits would be allowed.

Hunting would be permitted during regular seasons and as designated by the State of South Dakota. Livestock grazing would be permitted in these areas. Vegetation management would emphasize the following goals:

- Reduce wildfire hazard.
- Promote healthy sagebrush communities.
- Improve and enhance riparian habitat.
- Manage grasslands to encourage diverse native vegetation with a variety of structural classes and provide adequate cover for ground nesting birds and other wildlife.
- Maintain adequate vegetation to protect fragile shale soils.
- Encourage healthy woody draws and the establishment of woody, riparian vegetation to stabilize shorelines.
- Reduce impacts to native vegetation by limiting primitive camping and regulating road access.
- Control noxious weeds and invasive plants.

Land Use Category 3: Wildlife Management Area

Goal: Enhance and maintain wildlife habitat and natural plant communities.

These areas would emphasize both primitive recreation and wildlife habitat. Hiking, boating, mountain biking, day use, and hunting access would be encouraged. Horseback riding would be allowed by permit. Roads would be unimproved or have gravel surfaces and receive minimal maintenance. Some remote roads may be open seasonally only to allow for hunting access.

Overnight camping would not be permitted. Vault toilets may be provided at day use areas and trailheads.

Hunting would be permitted during regular seasons and as designated by the State of South Dakota. Access to portions of the area may be restricted seasonally to protect wildlife during critical life cycle stages. Livestock grazing would be permitted in these areas. Vegetation management would emphasize the following goals:

- Reduce wildfire hazard.
- Promote healthy sagebrush communities and manage for wildlife species dependent on sagebrush habitat.
- Improve and enhance riparian habitat.
- Manage grasslands to encourage diverse native vegetation with a variety of structural classes, and provide adequate cover for ground nesting birds and other wildlife.
- Maintain adequate vegetation to protect fragile shale soils.
- Encourage healthy woody draws and the establishment of woody, riparian vegetation to stabilize shorelines.
- Control noxious weeds and invasive plants.

Land Use Category 4: Day Use Area

Goal: Provide a recreation opportunity with visitor conveniences. Ensure public health and safety while preserving aesthetics and concentrating uses in order to protect natural resources.

These areas would contain boat ramps or picnic sites. Overnight camping would not be permitted in the immediate vicinity of the sites. They may contain restrooms with water or vault toilets. Fish cleaning stations and interpretive sites may be provided. Trash containers would be provided.

Livestock grazing would not be permitted in these areas.

Day use areas would be closed to all hunting. Vegetation management would emphasize the following goals:

- Reduce wildfire hazard.
- Provide shade and privacy.
- Retain durable, drought resistant ground cover.
- Encourage the establishment of shrubs and trees on shorelines where desirable for shade or shoreline stabilization.
- Preserve aesthetics.
- Control noxious weeds and invasive plants.

Land Use Category 5: Administrative Area

Goal: Retain these areas to protect and maintain facilities and ensure public health and safety.

Administrative areas would be set aside for project operations and maintenance. These include the Diversion Dam, the Belle Fourche Dam, the emergency spillway, and the North and South Canal Outlets. Uses that may interfere with project management, operations, and maintenance would not be permitted in Administrative Areas. Public access may be restricted depending on use of the area. Livestock grazing would not be permitted in these areas.

Hunting would be prohibited in any areas where access is restricted. Vegetation management would emphasize the following goals:

- Stabilize earthen embankments of facilities by planting rhizomatous grasses.
- Control of aquatic vegetation, which may impede flows and block control structures.
- Prevent damage to facilities and erosion on earthen embankments by restricting public access and prohibiting livestock grazing.
- Control noxious weeds and invasive plants.

Management Common to All Alternatives

Contract with the Belle Fourche Irrigation District

Construction of the Belle Fourche Dam and Reservoir was authorized for irrigation purposes. As a result, Reclamation has entered into contracts for irrigation since 1904, first with the Belle Fourche Valley Water Users Association and later with the District, formed in 1923. The District's current contract is in effect until 2035 with the option to renew the contract at that time. The contract allows the District to use that amount of irrigation water that may be applied beneficially to eligible lands in accordance with good irrigation water usage practices consistent with South Dakota water laws.

Exclusive Use

Reclamation's Recreation Management Policy (LND PO4) states "Prohibit new exclusive uses, and eliminate existing exclusive uses as allowed by current use agreements, to maximize public recreation opportunities, facilities, and services. Any new use, facility, service or site determined by Reclamation to be exclusive use shall not be allowed." Currently, there are no exclusive use areas or sites at Belle Fourche Reservoir.

Accessibility

Reclamation is required to provide accessible facilities and programs as a result of several acts. The Architectural Barriers Act of 1968 requires that all facilities constructed by, or on behalf of, the federal government be fully accessible to, and usable by, persons with physical disabilities. The Rehabilitation Act of 1973, as amended in 1978, requires that all federally conducted and federally funded programs which are offered to the public shall be accessible to disabled persons.

Many programs and services are provided on Reclamation lands by State or local governments or private entities. The Americans with Disabilities Act of 1990, requires all State and local

governments, and private entities to provide accessible facilities and programs. Reclamation is responsible for oversight of these entities to ensure its accessibility responsibilities are fulfilled.

Off-Road Vehicle Use

In accordance with federal regulations (43 CFR 420), all motorized vehicles would be restricted to established gravel or paved roads or access points and must be legally licensed and operated by a licensed driver in accordance with State law.

Land Use Authorizations and Land Disposal

Land use authorizations include easements, leases, licenses, and permits which allow others to use Reclamation lands, facilities, and water surfaces. Land use authorizations are discretionary and must conform to the requirements contained in 43 CFR 429 and Reclamation Directives and Standards for Land Use Authorizations (LND 08-01). Issuance of land use authorizations require that Reclamation collect administrative fees and receive fair market value for the use of its lands.

Land use authorizations would not be issued when it is determined that the proposed use is incompatible with authorized project purposes, or where the proposed use poses health and safety concerns, results in unacceptable impacts to the environment, results in private exclusive uses, violates state, Federal, or local laws, regulations, ordinances, or zoning requirements, jeopardizes the interests of the United States, is an existing unauthorized use, the use will result in other adverse and unacceptable impacts, or where other alternatives are available. If a use authorization is granted, it is the policy of Reclamation to grant the least estate possible necessary to accommodate the intended use. Generally, this means that Reclamation will only issue a permit or a license, and will not issue leases or easements or other contractual documents that convey an interest in real property.

In regard to roads, telecommunication sites, microwave towers, transmission lines, and linear facilities, Reclamation will not issue any land use authorizations for these uses that do not clearly compliment the goals and recommendations contained in this plan. In the event electrical utilities are permitted they would be buried, or if constructed above ground, they would be constructed and only permitted if they do not interfere with the visual and aesthetic components of the landscape. All above ground utilities would provide measures of safety for the public and for wildlife species. All land use authorizations would be considered on a case by case basis, and issued at the sole discretion of Reclamation.

All reservoir lands are currently needed for project purposes and are not available for disposal thru sale, lease, or transfer to any other person, agency, or entity. In the event any of the lands within the reservoir are determined by Reclamation to be excess to project needs Reclamation would follow standard General Service Administration procedures to dispose of the lands. This process requires that any excess lands be first offered to other Federal or State agencies, then to local counties or municipalities, and lastly thru sale at public auction to the highest bidder.

Oil, Gas and Mineral Exploration

Oil, gas, and mineral exploration will be managed in accordance with the 1983 Interagency Agreement between Reclamation and the Bureau of Land Management (BLM). This agreement gives the BLM authority to issue oil, gas, and mineral leases on Reclamation land, following Reclamation review, approval, and compliance with GP-135 Special Stipulations. Requests from outside parties to use reservoir sand and gravel resources would not be allowed unless the use directly benefits the Belle Fourche Project.

Control of Noxious Weeds, Invasive Species and Other Pests

Several federal and state laws require the control of noxious weeds and invasive plants and animals. In addition, other animals may need to be controlled in order to protect public health and safety, or prevent damage to facilities, public, or private property. Methods of controlling these plants and animals, and the circumstances under which control activities will be initiated, are described in the draft Integrated Pest Management Plan (IPM) (Appendix E).

Alternatives

Alternative A - No Action

The objective of this alternative (Figure 2-1) is to allow current management at Belle Fourche Reservoir to continue. Changes to the existing management would only occur if a threat to public health and safety or existing facilities occurs. Changes would also occur if mandated by law or new or amended regulations and policy. This alternative provides a basis of comparison for the impacts of the action alternatives.

Table 2-1 shows the land use categories that would be present in this alternative. Land use categories do not exist for the majority of the reservoir lands.

Table 2-1- Land Use Categories for Alternative A

Land Use Category	Location	Acres
Undesignated	Majority of reservoir area and Diversion Dam lands	6358
Wildlife Management Area	Below Belle Fourche Dam and shelterbelt plantings	232
Administrative Area	Dams and canals	63

Camping and General Recreation

Rocky Point would continue to be managed by SDGF&P, Parks Division, as a Lakeside Use Area. They would manage it in accordance with their procedures and regulations for Lakeside Use Areas.

Rocky Point would provide the following facilities: four restrooms, a four lane boat launch, two dumpsters, and one gravel parking lot at the boat launch (accommodates approximately 40 vehicles plus trailers). There would be no established campsites, no picnic tables or established fire grates. No electrical hookups or water would be provided. A camping time limit consistent with SDGF&P regulations would be in force only on Rocky Point. No reservation system would be in place.

Primitive recreation would continue to occur on the remaining lands. Restrooms at Gaden's Point would be removed. No other boat launches or recreation facilities would be provided.

Camping is not permitted in the Wildlife Management Area below the dam.

Fees

There would be no fees for use of the reservoir.

Road System

All roads would be either graveled or unimproved. SDGF&P would maintain the gravel road between the Inlet Canal Bridge and Rocky Point. The road to Gaden's Point and all remaining roads would be only minimally maintained to prevent erosion and damage to existing facilities.

Law Enforcement

SDGF&P would provide law enforcement within the Lakeside Use Area according to their regulations. State conservation officers would continue to enforce hunting, fishing, and boating regulations. The Butte County Sheriff's Office would continue to provide law enforcement on all reservoir lands including Rocky Point through a cooperative agreement with Reclamation.

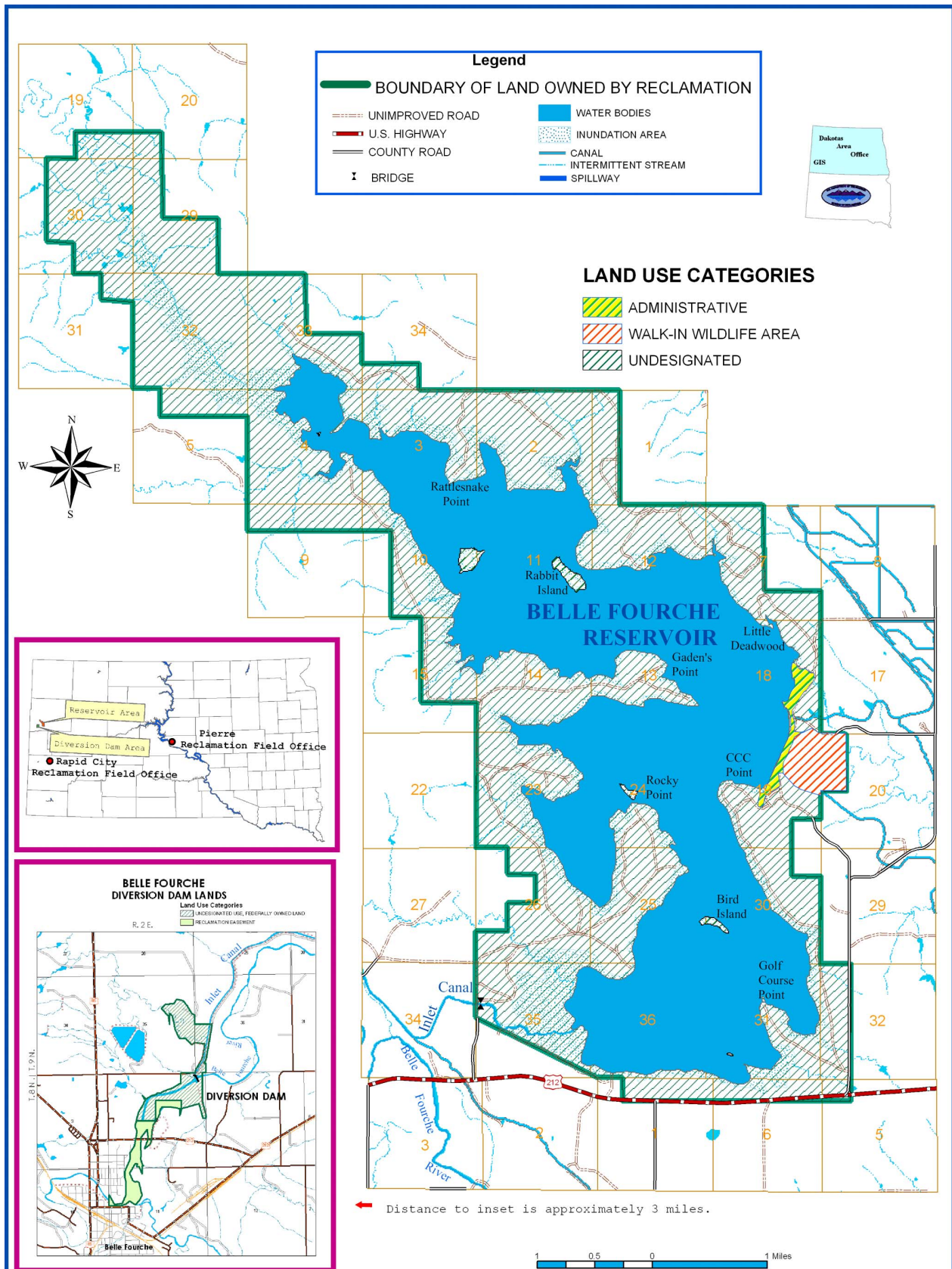
Sanitation/Litter

Dumpsters and vault toilets would be located only within the Lakeside Use Area. No other sanitary facilities would be provided.

Resource Management

SDGF&P would continue to manage the fishery in the reservoir through stocking and fisheries habitat improvements.

SDGF&P, Wildlife Division, would continue to manage the Wildlife Management Area below the dam. The shelterbelts outside of this area would continue to be maintained by either SDGF&P or Reclamation, depending on location. Food plots on Gaden's Point would be planted to native grasses. The current boundary fence would remain the same.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
 RESOURCE MANAGEMENT PLAN
 Alternative A - No Action Figure 2 - 1**

Alternative B - Minimum Facilities

The objective of this alternative (Figure 2-2) is to provide some improvements at the reservoir, yet these improvements would be limited by the requirements of the Federal Water Project Recreation Act as discussed in Chapter 1 under “Reclamation and Managing Partners”.

Because Reclamation is able to provide only minimum facilities, use of the reservoir lands would be limited to minimize resource damage. Recreation facilities on Rocky Point, which is managed in partnership with SDGF&P, would be allowed to expand beyond the minimum.

The following land use categories (illustrated in Table 2-2) would be present in this alternative.

Table 2-2- Land Use Categories for Alternative B

Land Use Category	Location	Acres
Developed Recreation Area	Rocky Point	302
Primitive Recreation Area	Southern portion of reservoir and Diversion Dam lands	1751
Wildlife Management Area	Northern portion of reservoir below Belle Fourche Dam within shelterbelt plantings	4478
Day Use Area	*Inlet Canal, Boat Ramp, Gaden’s Point	59
Administrative Area	Dams and canals	63

*Inlet Canal refers to that portion located between Inlet Canal Bridge and Belle Fourche Reservoir.

Camping and General Recreation

Rocky Point would continue to be managed by SDGF&P, Parks Division, as a Lakeside Use Area. They would manage it in accordance with their procedures and regulations for Lakeside Use Areas.

The level of development on Rocky Point would increase slightly under this alternative. The existing parking lot would be expanded and may be paved. The existing four-lane boat launch would remain. Modern accessible vault toilets would replace the restrooms near the boat launch. Several dumpsters would be provided. A campground with 80 semi-primitive single or double campsites and 12 semi-primitive group campsites would be added. A central water supply would be provided.

Reclamation would provide oversight for recreation within the area designated as Primitive Recreation. This oversight may be carried out by Reclamation personnel, or if needed, a concessionaire. If Reclamation does not have the funding or management capability to provide this oversight, these areas may be closed to camping or public use. A total of 35 designated primitive campsites would be located outside of the Lakeside Use Area. These sites would be accessible only by designated access roads and would be established at locations already used for primitive camping. Barrier posts or signs may designate these sites.

No electrical hookups would be provided at the reservoir. A 14-day camping limit would be established for all camping. A campsite reservation system would not be in place.

Fees

On Rocky Point, fees would be consistent with current SDGF&P fee rates for Lakeside Use Areas. An entrance fee would not be charged. A camping fee would be charged. Fees would not be charged for the use of the remainder of the reservoir.

Road System

The road plan which illustrates roads open to the public (Figure 2-6) would be implemented. Excess roads would be closed or eliminated and vehicle travel would be limited to established roads. Areas may be signed to indicate road closures. The road between U.S. Highway 212 and the end of Rocky Point would be paved and maintained by SDGF&P. All other roads would be graveled or unimproved. The road to Gaden's Point, and the remaining roads, would be maintained by Reclamation.

Law Enforcement

SDGF&P would provide law enforcement within Rocky Point according to their regulations. State conservation officers would continue to enforce hunting, fishing, and boating regulations. The Butte County Sheriff's Office or managing partners would continue to provide law enforcement on all reservoir lands including Rocky Point. A set of regulations, specific to the reservoir, would be proposed by Reclamation and/or managing partners. These regulations may be in the form of county ordinances or State law.

Sanitation/Litter

Dumpsters would be located on Rocky Point, Gaden's Point, and near the Inlet Canal (between the Inlet Canal Bridge and Belle Fourche Reservoir). Modern, accessible vault toilets would be provided on Rocky Point and Gaden's Point, near the Inlet Canal, Golf Course Point, and near the Belle Fourche Dam.

Resource Management

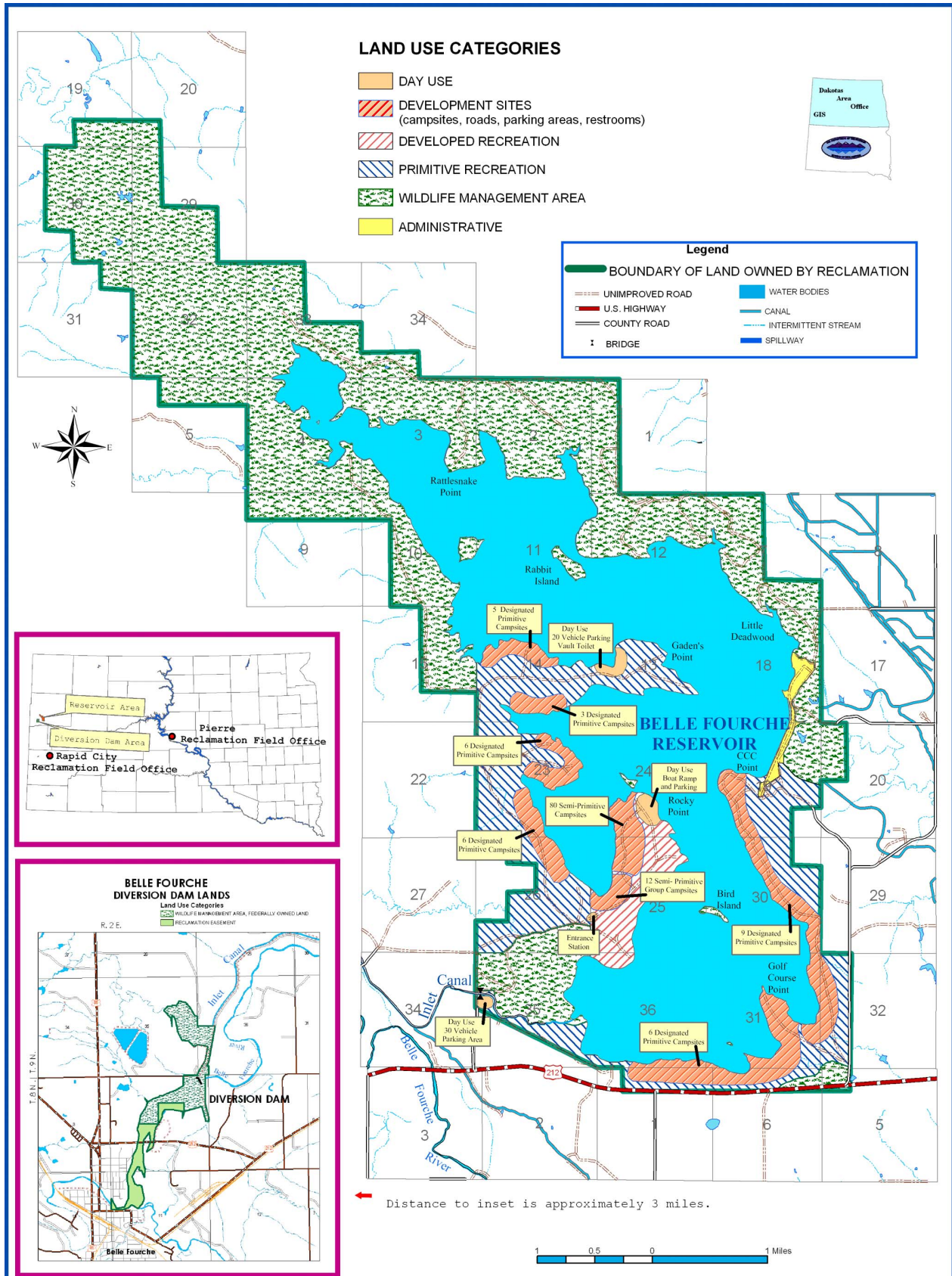
SDGF&P would continue to manage the fishery in the reservoir through stocking and habitat improvements.

SDGF&P, Wildlife Division, would continue to manage the Wildlife Management Area below the dam. The shelterbelts outside of this area would continue to be maintained by either SDGF&P or Reclamation, depending on location. Food plots on Gaden's Point would be planted to native grasses. The Wildlife Management Area would be added to SDGF&P's list of walk-in hunting areas or a similar program.

The boundary fence around the reservoir would be modified to allow antelope to cross.

Grasslands would be managed to achieve the goals outlined for the land use categories. The following management tools would be considered to achieve these goals: rest, livestock grazing, prescribed fire, mowing, herbicide applications, and introduction of biological control agents. All areas would be monitored on a regular basis to determine the need for management.

If livestock grazing were selected as a management tool, the area to be grazed would be permitted through a competitive bid process. This process would also apply to the Diversion Dam lands south of the Diversion Dam. These lands would be fenced and a livestock lane provided for the adjacent landowner. However, the Diversion Dam lands on Crow Creek would continue to be permitted to the adjacent landowner because of the difficulty of fencing the area.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
 RESOURCE MANAGEMENT PLAN
 Alternative B - Minimum Facilities**

Figure 2 - 2

Alternative C - Recreation Emphasis

The objective of this alternative (Figure 2-3) is to provide for developed recreation opportunities that meet current and future demands while maintaining the primitive character of much of the reservoir and preserving and enhancing natural resources. This alternative would be implemented under agreement with one or more managing partners.

Table 2-3- Land Use Categories for Alternative C

Land Use Category	Location	Acres
Developed Recreation Area	Rocky Point, Gaden's Point, Inlet Canal	1274
Primitive Recreation Area (motorized)	Southern portion of reservoir	1758
Wildlife Management Area (partial non-motorized)	Northern portion of reservoir below Belle Fourche Dam within shelterbelt plantings Dry Creek	3489
Day Use Area	Gaden's Point, Inlet Canal, Little Deadwood, boat ramp	69
Administrative Area	Dam and canals	63

Camping and General Recreation

This alternative would allow for phased development at the reservoir, depending on future use. Initially, developed recreation would be concentrated on Rocky Point. Rocky Point would contain camping, a recreational vehicle dump station, a fish cleaning station, vault toilets, a comfort station, a picnic shelter, and a potential location for a concessionaire operation providing public use recreation facilities. A campground with 75 developed single or double campsites and 12 developed group campsites would be added.

A total of 34 designated primitive campsites would be located outside of Rocky Point. These sites would be accessible only by designated access roads, and would be established at locations already used for primitive camping. Barrier posts or signs may designate these sites.

If demand for developed campsites increases or the designated primitive campsites are too difficult to manage, campgrounds with semi-primitive or developed campsites would replace the designated primitive campsites. They could also be replaced if resource damage is occurring. A developed campground on Gaden's Point would replace the 15 designated primitive sites located north of Rocky Point. A developed campground at the south end of the reservoir would replace the 19 designated primitive sites located on the south and east portions of the reservoir. A campground with developed sites would be constructed at the Inlet Canal. These three additional campgrounds would not necessarily all be constructed, it would depend on demand. A 14-day camping limit would be established for all camping. A reservation system may be in place for Rocky Point but a combination of reserved and non-reserved sites would be maintained.

A second boat ramp with a day use area would be established on Rocky Point. The boat ramp at the end of Gaden's Point would be replaced. A day use area would be established at the former cabin site at Miller Point (Little Deadwood). A self guided interpretive tour of the Belle Fourche Dam and associated historical sites would be designed. Displays interpreting the history and natural environment of the reservoir would be placed at specific locations around the reservoir. These improvements would be considered a lower priority than camping improvements at Rocky Point, and would be added based on visitor need and available funding.

Fees

An entrance fee consistent with current state and federal fees rates in the area would be charged to all users of the reservoir. This could be paid on a daily or annual basis. An additional fee (also consistent with state and local rates) would be charged for camping in developed campgrounds.

Road System

The road plan which illustrates roads open to the public (Figure 2-6) would be implemented. Excess roads would be closed or eliminated and vehicle travel would be limited to established roads. Areas may be signed to indicate road closures. The road between U.S. Highway 212 and Rocky Point and Rocky Point to Gaden's Point would be paved. All other roads would be graveled, unimproved, or semi-improved. Some gravel roads may be for two-laned traffic.

Specific locations would be designated as temporary low water trails on a trial basis. This would be designed to allow campers to access the shoreline in vehicles during low water periods. They would not be open for recreational off-road use. If resource damage, a threat to public health and safety, or littering occurs as a result of these trails, they would be discontinued. Travel off these trails would not be permitted.

Law Enforcement

SDGF&P would provide law enforcement within Rocky Point according to their regulations. State conservation officers would continue to enforce hunting, fishing, and boating regulations. The Butte County Sheriff's Office or managing partners would continue to provide law enforcement on all reservoir lands including Rocky Point. A set of regulations, specific to the reservoir, would be proposed by Reclamation and/or managing partners. These regulations may be in the form of county ordinances or State law.

Sanitation/Litter

Modern, accessible vault toilets would be provided on Rocky Point, Gaden's Point, Inlet Canal, Golf Course Point and near the Belle Fourche Dam. Vault toilets would also be provided at the boat ramp day use area. Dumpsters would also be provided at these locations. Regular trash pickup and campsite monitoring would occur.

Resource Management

SDGF&P would continue to manage the fishery in the reservoir through stocking and habitat improvements.

Reclamation and SDGF&P would work with the District to determine the need for fish screens on the reservoir outlet canals. Water quality at the reservoir would be monitored if problems related to recreation developments at the reservoir are identified.

Bank stabilization projects may occur at the following locations: Gaden's Point, Miller Point (Little Deadwood), CCC Point, and Golf Course Point.

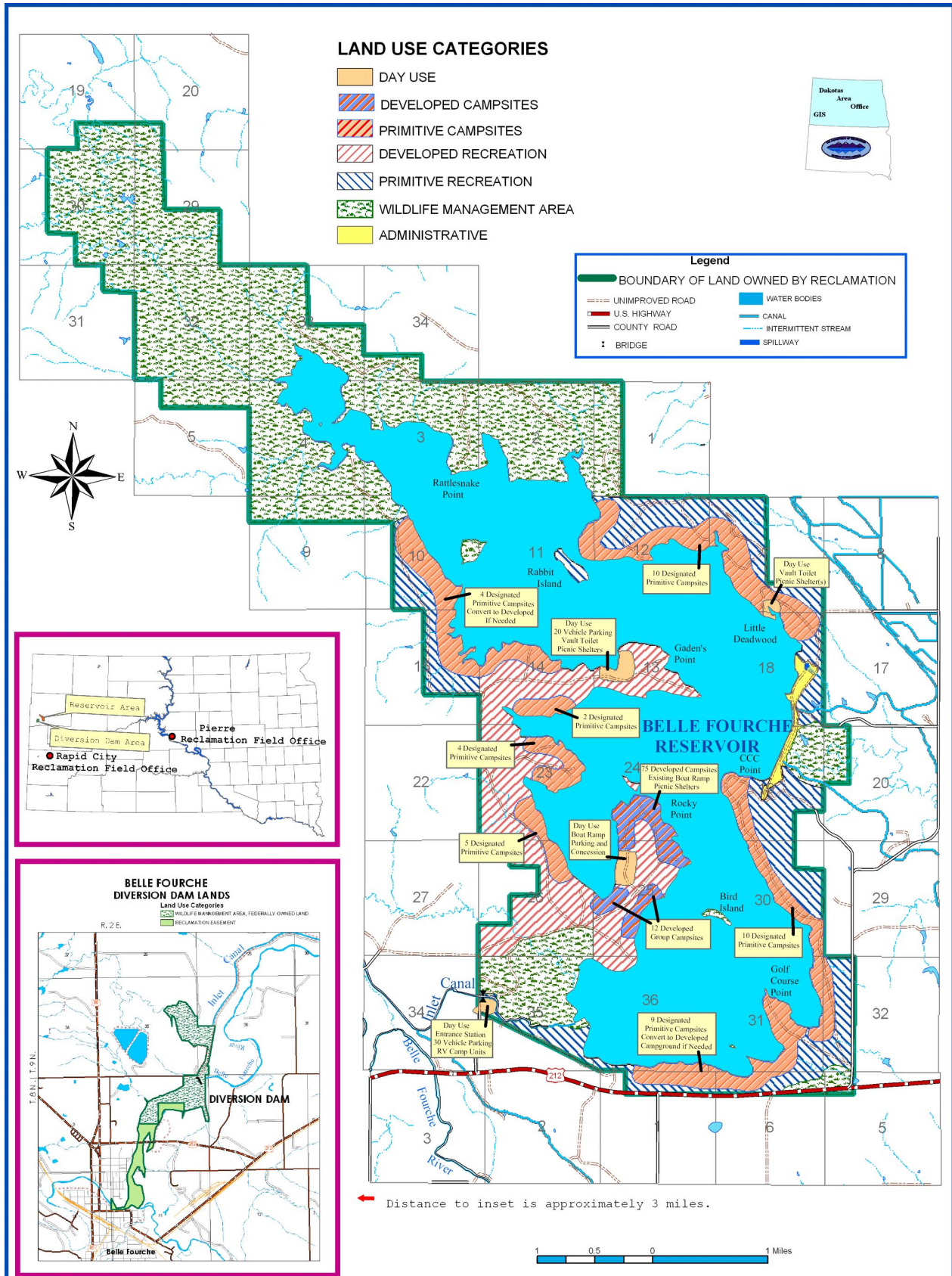
Cottonwood and willow would be planted along the reservoir shoreline to enhance wildlife habitat, and provide shade. Non-native, non-invasive shade trees may be planted within developed campgrounds for shade. Native grass would be seeded to enhance wildlife habitat or to restore disturbed areas.

The boundary fence would be rebuilt to allow antelope passage. Cross fences may be removed or altered.

SDGF&P, Wildlife Division, would continue to manage the Wildlife Management Area below the dam. The shelterbelts outside of this area would continue to be maintained by either SDGF&P or Reclamation, depending on location. Food plots on Gaden's Point would be planted to native grasses. The Wildlife Management Area would be added to SDGF&P's list of walk-in hunting areas or a similar program.

Grasslands would be managed to achieve the goals outlined for the land use categories. The following management tools would be considered to achieve these goals: rest, livestock grazing, prescribed fire, mowing, herbicide applications, and introduction of biological control agents. All areas would be monitored on a regular basis to determine the need for management.

If livestock grazing were selected as a management tool, the area to be grazed would be permitted through a competitive bid process. This process would also apply to the Diversion Dam lands south of the Diversion Dam. These lands would be fenced and a livestock lane provided for the adjacent landowner. However, the Diversion Dam lands on Crow Creek would continue to be permitted to the adjacent landowner because of the difficulty of fencing the area.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Alternative C - Recreation Emphasis**

Figure 2 - 3

Alternative D – Modified -Fish, Wildlife and Recreation-Preferred Alternative

The objective of this alternative (Figure 2-4) is to provide for maximum protection and enhancement of natural resources and the scenic qualities of the reservoir while providing both developed and primitive recreation opportunities. Developed recreation would be concentrated on Rocky Point, with smaller primitive recreation areas on both the west and east sides of the reservoir.

This alternative was designed to address several issues. Most importantly, it addresses Reclamation's limited authority to manage for recreation. It would be implemented under an agreement with one or more managing partners. If a managing partner were not available to manage lands outside of Rocky Point, Reclamation would provide oversight for the remainder of the land. Because of Reclamation's limited ability to manage for recreation, only the minimum recreation improvements described in Chapter 1 "Reclamation and Managing Partners" would be allowed outside of Rocky Point.

This is a modification of the Alternative D described in the draft EA/RMP. It now contains many actions described in Alternatives B and C in order to better meet user needs.

The Wildlife Management Area in this alternative would address the issue of resource damage caused by off-road vehicle use and the difficulties of enforcement. It reduces roads and concentrates camping in a few areas, rather than spreading it around the shoreline. It also preserves the primitive character of the reservoir while providing some improvements.

The following land use categories (illustrated in Table 2-4) would be present in this alternative:

Table 2-4- Land Use Categories for Alternative D, Modified

Land Use Category	Location	Acres
Developed Recreation Area	Rocky Point, point directly north of Rocky Point and Gaden's Point	1520
Primitive Recreation Area (motorized)	Golf Course Point, southeast corner of reservoir	420
Wildlife Management Area (partial non-motorized)	Northern portion of reservoir below Belle Fourche Dam	4605
Day Use Area	Gaden's Point, Rocky Point, near Belle Fourche Dam, parking areas	45
Administrative Area	Dam and canals	63

Camping and General Recreation

Rocky Point would continue to be managed by SDGF&P, Parks Division. They would manage it in accordance with their procedures and regulations. The level of development on Rocky Point would increase under this alternative. Rocky Point would contain camping, a playground, drinking water, electricity, a recreational vehicle dump station, a "cold storage" building for administrative use, a fish cleaning station, accessible vault toilets, a comfort station, and picnic

shelter. Rocky Point would contain both developed and semi-primitive camping. The west shore of Rocky Point would contain 50 developed campsites with electrical hookups. Five semi-primitive group campsites, which would accommodate approximately five camping vehicles each, would be located in the southeast corner of Rocky Point.

Approximately 40 designated primitive group campsites would be located outside of Rocky Point. These sites would be accessible only by designated access roads and would be established at locations that already are used for primitive camping. Barrier posts or signs may designate these sites. Thirty designated primitive group campsites would be located on the west side of the reservoir, north of Rocky Point. These sites would be established on the point between Gaden's Point and Rocky Point and on Gaden's Point. Ten designated primitive group sites would be located on the southeast portion of the reservoir. These sites would accommodate 2-10 vehicles, depending on the site. The numbers and exact locations of these sites would vary, depending on the terrain and funding. Some of these sites would be designed as tent camping sites.

If demand for developed campsites increases, or if staff or funding are not available to properly manage designated primitive campsites, campgrounds with semi-primitive or developed campsites would replace the designated primitive campsites. They could also be replaced if resource damage is occurring. A developed campground on Gaden's Point would replace the 30 designated primitive sites located north of Rocky Point. A developed campground on Golf Course Point would replace the 10 designated primitive sites located on the south and east portions of the reservoir. A 14-day camping limit would remain in place. A reservation system would be in place for Rocky Point.

The existing four-lane boat launch would remain and may be improved to provide wind protection, low water access, or accommodate increased use. The existing parking lot would be expanded and paved. Another boat ramp with vehicle parking would be placed at a suitable location on the east side or elsewhere on the reservoir.

Fees

On Rocky Point, a park entrance license for all users would be charged. This entrance fee may be charged for the entire area designated as "Developed Recreation" if a managing partner is found for this area. Camping fees would be charged for all campsites. These fees would be consistent with current state and federal rates in the area, and would be proportional to the services provided. Fees would not be charged for the remainder of the reservoir.

Road System

The road plan which illustrates roads open to the public (Figure 2-6) would be implemented. Excess roads would be closed or eliminated and vehicle travel would be limited to established roads. Areas may be signed to indicate road closures. The road between U.S. Highway 212 and the end of Rocky Point would be paved and maintained by SDGF&P. All other roads would be graveled or unimproved. The road to Gaden's Point and the remaining roads would be maintained by Reclamation. Numerous parking areas would be established and maintained at locations around the reservoir.

Specific locations would be designated as temporary low water trails on a trial basis. This would be designed to allow fishermen to access the shoreline in vehicles during low water periods. They would not be open for recreational off-road use. If resource damage, a threat to public health and safety, or littering occurs as a result of these trails, they would be discontinued. Travel off these trails would not be permitted.

Law Enforcement

SDGF&P would provide law enforcement within Rocky Point according to their regulations. State conservation officers would continue to enforce hunting, fishing, and boating regulations. The Butte County Sheriff's Office or managing partners would continue to provide law enforcement on all reservoir lands including Rocky Point. A set of regulations, specific to the reservoir, would be proposed by Reclamation and/or managing partners. These regulations may be in the form of county ordinances or State law.

Sanitation/Litter

Modern, accessible vault toilets and dumpsters would be provided on Rocky Point, Gaden's Point, Inlet Canal, Golf Course Point, and near the Belle Fourche Dam. The numbers and exact locations of these sites may vary depending on the need, terrain, and funding. Vault toilets would also be provided at the boat ramp day use area. A comfort station would be provided on Rocky Point. Dumpsters would also be provided at these locations. Regular trash pickup and campsite monitoring would occur.

Resource Management

The water and electrical lines for Rocky Point would be installed underground along the road from U.S. Highway 212 to Rocky Point.

SDGF&P would continue to manage the fishery in the reservoir through stocking and habitat improvements.

Reclamation and SDGF&P would work with the District to determine the need for fish screens on the reservoir outlet canals. Water quality at the reservoir would be monitored if problems related to recreation developments at the reservoir are identified.

Bank stabilization projects may occur at the following locations: Gaden's Point, Miller Point (Little Deadwood), CCC Point, and Golf Course Point.

Cottonwood, willow and other native shrubs will be planted along the reservoir shoreline and reservoir lands to enhance wildlife habitat, and provide shade. Non-native, non-invasive shade trees may be planted within developed campgrounds for shade. Native grass and forbs would be seeded to enhance wildlife habitat or to restore disturbed areas.

The boundary fence would be modified to allow antelope to cross. Cross fences would be removed or modified.

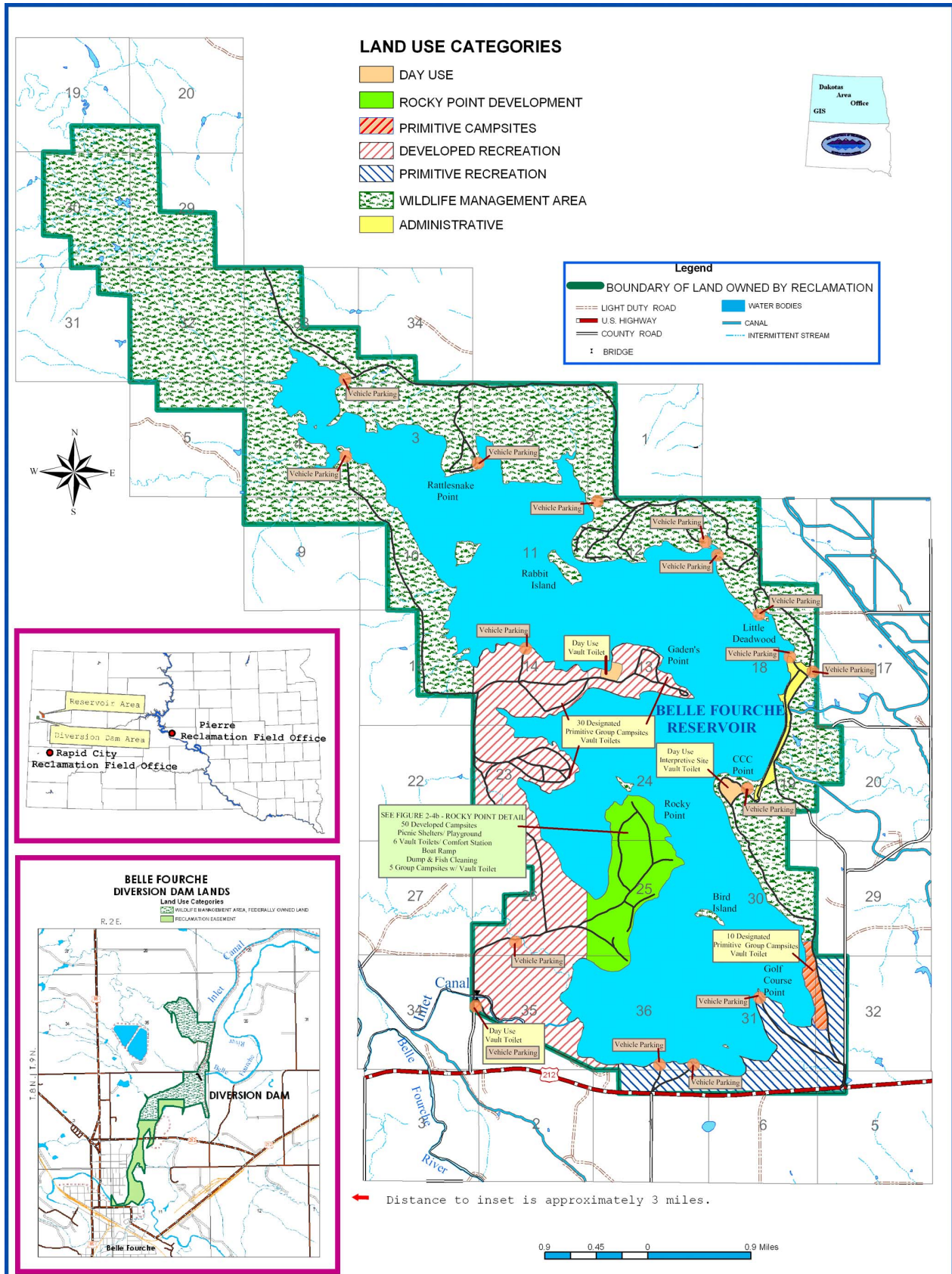
The existing shelterbelts would be maintained by either SDGF&P or Reclamation, depending on location. Food plots on Gaden's Point would be planted to native grasses. The Wildlife Management Area would be added to SDGF&P's list of walk-in hunting areas or a similar program.

Wetlands would be developed where feasible.

Grasslands would be managed to achieve the goals outlined for the land use categories. The following management tools would be considered to achieve these goals: rest, livestock grazing, prescribed fire, mowing, herbicide applications and, introduction of biological control agents. All areas would be monitored on a regular basis to determine the need for management.

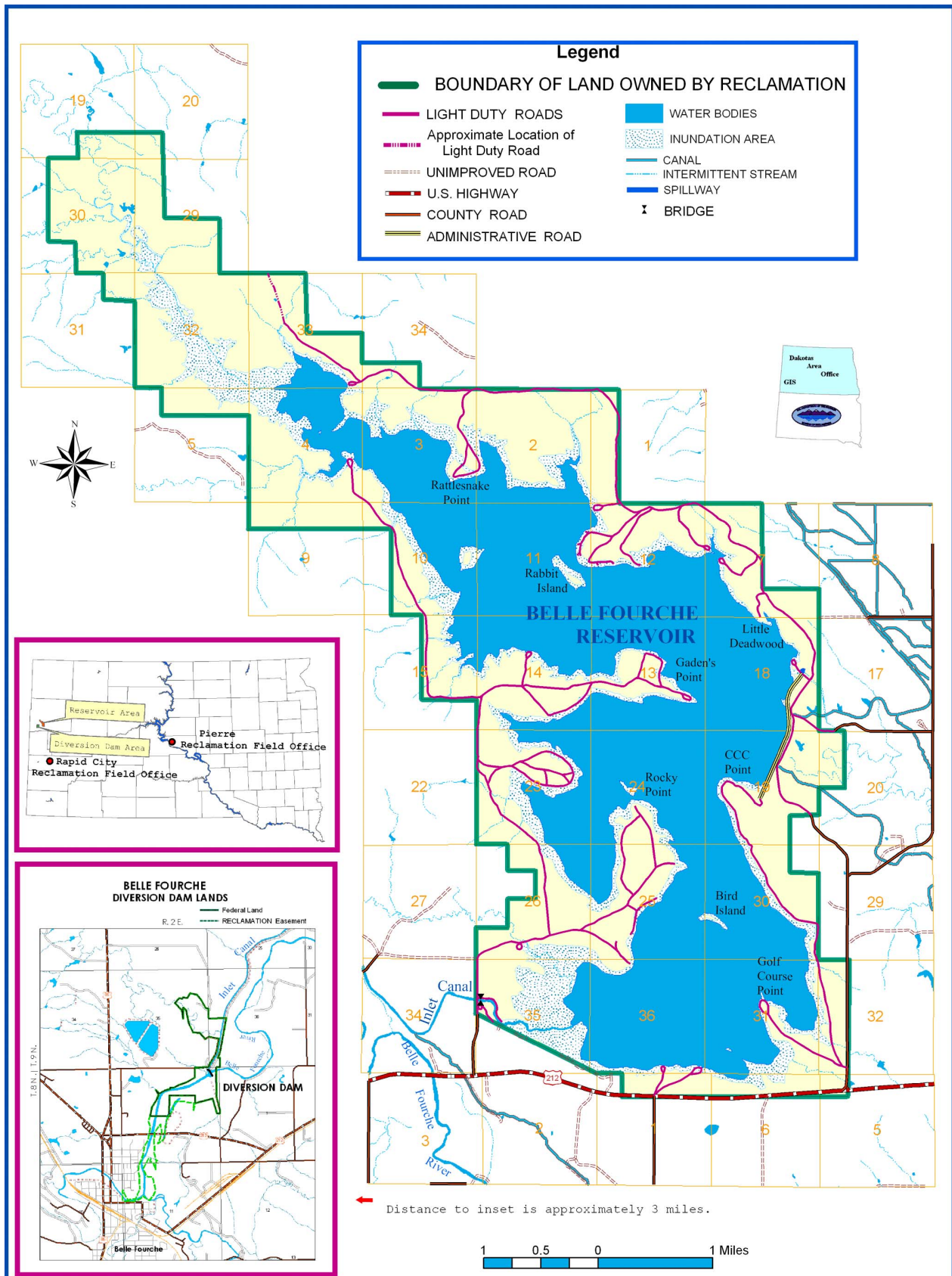
If livestock grazing were selected as a management tool, the area to be grazed would be permitted through a competitive bid process. This process would also apply to the Diversion Dam lands south of the Diversion Dam. These lands would be fenced and a livestock lane provided for the adjacent landowner. However, the Diversion Dam lands on Crow Creek would continue to be permitted to the adjacent landowner because of the difficulty of fencing the area.

A Fire Management Plan would be developed for the reservoir. This plan would include, but not be limited to, the items listed in the Fire Management Plan Outline (Appendix G).



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
 RESOURCE MANAGEMENT PLAN
 Alternative D (Modified) - Fish, Wildlife & Recreation
 Figure 2 - 4**





**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Roads, Open to the Public Figure 2 - 6**

Environmental Commitments Common to All Alternatives

Projects associated with implementing the selected alternative may require an individual Department of the Army (404) Permit. An application would be submitted to the U.S. Army Corps of Engineers and the necessary permits obtained prior to any construction.

Reclamation would conduct all activities necessary to comply with Section 106 of the NHPA for all projects associated with the selected alternative.

The preferred management treatment for cultural resources would be to avoid adverse effects to any identified historic properties in alternative project undertaking areas [36 CFR 800.4(d)]. If during the course of any activities associated with the undertaking, any districts, sites, buildings, structures, or objects are discovered, activities would cease in the vicinity of the resource, and the stipulations of 36 CFR Part 800.11 would be satisfied before activities in the vicinity of the previously unidentified property can resume.

If any threatened or endangered species were encountered during construction activities, Reclamation would initiate consultations with the Service to determine appropriate steps to avoid any effects to these species, including cessation of construction.

Alternatives and Actions Considered but not Evaluated in Detail

Reservoir Land Closure Alternative

Closure of all reservoir lands to public access was considered. This would eliminate the need for a managing partner and law enforcement, and would protect natural resources at the reservoir. This alternative was not considered reasonable because of the benefits the reservoir provides to the public and the long tradition of public use of the area. This alternative also did not meet many of the goals developed for the reservoir.

Conservation Alternative

This alternative was considered to provide for maximum protection and enhancement of natural resources and the scenic qualities of the reservoir, while providing very limited access and recreation opportunities. Recreation facilities would have been concentrated on Rocky Point. Overnight camping would have been limited to this area.

Rocky Point would have continued to be managed by SDGF&P, Parks Division. The level of development on Rocky Point would have increased. A campground with 95 semi-primitive or developed single or double campsites and 12 semi-primitive or developed group campsites would have been added. A central water supply would have been provided along with a paved parking lot, modern vault toilets, and a comfort station would have been added.

Outside of Rocky Point, recreation would have been limited to walk-in or boat access. Limited public access roads on the east and west sides of the reservoir would have ended in small parking areas. Access would be walk-in only beyond these points.

This alternative was designed to address the following issues: resource damage caused by off-road vehicle use and the difficulties of enforcement, the need for wildlife habitat, and Reclamation's limited ability to manage for recreation. Although this alternative was thought to fully address these issues, it did not provide enough flexibility for recreation development outside of Rocky Point and was removed from consideration as an action alternative.

Off-Road Vehicle Use Area

Several members of the public requested a designated area for off-road vehicle use. The Federal regulation, (43 CFR 420), governing off-road vehicle use on Reclamation land was reviewed. This regulation states that all Reclamation lands are closed to off-road vehicle use unless specifically designated. Designation of these areas requires a public hearing process and the development of specific regulations. Designation of such an area at Belle Fourche Reservoir was found to conflict with several criteria outlined in the regulation. Since the action did not meet the criteria, it was not included in any of the alternatives. The criteria conflicts are discussed below.

Sec. 420.22 Criteria for off-road vehicle areas

(a) This section states: "Areas and trails to be opened to off-road vehicle use shall be located":

(1) "To minimize the potential hazards to public health and safety...". Off-road vehicle use areas can pose a significant safety hazard. Reclamation will not assume the liability for injuries at a designated off-road vehicle use area. Reclamation also lacks law enforcement authority to provide adequate law enforcement for such an area. Reclamation does not have the staff or budget available to ensure that public health and safety would be protected.

(2) "To minimize damage to soil, watershed, vegetation, or other resources of the public lands". Soils at the reservoir are known to be fragile and subject to gullying and wind erosion. The vegetation supported by these soils is often sparse. Management objectives for vegetation emphasize promoting healthy grasslands and protecting soils. These objectives also stress improving wildlife habitat. Designation of an off-road vehicle use area would conflict with these objectives and cause adverse impacts to these resources.

(3) "To minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands...". The reservoir does not have adequate land base to support an off-road vehicle use area. The actual land base around the reservoir is relatively small in comparison to other public lands in western South Dakota. In many locations the area is merely a narrow strip of land bordering the reservoir. Because of this small land area, the noise and dust caused by such an activity would conflict with camping, fishing and other recreational uses of the lands.

Table 2-5 Alternative Summary for Belle Fourche Reservoir RMP

Facilities and Services	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Campgrounds	0	1	Up to 4	Up to 3
Developed Campsites Single/Double	0	0	75	50
Developed Campsites Group	0	0	12	0
Semi-Primitive Campsites Single/Double	0	80	0	0
Semi-Primitive Campsites Group	0	12	0	5
Designated Primitive Campsites	123 undesignated	35	34	40
Electricity	no	no	yes	yes
Comfort Stations	0	0	1	1
Central Drinking Water Supply	no	yes	yes	yes
Concessionaire	0	0	1	0
Vault Toilets	6	8	8+	14
Boat Launch	one 4-lane	one 4-lane	one 4-lane one 2-lane	one 4-lane- may be modified one 2-lane
Boat Launch Parking	approx. 40 sites	approx. 40 sites	50+ at each	50+ at each
Entrance Fee	0	0	approx. \$20 yearly approx. \$3 /person or \$5/car daily	Within Developed Recreation- approx. \$20 yearly, approx. \$3/person or \$5/car daily
Camping Fee	0	approx. \$6/night on Rocky Point	approx. \$6-\$10/night	approx. \$6/night within Developed Recreation.

Table 2-5 Alternative Summary for Belle Fourche Reservoir RMP

Facilities and Services	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Paved Roads	0	Between Hwy 212 and end of Rocky Point	Between Hwy 212 and end of Rocky Point and to end of Gaden's Point	Between Hwy 212 and end of Rocky Point
Law Enforcement	Butte Co. Sheriff through agreement with Reclamation /SDGF&P conservation officers. No site specific rules for reservoir.	Butte Co. Sheriff through agreement with Reclamation/ SDGF&P conservation officers. Site specific rules developed for reservoir.	Law enforcement by managing partner or same as Alternative B. Site specific rules developed for reservoir.	Law enforcement by managing partner or same as Alternative B. Site specific rules developed for reservoir.
Dumpsters	1	3	5	5
Fishery Improvements	as needed	as needed	as needed	maximum possible
Bank Erosion Control	0	Gaden's Point	Gaden's Point and additional locations	Gaden's Point and additional locations
Livestock Grazing	Leases issued through competitive bid for up to 5 years- entire reservoir grazed with exclusion of Rocky and Gaden's Point, unit in NW corner and unit south of dam.	Permits issued on "as needed" basis for entire reservoir excluding recreation areas.	Permits issued on "as needed" basis for entire reservoir excluding recreation areas.	Permits issued on "as needed" basis for entire reservoir excluding recreation areas
Boundary Fencing	Remain as is	Remain as is	Modified to allow antelope passage. Cross fences may be removed	Modified to allow antelope passage. Cross fences may be removed
Off-Road Vehicle Use	In accordance with 43CFR420 all motorized vehicles would be restricted to established gravel roads and must be legally licensed and operated by a licensed driver in accordance with State law.	In accordance with 43CFR420 all motorized vehicles would be restricted to established gravel roads and must be legally licensed and operated by a licensed driver in accordance with State law.	In accordance with 43CFR420 all motorized vehicles would be restricted to established gravel roads and must be legally licensed and operated by a licensed driver in accordance with State law. Temporary low water trails would be established at specific locations.	In accordance with 43CFR420 all motorized vehicles would be restricted to established gravel roads and must be legally licensed and operated by a licensed driver in accordance with State law. Temporary low water trails would be established at specific locations.

Table 2-5 Alternative Summary for Belle Fourche Reservoir RMP

Facilities and Services	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Noxious Weeds	Integrated Pest Management Plan implemented	Integrated Pest Management Plan implemented	Integrated Pest Management Plan implemented	Integrated Pest Management Plan implemented- Maximum control of invasive non-native species.
Historical Interpretive Signs	no	no	yes	yes

Table 2-6 Alternative Effects Comparison

Resource	Impacts			
	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Geology and Paleontology	Current impacts from natural processes, collecting and vandalism continue.	Current impacts from natural processes continue.	Current impacts from natural processes continue. Bank stabilization projects would reduce some impacts from wave erosion.	Current impacts from natural processes continue.
	Law enforcement helps to deter vandalism and collecting.	Law enforcement helps to deter vandalism and collecting. Rules and regulations would aid in this.	Law enforcement helps to deter vandalism and collecting. Rules and regulations would aid in this.	Law enforcement helps to deter vandalism and collecting. Rules and regulations would aid in this.
	Fossils damaged from off-road vehicle use.	Localized impacts from recreation developments. Long term beneficial impacts from hardening sites and improving roads.	Greatest potential for localized impacts from recreation developments. Long term beneficial impacts from hardening sites and improving roads.	Localized impacts from recreation developments. Long term beneficial impacts from hardening sites and improving roads.
		Reduced access in wildlife area would protect resource.	Smallest wildlife area- would provide the least protection of resource.	Largest wildlife area- would provide the most protection of resource.
Soils	Current impacts from natural process continue.	Current impacts from natural process continue.	Bank stabilization projects would reduce some impacts from wave erosion.	Current impacts from natural process continue.
	Erosion from off road vehicle use, roads, and campsites continue.	Damage from off road vehicle use, roads, and campsites reduced.	Damage from off road vehicle use, roads, and campsites reduced.	Damage from off road vehicle use, roads, and campsites reduced.
		Reduced access in wildlife area would protect resource.	Smallest wildlife area- would provide the least protection of resource.	Largest wildlife area- would provide the most protection of resource.

Table 2-6 Alternative Effects Comparison

Resource	Impacts			
	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Water Quality	Beneficial uses supported.	Beneficial uses supported.	Same as Alternative B.	Same as Alternative B.
	Localized water quality problems possible from lack of sanitary facilities and livestock grazing.	Reduced potential for localized water quality problems because of new sanitary facilities and reduced livestock grazing.	Same as Alternative B.	Same as Alternative B.
Water Quantity	No impact	No impact	No impact	No impact
Visual and Recreation Resources	Projected increase in use- leading to increase in undesignated primitive campsites.	Provides semi-primitive and designated primitive sites. Meets projected need for campsites.	Provides developed and designated primitive sites. Meets projected need for campsites.	Provides developed and semi- primitive and designated primitive sites. Meets projected need for campsites.
	Decline in privacy and increase in unsightly erosion.	Campground would create changes in visual setting of Rocky Point.	Greatest changes in visual setting of Rocky Point and other potential campground areas.	Visual changes in Rocky Point similar to Alternative C.
	No facilities for user groups wanting developed sites.	Would not meet needs of user groups who want electricity, comfort station or concession.	Would meet needs of user groups who want electricity, comfort station or concession. Would not provide a semi-primitive experience.	Would meet needs of user groups who want electricity, water, picnic shelters and comfort station. Would provide developed, semi-primitive and primitive camping experience. Could create shift in user groups to other areas and increase use of Rocky Point.
	Inadequate boat ramp parking.	Increased boat ramp parking, no alternative boat ramp site.	Alternative boat ramp site and increased parking.	Increased boat ramp parking, second boat ramp.
	Law enforcement positive, yet lack of site specific rules and regulations negative.	Positive impact from camping time limit, enforcement of off road vehicle regulation, fees, proper sanitation, and road plan.	Same as Alternative B.	Same as Alternative B.

Table 2-6 Alternative Effects Comparison

Resource	Impacts			
	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Visual and Recreation Resources continued	Negative impact from lack of camping time limit, fees, proper sanitation, and road plan.	Designated primitive campsites difficult to manage. Would meet needs of user group wanting primitive camping.	Designated primitive campsites most difficult to manage. Low water trails could create management difficulties. Would meet needs of user group wanting primitive camping. Flexibility in converting to developed campgrounds if needed.	Designated primitive campsites most difficult to manage. Low water trails could create management difficulties. Would meet needs of user group wanting primitive camping. Flexibility in converting to developed campgrounds if needed.
		Wildlife area provides recreation experience lacking in Alternative A. Campers would be relocated to Rocky Point or designated primitive sites.	Least opportunity for recreation experience in wildlife area. Fewer primitive campers required to relocate.	Greatest opportunity for recreation experience in wildlife area. Increase in hunting, fishing, hiking and other similar activities.
Fisheries	No impact	No impact	No impact	No impact
Vegetation	Grassland condition improving. No improvement in riparian and wetland vegetation. Implementation of IPM beneficial.	All vegetation would show improvement from removal of yearly grazing. Mowing and prescribed burns would improve condition. Implementation of IPM beneficial. Road plan and enforcement of ORV regulation would improve vegetation.	Same as for Alternative B	Same as for Alternative B
	Native prairie impacted by primitive camping, roads, ORV use.	Approximately 125 acres of native prairie impacted from development.	Approximately 175 acres of native prairie impacted from development.	Approximately 125 acres of native prairie impacted from development.

Table 2-6 Alternative Effects Comparison

Resource	Impacts			
	Alternative A No Action	Alternative B Minimum Recreation Facilities	Alternative C Recreation Emphasis	Alternative D-Modified- Recreation, Fish and Wildlife
Wildlife	No effect to habitat.	Improvement in habitat.	Improvement in habitat.	Greatest improvement in habitat.
	1541-acre wildlife mitigation area not providing prime habitat.	1541-acre wildlife mitigation area relocated to 4478-acre area.	1541-acre wildlife mitigation area relocated to 3489-acre area.	1541-acre wildlife mitigation area relocated to 4605 -acre area.
Threatened, Endangered, and Special Status Species	No effect.	No negative effect. Positive effects to bald eagle.	Same as for Alternative B	Same as for Alternative B
Indian Trust Assets	Reservoir water is the only potential ITA. Changes in water quality potential impact.	Same as for Alternative A	Same as for Alternative A	Same as for Alternative A
Socioeconomics	No impact on employment.	Slight increase in employment.	Greatest increase in employment.	Slight increase in employment. Slight shift in revenues to service industries.
	No impact on economics of District.	Same as for Alternative A	Same as for Alternative A	Same as for Alternative A
	Current cost of maintaining recreation at reservoir \$60,000/year	Estimated capitol costs: \$300,000. Estimated recreation maintenance costs: \$70,000/year.	Estimated capitol costs: \$1,600,000. Estimated recreation maintenance costs: \$98,000/year	Estimated capitol costs: \$1,051,573. Estimated recreation maintenance costs: \$86,000/year.
Environmental Justice	No adverse impact	No adverse impact. Sanitary facilities beneficial.	Same as for Alternative B	Same as for Alternative B
Cultural Resources	No increase in impacts	Plan activities to avoid adverse impacts	Same as for Alternative B	Same as for Alternative B

CHAPTER THREE

Affected Environment and Environmental Consequences

This chapter focuses on existing conditions within the planning area. Baseline environmental data were used to analyze impacts alternatives may have on the environment. Potentially affected resources include; Geologic and Paleontological Resources; Vegetation; Wildlife; Threatened, Endangered, and other Special Status Species; Cultural Resources; Indian Trust Assets; Soils; Visual and Recreation Resources; Socioeconomics; and Environmental Justice. Two of the resources discussed, Water Quantity and Fisheries, would not be affected by the alternatives. However, overviews are provided for background information.

Geologic and Paleontological Resources

Affected Environment

Belle Fourche Reservoir is located on the northern flank of the Black Hills and is entirely contained in the Whitewood Anticline (Gries, 1996). The anticlinal (upward) fold has exposed several very thick Cretaceous period (formed 63 to 138 million years ago) geologic formations. The formations consist of sediments deposited as a rich organic mud in a shallow sea that once extended from the Gulf of Mexico to the Arctic Ocean. The huge inland sea provided a niche for many forms of marine life. As the sea levels dropped and new landforms were exposed they became suitable habitat for many kinds of terrestrial plants and animals.

The fossil remains of plants and animals are known as paleontological resources. Nearly all fossils are found in rock formed from sand, silt, or other fine sediments that have settled to the bottom of a body of water and hardened into stone (Thompson, 1997). The unauthorized collecting of paleontological resources on federal lands is addressed under laws and regulations concerning theft or destruction of federal property. Federal land management activities, such as construction projects, can also impact these resources.

There are three Late Cretaceous formations exposed at the reservoir and all contain fossils. The lowest in the geologic sequence is the Belle Fourche Shale (Figure 3-1). The Greenhorn formation is deposited above the Belle Fourche Shale. The Carlile Shale formation overlays the Greenhorn formation. Other geomorphic formations at the reservoir include Quaternary river terraces formed by the lateral migration of the Belle Fourche River. Minor accumulations of more recent sediments are present in low-lying areas and in backwaters and tributary drainages.

Belle Fourche Shale is dark-gray, non-calcareous shale and contains many white and orange colored bentonites. Bentonite is a smooth clay formed by the chemical decomposition of volcanic ash. The deposits accumulated as they settled into still seawater. Hundreds of

bentonite beds exist in the late Cretaceous shales found in the northern high plains. Each formed as a plume of volcanic ash drifted east from eruptions in the northern Rocky Mountains.

The Greenhorn formation outcrops as thin beds of buff-colored calcareous shale, marl, calcarenite, and limestone with thick beds of bluish-gray marl and calcareous shale.

The Carlile Shale is divided into three members. The lowest is known as the Pool Creek Member. It is composed of dark gray silty, non-calcareous shale. Several bentonites can be found at its base, as well as several horizons of calcareous concretions. Ferruginous and phosphatic concretions occur higher in the unit. Next is the Turner Sandy Member. It consists



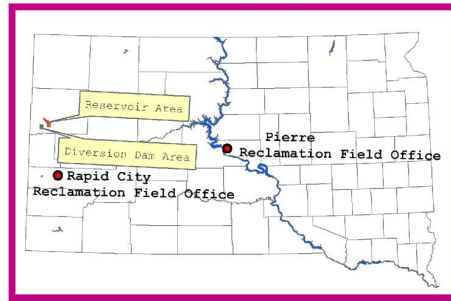
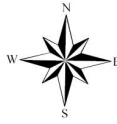
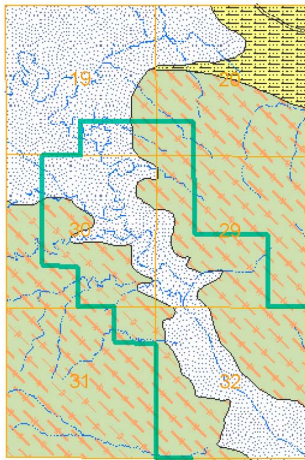
Casting of fossilized fish at Belle Fourche Reservoir in September 2003

of dark gray, sandy shale with thin beds of weakly calcareous fine to medium grained sandstone. Several sandstone channel fills are present. The Sage Breaks Member; a fine dark gray fissile shale, overlies the Turner Sandy Member.

The first published descriptions of paleontological resources at Belle Fourche Reservoir resulted from field surveys conducted by Bruno Petsch (1949) and William Cuban (1951). More recent surveys conducted by the U.S. Geological Survey (USGS) resulted in the documentation of four fossil localities.

Surveys conducted by the Museum of Geology at the South Dakota School of Mines and Technology have also resulted in the documentation of fossil sites. Outcrops of Late Cretaceous rocks at the reservoir and the surrounding area are likely to contain significant fossil resources. These fossils can yield information about species population, distribution, reproduction, habitat, and can provide critical information about the climate.

The Museum of Geology has been conducting on-going surveys of reservoir lands to identify and salvage important fossils that have been exposed. In July 2003, the remains of a portion of a large fish were exposed at the reservoir. Campers reported the site. The Museum of Geology conducted a salvage excavation in September 2003. The remains of the fish were cast in plaster and will be cleaned, prepared, and exhibited at the Journey Museum in Rapid City, South Dakota as part of a public demonstration project.



Legend

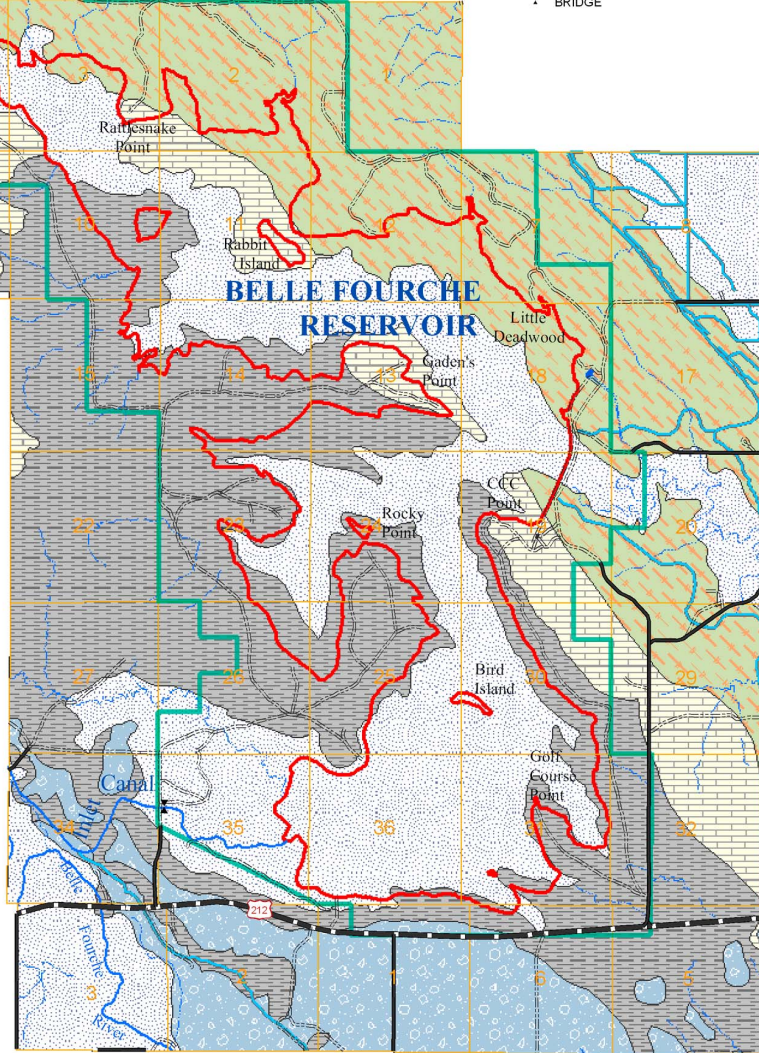
- BOUNDARY OF LAND OWNED BY RECLAMATION
- UNIMPROVED ROAD
- U.S. HIGHWAY
- COUNTY ROAD
- RESERVOIR SHORELINE
- CANAL
- INTERMITTENT STREAM
- SPILLWAY
- BRIDGE

GEOLOGIC FORMATION QUATERNARY

- Alluvium
- Older terrace deposits
Beds of gravel and sand

UPPER CRETACEOUS

- Niobrara Formation**
This layer of marl grades from a mixture of impure chalk to calcareous shale. Weathered areas are chrome yellow or orange in color and fresh cuts are gray to buff. There are large limestone concretions near the formation's top.
- Carlile Shale**
This formation consists of a dark gray shale that contains many 3 to 5 ft. concretions that are biscuit shaped. Within the shale, there are thin beds of sandstone with shark's teeth.
- Greenhorn Limestone**
This formation consists of thin layers of moderately hard limestone. The formation weathers into slabs of limestone that are a pale buff color, the slabs are coated with white incrustations.
- Belle Fourche Shale w/ Mowry Sandstone**
The Belle Fourche Formation is a very soft, very dark colored shale. This shale contains many beds of bentonite (volcanic ash). The Belle Fourche shale is interbedded with thin lenses of the Mowry Formation, a buff colored, very fine sandstone.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN**

Geology

Figure 3 - 1

Environmental Consequences

Alternative A

The current impacts to geologic and paleontological resources at the reservoir include exposure, damage and destruction from erosion caused by natural and human processes. Natural processes causing erosion may be stimulated by weather, hydrology, wave action, and land sliding.

Erosion, which can destroy or damage fossils, occurs at primitive campsites, roads, trails, and is increased by off-road vehicle use and user made boat launches (see page 71 for a description of these launches). Peak periods of fossil collection by recreational collectors coincide with fluctuation of the water level, after periods of high erosion of the shoreline caused by wave action and ice grinding. The continued presence of law enforcement officers at the reservoir would help to deter unauthorized collection of fossils.

The replacement of vault toilets on Rocky Point may have localized impact.

No new impacts to paleontological resources are anticipated along existing gravel roads. Vehicle use of semi-improved and unimproved roads may directly impact paleontological resources, particularly when the soil is wet and the surface becomes rutted. In wet conditions unimproved roads quickly become a series of wheel tracks often two or three vehicles wide.

Alternative B

Improvements to existing facilities on Rocky Point, such as the expansion and possible paving of the parking lot and replacement of vault toilets may have direct localized impacts to some paleontological resources associated with the Belle Fourche Shale. The proposed construction of a new developed campground and semi-primitive campsites may also have direct localized impacts to some paleontological resources associated with the Belle Fourche Shale.

Paleontological resources in lands within primitive recreation areas may be directly impacted by the development of designated primitive campsites. However, hardening of campsites and restriction of camping to designated areas may have long-term beneficial impacts. It may reduce damage from off-road vehicle use and unregulated camping and trail development. The reduced access in the Wildlife Management Area would greatly reduce the impacts from vehicle use and camping.

Road closure activities such as scarification and surface re-contouring may result in impacts to paleontological resources. The paving of the road between U.S. Highway 212 and Rocky Point would not increase the potential for impacting paleontological resources, because the road currently has an elevated grade and hardened gravel surface. Paleontological resources under existing gravel roads would be protected by continued graveling of roads, which is considered a good erosion control. Vehicle use of semi-improved and unimproved roads may directly impact paleontological resources, particularly when the soil is wet and the surface becomes rutted.

The continued presence of law enforcement officers at the reservoir would deter unauthorized collection of fossils. The development of rules and regulations for the protection of paleontological resources would enable prosecution of unauthorized collectors.

Alternative C

This alternative focuses recreation developments at Rocky Point, Gaden's Point, Inlet Canal, and on the south side of the reservoir. The dominant geologic formation in these areas is Belle Fourche Shale, which has high occurrences of fossils. Mantles of thick older terrace deposits cap the shale in areas by the Inlet Canal. The development of campgrounds and construction of roads, comfort stations and the installation of electrical and water lines has a high likelihood for localized impacts.

Paleontological resources in lands within primitive recreation areas may be directly impacted by the development of designated primitive campsites. Hardening of campsites and restriction of camping to designated areas may have long-term beneficial impacts. It may reduce damage from off-road vehicle use and unregulated camping and trail development. The reduced access in the Wildlife Management Area would greatly reduce the impacts from vehicle use and camping. However, the Wildlife Management Area under this alternative is smaller than under Alternatives B or D, providing less protection from these impacts.

Miller Point is also underlain with Belle Fourche Shale. Construction of facilities and installation of waterline here in association with a day use area is likely to cause localized impacts to paleontological resources. The establishment of this area for day use only would be beneficial to paleontological resources because it would prevent off-road vehicle use and unregulated camping and trail development in this area.

The impacts from the road system and law enforcement would be the same as for Alternative B.

Bank stabilization projects may result in localized impacts; however stabilization would prevent the current trend of mass erosion and the continued exposure of new paleontological resources.

Alternative D

Improvements to existing facilities such as the expansion and possible paving of a parking lot and replacement of vault toilets may have direct localized impacts to some paleontological resources associated with the Belle Fourche Shale. The proposed construction of a new developed campground may also have direct localized impacts to some paleontological resources associated with the Belle Fourche Shale. The development of campgrounds and construction of roads, comfort stations, and the installation of electrical and water lines has a high likelihood for localized impacts to paleontological resources.

Paleontological resources in lands within primitive recreation areas may be directly impacted by the development of designated primitive campsites. Hardening of campsites and restriction of camping to designated areas may have long-term beneficial impacts. Designated primitive

campsites would be less dispersed than in Alternatives B and C, reducing the potential for impacts from campsites on much of the reservoir shoreline. If primitive camping areas are converted to developed campgrounds, the potential for impacts may increase at those locations.

The impacts from the road system and law enforcement would be the same as for Alternative B.

Cumulative Impacts

Paleontological resources are largely unprotected and potentially vulnerable to looting, theft, and vandalism. All alternatives, which propose different recreational uses of the land, encourage public visitation and unrestricted access to fossil sites. Looting, theft and, vandalism are cumulative impacts that could rise by encouraging public use. Erosion resulted in the exposure of a site in July 2003 and will likely expose more sites in the future.

Soils and Minerals

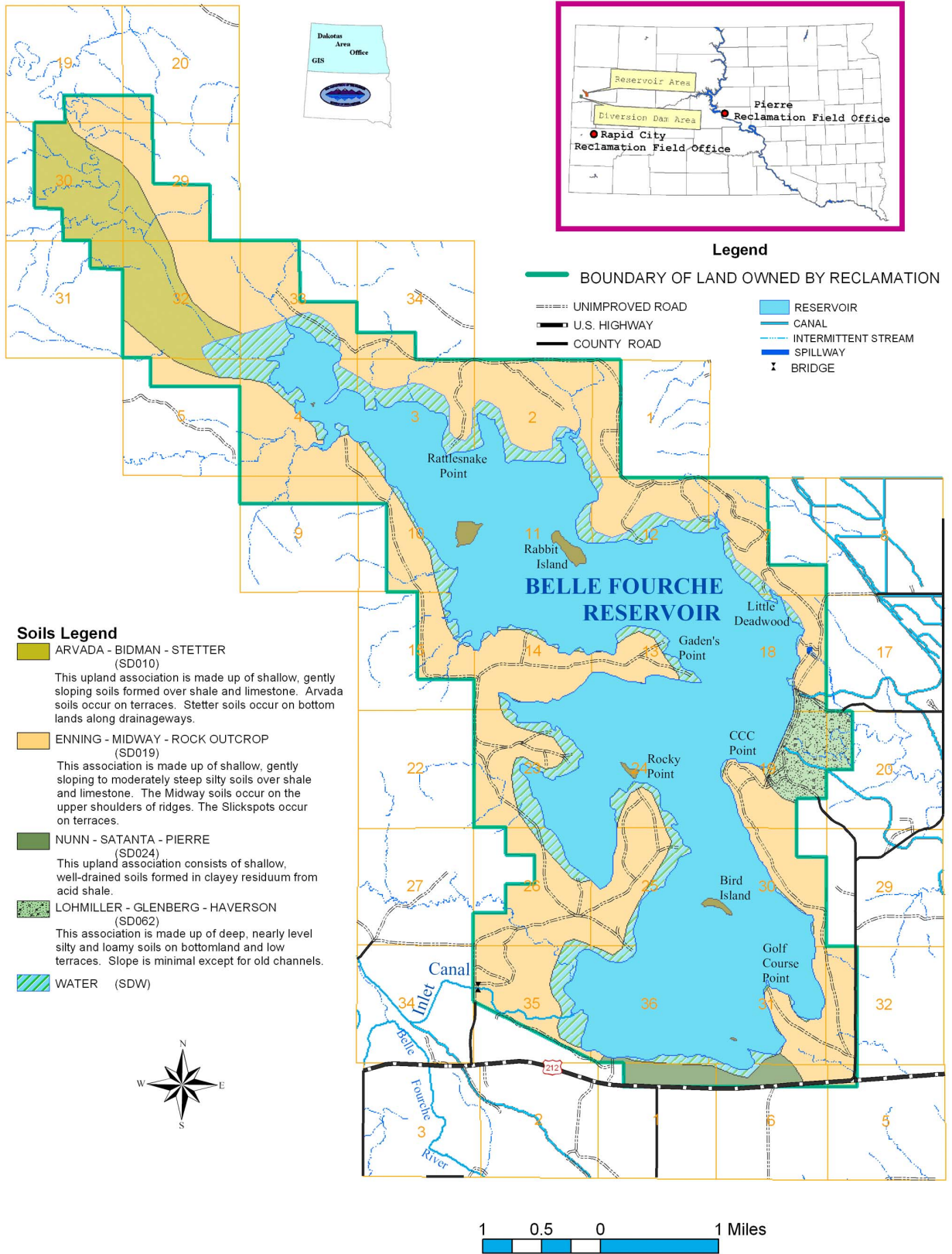
Affected Environment

Soil Descriptions

A broad mapping of soils surrounding the reservoir is shown in Figure 3-2. Soils surrounding the reservoir are primarily of the Midway-Penrose Association. This association can be seen within the Enning-Midway-Rock Outcrop and Arvada-Bidmann-Stetter mapping units in Figure 3-2. This Midway-Penrose association is made up of shallow, gently sloping to moderately steep silty soils over shale and limestone. These soils were formed in material derived from shale and limestone on uplands. Permeability and available water capacity of Midway and Penrose soils is low. They typically have less dense grass cover and consequently have thinner horizons formed by accumulation of organic matter.

Other less extensive soils in the Midway-Penrose Association include Arvada and Slickspots on terraces; Baca and Razor soils on fans and the sides of ridges below Midway soils; Hisle soils and Slickspots in drainage sags and foot slopes on uplands; Manvel soils on terraces and fans below Penrose soils; Minnequa soils on the sides of ridges below or intermingled with Penrose soils; and Stetter soils on bottom land along drainageways.

A small area of the Grummit-Shale land association is present at the reservoir. This can be found within the Nunn-Satanta-Pierre mapping unit in Figure 3-2. The Grummit association consists of



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
State Soil Geographic (STATSGO) Data**

Figure 3 -2

shallow, well-drained soils formed in clayey residuum from acid shale on uplands. Runoff is slow or medium and permeability moderate.

The Lohmiller-Glenberg-Haverson Association is located below Belle Fourche Dam. This association is made up of deep, nearly level, silty and loamy soils on bottomland and low terraces. Slope is minimal except for old floodwater channels and short-sloped rises at different levels in the stream valley. Unlike soils of the Midway-Penrose Association, available water capacity and permeability of these soils is moderate or high. They are also susceptible to wind erosion.



Bank erosion caused by wave action, Belle Fourche Reservoir, 1999

Soil Erosion and Limitations

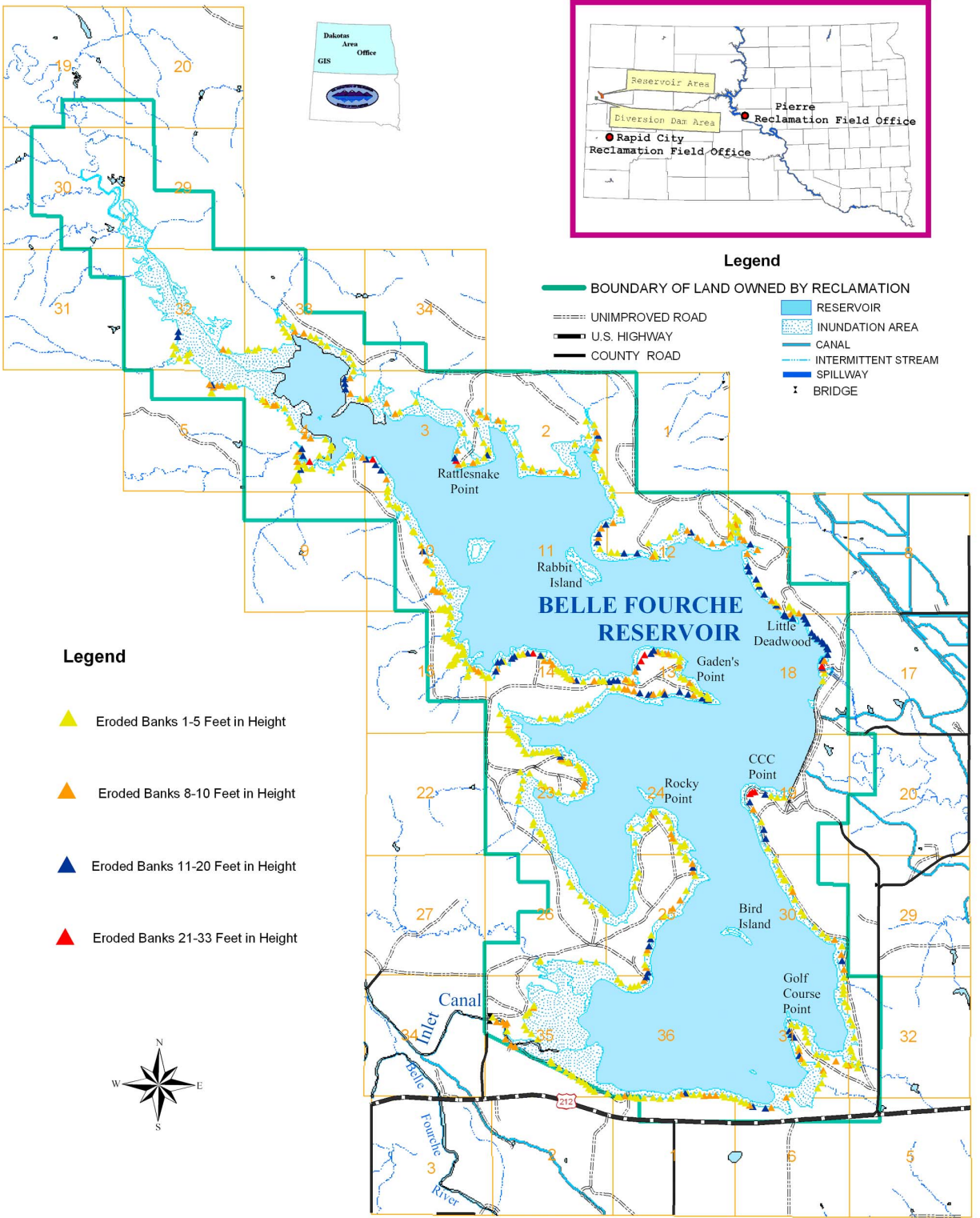
The soils around the reservoir are subject to bank erosion when water levels are high. This process has been occurring on the reservoir since its construction. Eroded banks on the reservoir shore vary from one to 33 feet in height (Figure 3-3).

The majority of the eroded banks around the reservoir are between one to five feet in height. Banks of 6 to 20 feet in height are generally found on the east side of the reservoir between Belle Fourche Dam and Rabbit Island, on CCC

Point, Golf Course Point, and Gaden's Point. The greatest concentrations of banks between 21 to 33 feet in height are found on CCC Point and Gaden's Point and directly north of the Belle Fourche Dam. These eroded banks limit the potential for shoreline development and impact shoreline trails in these areas. They also pose a safety hazard to motorists and other shoreline users. Guardrails and warning signs have been placed at the highest banks.

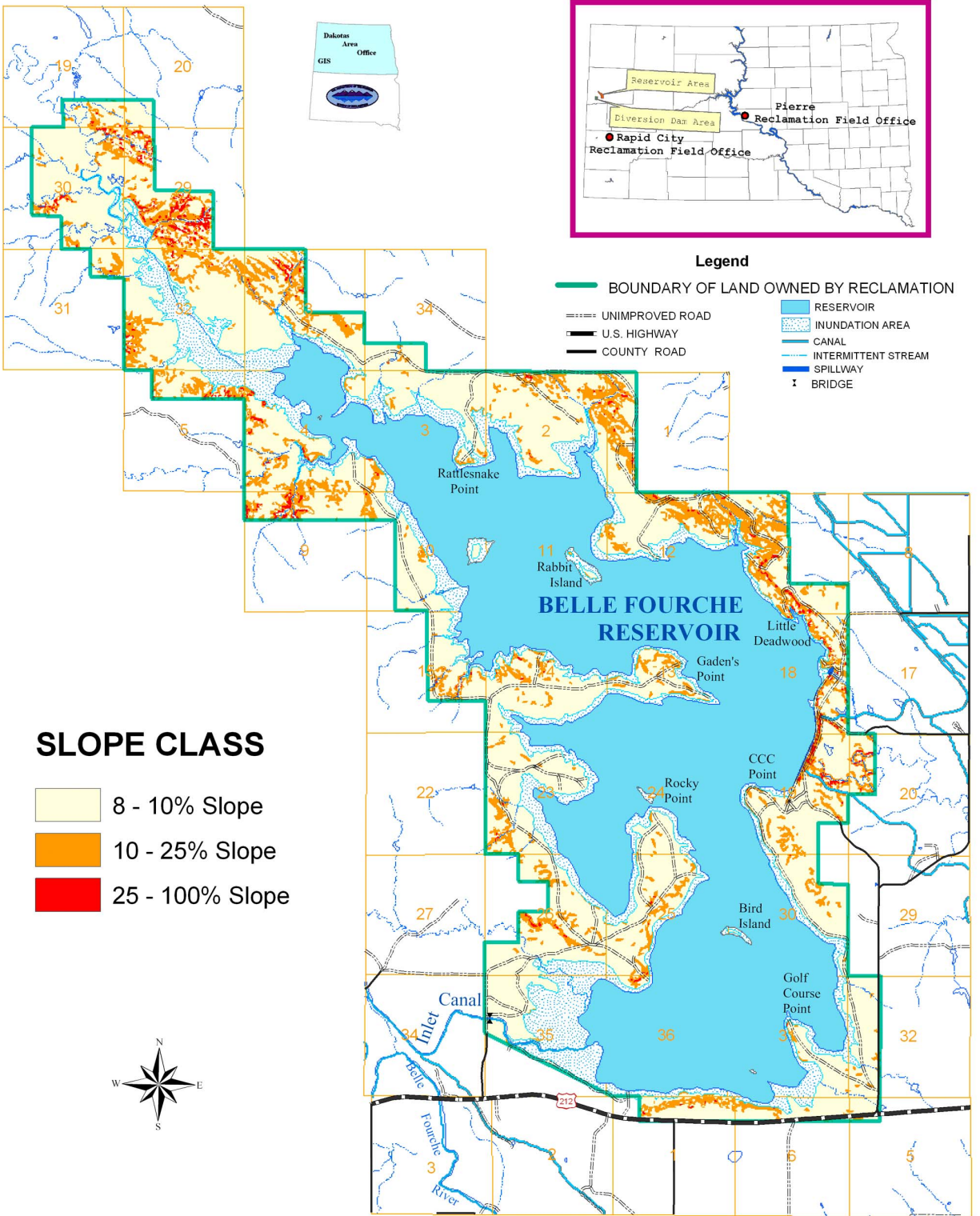
Erosion also occurs at primitive campsites and roads along the shoreline. Erosion of roads, trails, campsites, and user made boat launches has occurred at various locations around the reservoir.

The soils of the Midway-Penrose and Grummit-Shale Land Associations limit the use and management of the area. The shallow root zone, low fertility, and very low available water capacity of these soils make them poorly suited for tree and crop planting. Plantings may be possible on more favorable microsites within the association, or if species tolerant of the soil conditions are used. In general, steep rocky sites within these associations would have fewer management options (see Figure 3-4). Wind and water erosion are hazards. Fertility of the major soils of the Lohmiller-Glenberg-Haverson Association is also low, but they have favorable properties for irrigation and are well suited for tree and crop plantings. Other soil limitations and suitability of major soil types within the planning area are shown in Table 3-1 and Table 3-2 respectively.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Shoreline Erosion**

Figure 3 - 3



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN**

Slope Class

Figure 3 - 4

Table 3-1- Limitations for Soil Types at Belle Fourche Reservoir

Soil Type	Soil Limitations For:				
	Septic Tanks	Lagoons	Excavations	Basements	Roads
Arvada	Severe	Slight	Severe	Severe	Severe
Glenberg	Slight*	Moderate	Severe	Slight*	Slight*
Grummit	Severe	Severe	Severe	Severe	Severe
Haverson	Moderate*	Moderate*	Slight	Moderate*	Moderate*
Lohmiller	Severe	Slight	Slight	Severe	Severe
Midway	Severe	Severe	Moderate**	Severe	Severe
Penrose	Severe	Severe	Moderate**	Moderate**	Moderate**

* can be severe in areas subject to flooding

** severe in areas with greater slopes and shallow soil layer

Source: Soil Survey of Butte County, South Dakota, USDA

Table 3-2- Suitability for Soils Types at Belle Fourche Reservoir

Soil Type	Suitability as a Source of:		
	Road Fill	Sand and Gravel	Topsoil
Arvada	Poor	Unsuited	Poor
Glenberg	Good	Poor	Good
Grummit	Poor	Unsuited	Poor
Haverson	Fair	Unsuited	Fair
Lohmiller	Poor	Unsuited	Fair
Midway	Poor	Unsuited	Poor
Penrose	Poor	Unsuited	Poor

Source: Soil Survey of Butte County, South Dakota, USDA

Mineral Resources

Reclamation reserves all rights for minerals, oil, and gas in any lease or permit agreements at the reservoir. There are no active mineral, oil, or gas leases at the current time. Exploration for oil and gas has occurred at the reservoir under previous leases, most recently in the late 1970s and early 1980s, yet extraction of these resources did not occur.

There is a ridge of unconsolidated gravel located within the Grummit Shale Land at the south end of the reservoir. The District currently operates a gravel quarry there through an agreement with Reclamation.

Environmental Consequences

Alternative A

The current impacts to soil resources would continue under this alternative. Some road closures, road relocations and additional guardrails may be needed for visitor safety in areas with high bank erosion.

Erosion from roads, campsites, and user made boat launches would continue to occur. This alternative has the highest potential for soil erosion of any of the alternatives, because of the large number of undesignated primitive campsites and access roads. The minimal road maintenance under this alternative would help to prevent erosion on the main roads. Use of the quarry on the south end of the reservoir for road gravel would continue.

There would be no impacts to mineral resources from this alternative.

Alternative B

Some road closures, road relocations, and additional guardrails may be needed for visitor safety in areas with high bank erosion.

Oversight and management at the reservoir under this alternative would be greater than under Alternative A. This would help to prevent formation of unauthorized trails, campsites, and user made boat launches that lead to soil erosion.

Damage from off-road vehicle use and unregulated camping and trail development would be less than under Alternative A, as these activities would be controlled through a road plan and designated primitive campsites. The reduced access in the Wildlife Management Area would greatly reduce the impacts from vehicle use and camping.

The limitations and characteristics of the soils around the reservoir would influence the types of recreational developments that are planned and the success of habitat improvements.

There may be greater use of the quarry on the south end of the reservoir for increased road maintenance. There would be no impacts to mineral resources from this alternative.

Alternative C

Some road closures, road relocations, and additional guardrails may be needed for visitor safety in areas with high bank erosion.

Oversight and management at the reservoir under this alternative would be greater than under Alternatives A or B. This would help to prevent formation of unauthorized trails, campsites, and user boat launches that lead to soil erosion.

Damage from off-road vehicle use and unregulated camping, and trail development would be less than under Alternative A, as these activities would be controlled through a road plan and designated primitive campsites. The reduced access in the Wildlife Management Area would greatly reduce the impacts from vehicle use and camping. However, the Wildlife Management Area under this alternative is smaller than under Alternatives B or D, providing less protection from these impacts.

The limitations and characteristics of the soils around the reservoir would influence the types of recreational developments that are planned and the success of habitat improvements.

There may be greater use of the quarry on the south end of the reservoir for increased road maintenance. There would be no impacts to mineral resources from this alternative.

Alternative D

The impacts would be the same as for Alternative B with one exception. This alternative has a slightly larger Wildlife Management Area than Alternative B. There would be slightly less impacts from primitive camping on the east side of the reservoir under this alternative, as it would be concentrated in the southeast corner.

Cumulative Impacts

The creation of unauthorized roads and trails is expected to continue under Alternative A. As visitation increases at the reservoir, the number of these roads would also increase. This increase in use combined with soil erosion from roads could have a cumulative impact on soils around the reservoir.

Water Quality

Affected Environment

Belle Fourche Reservoir is a warm, relatively shallow reservoir with an average depth of approximately 13 feet and a maximum depth of 55 feet. It is a mesotrophic reservoir, meaning it is of middle productivity, clarity, depth, and temperature (S.D.D.E.N.R., 2000).

Vegetation in and around the reservoir is not abundant, less than 5% of the shoreline has emergent vegetation such as cattails and bulrushes. Aquatic plants are present in relatively low amounts.

The reservoir, like all water bodies, is assigned beneficial uses by the state. These designations identify which uses the water body is suitable for, and differ from the authorized purposes of the reservoir discussed on page four. Beneficial uses and water quality criteria (such as concentrations of a specific contaminant) are combined to develop water quality standards. Table 3-3 lists beneficial uses for lakes in South Dakota. The beneficial uses are arranged from most to least restrictive. For example, domestic water supplies allow much lower concentrations of contaminants than irrigation water supplies. When a reservoir has several uses, criteria for the most restrictive use are followed. The uses that apply to Belle Fourche Reservoir are checked in the table.

Table 3-3- Beneficial Uses for Lakes in South Dakota

Beneficial Use	Belle Fourche Reservoir
(1) Domestic water supply	
(2) Coldwater permanent fish life propagation	
(3) Coldwater marginal fish life propagation	
(4) Warmwater permanent fish life propagation	X
(5) Warmwater semipermanent fish life propagation	
(6) Warmwater marginal fish life propagation	
(7) Immersion recreation	X
(8) Limited-contact recreation	X
(9) Fish & wildlife propagation, recreation and stock watering	X
(10) Irrigation	X
(11) Commerce and industry	

Water quality information on the reservoir is available from several sources. The reservoir was included in a study conducted in 1988-89 to determine the effects of irrigation on human health, fish, and wildlife (USGS, 1991). Surface water and bottom sediment samples were collected in the reservoir for this study. These samples were analyzed for major ions such as sodium and calcium, trace elements such as arsenic and selenium, and pesticides. Parameters such as water temperature and pH were also recorded. No major exceedences in water quality standards for the beneficial uses of the reservoir were recorded.

Surface water quality data were collected in the reservoir inlet canal by the USGS from 1994 to 1998 to determine if construction activities associated with the Belle Fourche Project Rehabilitation and Betterment were impacting water quality in the Belle Fourche drainage. Although these samples were not in the reservoir, they give an idea of the water quality entering the reservoir.

The South Dakota Department of Environment and Natural Resources (SDDENR) has monitored water quality in the reservoir since 1979. The available data include temperature and dissolved oxygen (DO) profiles, nutrients, and suspended solids. These data were compiled in the 1995 South Dakota Lakes Assessment Final Report (Stueven and Stewart, 1996).

The SDDENR prepares a State Water Quality Assessment every two years. This report, commonly known as the 305(b) report, meets the requirements of Section 305(b) of the Clean Water Act. The 305 (b) report summarizes available water quality data to determine whether lakes, streams, and rivers are able to support their assigned beneficial uses based on the number of violations of water quality standards. The most recent 305 (b) reports, published in the years 2000 and 2002, recorded that the reservoir has continued to support these uses for the past five years.

Inorganic turbidity has been a moderate water quality problem in the reservoir. This turbidity is attributed to the exposed shale beds underlying the reservoir and on the Belle Fourche River upstream of the reservoir. The reports state that Crow Creek, Owl Creek and water diversions

from the Belle Fourche River transport large quantities of total suspended solids into the reservoir during high-water periods. These reports conclude that agricultural activities may at times be a major source of nutrients and siltation to the reservoir.

A sedimentation survey was conducted on the reservoir in 1949 (Bureau of Reclamation, 1950). The researchers found that only slightly more than 8 percent of the reservoir capacity had been lost through sedimentation during the reservoir's first 42 years of use. Although this study was conducted some time ago, it does indicate that sedimentation in the reservoir has been a very slow process. A new sedimentation survey is scheduled for 2005.

The researchers also concluded that a large portion of the sediment was from reservoir bank erosion, and that much of the sediment transported from the Belle Fourche River deposits in the Inlet Canal or Johnson Lateral prior to reaching the reservoir.

Environmental Consequences

Alternative A

This alternative would not change the existing water quality in the reservoir. The lack of sanitary facilities and increasing use at the reservoir could contribute to localized water quality problems in the future. Also, cattle grazing on the shoreline of the reservoir could cause localized water quality problems that have not been detected in sampling. The inorganic turbidity caused by the underlying shale would continue.

Alternative B

This alternative is not expected to have a large impact on water quality in the reservoir. The addition of modern vault toilets would help to prevent localized water quality problems. The changes in livestock grazing practices would help to prevent localized water quality problems associated with shoreline livestock grazing. The inorganic turbidity caused by the underlying shale would continue.

Alternative C

The effects of this alternative would be the same as for Alternative B.

Alternative D

The effects of this alternative would be the same as for Alternative B.

Cumulative Impacts

There would be no cumulative impacts to water quality from any of the alternatives.

Water Quantity

Affected Environment

Water Supply

Most of the water entering Belle Fourche Reservoir comes from the Belle Fourche River. Water is diverted from the river at the Diversion Dam about 1.5 miles northeast of the city of Belle Fourche, South Dakota. This diversion dam is normally used to divert the entire flow of the Belle Fourche River into the Inlet Canal, except for 5 cubic feet per second to support in-stream flows. The water is conveyed by the 6.5 mile long Inlet Canal to the reservoir. A portion of this water is diverted for irrigation through the Johnson Lateral prior to reaching the reservoir.

The Belle Fourche River drainage basin above the Diversion Dam contains 4310 square miles, with an annual average (1953-74) flow of 160,000 acre-feet. Diversions from the river in the period 1953-74 averaged 117,000 acre-feet annually (Reclamation, 1997). The Owl Creek drainage area of 170 square miles above the reservoir annually contributes 9700 acre-feet to reservoir inflows (Roddy et.al. 1991).

Reservoir Allocations

The water in the reservoir is divided into active conservation and dead storage (Figure 3-5). When at the top of its active conservation storage, or full, the reservoir contains 192,077 acre-feet of water. The active conservation in the reservoir is allocated to irrigation, with additional benefits to wildlife, recreation and fisheries. Dead and inactive storage refers to the water in the reservoir that is below the intake to the outlet works, and cannot be emptied by gravity. In Belle Fourche Reservoir this totals 6800 acre-feet.

BELLE FOURCHE RESERVOIR ALLOCATIONS

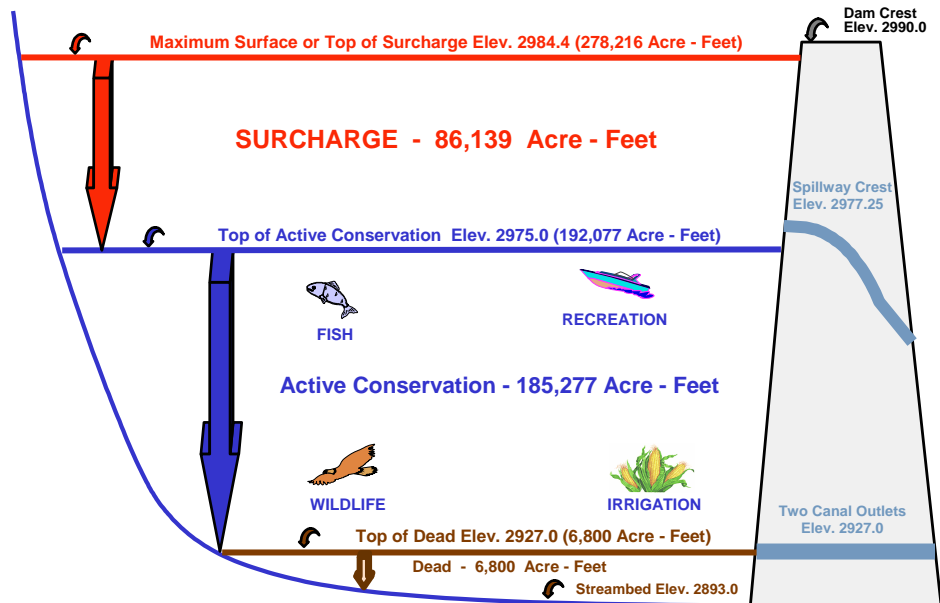


Figure 3-5 Belle Fourche Reservoir Allocations

Water Use

Water from the reservoir is conveyed through the North and South Canals and is used to irrigate a maximum of 57,068 acres on the District. The irrigation season typically begins in May and ends in September. Reservoir releases for irrigation average 110,000 acre-feet per year. They range from approximately 50,000 to 150,000 acre-feet per year, depending on demand and water availability.

A major rehabilitation of the water delivery system was completed in 1998. Much of this effort focused on piping and lining canals and laterals. A primary goal of this rehabilitation was to upgrade the distribution system. It is anticipated that pipelines and lining installed could result in a savings of approximately 24,000 acre-feet per year (Reclamation, 1998). This could result in more stable water levels in the reservoir. This of course would vary depending on inflows and irrigation demand.

Water Elevations and Surface Area

The surface area of the reservoir fluctuates depending on the water elevation. The table below shows the reservoir surface area at various elevations, based on reservoir end of month elevations from 1952-2000.

	<u>Elevation</u>	<u>Surface Acres</u>
Uncontrolled Spill Elevation	2977.25	8668
Full or Top of Conservation	2975.00	8040
Average for month of July	2962.53	5748
Minimum for month of September	2927.00	780



Belle Fourche Reservoir in July 1999, at an elevation of 2974.4 feet with a surface area of 7950 acres.



Belle Fourche Reservoir in October 2000, at an elevation of 2969.5 feet with a surface area of 7165 acres. The grass in the lower left corner shows the approximate top of conservation level.

Figures 3-6 and 3-7 show summaries of reservoir elevation data from 1952-2000. Figure 3-6 shows the mean (average), minimum and maximum end of month elevations. This figure illustrates that, on the average, water elevations are about 15 feet from full in July. In September, they average about 25 feet from full. In contrast, the minimum elevation for July during that period has been approximately 40 feet from full. This is also illustrated in Figure 3-8.

Figure 3-6 Mean, Minimum and Maximum EOM (End of Month) Elevations for years 1952-2000.

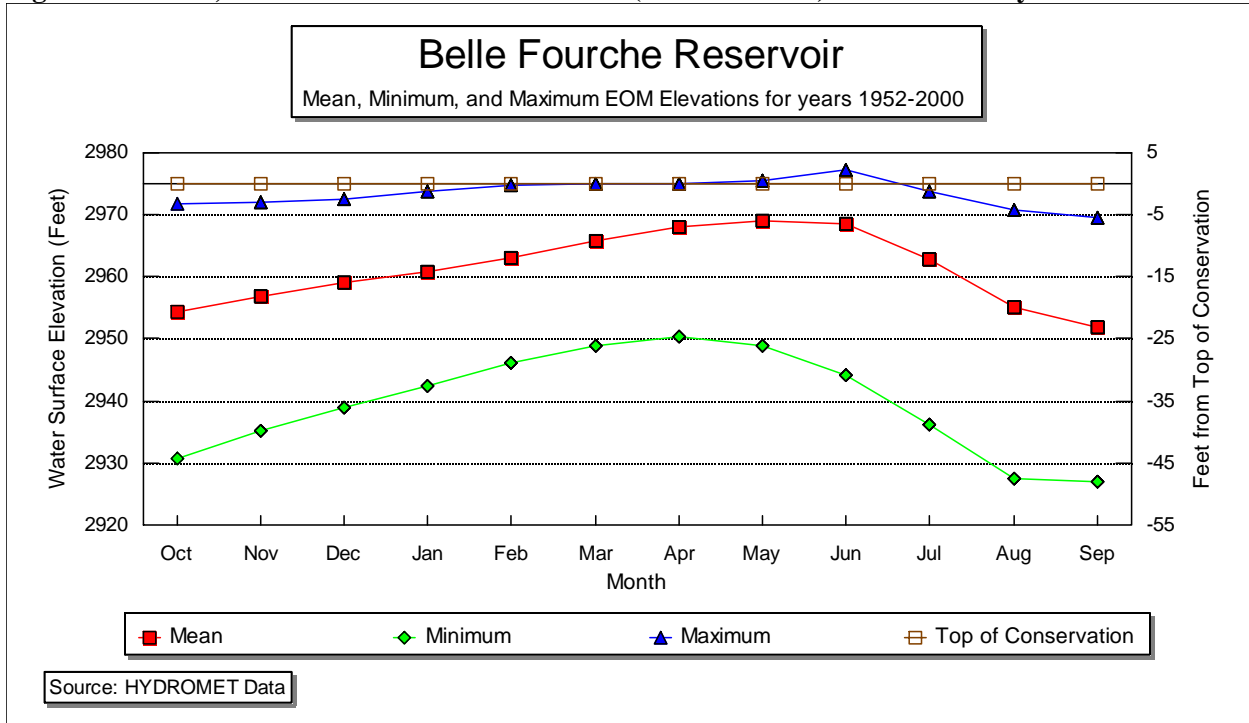
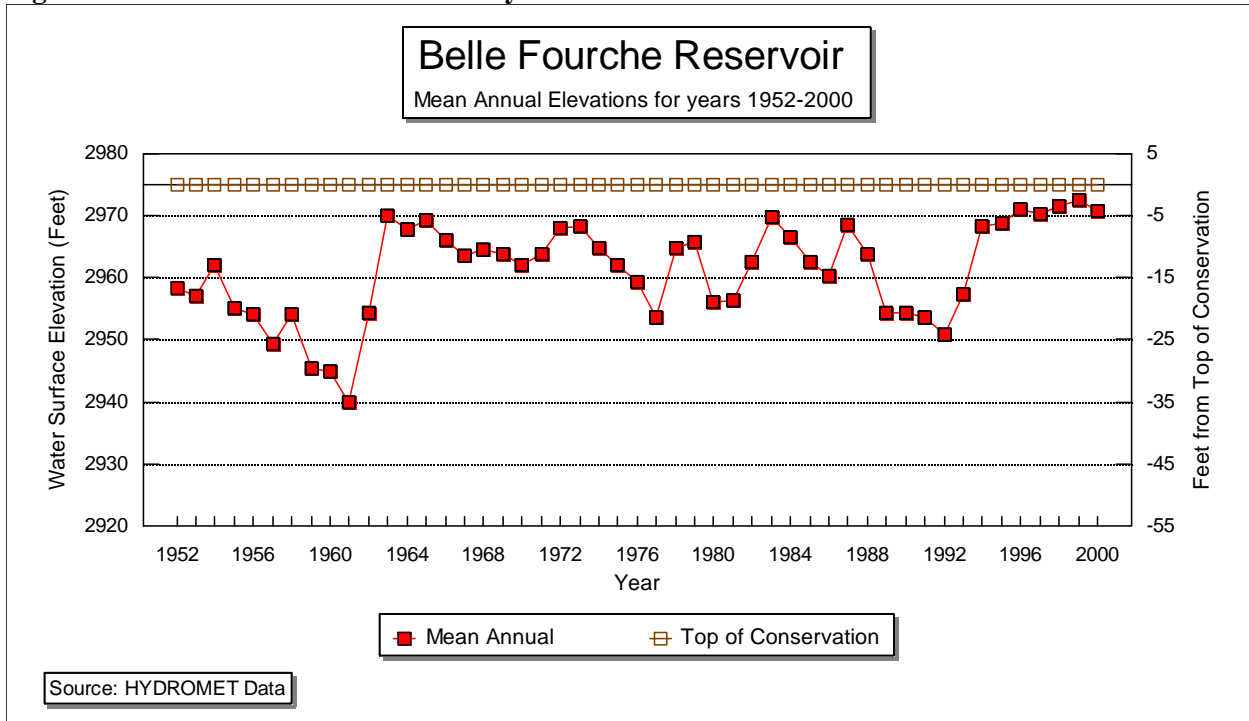
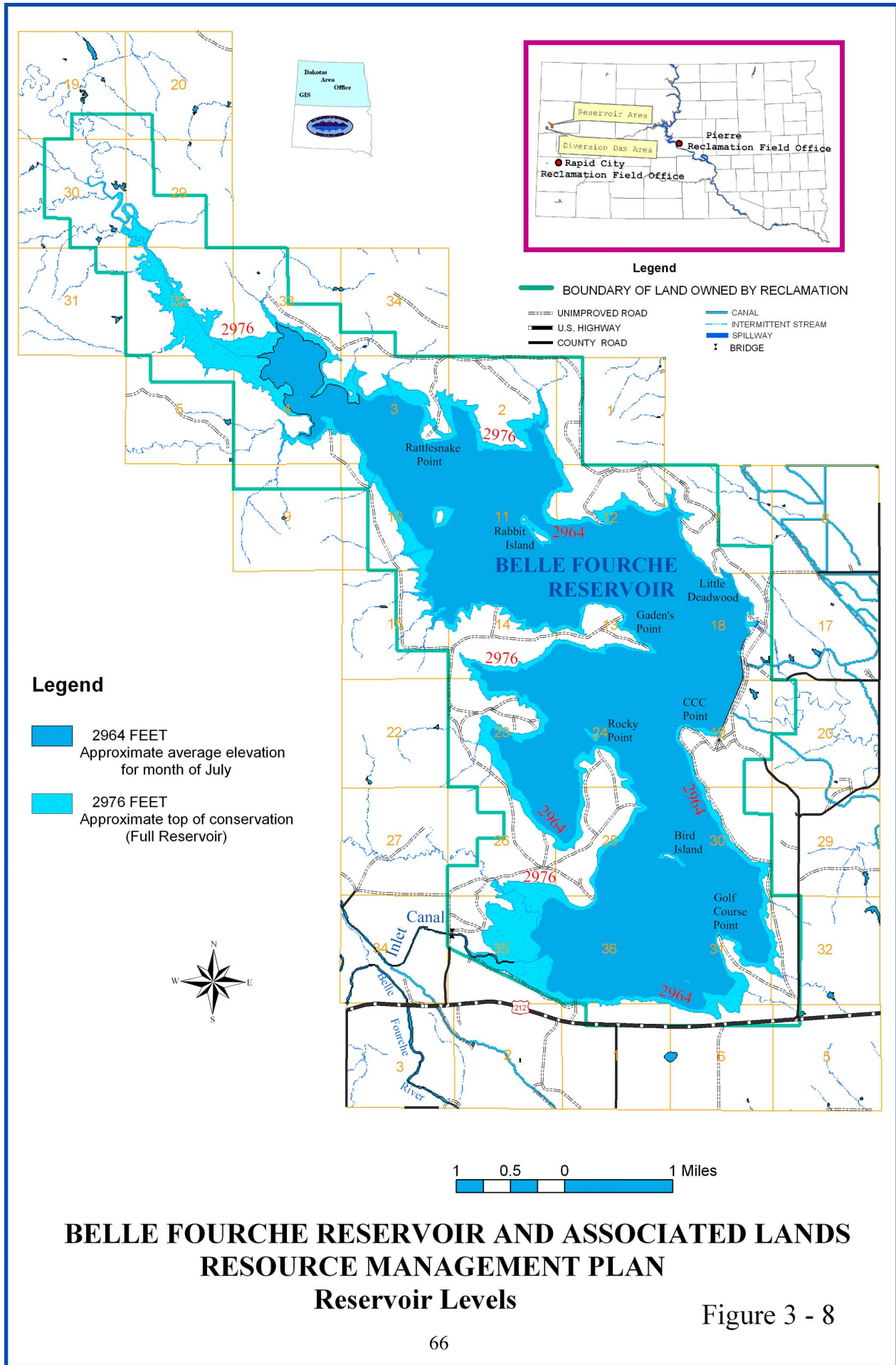


Figure 3-7 Mean Annual Elevations for year 1952-2000.





**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Reservoir Levels**

Figure 3 - 8

Figure 3-7 shows the average elevations for each of the years presented. It is apparent from these data that water elevations in the reservoir fluctuate a great deal. The lowest annual elevation during the period was in 1963, while the highest was in 1999. The period of 1993 to 2000 has been one of high reservoir elevations, with some of the highest average yearly elevations in the 49-year period from 1952-2000.

Environmental Consequences

The alternatives proposed do not deal with water operations; therefore none of the alternatives would have an impact on the water supply in Belle Fourche Reservoir. However, the annual water fluctuations in the reservoir are of critical importance when planning recreation improvements at the reservoir, and are likely to influence the types and locations of improvements that are feasible. Water fluctuations also affect the fishery in the reservoir.

Cumulative Impacts

There would be no cumulative impacts to water quantity from any of the alternatives.

Visual and Recreation Resources

Affected Environment

Setting

Belle Fourche Reservoir is a large prairie reservoir that provides a variety of views and landscapes. The reservoir offers views of the large expanses of undulating prairie and buttes that lie north of the reservoir. To the south, there are panoramic views of the Black Hills.



Grassland near the reservoir shore

The land surrounding the reservoir varies from fairly steep, rocky hills to gentle slopes and grassy meadows. The few trees are concentrated on the shoreline, near wetlands, or in planted shelterbelts. There are numerous small drainages that dissect the hillsides and support shrubs that provide cover for wildlife and visual diversity. Generally speaking, the southern half of the reservoir has more level terrain, more roads, and more visitor use. The northern half of the reservoir has few roads, and a more remote rugged landscape. Rocky hills and exposures of

shale with sparse vegetation are more common in this area.

Much of the approximately 8 mile long reservoir is oriented in a north-south direction with the exception of the upper portion, which is oriented northwest. The prevailing northwest winds

often allow sudden, sizable waves to develop on the reservoir. Southeast winds also occur, but less frequently. The shoreline is level with the exception of steep banks that have developed as a result of wave action. When water levels are down, there are broad beaches around much of the reservoir. The soil on many of these beaches is heavy clay, derived from the underlying shale.

Facilities and Roads

The reservoir has very few recreation facilities. These are concentrated on Rocky Point and on Gaden’s Point, the two largest peninsulas on the reservoir. The existing facilities are summarized in Table 3-4 below and in Figure 3-9.

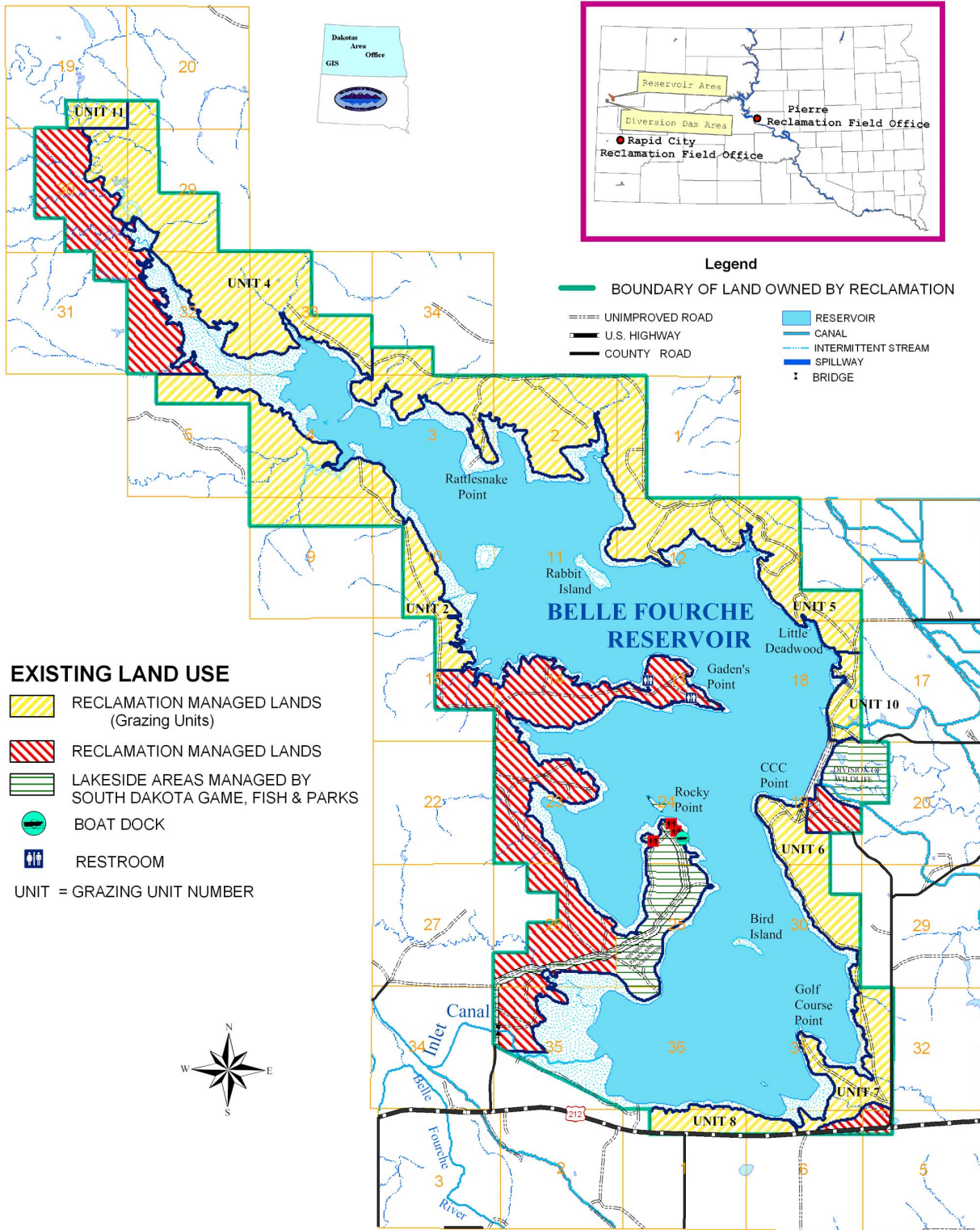
Table 3-4 Existing Recreation Facilities

Location	Outhouse	Boat Ramp	Dumpster
Rocky Point	4- Not accessible	1 (4 lane)	1
Gaden’s Point	2- Not accessible	Low water boat ramp is damaged and will be removed.	

Improved gravel roads were constructed on some of the reservoir lands in the 1970s. The remaining roads are unimproved and have developed gradually over the years, although some maintenance such as regravelling, rock crossings and culvert installation has occurred. The improved gravel roads are located on the:

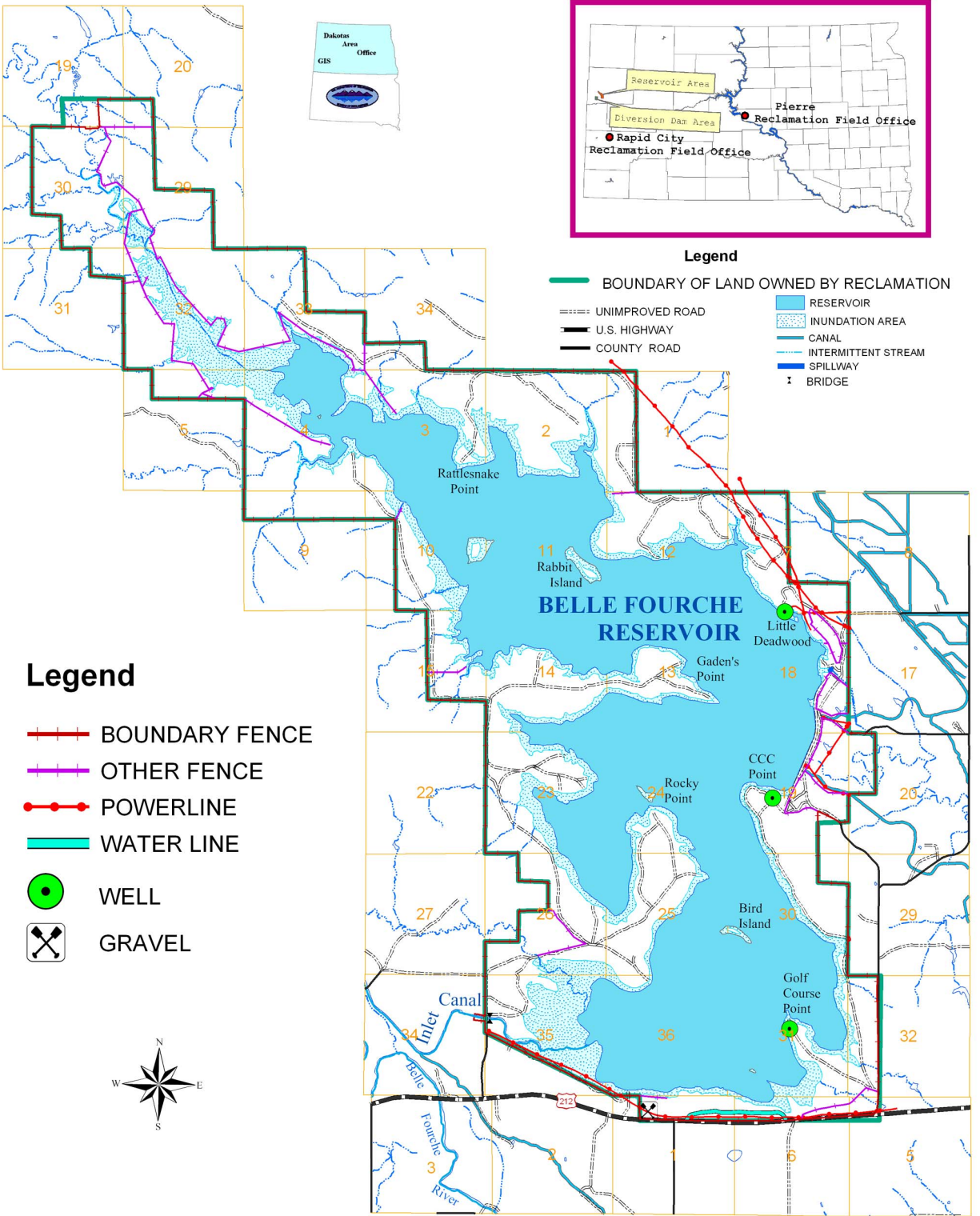
- West side of the reservoir from U.S. Highway 212 to the Rocky Point Lakeside Use Area.
- West side of the reservoir from Rocky Point Lakeside Use area to the end of Gaden’s Point.
- East side of the reservoir from Arpan Road to Golf Course Point and east side of reservoir from Arpan Road to south end of reservoir.
- East side of the reservoir from Arpan Road to one half mile north of the Belle Fourche Dam.

All of these roads are difficult to maintain because of the soil types around the reservoir. They often become rutted during rainy weather, leading drivers to drive off the roadbed to detour around the ruts. This damages vegetation and causes erosion. Roads and other infrastructure are shown in Figure 3-10.



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Existing Land Use**

Figure 3 -9



**BELLE FOURCHE RESERVOIR AND ASSOCIATED LANDS
RESOURCE MANAGEMENT PLAN
Infrastructure**

Figure 3 - 10

Visitation and Use Patterns

Visitation records show an increase in visitation at the reservoir. Visitation data for the west side of the reservoir is shown in Table 3-5. Visitation is defined as number of visitors.

Table 3-5- Belle Fourche Reservoir Visitation

Year	Annual Visitation	Percent Change in Visitation
1958	3,000	
1959	7,850	+ 161.7
1960	8,000	+ 1.9
1961	4,000	- 50.0
1962	4,950	+ 23.8
1963	11,705	+ 136.5
1964	11,250	- 3.9
1965	15,750	+ 40.0
1986	45,246	+ 187.3
1987	50,988	+ 12.7
1988	50,586	- 0.8
1991	60,000	+ 18.6
2000	167,369	+ 178.9

Source- Reclamation and SDGF&P traffic counts

These data show that visitation has continued to increase at the reservoir in most years, in spite of fluctuating reservoir levels. Use did decline dramatically in 1961, yet had increased to over 11,000 in 1963, the lowest water year on record for the reservoir. The greatest increase has occurred in the past decade; visitation has increased 178.9 percent since 1991. Also, visitation at the reservoir is actually higher than shown in the table above. These data do not include the visitation to the east side of the reservoir. Typically, use of this area is lower than on the west side. It is estimated that an additional 15 percent of total visitation comes from the east side of the reservoir.

Visitation typically is highest from the months of April to September, although in the year 2000 visitation in December was 18,927 for the west side of the reservoir, higher than the months of June, August, or September. It was observed that the majority of these visitors were ice fishing. Peak usage of the reservoir occurs over the July 4 holiday, partially a result of a fireworks display that was held on the south end of the reservoir on July 3 since the mid 1970s. A total of 10,617 visitors were counted at the reservoir during the during this holiday weekend in 1999. In the year 2000, visitation on the west side of the reservoir was 14,292 from July 1 to July 5. It is likely that usage of the reservoir is no longer this high for the July 4 holiday, since the fireworks display is no longer held.

It is estimated that 70 percent of reservoir use occurs on weekends. On an average summer weekend day, visitation is calculated at 1800 individuals (this calculation did not include those attending the fireworks display).

Visitors to the reservoir have traveled from 25 different states and 41 South Dakota counties. The majority of visitors are from South Dakota, primarily Butte County, followed by Lawrence, Meade and Pennington counties. A large number of visitors also come from Wyoming and North Dakota. Table 3-6 shows the most popular recreation activities at the reservoir.

Table 3-6- Recreation Activities at Belle Fourche Reservoir

Activity	Percent of Total Use
Camping	30
Boating	30
Shore/Ice Fishing	25
Other Day Use	15

Most camping occurs on the west side of the reservoir, at Rocky Point, Gaden’s Point, and the small peninsula between these two points. The south and east shorelines south of Belle Fourche Dam are also popular, although they do not receive as much use. Typically, people camp as close to the shoreline as possible, preferably in the shade of scattered cottonwoods. There are numerous access roads leading to these preferred sites and to fishing sites. Campers commonly launch and moor their boats at preferred campsites. User built rock fire rings are also common. Group campouts are very common, with numerous campers that have returned to the same site for many years. Many campers drive their vehicles out on the beaches to camp near the water as water levels recede later in the summer.



Preferred camping area on Rocky Point showing fire rings and boat launch

Although many visitors return to the same areas, new campsites are being established continuously. It is evident from vehicle tracks that some visitors leave the established road to drive cross-country to reach a desired camping or fishing location on the shoreline. Many of these vehicle tracks eventually develop into trails.

Use of the existing boat ramp parking lot is high. There are approximately 100 vehicles in the boat ramp parking lot on an average summer weekend day and at least 150 water craft on the reservoir.

Regional Recreation and Population Trends

The State of South Dakota’s 2002 Statewide Comprehensive Outdoor Recreation Plan (SCORP) identifies outdoor recreation needs and issues facing South Dakota. The surveys conducted to develop this plan show that many of the popular activities at the reservoir are also the most popular outdoor activities in South Dakota. Fishing, hunting, boating, swimming, tent and recreational vehicle camping, and visiting historic sites were among the highest ranked activities.

Fishing was the activity that survey respondents participated in most frequently. A separate survey conducted by SDGF&P found that approximately 54 percent of adult South Dakotans are active anglers. Hunting was the second most popular activity. Hunting participation is increasing in South Dakota, and a need for more hunting areas was identified.

The SCORP survey showed that tent and recreational vehicle camping had almost equal participation. Camping is increasing in popularity statewide and the demand for water-based camping areas is increasing. Recreational vehicle use and size is increasing, requiring longer and wider camp pads along with amenities like electricity, water, and modern comfort stations. Group camping is also becoming more popular. Camping areas offering a variety of services such as playgrounds, picnic areas, fishing and boating access, and swimming beaches are the most popular.

Population projections show an increase in population of slightly less than five percent every five years through 2020 in all four of the counties with the greatest users of the reservoir (Appendix D). It is assumed that recreation demand at the reservoir would reflect this amount as well. In addition to local population growth, tourism is increasingly popular in the Black Hills region. The SCORP reported that 18 percent of travelers to South Dakota stayed in a camping facility.

National Recreation Trends

Information on national recreation trends was obtained from the 2000 National Survey on Recreation and Environment (NSRE). The NSRE identified the following five most popular outdoor recreation activities: walking, family gathering, viewing natural scenery, visiting a nature center, nature trail or zoo, and picnicking. The NSRE also highlighted the importance of the recreation opportunities available at the reservoir (Table 3-7).

Table 3-7- Number of people 16 years or older participating in outdoor activities out of an estimated 202 million Americans who participate in outdoor recreation activities (NSRE, 2000)

Type of Activity	Number in Millions
Outdoor Swimming	90.6
Motor Boating	74.8
Fishing	70.7
Developed Camping	51.6
Primitive Camping	31.5
Hunting	23.4

A report by Lovejoy et. al. (1997) points out the importance of Reclamation reservoirs in providing these recreation opportunities. They state that Reclamation, the Army Corps of Engineers, and the Tennessee Valley Authority reservoirs accommodate one-third of the total visitation to federal lands, yet these agencies administer only two percent of the total Federal land acreage.

Environmental Consequences

Alternative A

Camping and General Recreation

The majority of the reservoir (6358 acres) would continue to lack a land category designation without designated campsites under this alternative. It is estimated that there are currently 123 undeveloped primitive campsites around the reservoir (Appendix D, Table 4). Population and regional recreation trends indicate that visitation will continue to increase at the reservoir. Campers would continue to select their own campsites, and as visitor use increases, more unauthorized access roads are also expected. This would have an impact both on the scenic qualities of the reservoir and the recreation experience.

This alternative would not impact the overall views at the reservoir; the effects would be more localized. Numerous access roads across the prairie and eroded campsites are unsightly. Campers value the privacy and seclusion they are able to find at the reservoir. As increasing numbers of visitors choose their own campsites, this privacy may no longer be possible. Excess roads also allow vehicles to disrupt these campsites.

This visitation may decrease in years when less water is available in the reservoir, yet use is expected to increase again when water levels are high.

The lack of facilities also excludes a user group from the reservoir. The State of South Dakota's SCORP survey indicated a preference for both developed and primitive recreation. Many of the current users of the reservoir enjoy a primitive camping experience, yet those wanting the combination of a large reservoir with facilities such as drinking water, electricity, hardened campsites, and picnic tables must travel 60 miles to Pactola Reservoir or another more distant reservoir.

A high percentage of state residents surveyed also participated in swimming, motor boating and picnicking. Currently, visitors to the reservoir are able to enjoy all of these activities, yet there are no designated swimming beaches or picnic areas. One of the preferred locations for swimming is a small cove on Gaden's Point. Wave action has created a narrow beach that has a firmer, sandier surface than many of the other shale-derived beaches around the reservoir. Campers currently park their recreational vehicles on the main section of beach, excluding other swimmers and day users.

The current boat ramp parking lot on Rocky Point is not large enough to accommodate all users. There is no overflow parking lot, so users must park on the road edge or in the grass adjacent to the parking lot. The existing boat ramp is very difficult to use in strong winds, particularly when it is blowing out of the southeast.

The lack of a camping time limit can have a negative effect on the recreation experience. While this allows campers to remain at a preferred site, it excludes other campers, sometimes for weeks or months.

Implementation of the IPM would have a positive effect on recreation. Better control of noxious weeds would improve the appearance of recreation sites and make more areas available for recreation.

Fees

The lack of fees under this alternative limits regular maintenance on roads and the boat ramp, and prevents regular trash pick-up.

Road System

A road plan would not be developed under this alternative. Without designated roads, it is difficult to enforce the federal regulation restricting vehicles to established roads. Off-road vehicle use is likely to continue. In addition to unsightly trails, this would affect recreation by increasing the noise and dust in close proximity to campers and other reservoir users.

The unpaved gravel road leading to the Rocky Point Lakeside Use Area would require frequent maintenance. It would continue to become rutted and muddy, limiting the types of vehicles that can travel the road, causing occasional damage to trailers and boats and damage to vegetation and soils.

Sanitation/Litter

Sanitation and litter would continue to be a problem under this alternative. The existing restrooms are outdated and not universally accessible. Although some may be replaced to protect visitor health and safety, the current number does not meet visitor need.

Law Enforcement

Law enforcement would continue to be difficult under this alternative. Without site-specific rules and regulations for the reservoir, or State or County ordinances to enforce, the Butte County Sheriff's Department is limited in their capability.

Alternative B

Camping and General Recreation

Rocky Point would be designated as Developed Recreation under this alternative. It would provide a total of 92 semi-primitive (single, double and group sites) campsites, 11 sites less than the 103 sites projected in Appendix D. These sites would be provided as designated primitive

campsites within the Primitive Recreation Area. It also would provide additional parking at the boat ramp, additional dumpsters, and modern restrooms.

This alternative would meet the needs of user groups who want improved sites, yet would not provide electrical hookups and concessions. It also would not provide an alternative boat ramp that could be used in windy weather.

The visual setting of Rocky Point would change under this alternative. Much of Rocky Point is now open prairie with few developments and localized areas of disturbance from roads and undesignated campsites. Development of a campground would add graveled roads and campsites, fire-rings, picnic tables, planted trees, and possible planted turf grasses to areas that are currently open prairie or shoreline. Erosion from roads and undesignated roads would be eliminated. Areas outside of the campground would revert to a more natural appearance as existing undesignated primitive campsites and access roads re-vegetate.

A total of 1751 acres would be designated as Primitive Recreation Area with designated primitive campsites under this alternative. A total of 35 primitive campsites would be provided. The combination of developed and designated primitive sites would meet the projected future need described in Appendix D.

Designated primitive sites would allow campers to retain the privacy and solitude they value. These sites would be spaced at least 200 feet apart, and many would accommodate groups of campers. Designated access roads and closure and/or elimination of excess roads would also increase privacy and improve the visual setting. Hardening these sites would have a localized visual impact. Many of the locations are already used for camping, so have a worn surface and access road. Designating them would allow for graveling, signposts, and possibly barrier posts at locations that currently have no development.

These designated primitive sites may be difficult to manage. Campsite managers would have to drive a considerable distance to reach the sites for maintenance, to respond to visitor requests or to provide law enforcement. It is also difficult to provide restrooms within a reasonable walking distance when sites are widely dispersed. The requirement for self-contained camping vehicles when restrooms are not readily available would help to resolve this somewhat.

Designation of the 4478 acre Wildlife Management Area would provide a recreational experience that is currently not available at the reservoir. Visitors would have an opportunity for solitude, fishing, hunting, hiking, and wildlife viewing with a minimum of roads and development. Use of the reservoir lands for hunting is likely to increase. However, designation of this area would relocate some of the primitive campers who currently use the area. There would not be a net loss of campsites compared to Alternative A, yet campers would be required to use either the Rocky Point area or designated primitive sites within the Primitive Recreation Area.

This alternative would not meet needs for a designated swimming beach. It would provide one day-use area at the Inlet Canal Bridge. Visitors would be required to park in the day-use area or

use designated access roads. This would eliminate the erosion and unsightly vehicle tracks directly east of the bridge at the Inlet Canal Area. Boat ramp users would have adequate parking under this alternative. A camping time limit of 14 days would allow all users access to campsites.

The effects of implementing the IPM would be the same as for Alternative A.

Fees

A camping fee within the Lakeside Use Area on Rocky Point would fund litter pick up and campground maintenance. The SDGF&P camping fee for Lakeside Use Areas is approximately \$6 per night for campgrounds with semi-primitive (basic) sites. Some users who do not wish to pay any fees may choose to no longer use the fee areas of the reservoir or may be discouraged from camping at the reservoir. However, as discussed under “Environmental Justice” pages 103-105, this would not adversely impact minority or low income populations.

Road System

Implementation of a road plan would make it easier to enforce the federal regulation restricting vehicles to established roads. It would have a beneficial impact on recreation. Visitors would still be able to access the shoreline on designated roads, yet the number of roads would be reduced. It would reduce noise and dust, add to a sense of privacy, and improve the appearance of the reservoir lands.

Paving the road between Highway 212 and Rocky Point Lakeside Use Area would have several positive impacts. It would reduce dust and damage to vehicles and trailers. Resource damage from drivers detouring around ruts would be eliminated. It would also allow quicker access to the Lakeside Use Area. However, more drivers may exceed the speed limit on a paved road. Also, paving the road may increase the visitor use of the Lakeside Use Area.

Sanitation/Litter

The placement of additional dumpsters is likely to reduce the amount of litter left on reservoir lands. The placement of universally accessible vault toilets would improve sanitation and ensure public health and safety.

Law Enforcement

The development or adoption of rules and regulations for the reservoir would improve law enforcement capabilities at the reservoir.

Alternative C

Camping and General Recreation

Rocky Point would be designated as Developed Recreation under this alternative. It would provide a total of 87 developed (single, double and group sites) campsites. This meets the projected need for developed sites (Appendix D). It also would provide additional parking at the boat ramp, additional dumpsters, and comfort stations.

This alternative would best meet the needs of user groups who want developed campsites with water, comfort stations, electricity, and a concession. However, it does not provide semi-primitive sites on Rocky Point, so all users would have to camp in developed sites or designated primitive. A concession on Rocky Point could provide visitor conveniences such as food and gasoline. It may be difficult to develop a profitable concession on Rocky Point. The majority of use of the reservoir occurs on the weekends and sales may be slow during the week.

An alternative boat ramp site usable in windy weather would improve visitor safety. Boat ramp users would have adequate parking under this alternative.

This alternative would result in the greatest changes to the visual setting of Rocky Point. A new boat ramp, with parking area and concession, would be located on the west side of Rocky Point. Campsites would be developed on the north end of the point and group campsites would be developed on the southern portion. All this development would require the conversion of open prairie to developed sites. As discussed under Alternative B, this would eliminate unsightly erosion within these areas and areas outside of the campground would revert to a more natural appearance as existing undesignated primitive campsites and access roads re-vegetate.

This alternative would allow for flexibility in converting selected areas within the Primitive Recreation designation to Developed Recreation, if use demands. Campgrounds at Gaden's Point, the Inlet Canal, and the south end of the reservoir would consolidate use and eliminate some of the management issues associated with designated primitive sites. Gaden's Point may be the most desirable place to add a campground because current use of the area is high. A campground at the Inlet Canal would benefit the public by allowing them to spend the night close to favored fishing areas. A campground on the south end of the reservoir would provide travelers from U.S. Highway 212 with an easily accessed, convenient place to spend the night.

A total of 1758 acres would be designated as Primitive Recreation Area with designated primitive campsites, fewer acres than under Alternative B. A total of 34 primitive campsites would be provided. The combination of developed and designated primitive sites would meet the projected future need described in Appendix D.

The visual impacts and management issues associated with designated primitive sites would be the same as discussed under Alternative B, with one important difference. Designated primitive sites would be more widely dispersed than those included in Alternative B (extending further north along the shoreline), intensifying the management issues.

This alternative would have a smaller wildlife area than Alternative B (3489 acres), providing less opportunity for that type of recreational experience. Fewer primitive campers would be required to relocate to other areas, as relatively few campers use this area.

This alternative would meet needs for a designated swimming beach and a variety of day-use areas. A camping time limit of 14 days would allow all users access to campsites. A combination of reserved and unreserved sites would be beneficial to the public. Campsites would be available to those who want to be assured of a site, and those who were not able to reserve a site in advance.

The effects of implementing the IPM would be the same as for Alternative A.

Fees

Entrance and camping fees would fund litter pick-up and campground maintenance. As an example of current standard fees, the State of South Dakota charges \$20 for an annual entrance permit and \$3 per person or \$5 per vehicle for a daily entrance permit to State Parks. Campground fees range from \$6 to \$10 per night. Some users who do not wish to pay any fees may choose to no longer use the fee areas of the reservoir or may be discouraged from camping at the reservoir. However, as discussed under “Environmental Justice” pages 103-105, this would not adversely impact minority or low income populations.

Road System

Implementation of a road plan would make it easier to enforce the federal regulation restricting vehicles to established roads. It would have a beneficial impact on recreation. Visitors would still be able to access the shoreline on designated roads, yet the number of roads would be reduced. It would reduce noise and dust, add to a sense of privacy, and improve the appearance of the reservoir lands.

Designating low water trails would benefit users who wish to camp close to the water when reservoir levels are low. There may be law enforcement difficulties associated with this. It would be difficult to enforce the off-road vehicle policy if vehicles do not stay on these trails, or if unlicensed vehicles use them. Misuse of these trails would create dust and noise and may present a safety hazard if vehicles become stuck.

Paving the roads between Highway 212 and Rocky Point Lakeside Use Area and the road to Gaden’s Point would have several positive impacts. It would reduce dust and damage to vehicles and trailers. Resource damage from drivers detouring around ruts would be eliminated. It also would allow quicker access to the Lakeside Use Area and Gaden’s Point. However, more drivers may exceed the speed limit on a paved road. Also, paving the road may increase the visitor use of these two areas.

Sanitation/Litter

The placement of additional dumpsters is likely to reduce the amount of litter left on reservoir lands. The placement of universally accessible vault toilets would improve sanitation and ensure public health and safety.

Law Enforcement

The development or adoption of rules and regulations for the reservoir would improve law enforcement capabilities.

Alternative D

Camping and General Recreation

Rocky Point would be designated as Developed Recreation under this alternative. It would provide a total of 55 developed and semi-primitive (single and group sites) campsites. It also would provide a playground, drinking water, recreational vehicle dump station, fish cleaning station, accessible vault toilets, comfort station, and picnic shelter.

This combination of developed and semi-primitive sites would meet the needs of a variety of user groups. Electrical hook-ups and a comfort station would be available to those who want these conveniences, yet semi-primitive sites would also be available. This alternative provides some visitor conveniences that area not available under any other alternative. It would not provide an alternative boat ramp on Rocky Point, yet another boat ramp would be available on the east side of the reservoir. The visual setting of Rocky Point would be the same as discussed under Alternative C. Visitor use of Rocky Point would likely increase due to increased facilities.

This alternative would have the greatest number of designated primitive campsites of any of the alternatives, within Developed Recreation and Primitive Recreation areas. The visual impacts, benefits, and management issues associated with designated primitive sites would be similar to that discussed under Alternative B, yet would be somewhat reduced since sites would be less dispersed on the east side of the reservoir. The combination of developed, semi-primitive and designated primitive sites would meet the projected future need described in Appendix D.

Designation of the 4605 acre wildlife area, the largest of any of the alternatives, would provide a recreational experience that is currently not available at the reservoir. Visitors would have an opportunity for solitude, fishing, hunting, hiking, and wildlife viewing with minimum roads and development. Use of the reservoir lands for hunting is likely to increase. However, this wildlife area would relocate some of the primitive campers who currently use the area. There would not be a net loss of campsites compared to Alternative A, yet campers would be required to use either the Rocky Point area or designated primitive sites.

This alternative would not meet needs for a designated swimming beach. It would provide two day-use areas in addition to a picnic shelter on Rocky Point. Boat ramp users and fishermen

would have adequate parking under this alternative. A camping time limit of 14 days would allow all users access to campsites. A combination of reserved and unreserved sites would be beneficial to the public. Campsites would be available both to those who want to be assured of a site, and those who were not able to reserve a site in advance.

The effects of implementing the IPM would be the same as for Alternative A.

Fees

Entrance and camping fees would fund litter pick-up and campground maintenance. As an example of current standard fees, the State of South Dakota charges \$20 for an annual entrance permit and \$3 per person or \$5 per vehicle for a daily entrance permit to State Parks. Campground fees range from \$6 to \$10 per night. Some users who do not wish to pay any fees may choose to no longer use the fee areas of the reservoir or may be discouraged from camping at the reservoir. However, as discussed under “Environmental Justice” pages 103-105, this would not adversely impact minority or low income populations.

Road System

Implementation of a road plan would make it easier to enforce the federal regulation restricting vehicles to established roads. It would have a beneficial impact on recreation. Visitors would still be able to access the shoreline on designated roads, yet the number of roads would be reduced. It would reduce noise and dust, add to a sense of privacy, and improve the appearance of the reservoir lands.

Designating low water trails would benefit users who wish to park close to the water when reservoir levels are low. There may be law enforcement difficulties associated with this. It would be difficult to enforce the off-road vehicle policy if vehicles do not stay on these trails, or if unlicensed vehicles use them. Misuse of these trails would create dust and noise and may present a safety hazard if vehicles become stuck.

Paving the road between Highway 212 and Rocky Point would have several positive impacts. It would reduce dust and damage to vehicles and trailers. Resource damage from drivers detouring around ruts would be eliminated. It would also allow quicker access to the Lakeside Use Area. However, more drivers may exceed the speed limit on a paved road. Also, paving the road may increase the visitor use of this area.

Sanitation/Litter

The placement of additional dumpsters is likely to reduce the amount of litter left on reservoir lands. The placement of universally accessible vault toilets would improve sanitation and ensure public health and safety.

Law Enforcement

The development or adoption of rules and regulations for the reservoir would improve law enforcement capabilities.

Cumulative Impacts

There would be no cumulative impacts to visual or recreation resources from any of the alternatives.

Fisheries

Affected Environment

Gamefish and forage species at Belle Fourche Reservoir are known to have low reproductive success. Aquatic vegetation is essential for fish spawning, as well as escape cover for larval fish. The fluctuating water levels in the reservoir do not allow for extensive development of aquatic vegetation. SDGF&P considers fluctuating water levels to be the primary factor associated with this low reproduction.

While not as extensive as would exist with stable reservoir elevations, some aquatic vegetation has developed in the inlets, shallows on the west side near the inlet canal, and the upper end of the reservoir. Emergent vegetation includes cattails, willows, and smartweed with submergent vegetation being primarily coontail and elodea. During past years with higher than normal precipitation the reservoir levels to remained relatively high and stable, thus allowing for an increase in emergent and submergent vegetation. The reservoir fishery responded positively to this. Popular game fish, in particular, walleyes, are found in good numbers and size, making this a very popular local fishery.

In order to augment natural reproduction, particularly in years of lower natural reproductive success, SDGF&P has developed a fish-stocking program for the reservoir. In recent years, stocking efforts have been concentrated on walleyes, largemouth bass, and rainbow trout. Adult rainbow trout have not been stocked in the reservoir since 2002, although excess fingerlings may be stocked as forage. Introductions of spot-tailed shiner and gizzard shad have also been occurred to supplement the existing forage base for game fish. Table 3-8 identifies the species of fish known to occur in Belle Fourche Reservoir. Table 3-9 describes the species and approximate numbers of fish stocked in the reservoir by SDGF&P since the reservoir was constructed.

Reclamation has an agreement with SDGF&P that allows them to submerge Christmas trees and other structures in the reservoir to provide habitat for forage species.

Table 3-8- Fish Species in Belle Fourche Reservoir

Common Name	Scientific Name
Walleye	<i>Stizostedion vitreum vitreum</i>
Largemouth bass	<i>Micropterus salmoides</i>
Muskellunge	<i>Esox masquinongy</i>
White sucker	<i>Catostomus commersoni</i>
Bluegill	<i>Lepomis macrochirus</i>
Gizzard shad	<i>Dorosoma cepedianum</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Channel catfish	<i>Ictalurus punctatus</i>
Black bullhead	<i>Ictalurus melas</i>
Yellow perch	<i>Perca flavescens</i>
Common carp	<i>Cyprinus carpio</i>
Northern pike	<i>Esox lucius</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Spottail shiner	<i>Notropis hudsonius</i>
European Rudd	<i>Scardinius erythrophthalmus</i>
Shorthead redhorse	<i>Moxostoma carpio</i>
River carpsucker	<i>Carpionodes carpio</i>
Rainbow trout	<i>Oncorhynchus mykiss</i>

Table 3-9-Fish Stocked in Belle Fourche Reservoir by SDGF&P

<u>Year</u>	<u>Species</u>	<u>Number Stocked</u>	<u>Year</u>	<u>Species</u>	<u>Number Stocked</u>
1914	Largemouth bass (<i>Micropterus salmoides</i>)	320	1962	Black bullhead	287
	Lake trout (<i>Salvelinus namaycush</i>)	7,560		Black crappie	8,000
	Steelhead trout (<i>Oncorhynchus mykiss</i>)	2,640		Channel catfish	6,500
1917	Brown trout <i>Salmo trutta</i>)	25,835		Largemouth bass	2,132
1929	Northern pike (<i>Esox lucius</i>)	80,000		Northern pike	135
1930	Walleye (<i>Stizostedion vitreum</i>)	150,000		Walleye	364,200
1931	Walleye	140,000		Yellow perch	5,100
1932	Largemouth bass (<i>Micropterus punctatus</i>)	1,241	1963	Black bullhead	2,000
1933	Walleye	125,000		Largemouth bass	1,500
1934	Largemouth bass	1,400		Northern pike	286,000
1935	Largemouth bass	15,000		Walleye	2,123,000
1936	Largemouth bass	11,000	1964	Black bullhead	200
	Walleye	350,000		Largemouth bass	1,549
1937	Northern pike	500,000		Northern pike	1,001,000
1938	Walleye	1,000,000		Walleye	1,700,000
1939	Walleye	1,000,000	1965	Northern pike	17,300
1940	Largemouth bass	350	1968	Largemouth bass	85,000
	Walleye	600,000		Walleye	20
1942	Largemouth bass	9,500	1969	Walleye	50,000
	Walleye	1,000,000		Yellow perch	500
1943	Walleye	1,000,000	1970	Walleye	380,000
1944	Walleye	1,000,000		Yellow perch	1,800
1945	Walleye	900,000	1972	Walleye	57,700
1946	Yellow perch (<i>Perca flavescens</i>)	105,000	1974	Walleye	1,750,000
	Walleye	375,000	1975	Walleye	150,000
1947	Walleye	225,000	1983	Gizzard shad (<i>Dorosoma cepedianum</i>)	350
	Yellow perch	1,050,000		Northern pike	4,000,000
1948	Walleye	1,150,000		Rainbow trout	7,245
	Yellow perch	750,000		Spottail shiner (<i>Notropis hudsonius</i>)	16,000
1949	Walleye	1,200,000		Walleye	
	Yellow perch	4,500,000			
1950	Yellow perch	836,000			11,010,00
1951	Walleye	264,000			0
1952	Channel catfish (<i>Ictalurus punctatus</i>)	1,500	1984	Muskellunge (<i>Esox masquinongy</i>)	
	Walleye	286,000	11,000		
1953	Walleye	913,000		Walleye	60,000
	Yellow perch	1,500,000	1985	Gizzard shad	500
	Northern pike	217		Tiger muskie	39,000
1954	Walleye	556,000		Walleye	286,000
	Yellow perch	8,000		Smallmouth bass (<i>Micropterus dolomieu</i>)	50,000
	Northern pike	112	1997	Rainbow trout	300
1955	Black bullhead (<i>Ameiurus melas</i>)	5,000	1998	Rainbow trout	500
	Bluegill (<i>Lepomis macrochirus</i>)	14,000	1999	Rainbow trout	500
	Largemouth bass	250	2000	Rainbow trout	500
	Northern pike	89	2001	Gizzard shad	48
	Walleye	1,848,000		Tiger muskie	1,900
	White crappie (<i>Pomoxis annularis</i>)	125	2002	Gizzard shad	23
1956	Black bullhead	500		Tiger muskie	2,000
	Black crappie (<i>Pomoxis nigromaculatus</i>)	500	2003	Gizzard shad	102
	Bluegill	230		Tiger muskie	1,500
	Largemouth bass	20		Walleye	171,893
	Northern pike	2,021		Rainbow trout	18,436
	Walleye	1,600,070			
	Yellow perch	150			
	White crappie	150			

Environmental Consequences

None of the alternatives would have any affect on the reservoir fisheries. The fishery is dependent on reservoir management for irrigation by the District and fish stocking by SDGF&P. Both would remain the same as present under all alternatives. There would be no cumulative effects from any of the alternatives.

Cumulative Impacts

There would be no cumulative impacts to fisheries from any of the alternatives.

Vegetation (Grasslands, Noxious weeds, Woodlands, Riparian)

Affected Environment

The uplands surrounding the reservoir support mostly grasslands, however, riparian areas, man-made wetlands, big sagebrush, and native and planted woodlands can also be found on the reservoir area (Figure 3-11).

Grasslands

The reservoir lies within the mixed grass prairie region of the Great Plains. Reservoir lands include two ecoregions: the Semiarid Pierre Shale Plains and the Dense Clay Prairie (Bryce et. al.1998).

The Pierre Shale Plains are predominantly vegetated by grasses. Western wheatgrass, blue gramma, green needlegrass, porcupine grass and needle and thread are common grass species. Forbs are mostly of the sunflower and legume families. Sagebrush is also an important component of the plant community. The mixed-grass prairie in the western portions of this region is dominated by shortgrass species such as little bluestem and buffalograss. The soft black shale soils have been deeply incised by stream channels and slumping of banks is common. Soft shale soils are particularly vulnerable to erosion.

Dense Clay Prairie lacks, for the most part, vegetative cover. This area has very sparse stands of western wheatgrass, but lacks mid and understory grasses. The underlying dark clay substrate also fails to support the growth of riparian woodlands in draws and stream corridors. This landscape is very fragile and erodes easily.

Vegetation of the uplands surrounding Belle Fourche Reservoir is grassland typical of a mixed-grass prairie. Climax species on most sites are western wheatgrass and green needlegrass with some sites including needle and thread grass and little bluestem, and still other sites, sagebrush. Increasesers under grazing for most sites include blue grama and buffalo grass. Some areas of the reservoir are dominated by these species as a result of decades of relatively unregulated season-long grazing.

Vegetation on the lower end of the reservoir is predominantly grasses with very little sagebrush and supports primarily grassland wildlife species. The occurrence of sagebrush increases gradually on the upper end of the reservoir where the habitat supports sagebrush dependant species such as sage grouse, sage thrasher, and the sage sparrow. Sagebrush at the reservoir is generally in poor condition. The reasons for this are unknown, but it may be due to past grazing practices.

Grasslands at Belle Fourche Reservoir are currently managed with the use of grazing and fire.

Use of prescribed fire to manage reservoir grasslands has been limited because of concern for the difficulty to control fires and prevent spreading to adjacent private lands. Fire has been used to manage grassland on peninsulas where control is not a problem. A conservation planning resource inventory was completed on lands surrounding Belle Fourche Reservoir and Crow Creek in May 1997. The existing conditions of the plant communities were compared with the climax vegetation for each range site. Stocking rates have since been adjusted according to condition classes on each grazing unit and grazing leases are now based on Animal Unit Months (AUMs) instead of a per acre rental fee. Based on this and other range inventories, a new grazing lease was devised, with decreased stocking rates. Implementation of this grazing lease has resulted in an increase in the amount of standing vegetation. A new resource inventory to determine if vegetation composition is improving is planned for 2004.

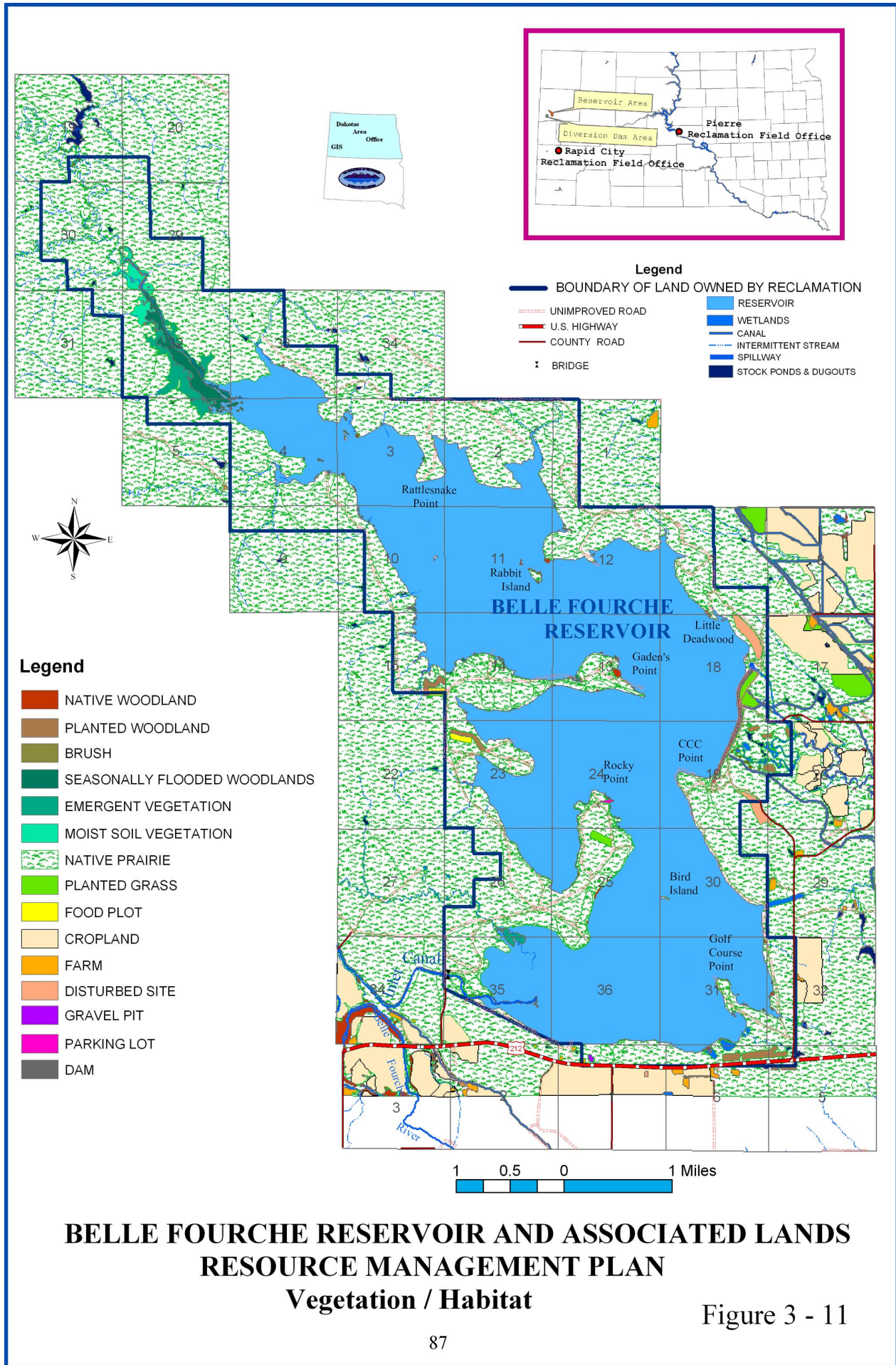
The current grazing units, unit size and allowed AUMs are described in Table 3-10 and shown in Figure 3-9.

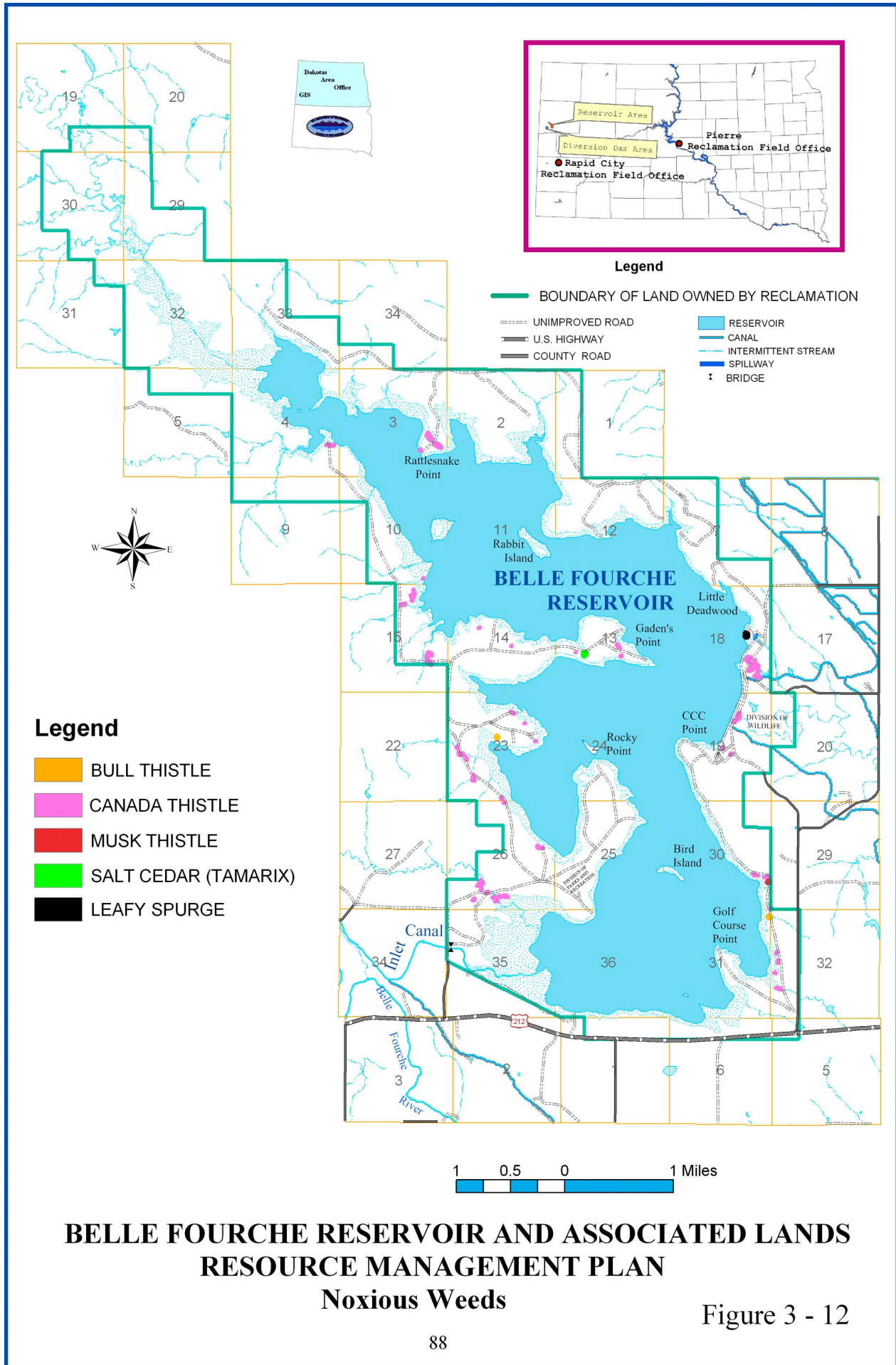
Table 3-10- Current Grazing Units at Belle Fourche Reservoir

Unit	Acres	Animal Unit Months (AUM)
2	722	129
4	690	132
5	1050	196
6	250	68
7	426	108
9	78	19
10	85	22

Noxious Weeds and Invasive Plant Species

Several plant species classified as noxious weeds are present on reservoir lands (Figure 3-12). There are also numerous invasive species present. Noxious weeds of greatest concern at the reservoir are Canada thistle and creeping Jenny. The invasive cheatgrass, Japanese brome, musk thistle and salt cedar are also a concern. A discussion of these species and possible treatments is given in Appendix E.





Riparian and Woodland Vegetation

The upper end of the reservoir contains a portion of Owl Creek and its associated riparian area. The flood plain is dominated by western wheatgrass, green needlegrass, big bluestem, prairie cordgrass, and switchgrass. The riparian area supports cattails, Baltic rush, green ash, cottonwoods, and coyote willow and wildlife species typical of prairie woodlands. Beaver lodges and dams are common in this area. Owl Creek below the dam also supports a relatively small corridor of riparian woodlands and associated wildlife species. While representing a relatively small amount of habitat at Belle Fourche Reservoir, riparian habitat provides an important and diverse interface between aquatic and upland habitat types.



Riparian woodlands on Owl Creek on upper end of reservoir, July 1999.

Most wetlands associated with the reservoir are man-made, created by dike/impoundment for livestock watering. A few wetlands were created below the dam to mitigate wetlands impacted by the irrigation project. While few in number and small in total acreage, wetlands at the reservoir provide important habitat for waterfowl such as mallards, pintails, gadwalls, and blue-winged teal and mammals such as mink and muskrats.

A few cottonwoods and willows have established along the shore of the reservoir and provide important roosting sites for migrating bald eagles. Block tree plantings have been established at the reservoir to provide nesting habitat for songbirds and winter cover for resident wildlife.

SDGF&P planted three block tree units in 1992 on the west side of the reservoir. Six units totaling 80 acres were planted on the south and east sides of the reservoir beginning in 1995 by Reclamation and Butte County Soil Conservation District. The following species were planted: skunkbrush sumac, sand cherry, rose, plum, juniper, chokecherry, Russian olive, bur oak, hawthorn, green ash, ponderosa pine, and buffalo berry. The survival rate of the trees on the west and south sides of the reservoir has been high. The survival rate of the trees on the east side of the reservoir has not been as high, many trees were destroyed by a storm in 1996 and replanted in 1997. In particular, many of the trees in the tree belt located near Miller Point have not survived. Appendix F contains scientific names for plants discussed in this section.

Environmental Consequences

Alternative A

Prairie grasses may continue to show some improvements under the existing grazing plan. However, riparian and wetland areas would see little if any improvement as livestock tend to do considerable damage with their hooves in moist soils when watering or cooling off in the summers heat. Livestock browsing also can limit the establishment of woody species. Sagebrush would show only slight improvements as season-long grazing impacts it.

Enforcement of the off-road vehicle regulation would result in less damage to vegetation and less erosion due to unauthorized trails. Native prairie would continue to be impacted by primitive camping. When these campsites are used repeatedly, vegetation is damaged and sometimes destroyed.

Alternatives B, C, and D

Reservoir area grasslands are expected to show considerable improvement with changes in grazing practices. Grazing increasers such as buffalo grass and blue gramma would decline. Fragile clay soils would be protected by new growth of vegetation. The condition of riparian areas and wetlands would improve. Establishment of woody species along the shoreline would increase. Well-timed periodic grazing would help to rejuvenate grasses, control invasive plant species, and remove litter buildup. Rest and well-timed periodic light grazing are expected to restore both the frequency and vigor of sagebrush.

Mowing would help to control invasive species, control fire hazard, rejuvenate grasses, and slow litter buildup.

Prescribed fire would also decrease litter, help to maintain plant diversity and desirable species, and control fire hazard. Fires at various intervals throughout the seasons would allow for greater diversity of species. Prescribed fire could kill or retard growth of sagebrush and is not likely to be used in sagebrush communities. Fire may be a difficult management tool to employ in some locations. Firebreaks would be difficult to establish on narrow strips of reservoir land, and escaped fire could damage fences and adjacent private land. Smoke could create a health hazard to visitors and adjacent landowners.

Implementation of the IPM would help to control noxious and invasive plant species. Application of herbicides, if carefully applied to avoid non-target species, would decrease numbers of noxious and invasive plant species. Biological agents would help to control noxious and invasive plant species. There is a very small chance that biological agents could target desirable native species.

The development of a road plan and elimination of off-road vehicle use would reduce erosion from unauthorized trails and eliminate damage to vegetation off-trail.

Alternative B

Approximately 125 acres of native prairie would be impacted by campsite development and recreation improvements.

Alternative C

Approximately 175 acres of native prairie would be impacted by campsite development and recreation improvements.

Alternative D

Approximately 125 acres of native prairie would be impacted by campsite development and recreation improvements.

Cumulative Impacts

The establishment of Wildlife Management Areas combined with changes in grazing practices is expected to have beneficial cumulative impacts on vegetation.

Wildlife

Affected Environment

The reservoir area supports primarily grassland wildlife species. Common large mammal species found within the reservoir area include mule deer, American pronghorn (antelope) and white-tailed deer. Mule deer are most often found in the open grasslands, yet also commonly use the tree plantings around the reservoir. Their numbers have been increasing in recent years, and mature bucks are common. White-tailed deer prefer the riparian woodlands at the upper portion of the reservoir. White-tailed deer populations are increasing faster than mule deer. Some mortality due to blue-tongue disease has occurred in the whitetail population. Hunting pressure at the reservoir may be pushing many of the antelope on to private land. Overall, the antelope population in the area is stable.

Other common mammalian species include coyote, muskrat, raccoon, plains pocket gopher, big brown bat, cottontail, and deer mouse. Beavers are common on the upper end of the reservoir and have built numerous small dams near their lodges. Mountain lions and bobcats are also known to use the reservoir lands.

A variety of waterfowl and shorebirds also frequent the reservoir and wetlands. The more common waterfowl species include giant Canada goose, western grebes, mallard, and blue-winged teal. The geese utilize the upper shoreline and the reservoir's islands for nesting. Great white pelicans also occasionally visit the islands. Large flocks of migrating mallards are often seen near Dry Creek on the west side of the reservoir. Sandhill cranes use the Inlet Canal area,

Dry Creek and the mudflats along Owl Creek on the upper end of the reservoir as they migrate through the area. The shores of the reservoir provide habitat for a number of shorebirds including Wilson's phalarope, black tern, and herring gull.

The reservoir also provides habitat for raptors. Osprey can be seen hunting for fish over the reservoir. This large bird is listed as threatened by the State of South Dakota. Bald eagles are frequently seen on the northern portion of the reservoir during the winter months. Bald eagles are addressed under "Threatened and Endangered Species".

Common game birds include sharp-tailed grouse, Hungarian partridge, and morning dove. Sharp-tailed grouse and Hungarian partridge populations are steadily increasing at the reservoir. This may be due to the changes in the level of grazing. Sage grouse can occasionally be found in the big sagebrush dominated habitats at the upper end of the reservoir. Pheasant are also present at the reservoir.

Some of the songbirds common to the area include the red-winged blackbird, cliff swallow, mountain bluebird, lark bunting, horned lark, grasshopper sparrow, western meadowlark, and chestnut-collared larkspur (Lewis, 2002). Many of these songbirds are known as "neotropical migrants", because they migrate to Central or South America each winter. These birds are of special concern because their habitats there are threatened by deforestation and herbicide and pesticide use.

Common amphibians and reptiles include the northern leopard frog, western painted turtle, bullsnake, and western plains garter snake.

Appendix F contains scientific names for animals discussed in this section.

The 1541 acre wildlife area discussed in Chapter 1, Management History, is not providing prime wildlife habitat at the present time because of high recreational use in this area.

Environmental Consequences

Alternative A

Current impacts to wildlife include disturbance of wildlife from off-road travel and modification of habitat through creation of roads and campsites. Only minor improvements to habitat are expected due to the improved grazing plan now implemented.

The 1541 acre wildlife mitigation area would continue to be used for recreation and would not provide optimum benefits to wildlife.

Alternative B

Increases in wildlife population density and perhaps diversity are expected to result from changes in grazing practices and designation of a Wildlife Management Area under this alternative. The changes in grazing practices are expected to improve grassland condition. Increased grass density should improve nest success of ground nesting birds. Sagebrush dependant species such as the sage grouse and sage sparrow are expected to increase in numbers with improved habitat conditions. Shorebird habitat may improve because of increased enforcement of no off-road vehicle use on the reservoir shoreline.

The 1541 acre wildlife mitigation area would no longer be located on Rocky Point and Gaden's Point. It would be relocated to the north part of the reservoir where 4478 acres would be managed specifically for wildlife purposes. This area provides better quality habitat than the current area.

Alternative C

Improvements in habitat and increases in associated wildlife would be similar to those described for Alternative B yet would be fewer because of the smaller Wildlife Management Area and greater potential for recreation development.

The 1541 acre wildlife mitigation area would no longer be located on Rocky Point and Gaden's Point. It would be relocated to the north part of the reservoir where 3489 acres would be managed specifically for wildlife purposes. This area provides better quality habitat than the current area. The former wildlife mitigation area would not see the same increases in wildlife species due to increased recreation use.

Alternative D

Habitat improvements and increases in associated wildlife species would be greatest with this alternative. Positive affects would be similar to those described for Alternative B but would be realized on a larger area.

The 1541 acre wildlife mitigation area would no longer be located on Rocky Point. It would be contained within the 4605 acre wildlife area that would include the majority of reservoir lands. This area provides better quality habitat than the current area. The former wildlife mitigation area on Rocky Point would not see the same increases in wildlife species due to increased recreational use.

Cumulative Impacts

Establishment of the Wildlife Management Areas would fill a need for quality wildlife habitat on the grasslands of western South Dakota. This would increase hunting and wildlife viewing

opportunities and may provide improved habitat for sagebrush dependent wildlife species such as sage grouse, a positive cumulative impact.

Threatened and Endangered Species

Affected Environment

The Service has provided a list of three threatened, endangered, and candidate species which could be found in the study area. They are: bald eagle, whooping crane, and black-tailed prairie dog. Each of the three species= distribution, abundance, and life requisites are discussed in this chapter. A summary of project impacts is also discussed.

Bald Eagle

Distribution and Abundance - The bald eagle was reclassified from endangered to threatened in all of the lower 48 states by the Service in 1995. The State of South Dakota lists the bald eagle as endangered. A single active nest was reported along the Missouri River below Fort Randall in 1990, the first confirmed successful bald eagle nest in South Dakota since 1885. The same nest was successful in 1991. Since 1990, nesting activity and success in South Dakota have increased considerably. The Service in 1998 documented 14 active nests in the state. The only confirmed active nest west of the Missouri is on the Belle Fourche River in Mead County. This nest was active 1997-1999. Two other nests were reported in the Black Hills but have not been confirmed (U.S.F.W.S, 1999).

Bald eagles may pass through any part of the state during migration and winter near open water where large trees provide roosting sites. Bald eagles have been observed at Belle Fourche Reservoir during migration.

Life Requisites - Although most wintering bald eagles depend primarily on fish, other prey is also taken including rabbits and waterfowl, as well as carrion. Food habits of bald eagles are opportunistic and vary regionally. Dams have caused changes in wintering bald eagles distribution by concentrating populations to newly created food sources. However, the presence of a fishery does not necessarily ensure its attractiveness to bald eagles. Wintering bald eagles are associated with unfrozen lake, river, and wetland habitats. Distribution depends on prey density, suitable perch and roost sites, weather conditions, and freedom from human disturbance. Bald eagle numbers normally fluctuate considerably at particular wintering areas.

Whooping Crane

Distribution and Abundance - The whooping crane has been listed as endangered by both the Service and the State of South Dakota. Most sightings of whooping cranes in South Dakota occur in April-May and September-October and are along the Missouri River Corridor or in the western portion of the state. The reservoir is located within the migration corridor used by the Wood Buffalo-Aransas population of whooping cranes.

Life Requisites - Whooping cranes are relatively long-lived, with estimates in the wild from 22 to 24 years of age.

Whooping cranes migrating alone, in pairs, in family groups, and in small flocks use areas in South Dakota as nontraditional stopover sites on their annual migration. Suitable sites may include cropland and pastures, wet meadows, shallow marshes, shallow portions of rivers and reservoirs, and alkaline basins. These sites are used opportunistically and usually for short periods such as overnight or for several days if inclement weather is encountered. Habitat characteristics of these sites vary but usually include shallow water, gently sloping shoreline, and an absence of human activity.

Whooping cranes are opportunistic in their feeding habits during migration, readily exploiting any suitable plant or animal food item they encounter, including cultivated grains such as barley, corn, sorghum, and wheat. Feeding occurs in both uplands and wetlands.

Black-tailed Prairie Dog

Distribution and Abundance - The black-tailed prairie dog was listed as a candidate species by the Service in 1999. The State of South Dakota considered it a Species of Special Management Concern. Historically, black-tailed prairie dogs were one of the most conspicuous and characteristic residents of the short- and mixed-grass prairies of the United States. It is estimated that black-tailed prairie dogs once numbered five billion individuals occupying over 100 million acres. Today, black-tailed prairie dogs occupy approximately one million acres within their original range. While complexes greater than 10,000 acres still exist today, most colonies are small, typically less than 100 acres, disjunct, and geographically isolated from other colonies. In South Dakota, they occupy between 150,000 and 250,000 acres with a stable to expanding population. Four of the 7 relatively large black-tailed prairie dog complexes (more than 10,000 acres each) remaining in North America are in South Dakota.

Several factors have contributed to the decline in the number of prairie dogs and size and number of colonies across their range. Most significant have been the conversion of prairie to farmland in the eastern portion of its range between 1890 and 1930; repeated poisonings from 1920 to 1970; and sylvatic plague, a disease that was inadvertently introduced from Asia around 1900. A plague outbreak in a prairie dog colony results in near 100 percent mortality. To date, no plague outbreaks have occurred in South Dakota colonies. Black-tailed prairie dogs are currently not known to occur at the reservoir.

Life Requisites - Black-tailed prairie dog habitat includes tall-grass, mixed-grass and short-grass prairie ecosystems. Prairie dogs are active by day and live in colonies that may contain thousands of residents and extend for miles. Prairie dog migration is limited to about three miles. Individuals dispersing from their home colonies usually move into other established colonies rather than attempting to start a new colony. Their diet includes grasses and herbs.

Environmental Consequences

The alternatives would have no effect to the bald eagle as the reservoir area is used primarily as a migratory corridor. Additional tree plantings and improved riparian woodlands associated with Alternatives B, C, and D may eventually provide additional roosting sites for migrating eagles.

The alternatives would have no effect on the whooping crane as the reservoir is used primarily as a migratory corridor. None of the alternatives would affect reservoir operations and thus, mud flats, or surrounding croplands, both used by migrating cranes.

The alternatives would have no effect on the black-tailed prairie dog as prairie dogs are not known to occur at the reservoir area.

Cumulative Impacts

There would be no cumulative impacts to threatened or endangered species from any of the alternatives.

Indian Trust Assets

Indian Trust Assets (ITAs) are defined as “legal interests in property held in trust by the United States for Indian tribes or individuals”. This definition is provided in the policy directive on ITAs issued by the Commissioner of Reclamation on July 2, 1993. In general, this definition parallels that for “trust resources” in the implementing regulations for the Indian Self-Determination and Education Assistance Act, 25 CFR Part 900.6:

Trust resources means an interest in land, water, minerals, funds or other assets or property which is held by the United States in trust for an Indian tribe or an individual Indian or which is held by an Indian tribe or Indian subject to a restriction on alienation imposed by the United States.

ITAs are those properties, interests, or assets of a federally recognized Indian tribe or individual Indian over which the federal government also has an interest, either through administration or direct control. The federal government acts as a trustee with respect to these properties, interests, or assets. Examples of ITAs include lands, minerals, timber, hunting rights, fishing rights, water rights, in-stream flows, and other treaty rights.

Reclamation’s ITA policy was developed in response to the statement issued by former President Bush on June 14, 1991, that affirms the government-to-government relationship between federal agencies and federally recognized tribal governments. Former President Clinton reaffirmed Bush’s policy by memorandum on April 29, 1994. President George W. Bush has not developed an ITA or government-to-government policy. This statement and memorandum were

incorporated in the section of the Department of Interior's Manual (DIM) entitled "Departmental Responsibilities for Indian Trust Resources" (512 DIM Chapter 2) which states:

It is the policy of the Department of Interior to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members, and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal health and safety.

The concept of ITAs is based on the sovereignty of federally recognized tribes and the government-to-government, trust relationship between federal agencies such as Reclamation and these tribes and individual Indians. The sovereignty of tribes and the trust relationship have been attested through treaties, court decisions, legislation, regulations, and policies. The government-to-government relationship mandates that federally recognized tribes are to be respected as sovereign governments and that federal agencies have a trust responsibility to recognize, respect, and protect this sovereignty and, by extension, ITAs. Reclamation's ITA policy states that potential impacts to ITAs are to be identified, considered, and addressed when planning and implementing Reclamation actions such as RMPs.

Affected Environment

The reservoir lies within the historic homelands of the Teton Sioux tribes. The Black Hills and Bear Butte, just to the south of the reservoir, are of historic significance to these and other tribes. To understand whether any ITAs may be affected by the management alternatives, it is necessary to understand the historical and legal relationship between the Sioux people and the federal government. Belle Fourche Reservoir is included in the Great Sioux Reservation which was established by the Ft. Laramie Treaty of 1868. This reservation was to be the permanent homeland of the Sioux Nation, which included the seven bands of the Lakota Sioux. Article 12 of the treaty stipulates that no future treaty for the cession of any portion or part of the reservation is valid unless executed and signed by three-fourths of all adult male tribal members.

This article became critical with respect to future events and the withdrawal of the Black Hills, including the Belle Fourche Reservoir area, from the Great Sioux Nation by the Act of February 28, 1877, also known as the Manypenny Agreement. This withdrawal was prompted by the discovery of gold in the Black Hills. This act also extinguished any rights of tribal members to lands outside the revised reservation boundaries. The problem was that the agreement was not executed and signed by three-fourths of the adult male tribal members as required in Article 12 of the 1868 Ft. Laramie Treaty. The failure to comply with Article 12 became one of the primary points contested in future litigation over the validity of this act with respect to the removal of the Black Hills. Further pressure to open up western South Dakota to homesteading resulted in Congress passing the Act of 1889 which broke up the Great Sioux Reservation and essentially established the current boundaries of the reservations where these tribes live today: Cheyenne River, Standing Rock, Pine Ridge, Rosebud, and Lower Brule.

Beginning with the passage of the Sioux Jurisdictional Act in 1920, the Sioux tribes began to file petitions in the Court of Claims and, later, the Indian Claims Commission asking for the return of the Black Hills. The tribes argued that the areas withdrawn under the Manypenny Agreement were taken illegally and without just compensation. In 1979, the Court of Claims affirmed that the agreement represented an illegal taking without just compensation to the Sioux Nation and, therefore, this taking was illegal, including the area where the Belle Fourche Reservoir lands are located. The court awarded the tribes \$17.5 million plus five percent simple interest compounded annually from 1877. The Supreme Court affirmed this decision in 1980, and awarded the tribes \$105 million for the placer gold that mining removed from the Black Hills prior to 1877.

The Sioux tribes, though, have refused to accept this decision, preferring the return of the land. Although the Supreme Court has upheld a monetary award as compensation for the taking, the tribes have continued to press for the return of the Black Hills. Since the Supreme Court decision, tribes, such as the Oglala Sioux Tribe, have filed separate court actions or have tried to introduce legislation into Congress, such as the Bradley Bill in 1986, to have the land returned. They argue that the monies are not sufficient; because of their spiritual and historic ties to this area, especially the Black Hills, the only compensation that can be considered just must include the return of the land. For a more detailed history and discussion of this issue, the reader is referred to Lazarus (1991) and the articles on the Black Hills claim in *Indian Country Today*, the week of April 27 to May 4, 1998.

Environmental Consequences

Although the courts affirmed that the Manypenny Agreement was an illegal taking, it did not restore any of the rights of the tribes to use or access to the withdrawn lands. Consequently, no ITAs are within the project area, with the possible exception of the waters within the reservoir. The reservoir is in the Cheyenne River basin, upstream from the Cheyenne River Sioux Tribe. The Tribe has not exercised its reserved waters rights for the Cheyenne River. The fact that the rights have not been quantified does not mean that the Tribe does not have any reserved water rights. The reservation was established by the 1889 Agreement. The date of the establishment of the reservation creates a senior right to any subsequent permits issued by the State of South Dakota on the Cheyenne River. If the Tribe elects to exercise its water right and the waters currently in the river are insufficient to satisfy that right, the difference may come from waters held in the reservoir.

The Cheyenne River Sioux tribe has asked whether the implementation of the RMP may change or impact water quality. Though water quality may not be an ITA, Reclamation considers Indian reserved waters rights as an ITA. Changes in water quality downstream of the project could affect reserved water rights of the Cheyenne River Sioux Tribe. However, based on the information presented in the Water Quality Section of this document, impacts from implementation of the RMP to water quality downstream are not expected.

Cumulative Impacts

There would be no cumulative impacts to ITAs from any of the alternatives.

Socioeconomics and Environmental Justice

Affected Environment

Social Economic

The greatest numbers of users of Belle Fourche Reservoir come from the following South Dakota counties: Butte, Meade, Lawrence, and Pennington. Of these four, Butte County has the highest number of users. Since a large number of users of the reservoir are from Butte County, much of this analysis will focus on that county. Butte County communities located in close proximity to the reservoir are: Belle Fourche, Fruitdale, Newell, and Nisland. Table 3-11 shows population data for the four counties. All of the counties have experienced population growth over the last ten years, with Butte County having the greatest percent increase. Table 3-12 contains population data for Butte County communities.

Table 3-11-Total Population by County

County	Total Population 1990	Total Population 2000	Percent Change
Butte	7,914	9,094	14.9%
Meade	21,878	24,253	10.9%
Lawrence	20,655	21,802	5.6%
Pennington	81,343	88,565	8.9%

Source – U.S. Census, 1999, 2000.

Table 3-12- Total Population by City in Butte County.

City	Total Population 1990	Total Population 2000	Percent Change
Belle Fourche	4,335	4,565	5.3%
Fruitdale	43	62	44%
Newell	675	646	- 4.3%
Nisland	174	204	17.2%

Source – U.S. Census, 1990, 2000

The region, including Butte County, has a number of industries, businesses and services such as: agriculture, transportation and utilities, mining, timber, construction, manufacturing, gaming, tourism, government, and retail. Table 3-13 below shows the number of people who were employed full or part time in a major industry, and giving the average earnings per job in 1997. Table 3-14 shows the number of people unemployed in each county. The unemployment rate has decreased in the last 10 years.

County Data

Table 3-13- Number of Employees by Major Industry.

Full-Time & Part-Time Employees by Major Industry	Number of Jobs in Butte Co.	Number of Jobs in Meade Co.	Number of Jobs in Lawrence Co.	Number of Jobs in Pennington Co.
Total Full/Part-Time employment	4,513	11,877	14,850	62,085
Wage & Salary employment	2,690	6,089	11,719	51,554
Proprietors' employment (farm/nonfarm emp.)	1,823	5,788	3,131	10,531
Farm employment	620	842	299	729
Nonfarm employment	3,893	11,035	14,551	61,356
Private employment	3,252	8,818	12,511	51,223
Ag. Services, forestry, fishing	*	266	123	497
Mining	*	102	1,350	414
Construction	236	871	694	3,848
Manufacturing	111	581	805	4,838
Transportation and public utility	257	742	374	2,478
Wholesale trade	257	382	161	2,842
Retail trade	873	1,990	2,742	13,604
Finance, insurance, and real estate	239	863	716	3,485
Services	1,030	3,021	5,546	19,217
Government and government entrepreneurship	641	2,217	2,040	10,133
Federal, civilian	69	1,230	211	1,263
Military	63	156	157	3,612
State government	49	64	771	1,323
Local government	460	767	901	3,935
Average earnings per job (dollars)	\$16,367	\$17,739	\$20,179	\$22,609

Source – U.S. Census 1997. (* Data withheld to avoid disclosing operations of individual.)

Table 3-14- Unemployment by County.

County	Unemployment Rate in 1990	Unemployment Rate in 2000
Butte	5.5%	3.1%
Lawrence	4.4%	2.6%
Meade	4.0%	2.3%
Pennington	5.8%	2.0%

Source – U.S. Census, 1999.

In 1999, Butte County had a per capita personal income of \$17,926. The State average is \$25,041, the national average is \$28,546. Per capita personal income is calculated as the personal income of the residents of an area divided by the population of that area. The primary industry is farming and ranching, and associated services that include a large portion of economic benefit for Butte County. The 1997 Ag census found that a total of 547 farms were in operation.

The District is central to agriculture in Butte County. The estimated total crop value from the district was \$3,990,481 for the year 2000. The district delivers water to approximately 56,600 acres of irrigated land. The South Canal alone provides approximately 19,100 acres with water. The principle crop is alfalfa and hay production, which supports the livestock enterprises within and outside the District boundaries. Other crops grown in the District include oats, corn, and wheat. Irrigation methods are almost entirely flood and furrow irrigation with more and more irrigators upgrading from open ditch to gated pipe to apply the water onto fields.

Lawrence County had a per capita income of \$20,748 in 1999. The benefits to the economy come from tourism, gaming, mining, and timber. The town of Deadwood is a tourist, gaming, and recreation destination point, located 41 miles northwest of Rapid City. In 2000, the gaming industry in Deadwood employed 2000 people. The 1997 census found that there were 1350 people employed in the mining industry. Homestake Mine ceased operations in the winter of 2002; this had an economic affect on local communities. Wharf Resource Mining Company is also located in the Black Hills and is still in operation. Resources other than gold mined in the region are coal, bentonite clay, oil, and gas.

In 1999, Meade County had a per capita income of \$20,748. The annual Sturgis Bike Rally brings in 250,000 to 500,000 people from all over the country to the town and surrounding area. In 2000, the total net revenue the city of Sturgis received from the rally was \$307,370.

Pennington County had a per capita income of \$25,088, in 1999. Tourism and recreation has become a major industry in the region, and as visitation numbers have increased so has the number of businesses and services. Rapid City is a regional service center and second largest city in South Dakota. About one third of the Black Hills National Forest is located within Pennington County, and includes recreation opportunities such as hunting, fishing, hiking, and a large number of campgrounds. There are many tourist attractions such as Reptile Gardens, Bear Country USA, and Mount Rushmore. Ellsworth Air Force Base, the South Dakota Army National Guard, and The South Dakota School of Mines and Technology are located in Rapid City.

City Data

The city of Belle Fourche has a total population of 4565, which is almost half of the total population for Butte County. Service industries such as gasoline and food are important to the economy of Belle Fourche and bring in more revenues than industry and manufacturing. The Belle Fourche Roundup and Rodeo bring in an average of \$112,000 dollars in revenue a year. The 1992 economic census reported 21 manufacturers, and 258 different industries within the community. The 1989-90 census shows the median household income was \$20,722, with a per capita income of \$9944. Tables 3-15 and 3-16 show businesses and industries in Belle Fourche.

Table 3-15- Number of Businesses and Establishments for Belle Fourche, South Dakota.

Businesses in Belle Fourche, SD	Number of Establishments	Number of Employees	Sales \$1,000
Building material & garden supplies	4	0 – 19	*
General merchandise stores	3	20 – 99	*
Food stores	6	100 – 249	*
Automotive dealers	5	52	14,340
Gasoline service stations	8	20 – 99	*
Apparel and accessory stores	4	15	687
Furniture and home furnishings	1	0 – 19	*
Eating and drinking places	16	104	2,620
Drug and proprietary stores	3	19	1,829
Miscellaneous retail stores	7	14	846
Total Retail Trade	57	377	41,532

Source – Economic Census, 1992. (* Data withheld to avoid disclosing operations of individual.)

Table 3-16- Number of Industries and Establishments within Belle Fourche, South Dakota.

Industry in Belle Fourche, SD	Number of Establishments	Number of Employees	Sales \$1,000
Hotels, houses, camps, other	9	6	*
Personal services	41	34	*
Business services	81	81	598
Auto repair, service, park	22	12	*
Misc. repair services	8	5	*
Amusement/recreation services	16	15	*
Health services	11	7	*
Legal services	11	3	*
Select educational service	6	6	*
Social services	40	37	*
Engineer, acct, res, management	10	8	*
Services, n.e.c.	3	3	*
Total Service Industries	258	217	10,269

Source – Economic Census, 1992. (* Data withheld to avoid disclosing operations of individual.)

The other towns in Butte County that are in close proximity to the reservoir are Fruitdale, Nisland, Newell and Vale. The town of Fruitdale is located a few miles south of the reservoir. Newell, and Nisland are located several miles east of Belle Fourche reservoir along Highway 212; Vale is south of Newell on Highway 79. All four towns are located on the District; thus their economies are largely agricultural. Newell is the headquarters of the District and provides a variety of services and businesses.

Environmental Justice

Executive Order 12868 signed February 11, 1994, requires federal agencies to identify and address, “Disproportionately high and adverse human health and environmental effects of its

programs, policies, and activities on minority populations and low-income populations”. Federal agencies must consider whether impacts of their activities place an undue burden on low-income or minority populations in regard to the environment or human health. No person or group should shoulder a disproportionate share of negative environmental or human health impacts associated with the implementation of a federal program, policy, or activity.

Under the Executive Order, low-income populations are defined as those living below the poverty level. Families and persons are classified as below poverty level if their total family income or unrelated individual income was less than the poverty threshold specified for the applicable family size, age of householder, and number of related children under 18 present. In 1997, the average threshold for a family unit of four was \$17,603. A model-based estimate reported that Butte County had 1630 people below poverty in 1997.

Table 3-17- Poverty Statistics by County

Poverty Statistics	Butte County	Lawrence County	Meade County	Pennington County
People of all ages in poverty	1,630	2,744	2,388	12,570
People under age 18 in poverty	652	900	1,039	4,986
Related children age 5-17 in families in poverty	403	564	632	2,990

Source – U.S. Cen SCORP sus Bureau, 1997.

Minorities are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Tables 3-17, 3-18 and 3-19 show low income and minority populations for the region.

Table 3-18- Population of Different Ethnic Groups for each County

County	Total Population	White	American Indian	Native Hawaiian Other Pacific	Asian or Pacific Islander	African American	Hispanic
Butte County	9,094	8,685	146	0	18	9	264
Meade County	24,253	22,483	485	24	146	364	509
Lawrence	21,802	20,886	480	22	65	44	392
Pennington	88,565	76786	7,173	88	797	797	2,303

Source – U.S. Census, 2000.

Table 3-19-Population of Different Ethnic Groups for each City in Butte County.

City	Total Population	White	American Indian	Native Hawaiian Other Pacific	Asian or Pacific Islander	African American	Hispanic
Belle Fourche	4,565	4,338	87	0	15	7	169
Fruitdale	62	58	0	0	0	0	0
Newell	646	629	10	0	1	0	0
Nisland	204	169	20	0	0	0	14

Source – U.S. Census, 2000.

Compliance under the Executive Order in regard to Native Americans is addressed in Section 6-606:

Each federal agency’s responsibility set forth under this order shall apply equally to Native American programs. In addition the Department of the Interior, in coordination with the Working Group, and after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address federally-recognized Indian Tribes.

The 1,419,504 acre Cheyenne River Sioux Reservation is located approximately 110 miles from Belle Fourche Reservoir. The Belle Fourche River flows into the Cheyenne River, which then forms the southern boundary of the reservation. The reservation draws a portion of their water supply from the Cheyenne River. The Cheyenne River Sioux Tribe is part of the Lakota Nation. There are 12,703 enrolled members in the Cheyenne River Sioux Tribe, with 8099 members living on the reservation. In 1997 the unemployment rate was at 80 percent with 1085 employed in public or private entities.

The economy on the reservation is based in a large part on agriculture and livestock production. The reservation has 28,000 acres of agricultural land and 915,000 acres of rangeland.

Impacts to the Cheyenne River Sioux Tribe and other tribes are addressed under “Indian Trust Assets”.

Environmental Consequences

As required by Council of Environmental Quality regulations, environmental justice was evaluated according to three criteria: whether impacts are significant or above generally accepted norms; whether land and recreation management pose a significant environmental hazard to a minority or low income group which appreciably exceeds the risk to the population in general; and whether impacts, when combined with effects of other projects, pose a cumulative environmental hazard to a minority or low income group.

Alternative A

Socioeconomic

This alternative would have no impact on employment or the types of industry in the region.

This alternative would not impact the economics of the District, as there would be no changes in water deliveries or project operations.

The current costs of administering the reservoir would continue. Yearly operations and maintenance costs including law enforcement would be approximately \$60,000.

Environmental Justice

This alternative would not have an adverse impact on minority or low income populations.

Alternative B

Socioeconomic

There would be a slight increase in seasonal recreation employment under this alternative. Additional staff would be needed to maintain camping facilities and collect fees. Road paving and development of campsites and associated projects would create a short-term increase in revenues to local construction and manufacturing businesses. Improved facilities at the reservoir would lead to a slight increase in revenues to service industries such as restaurants and gas stations in the surrounding communities.

Initial capital costs of implementing this alternative are estimated at \$300,000. Yearly operations and maintenance costs would be approximately \$70,000.

This alternative would not impact the economics of the District, as there would be no changes in water deliveries or project operations.

Environmental Justice

This alternative would not have an adverse impact on minority or low income populations. Any fees charged for use of the reservoir would be consistent with existing local fees and would not create an unfair financial burden.

Alternative C

Socioeconomic

This alternative would create the greatest increase in seasonal recreation employment. Additional staff would be needed to maintain camping facilities and collect fees. It may also create a need for additional full-time staff and an economic opportunity for a concessionaire. Alternative C would create the greatest short-term increase in revenues to local construction and manufacturing businesses. Improved facilities at the reservoir would lead to an increase in revenues to service industries such as restaurants and gas stations in the surrounding communities.

Initial capital costs of implementing this alternative are estimated at \$1,600,000. Yearly operations and maintenance costs would be approximately \$98,000.

This alternative would not impact the economics of the District, as there would be no changes in water deliveries or project operations.

Environmental Justice

This alternative would not have an adverse impact on minority or low-income populations. Any fees charged for use of the reservoir would be consistent with existing local fees and would not create an unfair financial burden.

Alternative D

Socioeconomic

There would be a slight increase in seasonal recreation employment under this alternative. Additional staff would be needed to maintain camping facilities and collect fees. Road paving and development of campsites and associated projects would create a short-term increase in revenues to local construction and manufacturing businesses. Improved facilities at the reservoir would lead to a slight increase in revenues to service industries such as restaurants and gas stations in the surrounding communities. There also would be a shift in the type of industries that benefit from this alternative. Service industries would still benefit, yet there is expected to be an increase in hunters, hikers, and bird-watchers at the reservoir. These users would benefit different types of industries in the local community.

Initial capital costs of implementing this alternative are estimated at \$1,051,573. Yearly operations and maintenance costs would be approximately \$86,000.

This alternative would not impact the economics of the District, as there would be no changes in water deliveries or project operations.

Environmental Justice

This alternative would not have an adverse impact on minority or low-income populations. Any fees charged for use of the reservoir would be consistent with existing local fees and would not create an unfair financial burden.

Cumulative Impacts

There would be no cumulative socioeconomic or environmental justice impacts from any of the alternatives.

Cultural Resources

Affected Environment

The National Historic Preservation Act (NHPA) of 1966, as revised and other laws, regulations, executive orders, and guidelines specify Reclamation's role and responsibility in the management and protection of cultural resources on public lands. Cultural resources as defined in the NHPA, are archaeological, historical, or architectural sites, buildings, structures, objects, and districts, or properties of traditional religious and cultural importance to Native Americans.

An archaeological site may be defined as a spatial cluster of artifacts, features, or both and applies to prehistoric, historic, and multi-component sites, which contain both kinds of objects (Binford, 1972). Archaeological sites that consist of several artifacts are defined as artifact scatters. Sites with a single artifact are defined as isolated finds. In South Dakota the State Archaeological Research Center established the criteria for isolated finds as sites containing a single tool or fewer than 10 items with no possibility of buried cultural deposits or other remains.

Archaeological Context of the Belle Fourche RMP Area

The State of South Dakota has an archaeological plan, which divides the state into regions, and describes the archaeological context of each region (Winham and Hannus 1991). The reservoir is located in the *Belle Fourche Archaeological Region*. Considerable archaeological research has been conducted in the Belle Fourche Region that has increased an understanding of past human activities.

Five major archaeological periods have been developed through studies of archaeological sites. They have been classified as: *Paleo-Indian, Archaic, Late Prehistoric, Proto-Historic, and Historic* periods. For this discussion the term "prehistoric" is used generically to refer to the all the periods before the proto-historic and historic periods.

The artifacts at sites from the Paleo-Indian, Archaic, and Late Prehistoric periods differ in material and workmanship. The plant and animals remains for each period differ as well. The differences are considered to relate to punctuated changes in environmental conditions, as well as changes in people's social environment.

Table 3-20 provides a brief description of each period, simplified to provide an overview of the periods represented in archaeological sites in the Northern Plains. Not discussed in detail is the complex archaeological variability that exists, based on time and the significant regional variation in material content and spatial distribution of sites. The periods overlap slightly in time.

Table 3-20 Cultural Time Periods Represented in the Northern Plains.

Period	Duration	Description	Site Characteristics
Paleo-Indian	12,000 to 8,000/7,500 years bp (before present)	Nomadic hunter-gatherers who hunted now extinct species of animals.	Sites contain plant and animal remains and distinctive tools and projectile points.
Early Archaic Middle Late	7,500 to 5,000 years bp 5,000/3,000 years bp 3,000-2,000/1,500 years bp	Nomadic, generalized hunter-gatherers who hunted “modern” animals and gathered plants. Used the spear thrower (atlatl).	Includes occupation sites and lithic scatters.
Late Prehistoric	2,000/1,500 years bp, circa 1750 AD	Increased sedentism, introduction of horticulture, ceramics, and bow and arrow.	Includes artifact scatters, rockshelters, stone circles, and earthlodge villages.
Protohistoric	Circa A.D. 1700-1800	Non-Indian trade goods. Introduction of the horse and equestrianism.	Manufactured metal artifacts obtained through trade.
Historic	Circa 1750 AD to Present	Non-Indian immigration and technology into the area. Intensive agriculture, ranching and early irrigation systems.	Trading posts, railroads, farmsteads, mining sites. Belle Fourche Dam & Irrigation Features.

Prehistoric and Rural Historic Archaeological Sites

Reclamation has conducted cultural resources surveys of all the land at the reservoir (Swenson 1989, Driscoll and Gregg 1992). These surveys have resulted in the discovery of 123 archaeological sites. Prehistoric lithic scatters account for 70 of the sites. Only 14 sites have diagnostic artifacts that are representative of a certain period of time, which as a whole contain artifacts representative of all the archaeological periods. There are a total of 37 prehistoric isolated finds. Five of these isolated finds consist of an artifact from a certain period.

There are no proto-historic sites at the reservoir. Surveys have identified 16 historic period sites from early ranching, agricultural activity and the Belle Fourche Irrigation Project. The most visible historic period sites at the reservoir are the engineering structures associated with the irrigation system. These consist of the Inlet Canal, Belle Fourche Dam, and the North and South Canals.

The archaeological remains of a Civilian Conservation Corps (CCC) Camp, which was also used as a World War II Prisoner of War Camp (POW) have been recorded and have good interpretive value. The federal historic archaeological and engineering sites at the reservoir are discussed in a following section.

There are six isolated historic period finds consisting of a single artifact. Cultural resource surveys have identified four multi-component sites, which consist of artifacts from different cultural time periods.

An on-going cultural resource management activity at the reservoir is the evaluation of cultural resource sites for listing on the National Register of Historic Places. The National Register is authorized under the NHPA, and is part of a national program to coordinate and support efforts to identify, evaluate, and protect our Nation's historic and archeological resources. Properties listed on the National Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

National Register properties are distinguished by having been documented and evaluated according to uniform criteria. These criteria are designed to help state and local governments, and federal agencies identify important historic and archeological properties worthy of preservation and consideration in planning and development decisions.

A National Register evaluation of a cultural resource is costly and involves time-consuming research. Evaluations of archaeology sites usually require archaeological excavation. The objective is to determine if an archaeological site has buried cultural deposits, which may have high scientific value. Sites that have buried cultural deposits with artifacts and other remains contain significant scientific information about the past. Usually such sites are eligible to the National Register.

Reclamation has been conducting surveys and National Register evaluations of cultural resource sites at the reservoir since the 1980s. Of the 123 archaeological sites at the reservoir, National Register evaluations have not been completed for 48 prehistoric sites, four historic sites, and one multi-component site.

Reclamation has completed the National Register determinations of 22 prehistoric lithic scatter sites, two historic sites and three multi-component sites at Belle Fourche Reservoir. Currently there are five prehistoric sites considered eligible, but a further evaluation needs to be conducted to make a final determination.

Seventeen prehistoric sites, two historic sites, and three multi-component sites have been determined to not be National Register eligible. The sites are highly disturbed surface scatters and lacked buried cultural deposits. With the research conducted thus far, it is now possible to make some general statements about the archaeological sites at the reservoir:

- The sites tend to be small and have low artifact densities.
- The majority of the sites lack artifacts that can be assigned to a certain cultural time period.
- Belle Fourche River gravel appears to be the dominant lithic material used for stone tool making.
- The majority of the sites are highly disturbed surface scatters and lack buried cultural deposits.
- Site formation appears to have resulted from a single event or use.

The stability of the geological environment at the reservoir is an important factor in site preservation. Geological studies at the reservoir indicate the sediments are thin, lack depth, and

are highly erosive. Bedrock is easily exposed. Soils from the Holocene, which is a geologic period beginning 8,000 years ago to the present, are those that would contain buried archaeological sites. However, erosion has stripped away Holocene soils-and any archaeological deposits they may have contained. The geomorphology at the reservoir is not conducive to good site preservation.

Federal Historic Archaeological and Engineering Sites at Belle Fourche Reservoir

The Belle Fourche Irrigation Project is one of the first irrigation projects constructed by the Reclamation (formerly called the Reclamation Service). The agricultural potential of the arid lands in the Belle Fourche River valley raised interest in the construction of an irrigation system. However, the funding and construction of a dam and irrigation system was beyond the means of the farmers who settled the area. The Reclamation Service became involved when local farmers requested assistance for a study and subsequent construction of the irrigation project. The irrigation project, which consists of seven districts, was fully constructed and began operation in 1912.

Belle Fourche Dam was listed on the National Register and the registry of the American Society of Civil Engineers in 1977. In 2002, Reclamation completed a National Register determination of eligibility of the Belle Fourche Irrigation Project. It has been determined to be eligible for listing on the National Register under Criteria A. The Inlet Canal and the North and South Canals, and some laterals and associated water control structures retain integrity of design are eligible under Criteria C. The Project's period of significance ranges from 1905 to 1949.

Two narrow gauge railroads were built for the construction of the dam. The archaeological remains of the grades are still visible southeast of the dam. One set of tracks was used to haul fill from barrow areas to the dam site. As many as 500 cars, each capable of holding two cubic yards of fill, hauled it to the dam site each day. The barrow areas, which are still visible, are located on the north and south ends of the dam. Another set of tracks transported finished concrete slabs from a work site five miles away. Each day an 11-car train hauled 44 slabs to the dam. The slabs were used to armor the face of the dam. This turned out to be a poor design as wave action frequently dislodged the slabs.

Since the completion of the Belle Fourche Irrigation Project in 1911, operations and maintenance programs have been on-going. The maintenance and replacement of deteriorated irrigation structures has, and continues to be, an annual undertaking. Periodically the system needs a major overhaul. Three major rehabilitation programs have been completed, one in 1934, a second 1949, and the most recent from 1986 to 1998. Many of the original engineering structures have been replaced within the past 12 years.

The Diversion Dam has been replaced, as well as a check structure where the Inlet Canal crosses Crow Creek. A terminal drop structure, where the Inlet Canal drops water into the reservoir, has been modified. It originally was designed to check water so it could be diverted into the Johnson



Monuments marking the former location of the CCC and POW camps, Belle Fourche Reservoir.

Lateral. Old bridges at the Crow Creek Check structure and Inlet Canal have been replaced because they were unsafe. The outlet structures for both the North and South Canal have also been replaced.

In 1905, a camp was established for Reclamation and the contractor's employees during construction of the dam. It was known as Orman Camp and it was located below the dam. The camp consisted of several homes, warehouses, shops and a post office. After the construction of the dam, the buildings were no longer needed. The buildings fell into disrepair and

became unsafe. The District removed them in 1993.

In 1934, the CCC established Camp BR-2 (DBR-2), known as Camp Fruitdale, at the southeast end of the dam. It originally consisted of 21 buildings. Camp BR-2 was active until 1942. After its closure the camp was used as a World War II POW camp from 1944 to 1948. The South Dakota Farm Labor Association leased the former CCC camp for housing. It housed German POWs captured in 1943 at North Africa and Anzio, Italy, and in 1944 at Normandy. The POWs worked as farm laborers, primarily in the sugar beet fields on the irrigation project.

Following the Japanese attack on Pearl Harbor, 120,000 Japanese-Americans were sent to internment camps throughout the west. Reclamation records indicate that in 1943, a few Japanese evacuees were used as laborers on the Belle Fourche Irrigation Project. The records do not report that the camp was used as an internment camp.

Foundations and sidewalks evidence the archaeological remains of the CCC/POW camp. Reclamation has established an interpretive site at the camp showing photographs taken when it was occupied. The public is encouraged to visit the area and walk through the camp to view its remains. The camp is eligible for listing on the National Register.

Properties of Traditional Religious and Cultural Importance to Native Americans

In 1992 the NHPA was amended to address the concerns of Native Americans with respect to sites that have religious or cultural importance. The common term for such sites is Traditional Cultural Property (TCP). Such sites often differ from other cultural resource sites because they may lack physical remains, such as artifacts, or they may be of recent origin.

Such sites often can only be identified through interviews of tribal elders and keepers of traditional knowledge. Other sources of information are the accounts of explorers and traders, and the research of historians, ethnographers, and anthropologists. Some tribal members may differentiate between *traditional* sacred sites and *contemporary* sacred sites to distinguish between areas of *historical use* and those of *current use*. NHPA does not recognize this distinction.

The issue of TCPs is especially critical in this region of South Dakota because the reservoir is within the traditional homelands of the Teton Sioux tribe (see pages 95 to 97). The Black Hills and the adjacent areas continue to be of historic and spiritual significance to the tribes. These areas figure prominently in histories and legends, which are maintained. Sundstrom (1996) has documented the TCPs in the Black Hills and their significance.

Sundstrom (1996) also documented specific geographic points or kinds of places that also have traditional cultural or religious significance. These include Bear Butte, Bear Butte Lake, Sundance Mountain, Inyan Kara Mountain, Medicine Flats, Devils Tower, and the southern Hogback area of the Black Hills, which include the floodplain and bluffs of the Cheyenne River.

The research cited above focuses principally upon the Black Hills. Reclamation has contacted tribes belonging to the Great Sioux Nation and 17 tribal offices in preparation of this EA/RMP. They have expressed an interest in Reclamations resources management activities and potential affects to cultural resources. Tribal consultations are on-going.

Environmental Consequences

Alternative A

Under Alternative A there would be no increase in impacts to cultural resources.

Alternative B

Table 3-21 summarizes the status of archaeological sites under the land use categories proposed for the alternative.

Table 3-21 Alternative B. Summary of Sites and National Register Status

Proposed Land Use	Number of Sites	National Register Status Comments
Developed Recreation	4	No eligible sites
Primitive Recreation	44	1 eligible 16 unevaluated 27 not eligible
	Inlet Canal	Canal contributes to irrigation project significance
Wildlife Management	68	1 eligible 37 unevaluated 26 not eligible 4 eligible
	North & South Canal	Canals contribute to irrigation project significance
Day Use	1	Site not eligible
	Inlet Canal	Canal contributes to irrigation project significance
Administrative	Belle Fourche Dam	Listed on National Register
Development Site	7	3 unevaluated sites 4 not eligible
	Inlet Canal	Canal contributes to irrigation project significance

Note: An individual site may be listed in one or more of the proposed land use categories.

The preferred management treatment for the 58 cultural resource sites that are unevaluated for eligibility to the National Register would be avoidance until such time as a determination for each site can be made. The preferred management treatment for the four archaeological sites and the dam and Inlet Canal that are eligible to be listed, or currently listed on the National Register would be to avoid adverse effects. No special management consideration would be given those 58 sites determined to not be National Register eligible.

Alternative C

Table 3-22 summarizes the status of archaeological sites under the land use categories proposed for the alternative.

Table 3-22 Alternative C. Summary of Sites and National Register Status

Proposed Land Use	Number of Sites	National Register Status Comments
Developed Recreation	41	11 unevaluated 30 not eligible
Primitive Recreation	21	1 eligible 14 unevaluated 6 not eligible
	Inlet, North & South Canal	Canals contribute to irrigation project significance
Wildlife Management	51	1 eligible 26 unevaluated 27 not eligible 4 eligible
	North & South Canal	Canals contribute to irrigation project significance
Day Use	4	2 unevaluated 2 not eligible
	Inlet Canal	Canal contributes to irrigation project significance
Administrative	Belle Fourche Dam	Listed on National Register
Development Site	13	7 unevaluated 6 not eligible

Note: An individual site may be listed in one or more of the proposed land use categories.

The preferred management treatment for the 62 cultural resource sites that are unevaluated for eligibility to the National Register would be avoidance until such time as a determination for each site can be made. The preferred management treatment for the four archaeological sites, and the dam and inlet canal, that are eligible to be listed, or currently listed on the National Register would be to avoid adverse effects. No special management consideration would be given those 72 sites determined to not be National Register eligible.

Alternative D

Table 3-23 summarizes the status of archaeological sites under the land use categories proposed for the alternative.

Table 3-23 Alternative D. Summary of Sites and National Register Status

Proposed Land Use	Number of Sites	National Register Status Comments
Developed Recreation	49	16 unevaluated 41 not eligible (25 are isolated finds)
Primitive Recreation	1	unevaluated
Wildlife Management	72	42 unevaluated (20 are isolated finds) 4 not eligible 3 eligible
	Dam Inlet, North & South Canals	Listed on National Register Canals contribute to irrigation project significance
Administrative	1 Belle Fourche Dam North & South Canal	Eligible Listed on National Register Canals contribute to irrigation project significance

Note: An individual site may be listed in one or more of the proposed land use categories

The preferred management treatment for the cultural resource sites that are unevaluated for eligibility to the National Register would be avoidance until such time as a determination for each site can be made. The preferred management treatment for the four archaeological sites, and the dam and inlet canal, that are contributing to the significance of the irrigation district would be to avoid adverse effects. No special management consideration would be given sites determined to not be National Register eligible.

Cumulative Impacts

Cultural resources sites are largely unprotected and potentially vulnerable to looting, theft, and vandalism. The most likely source of a cumulative impact would be erosion. However, looting, theft, and vandalism are cumulative impacts that could increase by encouraging public use.

CHAPTER FOUR

Consultation and Coordination

Public Involvement Summary

Scoping Letters

A scoping letter requesting input into the EA/RMP planning process was sent to individuals, organizations, agencies and governments in November 1999. Interested parties were asked to submit comments to Reclamation on a variety of issues at Belle Fourche Reservoir.

Open Houses

The purpose of these initial open houses was to gain input on issues, concerns, and opportunities from the public. Four open houses were held in Newell, Belle Fourche, Rapid City, and Spearfish, South Dakota in January 2000. Seventy-nine people attended these open houses. The following is a breakdown of attendance.

January 10 - Spearfish.....	21
January 11 - Rapid City.....	12
January 12 - Newell.....	14
January 13 - Belle Fourche..	32

Fifty-five responses were received at these open houses. These were organized into general issue categories, with numerous subcategories. A more detailed summary of the issues can be found in Appendix A. A description of how these issues were used in the development of alternatives can be found in Chapter 1.

The draft alternatives were displayed to the public at an open house in Belle Fourche in April 2001. Eighty-nine people attended this open house, and 50 comments were received. A wide variety of comments were received on all of the alternatives. The comments were used to adjust the draft alternatives.

Newsletters

Reclamation distributed newsletters to approximately 500 agencies, organizations, and individuals. The first newsletter was produced in November 1999. It described the EA/RMP process, announced open houses, and asked for comments from the public. This newsletter included a mail-in comment form that resulted in 44 written and telephone comments. A second newsletter was produced in February 2000. This issue summarized the comments received as a result of previous mailings and the open houses. The third newsletter was produced in June

2002. It summarized the alternatives being evaluated and notified the public about the release of the draft EA/RMP. It included a postage paid card addressed to Reclamation. Recipients were asked to fill out and return the card in order to remain on the mailing list for the draft EA/RMP and/or receive a copy of the document (Appendix H).

Working Group

In the spring of 2001, the Reclamation team met with a working group composed of managing partners (SDGF&P, the District and Butte County government) and members of the public with an interest in recreation, fish, and wildlife management at the reservoir.

This group met twice to identify broad goals for management at the reservoir. These goals are based on public input and issues that have been identified within the planning area. The group also helped to identify some draft land use zones for the reservoir.

Review of Draft EA/RMP

The draft EA/RMP was open for public review from December 9, 2002 to January 24, 2003. Copies of the document were sent to individuals who requested a copy as well as tribes, state and federal agencies, elected officials, and organizations. Notices announcing the availability of the document were placed in local newspapers. Comment letters received during this review period, and responses to comments are contained in Appendix I. These comments aided in the preparation of this final EA/RMP.

Consultation under Section 7 of the Endangered Species Act

A list of potentially occurring threatened and endangered species was received from the Service on January 10, 2000. This list included the bald eagle, whooping crane and sturgeon chub. The accuracy of this list was verified in April 2001. The sturgeon chub was removed from the list as it is no longer a candidate species. Prairie dogs and black-footed ferrets were added to the list. This list was verified again in May 2002. Black-footed ferrets were removed from the list in 2004 as they are not known or suspected in Butte County. The "Threatened and Endangered Species" section in Chapter 3 constitutes Reclamation's biological assessment.

Indian Trust Asset Consultation

Scoping letters were sent to 16 tribal contacts (tribes and tribal organizations) in November 1999. Telephone contacts were made with the Cheyenne River Sioux Tribe, the Lower Brule Sioux Tribe, and the Oglala Sioux Tribe because of their past interest in Reclamation activities. The Cheyenne River Sioux Tribe expressed a concern about water quality. The Lower Brule Sioux Tribe asked to be kept informed of the EA/RMP process. The Oglala Sioux Tribe had no specific concerns. These 16 tribes and tribal organizations received copies of the draft EA/RMP and will receive the final EA/RMP in compliance with Reclamation's consultation responsibilities.

Distribution List

Scoping letters and newsletters were sent to the following federal and state agencies, tribes and tribal organizations, elected officials, and organizations. They were also mailed to approximately 450 individuals, grazing leasees and adjacent landowners.

Federal

Fish and Wildlife Service
United States Geologic Survey
Bureau of Land Management
Army Corps of Engineers
Natural Resources Conservation Service
Forest Service

Tribal

Black Hills Sioux Nation Treaty Council
Mni Sose Intertribal Water Rights Coalition
Lower Brule Sioux Tribe, Chairman
Lower Brule Sioux Tribe, Legal Council
Lower Brule Sioux Tribe, Recreation, Fish & Wildlife Department
Lower Brule Sioux Tribe, Cultural Resource Coordinator
Cheyenne River Sioux Tribe, Chairman
Cheyenne River Sioux Tribe, Tribal Historic Preservation Officer
Cheyenne River Sioux Tribe, Environmental Protection Department
Cheyenne River Sioux Tribe, Game, Fish & Parks Department
Crow Creek Sioux Tribe, Chairperson
Standing Rock Sioux Tribe, Chairman
Standing Rock Sioux Tribe, Tribal Historic Preservation Officer
Oglala Sioux Tribe, President
Oglala Sioux Tribe, Environmental Protection Program
Oglala Sioux Tribe, Parks & Recreation Authority
Rosebud Sioux Tribe, President

State

South Dakota Department of Game, Fish and Parks
South Dakota Department of Environment and Natural Resources
South Dakota Army National Guard
South Dakota Department of Tourism
South Dakota State Historic Preservation Officer

Elected Officials

South Dakota Governor
U.S. Senators
U.S. Congressman
South Dakota State Representatives from Districts 28-35
South Dakota State Senators from Districts 28-35
Mayor, Fruitdale
Town President, Nisland
Mayor, Newell
Mayor, Belle Fourche
Butte County Sheriff

Organizations

Belle Fourche Chamber of Commerce
Black Hills Council of Local Governments
Black Hills Group Sierra Club
Butte County Business and Homeowners Association
Butte County Conservation District
Black Hills Badlands and Lakes Association
Black Hills Resource Conservation and Development
Ducks Unlimited
Butte County Board of Commissioners
Butte County Extension Service
Butte County Weed and Pest
Deadwood Chamber of Commerce
Action for the Environment
South Dakota Water Congress
Black Hills Fly Fishers
High Plains Anglers
Crook County Irrigation District
Northern Hills Community Development
Belle Fourche Irrigation District
South Dakota Wildlife Federation
South Dakota Chapter of the Wildlife Society
Butte County Historical Society
Lawrence County Extension Service
Belle Fourche City Council
National Recreational Vehicle Owners Club
Black Hills Sportsman's Club
South Dakota Association of Conservation Districts
Lead Chamber of Commerce
Meade County Commissioners
Newell Community Club
Rapid City Chamber of Commerce
Dakota Chapter of the American Fisheries Society
Spearfish Chamber of Commerce
Northern Hills Journal
Spearfish Economic Development Corporation
Sturgis Chamber of Commerce

List of Preparers

Name	Title	Contribution
<i>Dakotas Area Office, Rapid City South Dakota</i>		
Faye Streier	Natural Resource Specialist	Team Leader, Writer/Editor, Water Quality, Water Quantity, Recreation
Kenneth Parr	Natural Resource Specialist	Team Member, Indian Trust Assets, Socioeconomics and Environmental Justice
James Kangas	Archaeologist	Geology, Paleontology, Archaeology
Tara Piper	Natural Resource Specialist	Socioeconomics and Environmental Justice
Curt Anderson	Civil Engineer	Water Quantity
Dennis Taft	Land and Water Representative	Land Management
Cindy Larom	Natural Resource Specialist	Integrated Pest Management
<i>Dakotas Area Office, Bismarck, North Dakota</i>		
Joseph Hall	Supervisory Natural Resource Specialist	Team Sponsor
Richard Nelson	Supervisory Natural Resource Specialist	Team Sponsor
Jerry Heiser	Natural Resource Specialist	Team Member, Fisheries, Vegetation, Wildlife, Threatened and Endangered Species
Patience Hurley	Public Involvement Specialist	Public involvement coordination
Larry Lysne	Wildlife Biologist	Team Member, Soils, Grasslands
Kimball Banks	Native American Affairs Specialist	Indian Trust Assets
Sheila Dufford	Wildlife Biologist	Integrated Pest Management
Walter Fairbanks	Wildlife Biologist	Fire Management, Resource Inventories
Jackie Henderson	Information Technology Specialist	Geographic Information Systems
Alicia Waters	Program Analyst	Document Review
<i>Great Plains Regional Office, Billings, Montana</i>		
Larry Bean	Landscape Architect	Landscape Design, Recreation
Steven Anderson	Outdoor Recreation Planner	Document Review
Jerry Jacobs	Natural Resource Specialist	Document Review
Douglas Epperly	Environmental Specialist	Document Review
<i>Denver Technical Center, Denver, Colorado</i>		
John Carlson	Physical Scientist	Geographic Information Systems
Darryl Welch	Outdoor Recreation Planner	Document Review
Charles Borda	Economics	Socioeconomics

Glossary of Terms

AUM - Animal Unit Months

Acre - 43,560 square feet (or 1/640 square mile)

Acre-Foot - The amount of water needed to cover one acre one foot deep.

BLM - Bureau of Land Management

EA - Environmental Assessment

CCC - Civilian Conservation Corps

CVT - Concrete Vault Toilet

DIM - Department of Interior Manual

District - Belle Fourche Irrigation District

Diversion Dam- Belle Fourche Diversion Dam

EOM - End of Month

FONSI - Finding of No Significant Impact

IPM - Integrated Pest Management

ITA - Indian Trust Asset

NHPA - National Historic Preservation Act

NRHP - National Register of Historic Places

NRRE - National Survey on Recreation and Environment

NEPA - National Environmental Policy Act

O&M - Operations and Maintenance

POW - Prisoner of War

Project- One or more irrigation units contained within a specific geographic area, such as the Pick-Sloan Missouri Basin Project.

RMP - Resource Management Plan

Reclamation - Bureau of Reclamation

SCORP - Statewide Comprehensive Outdoor Recreation Plan

SDDENR - South Dakota Department of Environment and Natural Resources

SDGF&P - South Dakota Department of Game, Fish and Parks

Service - U.S. Fish and Wildlife Service

TCP - Traditional Cultural Property

USGS - U.S. Geologic Survey

Unit - A physical division of a project, such as the Belle Fourche Unit.

Universally Accessible - Accessible to disabled persons.

Resource Management Plan Implementation

A list of actions that are included in the Resource Management Plan is provided below. These actions will be implemented beginning in 2004 based on Reclamation and managing partners funding and staffing levels.

Other factors that may influence the implementation of a particular action are based on whether the action: (1) is procedural or technical, such as preparing agreements or developing specific plans; (2) addressed public health and safety concerns; (3) is in compliance with existing laws and regulations; (4) is required to prevent resource damage or protect plant or wildlife species or habitats; or (5) requires large capital investments, such as trail or facility development.

To aid in planning for future needs and development at the reservoir, Reclamation will serve as the lead agency to work with interested individuals and groups as needed to discuss issues, concerns, and solutions and identify funding sources.

Entire Reservoir

Repair, reshape and gravel main access roads as needed.

Close excess roads.

Construct new access roads as shown on "Roads Open to the Public".

Construct vehicle parking areas as shown on "Roads Open to the Public".

Install signs to indicate road closures/open roads as needed.

Designate low water trails outside of Wildlife Management Area.

Plant cottonwood, willow and other native shrubs.

Plant native grasses and forbs.

Control noxious and invasive plants and animals as described in the Integrated Pest Management Plan.

Modify boundary fence to allow antelope to cross.

Maintain existing shelterbelts.

Develop wetlands where feasible.

Develop regulations for reservoir.

Construct second boat ramp at suitable location.

Determine need for fish screens on reservoir outlet canals.

Monitor water quality if needed.

Add Wildlife Management Area to list of walk-in hunting areas or similar program.

Develop Fire Management Plan.

Manage grasslands with a variety of management techniques.

Rocky Point

Install water and electric service from Highway 212 to Rocky Point.

Pave road from Highway 212 to Rocky Point Boat Ramp

Construct comfort station.

Construct fish cleaning station.

Install 8 vault toilets.

Construct two sewage drainfields.

Construct RV dump station.

Install 50 electrical pedestals.

Install grills and dumpsters.

Designate campsites.

Construct entrance booth.

Construct equipment storage building.

Plant trees and install irrigation system.

Construct three group picnic shelters.

Install play equipment.

Improve/enhance existing boat ramp.

Enlarge and pave boat ramp parking lot.

“Middle Point” and Gaden’s Point

Establish 30 primitive group campsites.

Install grills and dumpsters.

Establish day use area on Gaden’s Point.

Install vault toilets.

Stabilize reservoir banks if feasible.

Plant food plots to native grasses.

Construct developed campground on Gaden’s Point if needed in future.

Inlet Canal

Establish day use area.

Install vault toilet.

Install dumpsters.

Golf Course Point

Stabilize reservoir banks if feasible.

Designate 10 primitive group campsites near Golf Course Point.

Construct developed campground on Golf Course Point if needed in future.

Install vault toilet.

Install dumpsters.

CCC Point

Stabilize reservoir banks if feasible.

Establish day use area.

Install vault toilet.

Install dumpsters.

Enhance interpretive site.

Amendments and Modifications to the RMP

Reclamation may revise or amend the RMP within the established 10-year planning period. During the implementation period of the RMP, Reclamation, other agencies, or the public may identify problems, deficiencies, or additional issues that should be addressed. Changes in the social, economic, physical, or environmental conditions may also require changes to the RMP. Minor changes in data or material that do not conflict with the established goals would be documented by Reclamation and would not require further public involvement and NEPA compliance. Substantive changes would be evaluated by Reclamation to determine the need for an amendment to the EA/RMP and the appropriate level of public involvement and NEPA compliance.

References

- Ashton, D. E. and E. M. Dowd. 1994. *Fragile Legacy: Endangered, Threatened and Rare Animals of South Dakota*. South Dakota Department of Game, Fish and Parks. Pierre, South Dakota.
- Binford, L. 1972. *An Archaeological Perspective*. Seminar Press, New York.
- Brown, R. H. 1980. *Wyoming: A Geography*. Westview Press.
- Bryce, S., J.M. Omernik, D.E. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P.Kuck, S. H. Azevedo. 1998. Ecoregions of North Dakota and South Dakota. Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/1998/ndsdeco/ndsdeco.htm>.
- Driscoll and Gregg. 1992. *Cultural Resources Inventory of 6000 Acres of Reclamation Lands at Belle Fourche Reservoir*. Prepared for the Bureau of Reclamation by the Department of Anthropology, University of North Dakota, Grand Forks.
- Frison, G. C., M. Wilson, and D. J. Wilson. 1976. Fossil Bison and Artifacts from an Early Altithermal Period Arroyo Trap in Wyoming. *American Antiquity* 41:28-57.
- Frison, G. C. 1991. *Prehistoric Hunters of the High Plains*. Second Edition. Academic Press, San Diego.
- Greiser, S. T. 1985. Predictive Models of Hunter-Gatherer Subsistence and Settlement Strategies on the Central High Plains. *Plains Anthropologist* Memoir 20
- Gries, J.P. 1996. *Roadside Geology of South Dakota*. Mountain Press Publishing Company. Missoula Montana. 358 pages.
- Kornfeld, M., and E. Cartwright. 1991. Cultural Context: Plains and Northeast Wyoming Prehistory and History. In *Keyhole Reservoir Archaeology: Glimpses of the Past from Northeast Wyoming*, edited by M. Kornfeld, G. C. Frison, and M. L. Larson, pp. 18-35. Department of Anthropology, University of Wyoming, Laramie. Submitted to the Bureau of Reclamation, Bismarck, ND.
- Lewis, A.R. 2002. South Dakota Cooperative Unit, Personal Communication.
- Lovejoy et.al. 1997. Recreation Challenges of the Twenty-First Century. Commissioner Briefing Paper. Bureau of Reclamation Program Analysis Office, Denver, CO.
- O'Brien, Sharon. 1989. *American Indian Tribal Governments*. University of Oklahoma Press. Norman and London.

- Roddy, W.R., E.A. Greene and C.L. Sowards. 1991. Reconnaissance Investigation of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage in the Belle Fourche Reclamation Project, Western South Dakota. U.S. Geological Survey Water-Resources Investigations Report 90-4192. Rapid City, South Dakota.
- South Dakota Department of Environment and Natural Resources. 2000 and 2002. 305 (b) Water Quality Assessment. Pierre, South Dakota.
- South Dakota Department of Game, Fish and Parks. Division of Parks and Recreation. 2002. South Dakota Comprehensive Outdoor Recreation Plan. Pierre, South Dakota.
- Stueven, E. and W.C. Stewart. 1996. 1995 South Dakota Lakes Assessment, Final Report. Pierre, South Dakota.
- Sundstrom, Linea. 1996. *Black Hills National Forest Cultural Resources Overview: Native American Traditional Properties*. USDA Black Hills National Forest, Custer, South Dakota. Edited by" Lance Rom, Tim Church and Michele Church.
- Swenson, Anthony. 1989. *Class III Cultural Resources Inventory of Select Portions of the Belle Fourche Reservoir, Butte County, South Dakota*. Prepared for the Bureau of Reclamation by Frontier Archaeology.
- United States Department of the Interior, Bureau of Reclamation. 2000. *The Bureau of Reclamation and the Civilian Conservation Corps 1933-1942*. U.S. Department of Interior, Bureau of Reclamation, Denver, CO.
- United States Department of the Interior, Bureau of Reclamation. *Reclamation Manual*. 2000. Recreation Management Policy. LND P04
- United States Department of the Interior, Bureau of Reclamation. *Reclamation Manual*. 2002. Land Use Authorizations Directives and Standards. LND 08-01
- United States Department of the Interior, Bureau of Reclamation. 1998. *Completion Report: Rehabilitation and Betterment Program Belle Fourche Unit Pick-Sloan Missouri Basin Program, South Dakota*. Copies available from the Bureau of Reclamation, Rapid City Field Office, Rapid City, South Dakota.
- United States Department of the Interior, Bureau of Reclamation. 1997. Belle Fourche- Keyhole Reservoirs, Project Review Report. Newell Field Office.
- United States Department of the Interior, Bureau of Reclamation. 1950. Sedimentation Survey of Belle Fourche Reservoir, Belle Fourche Project, South Dakota. Prepared by L.M. Seavy and F.K. Illk, Branch of Project Planning, Denver, Colorado.

United States Department of the Interior, Fish and Wildlife Service. 1999. Personal Communication with Jay Peterson.

United States Department of the Interior, Geological Survey. 1991

U.S. Department of Agriculture. Soil Conservation Service. 1976. Soil Survey of Butte County, South Dakota.

Wedel, W. R. 1961. *Prehistoric Man on the Great Plains*. University of Oklahoma Press, Norman. Winham, R. P. and L. A. Hannus

1991 *South Dakota State Plan for Archaeological Resources: Introduction and Overview to Historic Contexts and Archaeological Management Regions for Research Planning*. South Dakota State Archaeological Research Center. Rapid City (draft).