



Sleeping Bear Dunes National Lakeshore



**Draft
General Management Plan
Wilderness Study
Environmental Impact Statement**

April 2008



Draft
General Management Plan / Wilderness Study / Environmental Impact Statement
Sleeping Bear Dunes National Lakeshore
Benzie and Leelanau Counties, Michigan

Sleeping Bear Dunes National Lakeshore was established by the U.S. Congress in 1970 by Public Law 91-479. Part of the national park system, the National Lakeshore, which consists of a mainland portion plus North Manitou and South Manitou islands (71,291 acres total), is in the northwestern portion of Michigan's Lower Peninsula. The mainland portion straddles Benzie and Leelanau counties. The Manitou Islands, entirely in Leelanau County, are located about 7 miles to the northwest in Lake Michigan.

The National Lakeshore's last *General Management Plan* was completed in 1979. Since 1970, most of the 71,291 acres in the National Lakeshore's boundary have come into federal management. Private development adjacent to and near the National Lakeshore is continuing to increase. The National Lakeshore faces new resource and other management challenges as a result of these changes. In 1982 a boundary revision was authorized, in a legislative amendment, to include the Bow Lakes and Miller Hill areas, and more recently, lands along the Crystal River were added to the National Lakeshore. This current *General Management Plan* will provide management direction for these new lands. Recent studies have enhanced the National Park Service's understanding of the resources in the National Lakeshore. Desired conditions and general (conceptual) direction for management of these resources need to be defined.

The *Wilderness Study* considerations in this plan provide a public forum for evaluating lands within the National Lakeshore for possible recommendation to Congress for inclusion in the national wilderness preservation system. The *Wilderness Study* is included because of public interest and because inclusion saves time and money. Wilderness, which can be designated only by Congress, provides for permanent protection of lands in their natural condition, providing outstanding opportunities for primitive and unconfined recreation.

The document examines five alternatives for managing the National Lakeshore for the next 20

or more years. It also analyzes the impacts of implementing each of the alternatives. The **no-action alternative** reflects current conditions and activities at the Lakeshore. It is provided as a base-line against which to compare the other alternatives and includes 30,903 acres managed to maintain their existing wilderness character. In the **preferred alternative**, the Lakeshore is valued primarily for preservation of its natural resources, and for the opportunities it provides for visitor enjoyment of the natural, cultural, and recreational resources in a scenic outdoor setting. Lands proposed for wilderness designation include 32,200 acres and no developed county roads. In **alternative A**, the Lakeshore is valued primarily for conservation of its natural resources. Lands proposed for wilderness designation include 33,600 acres and no developed county roads. In **alternative B**, the Lakeshore is valued primarily for its recreational opportunities in scenic outdoor settings. Lands proposed for wilderness designation include 14,400 acres and no county roads. In **alternative C**, the Lakeshore is managed so that most visitor use is concentrated in selected areas, with more natural, primitive conditions promoted in the rest of the Lakeshore. Lands proposed for wilderness designation include 23,200 acres and no developed county roads. The five alternatives are summarized in table 2 (in the pocket at the end of the document). The key impacts of implementing these alternatives are summarized in table 4 and detailed in chapter 5.

This document has been distributed to other agencies and interested organizations and individuals for their review and comment. The public comment period for this document will last for 45 days after the Environmental Protection Agency's notice of availability has been published in the *Federal Register*. Readers are encouraged to submit their comments on this draft plan. Please note that NPS practice is to make comments, including names and addresses of respondents, available for public review. Please see "How to Comment on this Plan" discussion on the next page for further information.

HOW TO COMMENT ON THIS PLAN

Comments on this plan are welcome and will be accepted for 45 days after the Environmental Protection Agency's notice of availability appears in the *Federal Register*. Comments/responses may be submitted either over the Internet or in writing. Commenters are encouraged to use the Internet if at all possible. Please submit only one set of comments.

To be sure that you are included on our mailing list, please include your name and address on any correspondence.

Internet comments can be submitted at <http://www.nps.gov/slbe> and then choose the general management plan link.

Written comments may be sent to

Superintendent Dusty Shultz
Sleeping Bear Dunes National Lakeshore
9922 Front Street
Empire, Michigan 49630-9797

Verbal comments may be made at public meetings. The dates, times, and locations of public meetings will be announced in the media following release of this document.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment — including your personal identifying information — may be made publicly available at any time. Although you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

SUMMARY

BRIEF DESCRIPTION OF THE NATIONAL LAKESHORE

Sleeping Bear Dunes National Lakeshore (hereafter referred to as National Lakeshore, Lakeshore, or park) was established by the U.S. Congress in 1970. Part of the national park system, the National Lakeshore consists of a mainland portion located in Michigan's lower peninsula plus North Manitou and South Manitou islands (71,291 acres total).

PURPOSE FOR THE GENERAL MANAGEMENT PLAN / WILDERNESS STUDY / ENVIRONMENTAL IMPACT STATEMENT

General management plans are required for all units of the national park system and are intended to establish the future management direction of a park unit. General management plans look 20 or more years into the future and consider the park system unit holistically, in its full ecological and cultural context and as part of a surrounding region. This *General Management Plan* will provide comprehensive guidance for perpetuating natural systems, preserving cultural resources, and providing opportunities for quality visitor experiences at Sleeping Bear Dunes National Lakeshore. The purpose of this plan is to decide how the National Park Service (NPS) can best fulfill the National Lakeshore's purpose, maintain its significance, and protect its resources unimpaired for the enjoyment of present and future generations. The plan does not provide specific and detailed answers to every issue facing the park, but rather is a framework to assist NPS managers in making decisions today and in the future. The National Lakeshore's last *General Management Plan*, completed in 1979, is outdated. New areas have been added to the Lakeshore at Bow Lakes, Miller Hill, and the Crystal River, and

many individual parcels within the original boundary have been acquired. New information about the significance of natural and cultural resources in the Lakeshore has been recognized. Private development adjacent to and near the National Lakeshore has increased, and this trend has accelerated in recent years. The National Lakeshore faces new management challenges as a result of all these changes. This new *General Management Plan* will update the management framework for the National Lakeshore, address changing issues and conditions, incorporate new resource information, and provide management direction for these new park lands.

The *Wilderness Study* element of this new *General Management Plan* evaluates lands within Sleeping Bear Dunes National Lakeshore for possible recommendation to Congress for inclusion in the national wilderness preservation system. The *Wilderness Study* is needed because of public interest in developing a proposal that improves upon the 1981 "Wilderness Recommendation." Including the *Wilderness Study* in the *General Management Plan* saves time and money because the two processes have similar environmental compliance and public involvement needs. Wilderness, which can be designated only by Congress, provides for permanent protection of lands in their natural condition that provide outstanding opportunities for solitude or primitive and unconfined recreation.

Wilderness studies typically result in a recommendation to Congress to designate all, some, or none of the lands possessing wilderness character as part of the national wilderness preservation system. Based on the *Wilderness Study* included in this document, the National Park Service anticipates preparing a proposal for such a recommendation to forward to the U.S. Department of the Interior at the conclusion of this planning effort. However, by law,

SUMMARY

areas proposed as wilderness in the 1981 recommendation for the National Lakeshore will be managed as wilderness until Congress acts on a new wilderness recommendation.

MANAGEMENT ZONES

Management zones prescribe how different areas of the National Lakeshore would be managed. Four management zones have been developed for the National Lakeshore — the high use zone, the experience history zone, the recreation zone, and the experience nature zone. The high use zone provides for visitor orientation, education, and other structured activities (such as ranger-led tours). High numbers of visitors enjoy and learn about the National Lakeshore. The experience history zone is managed primarily to preserve historic structures and landscapes. Moderate to high numbers of visitors enjoy and learn about significant historic activities, buildings, and landscapes. The recreation zone provides a wide range of recreational opportunities for moderate numbers of visitors. The active Lake Michigan beach area is within this zone, as is the 0.25 mile of Lake Michigan waters within the National Lakeshore boundary. The experience nature zone is the wildest, most natural management zone. Low numbers of visitors enjoy primitive recreation on foot or in nonmotorized watercraft. This is the only management zone in which wilderness may occur.

The alternatives presented in this document each propose a different configuration of the management zones within the National Lakeshore based on the overall concept for each action alternative. (The no-action alternative, which describes existing conditions, has no management zoning.) In every management zone, the Lakeshore intends to preserve and protect natural and cultural resources to the greatest extent possible given available funds.

THE ALTERNATIVES

Five alternatives, including the preferred alternative, for future management of Sleeping Bear Dunes National Lakeshore are presented in this document. The alternatives were developed through a lengthy public involvement process, described in detail in the “Public Involvement, Including Scoping” section in chapter 6. Each alternative is consistent with maintaining the National Lakeshore’s purpose, significance, and fundamental resources and values; the alternatives present different choices for how to manage resources, visitor use, and facilities within the Lakeshore. The alternatives are the no-action (“business as usual”) alternative, the preferred alternative, alternative A, alternative B, and alternative C.

The No-Action Alternative

The no-action alternative primarily reflects current conditions and activities at the National Lakeshore. This alternative is provided as a baseline against which to compare the “action” alternatives. As directed by Congress in 1982, the National Park Service would continue to manage lands proposed for wilderness in the 1981 “Wilderness Recommendation” (30,903 acres or 43% of the National Lakeshore) to maintain their existing wilderness character. Natural resource management programs would continue to emphasize protection of natural resources and processes. Efforts to preserve as many historic structures and landscapes as possible would continue.

Visitor orientation services, interpretive activities, visitor access and facilities, and recreational opportunities would remain much as they are now.

The National Park Service would continue to purchase lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic

road, which would include bike lanes/trail. (However, the road and bike lanes/trail would not be expected to be built within the life of this plan.)

The key impacts associated with implementing this alternative would be in the areas of visitor opportunities and use and wilderness character. Visitors seem satisfied overall with most current opportunities in the Lakeshore. Maintaining the current access, scenic resources, range of visitor opportunities, experiences, and recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Some visitors would prefer some additional improvements in recreation-oriented facilities, a few additional visitor opportunities, or a reduction of crowding on the Platte River, and the lack of these would result in a long-term, minor adverse impact on these visitors. As the result of ongoing management of nearly 31,000 acres to maintain its existing wilderness character, as directed by Congress, the National Lakeshore would continue to include extensive, largely natural undeveloped areas where outstanding opportunities for solitude or primitive, unconfined recreation would continue to be available. Impacts of the no-action alternative would continue to be mostly beneficial, moderate, and long term — but there would also be some continuing localized, minor adverse impacts on wilderness character. Impacts on historic resources, natural resources, regional socioeconomics, and NPS operations would not differ substantially among the alternatives.

Preferred Alternative

Under the preferred alternative, the Lakeshore would be valued primarily for preservation of its natural resources, and for the opportunities it provides for visitor enjoyment of natural, cultural, and recreational resources in a scenic outdoor setting. About 32,200 acres (46% of the National Lakeshore) in the north, central,

south, and island areas of the Lakeshore would be proposed as wilderness. No developed county roads are within areas proposed for wilderness.

Based on the emphasis placed on natural resource conditions and experiences in this alternative, the experience nature zone would extend across much of the Lakeshore. Some selected areas would be zoned high use or recreation to allow for possible future recreational opportunities.

Based on the emphasis placed on opportunities for enjoyment of cultural resources in this alternative, the experience history zone would encompass most of the National Lakeshore's historic resources. Historic structures and landscapes would be preserved at a minimum and managed as specified for the management zone in which they lie.

Visitor orientation services, interpretive activities, visitor access and facilities, and recreational opportunities would remain much as they are now except that a few trails and backcountry campgrounds would be added and new designated campgrounds would be provided on North Manitou Island, Valley View campground would be removed, parking at the end of Esch Road (and possibly at Platte River Point) would be improved, the possibility of improved boat access near Platte River Point could be studied, motorized boats would not be allowed on Bass Lake (Leelanau County) and North Bar Lake, there would be improved access for nonmotorized boats at some inland lakes, the Glen Lake picnic area would be upgraded, occasional ferry service for day trips to North Manitou Island would be allowed, concession auto tours to near the Giant Cedars area would be considered, and the Crystal River access area would be upgraded or relocated.

The National Park Service would continue to purchase lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic

SUMMARY

road and/or a bike/hike trail (determined and evaluated via a future study). The road/trail would not be expected to be built within the life of this plan.

The key impacts associated with implementing this alternative would be in the areas of visitor opportunities and use and wilderness character. Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor beneficial impact on visitor opportunities, but potentially long-term minor adverse effects on use. The removal of Valley View campground and disallowing motorized boats on two inland lakes would have long-term, minor, adverse impacts on visitor opportunities and use. The increased visitor opportunities and facilities would have a long-term, minor, adverse impact on natural sound and the night sky. Establishment of 32,200 acres of designated wilderness in all three portions of the mainland and on both islands would permanently protect wilderness values (naturalness and opportunities for solitude or primitive, unconfined recreation). Impacts of the preferred alternative on wilderness character would be mostly beneficial, moderate, and long term (permanent), but there would also be some localized, minor adverse impacts. Impacts on historic resources, natural resources, regional socioeconomics, and NPS operations would not differ substantially among the alternatives.

Alternative A

Under alternative A, the Lakeshore would be valued primarily for conservation of its natural resources. About 33,600 acres (47% of the National Lakeshore) in the north, central, south, and island areas of the National Lakeshore would be proposed as wilderness. No developed county roads are within areas proposed for wilderness. Based on the

emphasis on natural resources conditions and experiences in this alternative, the experience nature zone would extend across most of the Lakeshore. Historic structures and landscapes would be managed as specified for the management zone in which they lie.

Visitor orientation services, interpretive activities, visitor access and facilities, and recreational opportunities would remain much as they are now. However, interpretive opportunities relating to natural resource themes would be emphasized. On South Manitou Island, concession-operated farm tours would stop at the west end of Chicago Road and continue on foot from there, a few trails and campgrounds would be added and Valley View campground would be removed, NPS-owned Tiesma Road would be closed, motor boats would no longer be allowed on Bass Lake (Leelanau County), and the Glen Lake picnic area would be removed.

The National Park Service would cease acquisition of lands within the Benzie Corridor. No scenic roadway or trail would be developed. The National Park Service would recommend that the Lakeshore's enabling legislation be amended to remove the Benzie Corridor from the boundary. This would require congressional action.

The key impacts associated with implementing this alternative would be in the areas of visitor opportunities and use and wilderness character. Increased access and visitor opportunities related to modest additional recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor beneficial impact on the visitor experience, but potentially long-term minor adverse effects on visitor use. The loss of some vehicle access, visitor opportunities, and recreation-oriented facilities (e.g., Tiesma Road and Glen Lake picnic area) would have long-term, moderate adverse impacts on visitor oppor-

tunities and use. The removal of the Benzie Corridor from the Lakeshore boundary would have long-term, minor to moderate adverse impacts on visitor access and opportunities, scenic resources, natural soundscapes, and the night sky. Establishment of 33,600 acres of designated wilderness (the most of any alternative) in all three portions of the mainland and on both islands would permanently protect naturalness and opportunities for solitude or primitive, unconfined recreation. Impacts of alternative A on wilderness character would be mostly beneficial, moderate, and long term (permanent), but there would also be some localized minor adverse impacts on wilderness character. Impacts on historic resources, natural resources, regional socioeconomics, and NPS operations would not differ substantially among the alternatives.

Alternative B

Under alternative B the National Lakeshore would be valued primarily for its recreational opportunities in scenic outdoor settings. About 14,400 acres (20% of the National Lakeshore), all on North Manitou Island, would be proposed as wilderness. No county roads are within areas proposed for wilderness. Based on the large extent of the recreation zone in this alternative, natural resources might be modified to provide for a variety of recreational activities. Historic structures and landscapes would be managed as specified for the management zone in which they lie.

Visitor orientation services, interpretive activities, visitor access and facilities, and recreational opportunities would remain much as they are now except that a few trails and campgrounds would be added and some new campgrounds would be designated (to replace dispersed camping on North Manitou Island), parking would be improved at Peterson Road and the end of Esch Road, facilities would be expanded and improved boat access could be studied at Platte River Point, motorized boats would be allowed on

Shell and Tucker lakes, access would be improved at a few inland lakes, a few picnic areas would be upgraded, occasional ferry service for day trips to North Manitou Island would be allowed, concession auto tours to near the Giant Cedars area would be considered, and the Crystal River access area would be upgraded or relocated.

The National Park Service would continue to purchase lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic road. The scenic road would include bike lanes (or in some stretches a separate bike trail, as appropriate). For cost and impact comparison purposes, the scenic road was assumed to be built in year 25 of the plan.

The key impacts associated with implementing this alternative would be in the areas of visitor opportunities and use and wilderness character. Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor beneficial impact on visitor experiences but potentially long-term minor adverse effects on visitor use. The removal of dispersed camping on North Manitou Island would have long-term minor adverse impacts on visitor opportunities and use. The increased visitor opportunities and facilities would have a long-term minor adverse impact on scenic resources, natural sound, and the night sky. Establishment of 14,400 acres of designated wilderness on North Manitou Island would permanently protect wilderness values therein. However, there would be no wilderness protection on the mainland or South Manitou Island, so naturalness and opportunities for solitude and primitive recreation would be substantially reduced there. Alternative B would have long-term (some permanent), minor beneficial and minor to major adverse impacts on wilderness character. Impacts on historic resources,

natural resources, regional socioeconomics, and NPS operations would not differ substantially among the alternatives.

Alternative C

Under alternative C the Lakeshore would be managed so that most visitor use is concentrated in selected areas, with more natural, primitive conditions promoted in the rest of the Lakeshore. About 23,200 acres (32% of the National Lakeshore) in the central, south, and island areas of the Lakeshore would be proposed as wilderness. No developed county roads are within areas proposed for wilderness. Within the high use and experience history zones there would be less emphasis on managing the Lakeshore for natural conditions. Outside those concentrated use areas, the Lakeshore would be managed for more natural conditions. Historic structures and landscapes would be managed as specified for the management zone in which they lie.

Visitor orientation services, interpretive activities, visitor access and facilities, and recreational opportunities would remain much as they are now. However, more structured interpretive opportunities would be offered in concentrated use areas and more self-guided opportunities would be offered elsewhere. A few trails would be added; the D. H. Day campground would be upgraded and/or expanded; there would be new designated campgrounds on North Manitou Island; concession auto tours to near the Giant Cedars would be considered; facilities at the ends of County Road 669, Esch Road, and Platte River Point would be expanded; access to a few inland lakes would be improved; the Glen Lake picnic area would be upgraded or expanded; and the Dune Climb facilities would be upgraded.

The National Park Service would continue to purchase lands within the Benzie Corridor on a willing-seller basis (subject to available funding) for future development of a scenic

nonmotorized hike/bike trail. For cost and impact comparison purposes, the scenic trail was assumed to be built in year 25 of the plan.

The key impacts associated with implementing this alternative would be in the areas of visitor opportunities and use and wilderness character. Increased access and visitor opportunities related to additional recreation-oriented facilities would have a long-term, minor to moderate beneficial impact on visitor opportunities and use. Implementation of user capacity management strategies would have a long-term, minor, beneficial impact on the visitor experience, but potentially long-term minor, adverse effects on visitor use. The increased visitor opportunities and facilities in the high-use zones would have a long-term, minor, adverse impact on scenic resources, natural sounds, and the night sky. Establishment of 23,200 acres of designated wilderness in the central and south portions of the mainland and on both islands would permanently protect wilderness values (naturalness and opportunities for solitude or primitive unconfined recreation). However, wilderness values in several areas (north portion of the mainland, Otter Creek area, and southeast portion of South Manitou Island) would no longer have wilderness protection. Impacts of alternative C on wilderness character would be long term (some permanent), minor, and adverse and beneficial. Impacts on historic resources, natural resources, regional socioeconomics, and NPS operations would not differ substantially among the alternatives.

THE NEXT STEPS

After distribution of this *Draft General Management Plan / Wilderness Study / Environmental Impact Statement* there will be a public review and comment period. After the comment period ends, the NPS planning team will evaluate all input received regarding the draft plan and incorporate any resulting changes into a *Final General Management Plan /*

Wilderness Study / Environmental Impact Statement. Following distribution of the final plan and a 30-day no-action period, a record of decision will be signed by the NPS regional director documenting the NPS selection of an alternative for implementation.

Although this *General Management Plan / Wilderness Study / Environmental Impact Statement* provides the analysis and justification for future National Lakeshore funding proposals, this plan does not guarantee future NPS funding. Many actions would be necessary to achieve the desired conditions for natural resources, cultural resources, recreational opportunities, and facilities as envisioned in this plan. The National Park Service will seek funding to achieve these desired conditions; although the

National Lakeshore hopes to secure this funding and will prepare itself accordingly, the Lakeshore may not receive enough funding to achieve all desired conditions. National Lakeshore managers will need to continue to pursue other options, including expanding the service of volunteers, drawing upon existing or new partnerships, and seeking alternative funding sources, including the philanthropic community. Even with assistance from supplemental sources, Lakeshore managers may be faced with difficult choices when setting priorities. The *General Management Plan / Wilderness Study / Environmental Impact Statement* provides the framework within which to make these choices.

CONTENTS

CHAPTER 1: INTRODUCTION

A GUIDE TO THIS DOCUMENT 2

OVERVIEW OF THE NATIONAL LAKESHORE 3

BACKGROUND 4

Purpose and Need for the General Management Plan 4

Purpose and Need for the Wilderness Study 7

Planning Issues and Concerns 9

Wilderness 9

Access and Management of Roads within the Park 9

Protecting Fundamental Resources and Values 9

Benzie Corridor and Crystal Ridge 10

Crowding and Overuse 10

Management of Newly Acquired Park Lands 10

FOUNDATION FOR PLANNING AND MANAGEMENT 11

Purpose 11

Significance 11

Fundamental Resources and Values 11

Primary Interpretive Themes 12

Special Mandates 13

Proposed Wilderness 13

Road Rights-of-Way 13

Scenic Road Corridors 13

Hunting, Fishing, and Trapping 13

National Historic Landmark — North Manitou Island Life-Saving Service Complex 13

1836 Treaty 14

Servicewide Laws and Policies 14

DESIRED CONDITIONS AND STRATEGIES 16

Ecosystem Management 16

Natural Resources (General) and Diversity 17

Air Quality 18

Water Quality and Quantity 18

Wildlife Management 18

Cultural Resources (General) 19

Historic Structures 19

Cultural Landscapes 20

Archeological Resources 20

Ethnographic Resources 21

Visitor Use and Experience 21

Visitor Information, Interpretation, and Education 22

Viewsheds 22

Night Sky 23

Natural Sounds 23

Facilities and Services 23

CONTENTS

Accessibility to the National Lakeshore	24
Relations with Private and Public Organizations, Adjacent Landowners, and Governmental Agencies	24
Relations with American Indian Tribes	25
Wilderness	25
Land Protection	26
Research	26
<i>BOUNDARY ADJUSTMENTS</i>	27
<i>RELATIONSHIP OF THE GENERAL MANAGEMENT PLAN TO OTHER PLANNING EFFORTS</i>	28
<i>NPS MANAGEMENT PLANS AND STUDIES</i>	28
Scenic Road Feasibility Study	28
Platte River Management Plan	28
Fire Management Plan	28
Strategic Plan	29
Port Oneida Rural Historic District Environmental Assessment	29
<i>COUNTY AND REGIONAL PLANS</i>	29
Leelanau General Plan	29
Benzie County 2020 Comprehensive Plan	30
Benzie County Open Space and Natural Resources Protection Plan	30
<i>COOPERATIVE PLANS</i>	30
Leelanau Scenic Heritage Route Trailway	30
<i>ONGOING NPS PROJECTS AND PROJECTS PLANNED FOR THE NEAR FUTURE</i>	32
Beach Access Improvements — Ends of Leelanau County Roads 651 and 669	32
Glen Haven Village Improvements	32
Lake Michigan Overlooks Improvements—Pierce Stocking Scenic Drive	32
Restore the Former Water Wheel and Casey's Canoe Liveries — Platte River	32
Restoration of Disturbed Areas within the National Lakeshore	33
South Manitou Lighthouse Complex — Exterior Restoration and Interior Rehabilitation	33
Dune Climb Parking Area — Paving and Other Minor Improvements	33
 CHAPTER 2: ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE	
 <i>INTRODUCTION</i>	37
<i>IMPLEMENTATION OF THE GENERAL MANAGEMENT PLAN</i>	38
IMPLEMENTATION FUNDING	38
KEY IMPLEMENTATION PLANS TO FOLLOW THIS GENERAL MANAGEMENT PLAN / WILDERNESS STUDY / ENVIRONMENTAL IMPACT STATEMENT	38
Wilderness Management	38
Asset Management	38
Ethnographic Resources Study/Assessment	39
<i>MANAGEMENT ZONES</i>	40
<i>USER CAPACITY (CARRYING CAPACITY)</i>	44
OVERVIEW	44
OVERVIEW OF CURRENT AND POTENTIAL USE-RELATED IMPACTS	45

POTENTIAL USER CAPACITY INDICATORS AND RELATED MANAGEMENT ACTIONS	46
AREAS FOR SPECIAL MONITORING ATTENTION	47
<i>ALTERNATIVES</i>	48
<i>NO-ACTION ALTERNATIVE</i>	49
OVERALL VISION	49
WILDERNESS	49
NATURAL RESOURCES	49
CULTURAL RESOURCES	49
VISITOR ORIENTATION, INTERPRETATION AND EDUCATION	50
VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES	50
Benzie Corridor	50
Bow Lakes	51
BOUNDARY ADJUSTMENTS	51
STAFFING AND COSTS	51
<i>PREFERRED ALTERNATIVE</i>	52
OVERALL VISION	52
WILDERNESS	52
NATURAL RESOURCES	52
CULTURAL RESOURCES	52
VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION	53
VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES	53
Benzie Corridor	55
Bow Lakes	55
BOUNDARY ADJUSTMENTS	55
STAFFING AND COSTS	55
<i>ALTERNATIVE A</i>	56
OVERALL VISION	56
WILDERNESS	56
NATURAL RESOURCES	56
CULTURAL RESOURCES	56
VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION	57
VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES	57
Benzie Corridor	58
Bow Lakes	58
BOUNDARY ADJUSTMENTS	58
STAFFING AND COSTS	58
<i>ALTERNATIVE B</i>	60
OVERALL VISION	60
WILDERNESS	60
NATURAL RESOURCES	60
CULTURAL RESOURCES	60
VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION	61
VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES	61
Benzie Corridor	62
Bow Lakes	62

CONTENTS

BOUNDARY ADJUSTMENTS	62
STAFFING AND COSTS	63
<i>ALTERNATIVE C</i>	64
OVERALL VISION	64
WILDERNESS	64
NATURAL RESOURCES	64
CULTURAL RESOURCES	64
VISITOR ORIENTATION, INTERPRETATION, AND EDUCATION	65
VISITOR FACILITIES, OPPORTUNITIES, AND ACTIVITIES	65
Benzie Corridor	66
Bow Lakes	66
BOUNDARY ADJUSTMENTS	67
STAFFING AND COSTS	67
<i>MITIGATIVE MEASURES FOR THE ACTION ALTERNATIVES</i>	68
GENERAL	68
CULTURAL RESOURCES	68
Archeological Resources	68
Human Remains	69
Ethnographic Resources	69
Historic Structures and Landscapes	69
NATURAL RESOURCES	69
General	69
Wetlands	69
Geology and Soils	70
Vegetation and Wildlife	70
Threatened and Endangered Species	70
<i>THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE</i>	71

CHAPTER 3: WILDERNESS STUDY AND PROPOSAL

<i>INTRODUCTION</i>	83
WILDERNESS DEFINITION	83
BRIEF DESCRIPTION OF THE STUDY AREA	83
<i>WILDERNESS STUDY AND PROPOSAL</i>	84
WILDERNESS ELIGIBILITY	84
OPTIONS ANALYZED IN THIS WILDERNESS STUDY	84
PUBLIC COMMENT ON WILDERNESS	86
WILDERNESS PROPOSAL	87
<i>IMPLICATIONS OF MANAGING LANDS PROPOSED FOR WILDERNESS</i>	89
PLANNING AND MANAGEMENT	89
PRIVATE RIGHTS	89
RECREATIONAL USE	89
EMERGENCY SERVICES	90
RESOURCE MANAGEMENT AND RESEARCH	90

CHAPTER 4: AFFECTED ENVIRONMENT

<i>INTRODUCTION</i>	93
<i>IMPACT TOPICS CONSIDERED AND ANALYZED IN DETAIL</i>	94
HISTORIC RESOURCES	94
Historic Property Definitions	94
Properties Listed in the National Register of Historic Places	98
Properties Determined Eligible for Inclusion on the National Register and Possible New National Register Districts	100
NATURAL RESOURCES	101
Soils and Geologic Resources	101
Vegetation	102
Wildlife	107
Federal Threatened and Endangered Species	109
Michigan State-Listed Species	118
Wetlands	126
Water Quality	126
VISITOR OPPORTUNITIES	128
Fundamental Resources and Values	128
Primary Interpretive Themes	129
Information, Interpretation, and Education	129
Recreational Activities	130
Natural Soundscapes and Night Sky	131
VISITOR USE	131
Origin of Visitors and Length of Stay	131
Primary Destinations within Sleeping Bear Dunes National Lakeshore	133
WILDERNESS CHARACTER	133
Current Management of Areas Proposed for Wilderness	133
Natural and Undeveloped	134
Outstanding Opportunities for Solitude	135
Outstanding Opportunities for Primitive, Unconfined Recreation	135
REGIONAL SOCIOECONOMICS	135
Population	136
Economic Overview	136
Commercial and Noncommercial Services Provided at Sleeping Bear Dunes National Lakeshore	139
Income and Poverty	139
Demographics	140
Housing	142
Highway Traffic and Emergency Services	143
Land Use and Landownership	144
Economic Contributions of Sleeping Bear Dunes National Lakeshore	145
Attitudes and Lifestyle Issues Associated with the National Lakeshore	146
NPS OPERATIONS	147
Operations and Management	147
Interpretation and Visitor Services Division	147
Resource and Visitor Protection Division	147
Facility Maintenance Division	147
Natural Resources Management Division	148

CONTENTS

Administration Division	148
Volunteers and Partners	148
Facilities and Infrastructure	148
<i>IMPACT TOPICS CONSIDERED BUT NOT ANALYZED IN DETAIL</i>	<i>153</i>
MUSEUM COLLECTIONS	153
ETHNOGRAPHIC RESOURCES	153
ARCHEOLOGICAL RESOURCES	154
INDIAN TRUST RESOURCES	154
AIR QUALITY	155
MICHIGAN STATE-LISTED SPECIES	155
Northern Goshawk	155
Grasshopper Sparrow	156
Least Bittern	156
Calypso or Fairy-slipper	156
Beauty Sedge	157
Broad-leaved Sedge	157
FLOODPLAINS	157
COASTAL ZONE MANAGEMENT	158
WATER QUANTITY	158
PRIME OR UNIQUE FARMLAND	158
ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL	158
ENVIRONMENTAL JUSTICE	158
WILD AND SCENIC RIVERS	159

CHAPTER 5: ENVIRONMENTAL CONSEQUENCES

<i>INTRODUCTION</i>	<i>163</i>
TERMS AND ASSUMPTIONS	163
CUMULATIVE IMPACTS	163
Fire Management Plan (2005a)	164
Dredging of the Platte River Mouth (Past, Ongoing)	164
IMPAIRMENT OF NATIONAL LAKESHORE RESOURCES	164
IMPACTS TO CULTURAL RESOURCES AND SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT	165
<i>METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS</i>	<i>167</i>
HISTORIC RESOURCES	167
SOILS AND GEOLOGIC RESOURCES	167
VEGETATION AND WILDLIFE	168
FEDERAL THREATENED AND ENDANGERED SPECIES	170
MICHIGAN STATE-LISTED SPECIES	171
WETLANDS AND WATER QUALITY	173
VISITOR OPPORTUNITIES AND USE	175
Visitor Opportunities	175
Visitor Use	175
WILDERNESS CHARACTER	177
REGIONAL SOCIOECONOMICS	178
Impact Thresholds and Characterization	179

NPS OPERATIONS	180
Impact Intensity Definitions	181
<i>IMPACTS OF THE NO-ACTION ALTERNATIVE</i>	182
HISTORIC RESOURCES	182
Cumulative Impacts	183
Conclusion	183
NATURAL RESOURCES	184
Soils and Geologic Resources	184
Vegetation and Wildlife	185
Federal Threatened and Endangered Species	186
Michigan State-Listed Species	188
Wetlands and Water Quality	189
VISITOR OPPORTUNITIES AND USE	190
Visitor Opportunities	190
Visitor Use	191
Cumulative Effects	192
Conclusion	192
WILDERNESS CHARACTER	192
Natural and Undeveloped	192
Opportunities for Solitude	193
Opportunities for Primitive, Unconfined Recreation	193
Cumulative Impacts	193
Conclusion	193
REGIONAL SOCIOECONOMICS	193
Visitor-Related Economic Impacts	194
Economic Impacts Related to Implementation and NPS Operations	194
Effects on Regional Population	195
Community Services	195
Traffic and Emergency Services	196
Attitudes and Lifestyles	196
Cumulative Impacts	196
Conclusion	197
NPS OPERATIONS	197
Cumulative Impacts	197
Conclusion	198
UNAVOIDABLE ADVERSE IMPACTS	198
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES	198
RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY	198
<i>IMPACTS OF THE PREFERRED ALTERNATIVE</i>	199
HISTORIC RESOURCES	199
Cumulative Impacts	200
Conclusion	200
NATURAL RESOURCES	201
Soils and Geologic Resources	201
Vegetation and Wildlife	202
Federal Threatened and Endangered Species	204
Michigan State-Listed Species	206
Wetlands and Water Quality	208

CONTENTS

VISITOR OPPORTUNITIES AND USE	210
Visitor Opportunities	210
Visitor Use	211
Cumulative Impacts	212
Conclusion	212
WILDERNESS CHARACTER	213
Natural and Undeveloped	213
Opportunities for Solitude	213
Opportunities for Primitive, Unconfined Recreation	213
Cumulative Impacts	213
Conclusion	214
REGIONAL SOCIOECONOMICS	214
Visitor-Related Economic Impacts	214
Economic Impacts Related to Implementation and NPS Operations	215
Effects on Regional Population	215
Community Services	216
Traffic and Emergency Services	216
Attitudes and Lifestyles	216
Cumulative Impacts	217
Conclusion	218
NPS OPERATIONS	218
Cumulative Impacts	218
Conclusion	218
UNAVOIDABLE ADVERSE IMPACTS	218
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES	219
RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY	219
<i>IMPACTS OF ALTERNATIVE A</i>	<i>220</i>
HISTORIC RESOURCES	220
Cumulative Impacts	221
Conclusion	221
NATURAL RESOURCES	222
Soils and Geologic Resources	222
Vegetation and Wildlife	223
Federal Threatened and Endangered Species	224
Michigan State-Listed Species	227
Wetlands and Water Quality	228
VISITOR OPPORTUNITIES AND USE	230
Visitor Opportunities	230
Visitor Use	231
Cumulative Impacts	232
Conclusion	232
WILDERNESS CHARACTER	232
Natural and Undeveloped	232
Opportunities for Solitude	233
Opportunities for Primitive, Unconfined Recreation	233
Cumulative Impacts	233
Conclusion	233
REGIONAL SOCIOECONOMICS	233
Visitor-Related Economic Impacts	234

Economic Impacts Related to Implementation and NPS Operations	234
Effects on Regional Population	235
Community Services	235
Traffic and Emergency Services	235
Attitudes and Lifestyles	235
Cumulative Impacts	236
Conclusion	236
NPS OPERATIONS	237
Cumulative Impacts	237
Conclusion	237
UNAVOIDABLE ADVERSE IMPACTS	237
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES	237
RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY	238
<i>IMPACTS OF ALTERNATIVE B</i>	239
HISTORIC RESOURCES	239
Cumulative Impacts	240
Conclusion	240
NATURAL RESOURCES	241
Soils and Geologic Resources	241
Vegetation and Wildlife	242
Federal Threatened and Endangered Species	244
Michigan State-Listed Species	247
Wetlands and Water Quality	249
VISITOR OPPORTUNITIES AND USE	250
Visitor Opportunities	250
Visitor Use	252
Cumulative Impacts	252
Conclusion	252
WILDERNESS CHARACTER	253
Natural and Undeveloped	253
Opportunities for Solitude	253
Opportunities for Primitive, Unconfined Recreation	253
Cumulative Impacts	253
Conclusion	254
REGIONAL SOCIOECONOMICS	254
Visitor-Related Economic Impacts	254
Economic Impacts Related to Implementation and NPS Operations	254
Effects on Regional Population	255
Community Services	256
Traffic and Emergency Services	256
Attitudes and Lifestyles	256
Cumulative Impacts	257
Conclusion	257
NPS OPERATIONS	257
Cumulative Impacts	258
Conclusion	258
UNAVOIDABLE ADVERSE IMPACTS	258
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES	258
RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY	258

CONTENTS

<i>IMPACTS OF ALTERNATIVE C</i>	259
HISTORIC RESOURCES	259
Cumulative Impacts	260
Conclusion	260
NATURAL RESOURCES	261
Soils and Geologic Resources	261
Vegetation and Wildlife	262
Federal Threatened and Endangered Species	264
Michigan State-Listed Species	267
Wetlands and Water Quality	268
VISITOR OPPORTUNITIES AND USE	270
Visitor Opportunities	270
Visitor Use	271
Cumulative Impacts	272
Conclusion	272
WILDERNESS CHARACTER	272
Natural and Undeveloped	272
Opportunities for Solitude	273
Opportunities for Primitive, Unconfined Recreation	273
Cumulative Impacts	273
Conclusion	273
REGIONAL SOCIOECONOMICS	273
Visitor-Related Economic Impacts	274
Economic Impacts Related to Implementation and NPS Operations	274
Effects on Regional Population	275
Community Services	275
Traffic and Emergency Services	275
Attitudes and Lifestyles	276
Cumulative Impacts	277
Conclusion	277
NPS OPERATIONS	277
Cumulative Impacts	278
Conclusion	278
UNAVOIDABLE ADVERSE IMPACTS	278
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES	278
RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY	278

CHAPTER 6: CONSULTATION AND COORDINATION

<i>PUBLIC INVOLVEMENT, INCLUDING SCOPING</i>	281
<i>CONSULTATION AND COORDINATION TO DATE WITH OTHER AGENCIES, OFFICES, AND TRIBES</i>	284
FEDERAL AGENCIES	284
STATE AGENCIES	284
AMERICAN INDIAN TRIBES	285
<i>LIST OF AGENCIES OR ENTITIES RECEIVING A COPY OF THIS PLAN</i>	286

APPENDIXES, SELECTED REFERENCES, PREPARERS AND CONSULTANTS, AND INDEX

<i>APPENDIX A: LEGISLATION</i>	293
<i>APPENDIX B: ANALYSIS OF BOUNDARY ADJUSTMENTS</i>	307
<i>APPENDIX C: COST SUMMARY OF ALTERNATIVES</i>	310
<i>APPENDIX D: DEVELOPMENT OF THE PREFERRED ALTERNATIVE</i>	312
<i>APPENDIX E: WILD AND SCENIC RIVERS</i>	317
<i>APPENDIX F: CONSULTATION LETTERS</i>	319
<i>SELECTED REFERENCES</i>	324
<i>PREPARERS AND CONSULTANTS</i>	331
<i>INDEX</i>	333

Tables

Table 1: Management Zones	42
Table 2: Comparison of Alternatives	back pocket
Table 3: Range of Treatment for Historic Properties under the Alternatives	74
Table 4: Summary of the Impacts of the Alternatives	76
Table 5: Wilderness Options Evaluated in this Wilderness Study	85
Table 6: Existing Listed Properties	100
Table 7: Bird Species Associated with Cultural Open Lands in Sleeping Bear Dunes National Lakeshore That Are Designated by the U.S. Fish and Wildlife Service as Species of Conservation Concern	108
Table 8: Special Status Plant and Animal Species	111
Table 9: Population Growth Trends, 1990 to 2006	136
Table 10: Employment By Major Category, 2005	137
Table 11: Unemployment Rates, 2000 to 2006	138
Table 12: Overview of Agricultural Operations in the Region, 2002	138
Table 13: Total Personal Income	141
Table 14: Composition of Total Personal Income, 2005 (in millions)	141
Table 15: Per Capita Personal Income, 2000 and 2005	141
Table 16: Median Household Income and Incidence of Poverty — 2004	141
Table 17: Selected Demographic Characteristics, 2000	142
Table 18: Selected Housing Characteristics	142
Table 19: Traffic Volumes 2005/06, Selected Locations near the National Lakeshore	143
Table 20: Trails and Trail Systems at Sleeping Bear Dunes National Lakeshore	150
Table 21: Summary of Past, Present, and Ongoing (Future) Actions and Their Impacts on Threatened and Endangered Species	172
Table 22: Projected Long-Term Increases in Annual Visitor Use Associated with Implementation of the General Management Plan (Roughly 20 Years)	176

Figures

- Figure 1: Recreation Visits by Year at the National Lakeshore 132
Figure 2: Average Monthly Recreation Visitation at Sleeping Bear Dunes National Lakeshore, 1990 to 2006 132
Figure 3: Types of Use at the National Lakeshore 133
Figure 4: Monthly Visitation at Selected Locations, August 2005 134
Figure 5: Total Employment in the Region, 1990 to 2005 137
Figure 6: Comparison of Long-Term Increases in Average Annual Visitor Use to Sleeping Bear Dunes National Lakeshore under the Action Alternatives 212

Maps

- Region 5
No-action Alternative back pocket
Preferred Alternative back pocket
Alternative A back pocket
Alternative B back pocket
Alternative C back pocket
Prominent Historical Resources Base Map 95
Natural Resources Base Map 103