

Kachemak Bay State Park and Kachemak Bay State Wilderness Park

Management Plan



June 2022

State of Alaska
Department of Natural Resources
Division of Parks & Outdoor Recreation



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Division of Parks and Outdoor Recreation



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of **ALASKA**
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**ADOPTION OF THE KACHEMAK BAY STATE PARK AND
KACHEMAK BAY STATE WILDERNESS PARK
MANAGEMENT PLAN
Revised June 2022**

The Commissioner of the Department of Natural Resources finds that the Kachemak Bay State Park and Kachemak Bay State Wilderness Park Management Plan, which prescribes management of state lands within the boundaries of the park units, including permitting and other department programs and activities, meets the requirements of AS 41.21.131-41.21.142 and hereby adopts this plan as policy for the Department of Natural Resources. This plan supersedes the 1995 Kachemak Bay State Park and Kachemak Bay State Wilderness Park Plan.



Corri A. Feige

Corri A. Feige
Commissioner
Alaska Department of Natural Resources

6/27/22

Date

Preface

This plan is a revision of the 1995 version of the Kachemak Bay State Park and Kachemak Bay State Wilderness Park Management Plan. The plan was developed by the Department of Natural Resources with generous assistance from a number of representatives from several state agencies and non-profit groups. The following people contributed their time and expertise to developing the plan. The planning team appreciates the contributions made not only by state agency staff, but also contributions from members of the public that took their time to attend meetings, review documents, and provide their input to the Department.

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Friends of Kachemak Bay State Park
Kachemak Bay Conservation Society
Kachemak Bay Birders
Homer Cycling Club
Kachemak Nordic Ski Club
Ground Truth Trekking
Kachemak Bay Water Trail

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Chapter 1: Introduction

Regional Characteristics and Planning Area Overview

Located on the southern end of the Kenai Peninsula in Southcentral Alaska, Kachemak Bay extends 40 miles easterly along the base of the Kenai Mountains on the east side of Lower Cook Inlet. The uplands on the north side of the bay are in the Cook Inlet basin ecological region of the Alaska Range transition, characterized by rolling forested hills sloping down to the bay. In contrast, on the south side of the bay, the snowcapped Kenai Mountains rise dramatically to heights of over 5,000 feet sheltering Kachemak Bay before descending to the cool hypermaritime forests of the Gulf of Alaska coastal ecological region. Heavily forested forelands, steep rocky slopes, and glacially scoured fjords continue uninterrupted as Kachemak Bay merges into lower Cook Inlet and onto the rugged outer coast on the Gulf of Alaska.

On May 9, 1970, the Legislature approved 105,387 acres as Kachemak Bay State Park (KBSP). The Legislature set aside these lands as special purpose to “protect and preserve ... [its] unique and exceptional scenic nature.” Two years later, the Legislature added nearly 200,000 acres of remote and rugged land and waters adjacent to KBSP to the state park system through creation of the Kachemak Bay State Wilderness Park (KBSWP). Today, augmented by several legislative additions, these two park units encompass about 371,000 acres (see Map 1: General Boundaries and Appendix B: Statutes and Regulations). In 1974, the Legislature established the Kachemak Bay Critical Habitat Area that partially overlaps with KBSP. The purpose of critical habitat areas is to protect and preserve habitat especially crucial to the perpetuation of fish and wildlife. This is the only area in Alaska where a park area and a critical habitat area overlap.

Located also within the boundaries of the KBSP and the KBSWP are 201 privately owned parcels totaling approximately 845 acres of land. Another 189 acres (7 parcels) are owned by the University of Alaska, Bureau of Indian Affairs, Seldovia Native Association, and Bureau of Land Management (BLM). While these private and agency owned lands are within the planning area, the plan policies and recommendations do not apply to them.

Land Acquisition

In 1989 the Cottonwood Eastland parcels on the north shore of Kachemak Bay were added to Kachemak Bay State Park. A small purchase of 155 acres in 1997 brought the total unit size to about 2,500 acres with an estimated 4.9 miles of shoreline. Mathison/Hopkins parcels were added to the park in 2016. In 1993, the state acquired 23,701 acres of private inholdings

within KBSP that included prime habitat. The purchase was funded with \$14.5 million from the state and \$7.5 million from the Exxon Valdez Oil Spill Trustee Council. In 1998, the Council funded the State acquisition of two parcels on the north side of Kachemak Bay with significant natural habitat values. These parcels included Overlook Park State Recreation Site and most of Diamond Creek State Recreation Site. These parcels are under the authority of Alaska DNR as State Park units but not as part of legislatively designated Kachemak Bay State Park. The Overlook Park State Recreation Site is managed by Kachemak Bay Conservation Society through an MOU with Division of Parks and Outdoor Recreation (DPOR).

Additionally, the State received a donation of 79 acres above McNeil Canyon in 2002 in what has become known as Eveline State Recreation Site. These parcels have individual Management Plans and a different level of protection than Kachemak Bay State Park.

Plan Scope and Purpose

Management responsibility for the park units is assigned to the Alaska Department of Natural Resources (ADNR), DPOR for the purposes of control, development, and maintenance. The purpose of this management plan is to provide management direction that facilitates recreational use opportunities while conserving the natural and cultural resources through a set of policies and recommendations that guide permitting activities, uses, facilities, and trail development on all the state owned and managed land and waters within KBSP and KBSWP. In addition to the above-described park units, the Management Plan (the plan) for the Kachemak Bay State Park and Kachemak Bay State Wilderness Park addresses several small administratively designated park system units located on the north side of Kachemak Bay. These State Recreation Sites (SRS) include the Eveline SRS, Diamond Creek SRS, Overlook Park SRS, and two relatively small State-owned parcels directly adjacent to the KBSP (see Map 2: General Land Ownership). The term “park units” used in this plan refers to all the lands within KBSP, KBSWP, and the smaller park units and recreation areas.

Management issues or opportunities to be addressed in the park units are identified and facility and management recommendations are provided. This plan provides a framework for management and permitting decisions made by DPOR staff. The plan is intended to be a twenty-year document; therefore, it should be periodically reviewed to determine the effectiveness of management recommendations and adapted to reflect changing use characteristics and new issues that affect resources, management, and public use of the park units.

Map 1: General Boundaries

Map 2: General Land Ownership

Reason for Revision

Plans are more than a tool to address issues – the planning process allows DPOR to reassess its management policies to determine if they are meeting the needs of the recreating public while ensuring that uses and activities are not significantly impacting the natural and cultural resources. This plan, therefore, addresses several significant issues that have arisen since the last management plan. The primary reason for revising the management plan is to update the management guidelines and trail and facility recommendations where necessary to support an increasing number of visitors to the park units and to provide diverse recreational opportunities consistent with the mission of the agency and the purposes of the units.

State Park Unit Purpose

Kachemak Bay State Park and Kachemak Bay State Wilderness Park were created via legislation in the early 1970s exercising the constitutional authority to “provide for the acquisition of sites, objects, and area of natural beauty or of historic, cultural, recreational, or scientific value.”¹ The founding statute for KBSP provides that it was created to “...protect and preserve this land and water for its unique and exceptional scenic value, the park is established and shall be managed as a scenic park.”² A scenic park is defined in statute as:

“...relatively spacious areas of outstanding natural significance, where major values are in their natural geological, faunal, or floral characteristics, the purpose of which is directed primarily toward the preservation of its outstanding natural features and where development is minimal and only for the purpose of making the areas available for public enjoyment in a manner consistent with the preservation of the natural values such as camping, picnicking, sightseeing, nature study, hiking, riding, and related activities which involve no major modification of the land, forests, or waters, and without extensive introduction of artificial features or forms of recreational development that are primarily of urban character.”³

The founding statute for KBSWP provides that it was created to “...protect and preserve this land and water for its unique and exceptional wilderness value, the park is established and shall be managed as a wilderness park.”⁴ A wilderness park is defined in statute as:

“...an area whose predominant character is the result of the interplay of natural processes, large enough and so situated as to be unaffected, except in minor ways, by what takes place in the non-wilderness around it, a physical condition which activates the innermost emotions of the observer and where development of man-made objects

¹ Alaska Constitution, Article VIII Section 7: Special Purpose Sites

² Alaska Statute (AS) 41.21.131

³ AS 41.21.990(1)

⁴ AS 41.21.140

will be strictly limited and depend entirely on good taste and judgment so that the wilderness values are not lost.”⁵

State Recreation Site Purpose

In addition to KBSP and KBSWP, this plan also provides management direction for several relatively small SRSs on the north side of the bay. Because the Diamond Creek, Overlook Park, and Eveline State Recreation Sites were created administratively, and not by an act of the Legislature, they lack a purpose statement or unit-specific statutes.⁶ The Alaska Statewide Framework defines the types of state park units and establishes goals and policies for the management of the State Park System. In the absence of legislative intent for these units, this document provides guidance for how these types of units should be managed. On page 11, the Framework document defines a State Recreation Site as:

“...a relatively small area and provides one or more outdoor recreational opportunities. A state recreation site may also be established to provide access to outdoor recreational lands and opportunities not managed as part of the State Park System.”

Management objectives are to be site specific and emphasize “...recreational use over resource protection.”

“The management of a state recreation site allows for resource modification to enhance outdoor recreational opportunities as long as natural and cultural resources are protected. Activities and developments will vary according to the intent and purpose for which the unit is designated. Developments and activities which may be found at state recreation sites include – but are not limited to – picnic areas, campgrounds, parking lots, boat launches, and scenic overlooks.”

Planning Process

The decision to revise the plan was made in 2012, and planning staff began to identify the range of agency issues the plan would address. Research and review of available information and data sources began, and staff-initiated development of a public contact list.

In November 2013, ADNR released a two-part questionnaire seeking public input regarding recreational use, access, and facilities for KBSP and KBSWP. Part A consisted of ten questions related to recreation and facilities in the park units; Part B consisted of six

⁵ AS 41.21.990(2)

⁶ Subsequent to administrative creation, management of the Overlook Park Site was assigned to the Kachemak Bay Conservation Society, and, while still listed as a State Recreation Site, it is more closely aligned with the purposes of a State Preservation Area. As such, management intent for Overlook Park is addressed in Chapter 6.

questions that were specific to those who own the land within or adjacent to the park units. The purpose of landowner specific questions was to better understand how private property is being used and accessed.

The planning team held a series of ‘open house’ format public meetings in spring 2014 in the communities of Homer, Seldovia, Port Graham, Nanwalek, and Anchorage. Meeting participants voiced many issues at the public meetings (captured by facilitators) and completed and submitted 122 questionnaires to ADNR planning staff.

The public scoping written comment period was open from November 13, 2013 through May 15, 2014. After the public scoping period, a series of public stakeholder meetings were held in May 2016. Meetings were scheduled to gain additional information from stakeholders who had detailed knowledge of the area’s recreational uses and public impact. Stakeholder groups were provided with customized questionnaires and given the opportunity to present their ideas/perceptions at the meeting. Following the stakeholder presentations, the planning team, parks staff, and other stakeholders convened a round table discussion.

The Public Review Draft (PRD) of this plan was released September 19, 2018 with a deadline for public comments to be received by October 19, 2018. The public comment period was later extended to November 16, 2018. Public meetings on the PRD were held in Homer in October and November of 2018. Due to public input, the number of changes, and shifts in policy direction from the PRD version, an Intent to Adopt (ITA) version of the plan was issued for public review and comment. Once the input on the Intent to Adopt version is considered, a Final Plan will be presented to the Commissioner for adoption.

The public process outreach associated with this planning effort was typical for management plans of this type and involved multiple opportunities for the public and non-governmental agencies to interact directly with planning and management staff to provide input on the future management of these popular park units.

Plan Organization

The plan is organized to provide a broad scale overview in the first chapter, then successively more detailed information and management intent and recommendations in subsequent chapters. Chapter 1 provides an overview of the planning area; the statutes and guidance that established and defined the units; and an overview of the planning process. Chapter 2 presents information on the natural and cultural resources; Chapter 3 provides area-wide and unit-specific goals and objectives for the park units; Chapter 4 provides information on uses within the park units and issues identified through this planning process. Chapters 5 and 6 provide area-wide management direction and guidelines and unit-specific management, respectively. Finally, Chapter 7 presents implementation, review, and modification information. The appendices contain a glossary of terms; statutes and regulations related to the parks; lists of mammal, bird, and flora species in the parks; the associated Kachemak Bay

Trail Management Plan for the park units; the ADF&G/ADNR Cooperative Agreement for the Kachemak Bay Critical Habitat Area; and the Bibliography.

Relationship to Other Plans

Other plans in the area were reviewed during the preparation of this plan. Adopted in January 2000 the ADNR Kenai Area Plan (KEAP) guides management of the general domain state lands on the Kenai Peninsula. Because the KBSP and KBSWP park units were removed from the public domain, the KEAP does not classify or provide management intent for these lands. Lands within the State Recreation Sites, however, are not withdrawn from the public domain and the KEAP does classify and provide management intent for those lands. Should DPOR decide to withdraw from current Interagency Land Management Agreements for these lands, the management intent and classification provided in the KEAP will guide management of the lands. The Cook Inlet Regional Salmon Enhancement Plan was completed in 2007 and meant to coordinate efforts to enhance the resource through 2025.

The Alaska Department of Fish and Game (ADF&G) adopted the latest version of the Kachemak Bay and Fox River Flats Critical Habitat Areas (CHA) Management Plan in 1993. These areas are legislatively designated. The CHA Management Plan contains goals and policies which ADF&G uses when determining whether proposed activities are compatible with the protection of fish and wildlife, their habitats, and public use.⁷ The CHA management plan area overlaps this plan for approximately 21,439 acres of tide and submerged lands on the south side of the bay (see Map 1: General Boundaries). DPOR has co-management responsibilities with ADF&G where the CHA and state park areas overlap. DPOR and ADF&G consult and advise each other on management plans and changes to regulations and major park policies. (See Appendix F: Cooperative Agreement.)

⁷ 5 AAC 95.610. Kachemak Bay and Fox River Flats Critical Habitat Areas Management Plan

Chapter 2: Natural and Cultural Resources

This chapter provides background information on the natural and human environment for the park units and is included to provide context for planning and managing park use. This information was considered when making the management and facility recommendations in this plan.

Natural Environment

Geology

KBSP and KBSWP lie at the southern end of the Kenai Mountains which form the spine of the Kenai Peninsula. The bedrock of the mountains consists primarily of interbedded shale and graywacke (a marine sandstone), with lesser amounts of radiolarian ribbon chert and pillow basalt along the south coast of Kachemak Bay, of the McHugh Complex. Deep-marine sedimentary rocks on the south side of the Kenai Mountains, near Gore Point and on Nuka Island, consist primarily of interbedded shale and graywacke of the Valdez Group. Ultramafic rocks are found at Red Mountain and Halibut Cove Lagoon; rhyolite dikes intrude the bedrock in many places, most notably at the Kachemak Crack cliff on the south end of Rusty's Lagoon and around Grewing Lake. Collectively, these rocks compose a large accretionary complex that formed above a long-lived subduction zone along the coast of Southcentral Alaska.

Park units on the north side of Kachemak Bay are situated on Tertiary-age bedrock of mudstone, coal, and sandstone of the Beluga and Sterling Formations, which are mantled with Pleistocene glacial deposits. Fossil stumps (probably *Metasequoia*) and leaves (alder, willow and birch) common in the Tertiary formations have an age of about 10 million years; recently a tapir jawbone was the first mammal fossil find associated with the Beluga Formation. At least twenty Pleistocene fossils, mostly mammoth teeth and steppe buffalo horn core fragments, have been collected on the beaches over the years, apparently washed out of the overlying glacial material.

Both glacial and tectonic forces actively shaped the present features of Kachemak Bay. Remnants of huge Pleistocene glaciers are still present, with 15 glaciers contributing melt waters into the bay. Kachemak Bay itself was formed by a glacier, which left behind a terminal moraine – the Homer Spit. Glacial valleys, outwash plains, and sediment dominate the morphology of the bay, as seen in the shape and bathymetry of Kachemak Bay. Within the last 2.6 million years (the Pleistocene), the Kenai Mountains have been repeatedly glaciated, with the valleys being deepened and the slopes steepened by glacial excavation. The last major glaciation (Wisconsin-age) culminated about 20,000 years ago and completely

filled Kachemak Bay, with the ice extending out of the Bay to meet ice coming from the Alaska Range to seal off Cook Inlet from the Gulf of Alaska. A small recent advance (the Little Ice Age) left moraines in many valleys, such as the prominent 1858 moraine that spans the Grewingk Glacier outwash plain.

There are no significant identified mineral deposits and limited historic mining in the area. Three miles to the west of the parks, chromite was mined at the Queen Chrome/Red Mountain mine in the middle of the 20th century. Gold and silver were mined in the late 19th and early 20th century east of the parks in the hills overlooking Nuka Bay. Analysis of geochemical data from the United States Geologic Survey suggests there is limited potential for mineralization within the parks.

There are five soil types in the parks:

- *Tundra soil* - Developed above 2,500 feet of elevation. This soil is thin, with a poorly developed profile and porous.
- *Forest soil* - Developed under the forest canopy and consequently has a high percentage of organic material. This soil is light, has poor mechanical strength and is easily disturbed by human activity.
- *Marsh soil* - Developed at the confluence of rivers and tidal flats or in bogs. This soil is highly organic, composed of fine particles, and retains moisture.
- *Alluvial soil* - Developed along the course of streams. This soil is granular and well drained but low in organic content.
- *Residual soil* - Poorly developed granular soil, with significant evidence of original parent material remaining. This soil is typically well drained.

Hydrography

The Homer Spit bisects Kachemak Bay into inner (“upper”) and outer (“lower”) bays. The inner bay is dominated by freshwater influence from the incoming fluvial systems, while the outer bay experiences more restricted marine influence from Cook Inlet. Much of the freshwater in the parks is locked in the Grewingk, Portlock, Wosnesenski, Petrof, and Southern Glaciers – all part of the Grewingk-Yalik Glacier Complex. Meltwater from these glaciers mixes with runoff from precipitation to fill the lakes and streams of the parks.

Five glacially-generated geomorphological features found within the parks are:

- Large fjords, such as Sadie Cove;
- “U” shaped glaciated valleys found in various locations throughout the parks;
- Glacial lakes found in cirques;

Map 3: General Geology

Chapter 2: Natural and Cultural Resources

- Hanging valleys, where a small valley glacier merged with a larger glacier with a deeper base level; and
- Broad plains of glacial outwash – composed of material left behind by retreating glaciers and reworked by their meltwater.

Kachemak Bay averages 46 m (150 ft) in depth, the bottom being relatively flat except for a 100-160 m (330-540 ft) deep trench that runs along the southern edge. The deepest part of the bay is 176 m depression located north of Cohen Island at the entrance to the inner bay, known as the Jakolof Trench. As sediment-laden water from Fox River enters the bay, it is forced north by the inner bay gyres and deposits its sediment between the Fox River Flats and the Homer Spit. Although fed in part by sediment-rich glacial streams, water in the outer bay is generally quite clear with a very low suspended sediment load. In the inner bay, suspended sediment concentrations are normally higher than in the outer bay, particularly in spring and summer. On the southern side of the Kenai Mountains, the Gulf of Alaska is deeply embayed by glacial fjords. Water depths in the fjords reach 250 m (820 ft) in Port Dick, but otherwise generally dip to the south-southwest within the marine boundaries of the parks.

Kachemak Bay and the adjacent Cook Inlet are known for their extreme tidal range. Kachemak Bay has a 4.8 m (15.8 ft) average tidal range due to the complex geomorphology of the adjacent Cook Inlet. Average high tides are about +5.5 m (+18 ft), though high tides can reach +8.5 m (+28 ft). Extreme low tide reaches -1.8 m (-5.9 ft). Homer, Glacier, Aurora, and China Poot Bay Spits all curve inward suggesting flood tide sediment movement dominates over ebb tide erosion. Tide water movement in smaller bays and coves, especially in shallow areas, can be extremely swift. On the Gulf of Alaska side of the parks, at Takoma Cove, Port Dick, the average tidal range is approximately 3 m (10 ft), with tides as high as +4.8 m (+16 ft) and as low as -1 m (-3.5 ft).

Climate

The Kenai Mountains and significant maritime influence control the climate in the area. To the south and east, the Kenai Peninsula is bound by the Gulf of Alaska and on the west side by Cook Inlet. The presence of the relatively warm, southwesterly flowing Alaska Current in the Gulf of Alaska influences the temperatures of the Kenai Peninsula. The Alaska Current originates to the south as the eastwardly flowing North Pacific Current splits when it hits North America, bringing warm Pacific water north along the Alaskan Panhandle and along the southern edge of the Kenai Peninsula. Even though cold weather occasionally moves in from interior Alaska, this warm water moderates the temperature onshore – the Kenai Peninsula is one of the warmer areas in Southcentral Alaska. In the Homer area, the average high temperature in July is 61°F while the average low in January is 19°F. With elevation increase temperature decreases by about three degrees/1,000 feet. Local variations in aspect, exposure, cold air drainage and mountain valley winds create a multitude of microclimates throughout the parks.

Annual precipitation for the Gulf of Alaska side of the parks is high, estimated at more than 70 inches annually. Due to the rain shadow effect of the mountains, the Kachemak Bay area receives significantly less precipitation (around 30 inches/year), while precipitation in the Kenai Mountains is estimated to be more than 130 inches/year. Annual snowfall in Homer and lower elevations along the north side of Kachemak Bay averages 55 inches. Across the bay in Halibut Cove, annual snowfall averages 88 inches. Because of significantly cooler temperatures, higher elevations of inland areas can receive three times or more snow than the lower elevations. Snowfall usually starts in October and continues through April.

In the parks, winds typically range from 10 to 25 knots, with higher winds experienced on mountain ridges and passes, and in open areas such as the mouths of Tutka Bay and Sadie Cove. On Kachemak Bay during the summer months, the wind is typically 15 to 20 knots from the southwest (called the “day breeze”). The day breeze is moderate in the early mornings and late evenings but is stronger at mid-day. With the approach of storms from the Gulf of Alaska, the winds change to southeast. In the fall and winter, winds in the bay are more commonly from the north and northeast. Much higher wind speeds can occur at any time of year (e.g. the “Sadie Eighties”). The Gulf of Alaska is subject to the severe storms of the North Pacific.

The average cloud cover is 72%. All months except December and January have cloud coverage between 70 and 80%. Longer periods of overcast occur in the mountains. Homer experiences heavy fog approximately five days per year. Fog most frequently occurs in low-lying areas of the bay where cold air collects, such as downslope from the Doroshin, Wosnesenski, and Grewingk Glaciers. The sun usually dissipates fog by mid-day.

Habitat

There are six types of habitat present in the parks: Marine; Estuarine and Marine Wetland; Freshwater Wetland; Freshwater Lakes and Streams; Forest; and Alpine (see Map 4: General Habitat).

Marine habitat is defined as that habitat that is dominated by saltwater influence, extending from the tideline to deep water. In the Intertidal Zone the substrate is either ‘hard’ (rocky) or ‘soft’ (muddy) and tends to control the distribution of plant communities and their associated animals. One of the most interesting features of intertidal communities is the horizontal zonation, where the plant and animal communities are divided into distinct horizontal bands of specific species, the location of which is directly controlled by the amount of time it is flooded by the tide. Seaward of the Intertidal Zone, the Subtidal Zone occurs below the low tide line. The Subtidal Zone is the ‘nursery’ of many shellfish and other small invertebrates which comprise the rich underwater ecosystem that feeds the bay. (For a list of terrestrial plants, see Appendix H: Flora Species).

Map 4: General Habitat

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Estuaries form a transition zone between maritime environments and fluvial environments. They are subject to marine influences, such as tides and waves, and to riverine influences, such as fresh water and sediment. The mixing of both sea water and fresh water provide high levels of nutrients throughout the water column and within the sediment, making estuaries among the most productive natural habitats in the bay.

Freshwater wetlands are “edge” communities that contain poorly drained soils and represent a transitional zone between aquatic and terrestrial habitats. The main types of wetlands found in the parks are bog, grass wetland, and sedge wetland. Wetland habitats can be isolated, ephemeral, or located in riparian areas hydrologically connected to surface waters of rivers, streams, and lakes. Significant wetlands also occur along the coastline and adjacent to river deltas, and within forests throughout the parks.

There are six large lakes (more than 100 acres in size) and many small lakes within the parks. The largest of the glacially formed lakes is Grewingk Lake at the foot of Grewingk Glacier. The headwaters of Tutka, Halibut, Grewingk, Humpy, Portlock, and Petrof Creeks are all sourced from active glaciers. Most of the streams in the parks are young and are just beginning their erosional processes, and many are spawning areas for salmon. The water quality in the parks is excellent. The clear water streams and springs are often used for drinking water, although the potential for giardia contamination exists and appropriate precautions should be taken.

The lower slope vegetation of the Kenai Mountains is dominated by mature stands of Sitka spruce and smaller stands of mixed spruce/deciduous forest. Away from the marine influence, the tree cover changes to black cottonwood. Cottonwood is also common in the river bottoms of the parks. Tall grasses and ferns tend to grow underneath these dense cottonwood stands. Willow is the dominant species in more open areas. At higher elevations and on steeper and wetter slopes below the tree line (500 m), tall shrubs (primarily alder, mixed with salmonberry, elderberry, and devil’s club) are the main vegetation type.

The alpine habitat extends from the upper fringes of the forest habitat to the rocky mountain tops. Alpine tundra occurs above tree line elevations in mountain ranges and exposed ridges. At these higher elevations, the landscape is increasingly broken by rock outcroppings. Plant communities consist of prostrate, mat, and cushion-forming species and shrubby species intermittent in distribution. Barren and lichen-covered rocky areas are dominated by *Dryas* and mountain heather communities. These plants are adapted to the scouring high winds and widely ranging temperatures of high elevation alpine regions. Due to steep slopes and relatively thin soil at the higher elevations, areas of alpine tundra lack trees and may have permafrost. Despite challenging growing conditions, beautiful alpine plants thrive in this zone. Alpine zones are easily disturbed.

Wildlife

A large variety of animals live within the habitats described above. (See Appendix C: Mammal List.) Much more information is available for the northern Kachemak Bay side of the parks than the more remote southern Gulf of Alaska side.

Marine Wildlife

The parks are best known for fauna found in the marine habitat. The northern sea otter and the harbor seal are the two marine mammals most frequently seen in Kachemak Bay. Additional species that occur include harbor porpoise, minke whale, Steller sea lion, and orcas. Occasionally, humpback and finback whales and the endangered Cook Inlet beluga whale (once prevalent) are sighted. Humpback whales and orcas have become more prevalent in Kachemak Bay since about 2010.

In the Gulf of Alaska side of the parks, fin, minke, and humpback whales commonly migrate through. Both resident and transient orcas utilize the Gulf of Alaska side of the parks and limited numbers of sea otters also live along the coastline.

Pacific halibut, walleye pollock, lingcod, Pacific cod, and rockfish are found throughout the salt waters of the parks, both within Kachemak Bay and along the Gulf of Alaska. All five species of Pacific salmon that spawn in Alaska are found in the salt waters of the parks, with all spawning in the freshwater streams on both sides of the Kenai Peninsula.¹ (See Map 5: Anadromous Fish Distribution). A wide variety of other fish species live in the waters of the parks, contributing greatly to its biodiversity and bioproductivity.

Shellfish are common in Kachemak Bay, with crab, shrimp, and clams found throughout the area. Of crab species, Tanner crab are the most common. Dungeness crab are present and are frequently eaten by sea otters; king crab are present but not common. Shrimp are distributed throughout the bay but appear to be concentrated in the waters of the outer bay deeper than 50 feet. Pink and sidestripe shrimp are the most common, with seasonal presence of humpy and spot shrimp. Razor, redneck/surf, soft-shelled, littleneck, butter, and gaper clams; blue mussels; and cockles are found in the intertidal waters.

Terrestrial Wildlife

Moose are widespread in low numbers, grazing on timberline plateaus along the larger streams and in recently burned areas throughout the parks. Mountain goats range from alpine to old-growth forest below tree line. Major predators in the area include brown and black bears, lynx, coyote, wolves, wolverine, and ermine. Other common species in the parks include red squirrel, hoary marmot, and snowshoe hare. (See Appendix C: Mammal List.)

¹ More information on salmon systems is available in ADF&G's Cook Inlet Salmon Enhancement Plan.

Map 5: Anadromous Fish Distribution

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Avian Wildlife

Due to its high bioproductivity and wide range of habitats, KBSP is among the most important marine and terrestrial bird habitats on the Kenai Peninsula and Southcentral Alaska. Ice-free bays and coves form a long shoreline along nutrient rich Kachemak Bay. Old growth temperate rainforest and alpine talus slopes offer multiple niches for avian species. Rich estuarine and intertidal areas attract tens of thousands of shorebirds and other migratory species each spring and fall. The area also offers significant habitat for overwintering waterfowl and seabirds.

More than 215 species of migratory and nonmigratory birds have been identified in and around the parks. More than 140 different species reside in the parks at some time during the year, and more than 110 species breed and raise their young there. More than 60 species migrate through the area. Major categories of birds identified within and around the parks include waterfowl, shorebirds, gulls, seabirds, songbirds, and raptors. (See Appendix D: Bird List.)

Natural Hazards

Earthquakes are common within a 600-mile radius of the parks, with three earthquakes greater than 8.0 magnitude occurring since 1938: M8.6 Shumagin Island 1938; M8.6 Unimak Island 1946; and M9.2 Prince William Sound 1964. This latter event, the Good Friday earthquake, is the second strongest ever recorded in the world. In the Kachemak Bay area the quake's most pronounced effects included land subsidence, landslides, earth fissures, submarine landslides, compaction, and erosion. Due to the geography of Kachemak Bay, tsunami risk is relatively low in the park units bordering the bay; however, on the Gulf of Alaska side of the parks the risk is higher due to the exposed coastline.

Snow avalanche conditions exist whenever unconsolidated snow accumulates to form a slab on a sloped surface that is underlain by a weak snow layer. If there is a sufficiently long and steep slope, a triggering event may cause an avalanche. Most avalanches occur on 34% to 45% slopes. The mountains of the parks reach heights of greater than 5,000 feet, and slopes steeper than 30% are typical in the area. Many areas are subject to avalanches and landslides. Several avalanche scars exist on the peaks forming the south edge of the Wosnesenski River valley. Sadie Cove shows extensive avalanche scarring along most of its length. Small landslides have occurred on the buttresses above Grewingk Glacier Lake. In 1967, a very large landslide triggered a tsunami-like surface wave on the lake – another large event at Grewingk Glacier Lake at any time is a distinct possibility. Receding glaciers throughout coastal Alaska have led to an increasing number of landslides.

In spruce-bark-beetle infested areas, infected trees usually die and can be subject to blowdown events after about 10 years. This results in great difficulty traversing the terrain and maintaining trails and facilities. As vast areas of spruce die, rapid understory growth

results in conversion to devil's club or grass meadows where discerning a trail can be difficult. This can lead to disoriented hikers needing assistance by search and rescue staff.

Human Environment

Regional Setting and Overview

The Kenai Peninsula is a rich and varied region of Southcentral Alaska. Mountains and glaciers (including the 1400+ square mile Harding Icefield and Grewingk-Yalik Glacier Complex) cover much of the peninsula, but there are also extensive lowland forests, meadows, and river systems. The Gulf of Alaska brings saltwater to the shores of the peninsula. The area's abundant fish, wildlife, and breathtaking scenery awe residents and visitors alike.

Combined, the park units encompass more than 371,000 acres of land. Of that, approximately 845 acres are privately owned (201 individual parcels) and another approximately 189 acres are owned by the University of Alaska, Bureau of Indian Affairs, Seldovia Native Association, and BLM.

Most of the Kenai Peninsula's land mass falls within large conservation areas managed by the Federal Government (see Map 2: General Land Ownership). Chugach National Forest, Kenai National Wildlife Refuge, and Kenai Fjords National Park are managed primarily for multiple use, wildlife habitat, and public recreation/resource protection, respectively. The waters and tidelands of Kachemak Bay, a "nursery" for many Alaska marine species, were legislatively designated a State Critical Habitat Area in 1974.

The major communities of the Kenai Peninsula are situated along the peninsula's rivers and coastline. Oil and Gas exploration and production are an economic base for the Kenai Peninsula Borough. Homer, located on Kachemak Bay, is considered the "host" community for KBSP. It has a bustling harbor and deep-water dock. The major economic bases for the Homer area are recreation, tourism, and commercial fishing.

Most of KBSP's 173,435 roadless acres are located on the south side of Kachemak Bay. The park also includes the sand and clay cliffs of the Cottonwood Eastland area (on the bay's north shore), Nuka Island (the largest island on the southern Kenai coast), and islands in the Petrof Glacier area.

The Wilderness Park became Alaska's first, and remains its only, state wilderness park in 1972. It abuts the southern boundary of KBSP in the Kenai mountains and extends south into the waters of the Gulf of Alaska. It contains approximately 198,408 roadless acres, including 115 miles of rugged coastline on the North Pacific plus 15 miles of combined coastline from 80 islands in the park.

The uniqueness of the area is a result of dynamic interactions between geology, biology, and climate. This interplay between the environment and its inhabitants, and between the people, plants and animals themselves, creates a wide diversity of landscape and organisms that offer an abundance of recreational opportunities for residents and visitors.

Cultural History

Pre-Contact

Due to its coastal location, diverse vegetation, relatively benign climate, and abundant marine and terrestrial wildlife, people have been attracted to the Gulf of Alaska and Kachemak Bay areas for millennia. Evidence shows that ancestral Alutiiq lived along the outer Kenai Peninsula coast for at least 7,500 years. Ancestral peoples occupied Kachemak Bay as early as 8,000 years ago. To date, these earliest inhabitants are unidentified culturally; however, archaeologists have identified three cultures called Ocean Bay, Arctic Small Tool tradition, and Kachemak tradition in the area. Sites representing each of these cultures are found on state park land.

Most ancestral peoples probably arrived by kayaks or larger umiaks from the Kodiak archipelago, the Alaska Peninsula, Bristol Bay, and later from Prince William Sound, as evidenced by the types of materials they used and the styles of tools they created.

About 1,000 years ago, Dena'ina Athabascan people migrated into Cook Inlet from the mountains to the west and north of the Kenai Peninsula. In Cook Inlet, communities arose near major salmon streams such as the Kenai and Kasilof rivers and the Beluga River north of Tyonek. Kachemak Bay was the southernmost extension of Dena'ina territory – here people hunted marine mammals such as belugas, whales, and seals; fished; and harvested invertebrates. Dena'ina settled around Seldovia, on a few islands in Eldred Passage, at Bear Cove, at small camps on Chugachik Island, and at Cottonwood Creek, leaving middens (refuse deposits) and other indications of habitation. Aleutika and Tutka are place names that speak to the long Dena'ina presence in the parks.

Although Athabascan is the language of the Dena'ina, four distinct dialect areas exist:

1. Upper Inlet (Turnagain Arm northward to Denali; west to Rainy Pass and Tyonek; and eastward to Chickaloon);
2. Inland (Nondalton, Lime Village, and Lake Clark);
3. Iliamna (Pedro Bay, Newhalen, and westward to Augustine Island in Kamishak Bay); and
4. Outer Inlet (Seldovia north to Point Possession, and, on the west shore, Polly Creek to Kustatan).

Although the Outer Inlet dialect is extinct now, Dena'ina people still reside in Seldovia.

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On the northern shore of Kachemak Bay, the Cottonwood Eastland area holds additional evidence of prehistoric occupation. Known archaeological sites are located near the mouths of both Cottonwood and Eastland Creeks.

In the late 1800s, Chugach Alutiiq people moved from Prince William Sound and from along the outer Kenai Peninsula coast to the tip of the Kenai, where they built the communities of Nanwalek and Port Graham. Descendants still live in those villages and in Seldovia.

Western Contact

Danish Captain Vitus Bering and Russian Captain Alexii Chirikov explored the Alaskan coast on behalf of Russia in 1741. Between 1778 and the late 1790s, British Captains James Cook, George Vancouver, Nathaniel Portlock, and George Dixon explored the waters of Southcentral Alaska, including what Vancouver named Cook Inlet. The Spanish conducted at least five expeditions to Prince William Sound and the Gulf of Alaska between 1774 and 1792.

Permanent western presence in Cook Inlet began in the 1780s. Two rival Russian fur companies established themselves in Cook Inlet from 1784 until 1797. Grigorii Shelikhov's fur hunters were in Kachemak Bay by 1786, primarily hunting land animals or purchasing pelts from the local Dena'ina hunters and trappers. After the flurry of the fur rush, Russian, European, and American scientists focused on mineral exploration. Peter Doroshin, a Russian geologist, explored the Kenai Peninsula in the late 1840s and early 1850s. He recommended that coal seams near Port Graham be mined, which they subsequently were starting in 1855 and continuing into the 1860s.

After Alaska became a United States territory in 1867, American cartographers and scientists traveled north to map the Alaska coastline and to document the natural resources, especially mineral resources such as coal and gold. A flurry of coal mining along the north shore of Kachemak Bay, including at Eastland Creek in the park, and of gold placer mining near Anchor Point occurred in the 1880s and 1890s. Aurora Spit and the land south of Aurora Lagoon were the site of a bogus gold mining venture in the early 1900s. At least one tunnel was dug into bedrock along Portlock Creek to suggest active gold mining in case any curious investors traveled to Alaska.

William H. Dall (cartographer, geologist, and scientist) visited Kachemak Bay in 1880, 1895, and 1899. On each trip, he documented the melting of Grewingk Glacier which he named in honor of a German volcanologist. While mapping the shoreline of Kachemak Bay, Dall named numerous features in the parks such as Halibut and Sadie Coves, Eldred Passage, and Tutka Bay.

Halibut Cove, a small community adjacent to the park, was established around 1911 with the development of a short-lived yet thriving herring fishery. Processing plants, known as salteries, were constructed around Halibut Cove and the nearby lagoon. The herring fishery occurred in late winter and early spring and flourished when the unusually large (12"-14"

long) herring spawned in dense beds of eel grass within the bay, particularly in Halibut Cove and Aurora Lagoon. The fishery crashed in the late 1920s, due to depleted stocks, non-existent conservation practices, and competition with foreign fishing fleets. On certain low tides, boaters can still see remnant pilings from the San Juan Saltery in San Juan Cove, Tutka Bay. The saltery, later converted to a salmon cannery, was dismantled in 1946 or 1947 and the building materials were incorporated into other structures around Kachemak Bay. Saltery pilings near the Saddle Trail trailhead have become a staging area for charter boats to drop off and pick up people hiking nearby park trails.

Concurrent with the development of the herring fishery was fox farming. Wild red foxes, living in the hills north of Homer, were live-trapped, penned, bred, and raised for their luxurious fur. Fox farmers, preferring quiet locations in which to raise their foxes, settled in remote coves along the bay. They also released arctic foxes, imported from northern Alaska, on uninhabited islands to fend for themselves. The availability and abundance of relatively cheap food, such as moose, porcupines, herring, salmon, and fish offal from the processing plants, allowed for the full development of fox farming. Like the herring fishery, the heyday of fox farming occurred between 1910 and 1930.

A few trappers operated in the area from the 1920s through the 1940s. Some of their original trails are now part of the parks' trail system. A few place names in the parks also reference early residents, such as miner Jacob "Rusty" Lien (Rusty's Lagoon) and hunting guide William McKeon (McKeon Flats, McKeon Rock, McKeon Spit). Other names describe land features such as Alpine Ridge and natural resources such as Humpy Creek, Mallard Bay, and Moose Valley. Several park features, such as China Poot Lake and Poot Peak, were named for Henry "China" Poot, a Native man who hunted, fished, and trapped in the region in the early 1900s and probably worked with Chinese railroad workers or fishermen.

"Herring" Pete Sather resided on Nuka Island from the 1920s to the early 1960s and operated a fox farm there. Josephine Tuerck lived on Nuka Island and married Herring Pete in her later years after her first husband passed on. The Nuka area also saw exploration and mining activities during this period, but they ended during World War II. Nuka Island was initially federally owned and was once proposed for inclusion in Kenai Fjords National Park before the state selected the island.

Communities Southwest of Kachemak Bay State Park

There are four communities near KBSP to the southwest: The City of Seldovia, Seldovia Village, Nanwalek, and Port Graham. Although not within the park, many residents of these communities utilize and value park resources. The area is not accessible by road and is served by ferry, water taxi, and aircraft. The Seldovia Village Tribe, the Native Village of Nanwalek, and the Native Village of Port Graham are federally recognized tribes. The local Native Village Corporations are the Seldovia Native Association, Incorporated; Nanwalek's

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English Bay Corporation; and the Port Graham Corporation. The City of Seldovia and Seldovia Village share a K-12 school; Nanwalek and Port Graham have their own K-12 schools.

Seldovia & Seldovia Village

The name Seldovia originates from “Seldevoy,” a Russian word meaning “herring bay.” Russians arrived in the late 1700s, establishing a trading post and a church. After the sale of Alaska to the United States in 1867, European-Americans, particularly Scandinavians, came to Seldovia for the rich fisheries and other natural resources. All these traditions infuse the culture of modern Seldovia.

The City of Seldovia, incorporated in 1945, has a population of 230 – 12% are Alaska Native, including Dena'ina Athabascan, Alutiiq, and Sugpiaq. Between 1869 and 1882, a trading post was located in Seldovia. A post office was established in 1898. The area developed around commercial fishing and fish processing – historic industries include fox farming, berry picking, logging, and mining.

Seldovia Village encompasses a large area adjacent to the City of Seldovia, with Jakolof Bay Road running through the village for approximately ten miles and connecting the two communities.

Tourists, commercial fishermen, businesspeople, and scientific and cultural researchers frequent Seldovia throughout the year. The Seldovia Chamber of Commerce estimates Seldovia receives 6,000 visitors annually.

Seldovia was once home to over 1,100 residents, but due to declining resources, the population diminished. Seldovia Village has a population of 180 and the City of Seldovia maintains a population of 216 (State of Alaska DCCED Certified Population). According to the 2010 US Census, approximately 27% of Seldovia’s population is American Indian or Alaska Native.

Local employment opportunities are scarce, and many jobs are only available during peak tourist and fishing season (May-September).

Nanwalek

This traditional Alutiiq village has a population of 291. Subsistence activities are a large part of the culture. The village was originally the site of a Russian trading post called Aleksandrovsk. In 1991, locals changed the community name of English Bay to Nanwalek, meaning “place by lagoon.” A Russian Orthodox church (originally constructed in 1870 and rebuilt in 1930) is a designated national historic site. Many of the current residents are of mixed Russian and Sugpiaq (Alutiiq) lineage. Villagers speak Sugtestun, a dialect similar to Yup'ik.

Port Graham

Port Graham is a traditional Alutiiq village with a population of 179, 82% of which are Alaska Native. In 1850, the Russian-American Company established a coal mine near Port Graham, but it lasted only a few years. A cannery started in 1911 was sold to the village corporation in 1983 – it continues to be Port Graham’s main economic activity and also employs Nanwalek residents. A pink salmon hatchery began operations in 1991. Cook Inlet Aquaculture Association has operated the hatchery since purchasing it in 2014. In 2015 CIAA completed a \$2.8 million renovation to the hatchery. Port Graham is connected by trail to nearby Nanwalek. The Port Graham airport serves both these communities.

Subsistence

Tribal peoples have for centuries gathered berries, herbs, and medicinal plants; fished the rivers, streams, lakes, and surrounding waters; and hunted this area’s limited game resources such as waterfowl, upland birds, and big game animals. Great distances must sometimes be traveled by foot or by boat to harvest these vital subsistence resources. Duck hunting is now mostly in the Jakolof and Seldovia Bay areas; seal hunting mainly at the head of Tutka Bay, Sadie Cove, Yukon Island, and Jakolof Bay; and moose hunting mainly in other areas of Game Management Unit 15 but a few are still harvested in the Seldovia area. Many areas of Kachemak Bay no longer support significant subsistence use due to diminished game populations and increased settlement.

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Chapter 3: Goals and Objectives

This chapter provides management goals and objectives for the park units addressed in this plan. These goals and objectives were developed considering the enabling statutes (see Appendix B), regulations, and mission statements for the park units and DPOR. They have been developed to establish values that aid in decision making associated with the issues identified in this plan. Goals and objectives are arranged under the headings of Area-wide Goals and Objectives and Park Unit Specific Goals and Objectives. These are not listed in priority order. Area-wide includes KBSP, KBSWP, and the three State Recreation Sites (SRS) on the north side of the bay.

Area-wide Goals and Objectives

Resource Protection Goal: Protect and preserve park resources while allowing for diverse visitor experiences and an understanding of the unique and exceptional features of the park units.

Objectives:

- Foster collaborative relationships that promote responsible use and stewardship.
- Preserve and protect the recreational, natural, and cultural resources of the park units for long-term use and enjoyment, including opportunities for visitors to experience solitude, quiet, and the natural environment including the geology, flora, and fauna.
- Promote education designed to encourage a better understanding of the parks' dynamic ecosystems, food web interactions, and natural and cultural features.
- Facilitate research and encourage inventory and monitoring of the natural and cultural resources of the park units to gain further knowledge to better inform decision making.
- Consider historical information and inventories when making resource management decisions.

Recreation Goal: Enhance opportunities for year-round recreational use of the park units while maintaining the scenic, wilderness, and other natural resource values in the plan area.

Objectives:

- Increase public awareness and the ability to mitigate the various hazards presented by weather, terrain, isolation, and wildlife in the parks.

- Expand recreational opportunities within the park units through development of sustainable facilities and trails that are appropriate to the setting and enhance recreational experiences while reducing long-term maintenance needs.
- Work with local, regional, or national partners to support State Park events that focus on engaging new recreational users and introducing people to new experiences.
- Seek funding and resources for long-term maintenance of existing facilities and trails.
- Pursue an International Dark Sky Park designation to promote the Parks’ dark sky resources and foster increased tourism and local economic activity.

Park Unit Specific Goals and Objectives

Kachemak Bay State Park

The purpose of Kachemak Bay State Park as described in AS 41.21.131 is to “protect and preserve this land and water for its unique and exceptional scenic value” (see Appendix B). To further this purpose, the following goals & objectives for KBSP are provided:

Goal 1: Protect and preserve the natural resources of KBSP for their unique and exceptional scenic values

Objectives:

- 1-1. Protect, and enhance areas of unique and exceptional scenic value inherent in the natural geological, faunal, or floral characteristics.
- 1-2. Design facilities, campsites, and trails to blend into the park’s natural setting and scenic character while minimizing the impact on resources.
- 1-3. Monitor and assess resource impacts over time to inform future park management.
- 1-4. Identify appropriate vegetation management actions to establish, enhance, and maintain scenic vistas.

Goal 2: Provide for recreational use and enjoyment by the public, with consideration to public preferences, resource values, regional setting, and legislative intent

Objectives:

- 2-1. Monitor and assess recreational use changes over time to adapt future park management.
- 2-2. Develop interpretive and educational outreach programs to promote the protection of park resources.

- 2-3. Manage the separation of recreational uses to avoid conflicts, protect resources, maintain a high-quality recreational experience, and enable site-appropriate activities.
- 2-4. Develop strategies to minimize harmful disturbances such as noise and light.

Goal 3: Preserve and protect the park’s cultural resources

Objectives:

- 3-1. Establish criteria for research activities to meet management needs for information.
- 3-2. Investigate, interpret, and protect the archaeological and historical elements of the park.
- 3-3. Incorporate scientific and educational information into the park’s visitor information programs so users can understand the park’s cultural value.
- 3-4. Establish management practices which employ off-site visitor interpretation of the area’s cultural and historic significance without attracting use to sensitive areas.

Goal 4: Enable a self-sufficient, year-round, recreational destination by developing collaborative relationships with tourism organizations

Objectives:

- 4-1. Promote the park’s tourism potential through marketing commercial recreation operations, concession activities, visitor accommodations, and services within the park.
- 4-2. Develop partnerships between DPOR and businesses to help create sustainable revenue streams for the park.

Kachemak Bay State Wilderness Park

Kachemak Bay State Wilderness Park was “established and shall be managed as a wilderness park” in AS 41.21.140 (see Appendix B). To further this purpose, the following goal & objectives for KBSWP are provided:

Goal 1: Preserve and protect the land and water of KBSWP for their unique and exceptional wilderness values

Objectives:

- 1-1. Ensure that all KBSWP infrastructure developments are primitive in nature and constructed to minimize the physical and visual impact to the resources.

- 1-2. Limit the negative impacts of research, experimentation, and environmental monitoring to protect the wilderness resource and experience.
- 1-3. Establish management practices which employ off-site visitor interpretation of the area's cultural and historic significance without attracting use to sensitive areas.
- 1-4. Limit noise and light disturbances to preserve the wilderness character of the park.
- 1-5. Limit commercial use of the park to those activities which enhance park purposes.

Overlook Park SRS, Diamond Creek SRS, and Eveline SRS

These three State Recreation Sites on the north side of Kachemak Bay are managed under this plan. The following comprise the management goal and objectives for these sites:

Goal 1: Provide a variety of year-round recreational opportunities within road accessible units

Objectives:

- 1-1. Design and develop trailhead facilities that provide adequate parking for vehicles, public restrooms, orientation/informational kiosks, and interpretative panels.
- 1-2. Re-route or upgrade existing trails to increase recreational opportunities and safety.
- 1-3. Develop guidelines for self-guided nature walks for bird watching and wildflower viewing.
- 1-4. Foster collaborative relationships with user groups to develop multimodal sustainable looped trails for year-round use.
- 1-5. Expand winter recreational opportunities.
- 1-6. Promote proper trail etiquette among diverse users.

Chapter 4: Park Use and Issues

This chapter lists and briefly describes uses and issues raised during the planning process that affect park management. Management policies and recommendations in Chapters 5 & 6 address many of these uses and issues.

Overview of Park Use

Recreation within the units on the north side of the bay is currently limited by the relatively small number of developed facilities. Developed recreation opportunities are provided at two of the units and include mountain bike and beach access trails within the Diamond Creek unit; and skiing and hiking trails within the Eveline unit. The Overlook Park unit and the Cottonwood Eastland unit have minimal development – recreational use in these units primarily occurs on user defined or social trails.

Most visitors to the park units on the south side of the bay arrive by water taxi or personal boats and most visit during summer – in 2017, over 80% of users visited this area in June, July, or August. Use in this area mostly occurs on the saltwater and beaches and the developed trail systems on the Grewingk Glacier forelands and the area around Halibut Cove and Halibut Cove Lagoon and China Poot Bay. Commercial water taxis deliver visitors to trailheads and beaches; recreational boating related activities include fishing, wildlife viewing, and access to hiking, hunting, and other activities. With the recent addition of the Kachemak Bay Water Trail, the marine tidelands are receiving increased use by kayakers and others. Since China Poot Lake has a barrier falls at the outlet, the area offered an opportunity to establish a personal use fishery, in place since 1980, that has become very popular. Birding is also a very popular activity throughout the parks, especially during the annual Kachemak Bay Shorebird Festival, usually held in the early part of May.

Aircraft are also a common means of access, landing on saltwater, gravel bars, and at several freshwater lakes. Most of these landings are made by commercial flight operators. Flightseeing and air taxi services offer an important recreation service and access to distant portions of the park.

Public use cabins are very popular in summer. Winter use is low and primarily consists of backcountry skiing, although some hiking, mountaineering, and kayaking also occur. Winter users near the year-round communities of Halibut Cove, Seldovia Village, and Seldovia typically access ski terrain adjacent to their residences by hiking up with skins on their skis.

While exact numbers are not known, use of the lands and waters within KBSWP are significantly lower than the use occurring in the KBSP. The cost of crossing the bay from

Homer is prohibitive for many potential park visitors, and ideal beach landing sites with ready access to the interior of the park are limited. This is especially true on the Gulf of Alaska side of the park, where cost of transport is even higher (usually from Seward or Homer by boat or aircraft). KBSWP can also be accessed via an arduous trek over the southern spine of the Kenai Mountains (most commonly by trekking the Tutka Alpine Traverse (AKA Tutka Backdoor Trail)); via Rocky River Road; or by boat or plane. For those that do make the trip, a truly remote experience is the reward.

Other current uses of the park, at least some of which are likely to increase in popularity, include: surfing, rock climbing, sailing, photography, diving, ice skating on Grewingk Lake, snowshoeing, horseback riding, dog walking, wildflower viewing, paddle boarding, flightseeing, Nordic skiing, mountaineering, and skijoring.

In January of 2014, ADNR received 122 responses to a questionnaire on recreational park use. 117 of the questionnaire respondents had visited KBSP, while 100 had visited KBSWP. Based on responses to the questionnaire, the most common recreational use of the park units is for general recreation, which includes hiking and boating. (See Figure 1: Park Visitor Activities.) Users that responded to the questionnaire visited the units on the south side of Kachemak Bay more than the northside units, with fewer visitors to areas along the Gulf of Alaska, and the fewest to locations along the spine of the Kenai Mountains (see Figure 2: Park Use Areas).

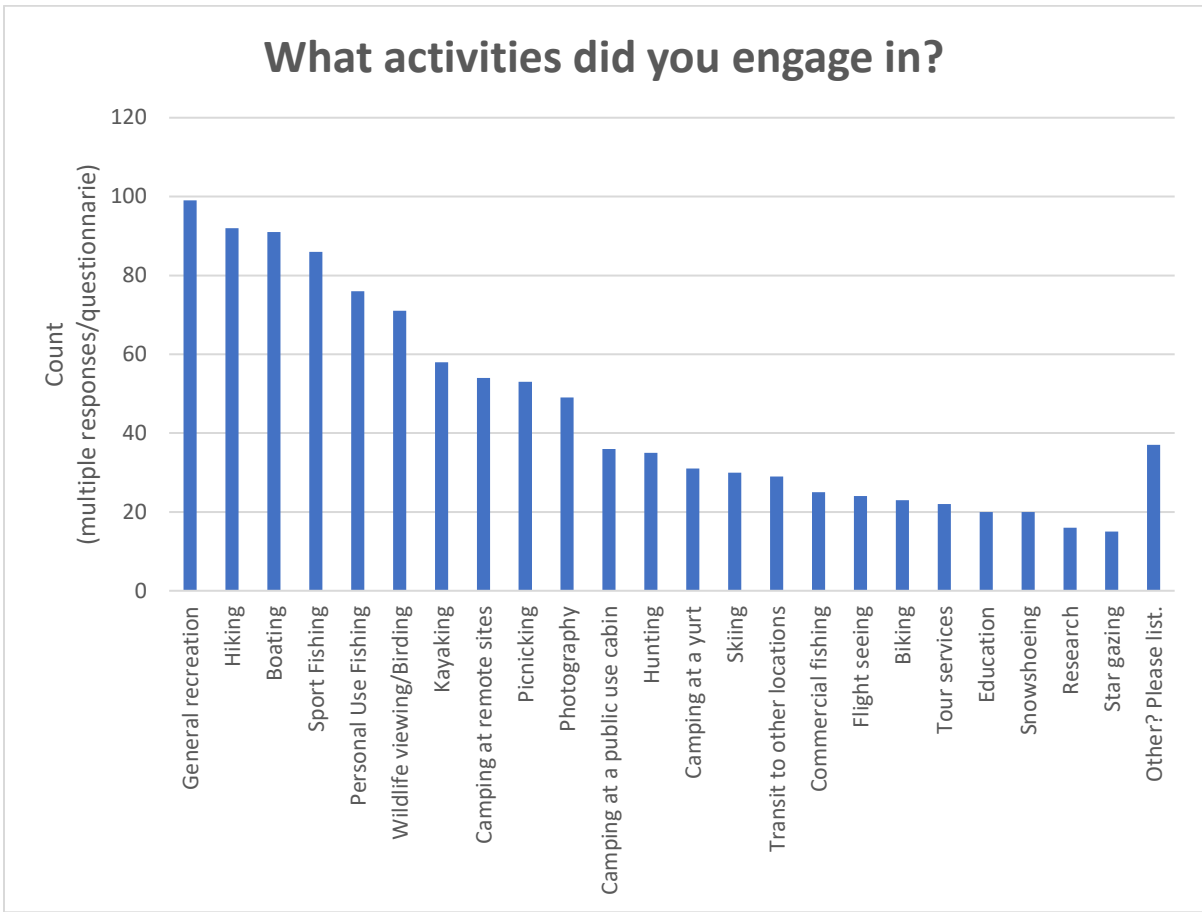


Figure 1: Park Visitor Activities

Park activities mentioned by respondents to the 2013-14 questionnaire (122 respondents).

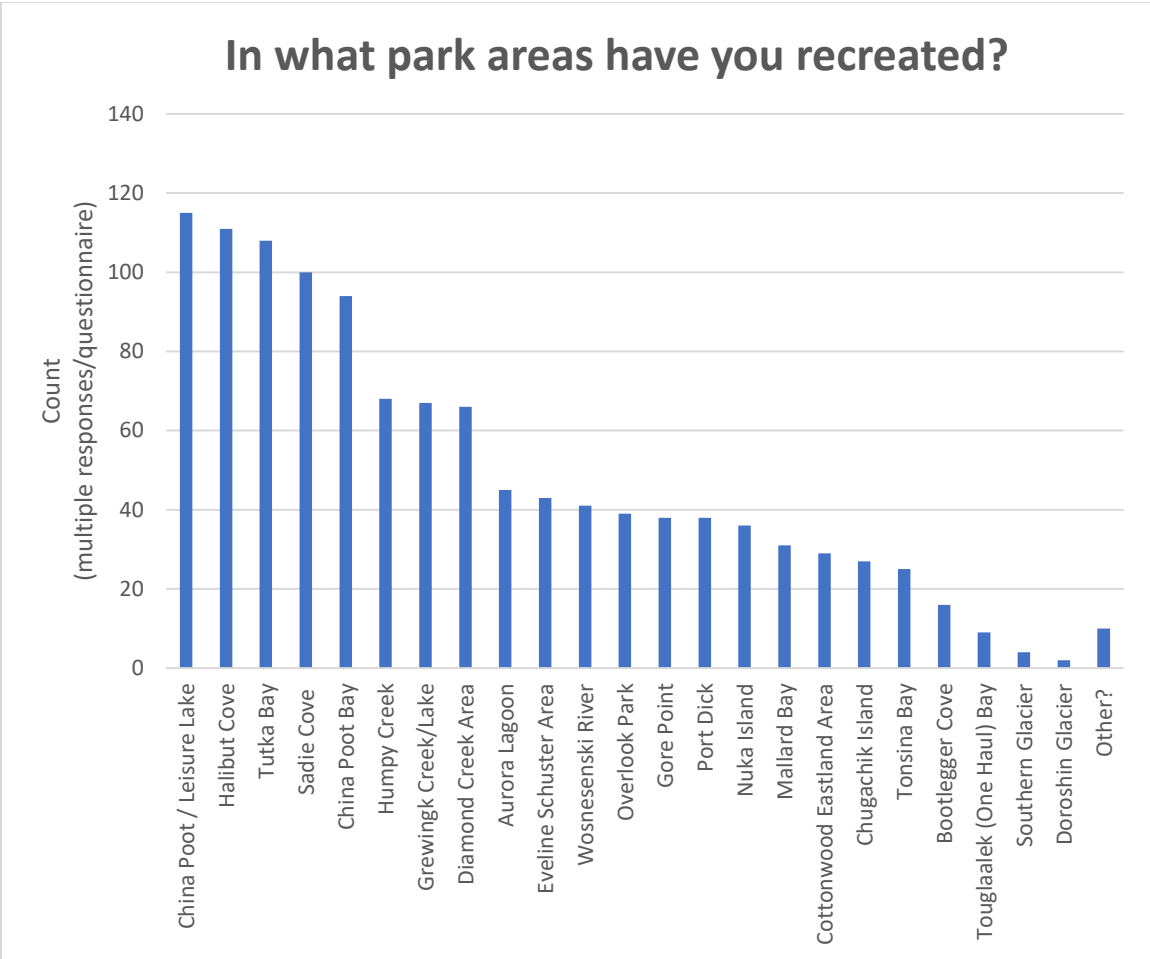


Figure 2: Park Use Areas

Geographic areas where respondents reported recreation activities, based on 2013-14 questionnaire results. Respondents could select multiple areas of use (122 respondents).

Changing Use and Recreational User Conflicts

Since the last plan was completed for the park units, changes in technology and recreational use patterns have necessitated a review of current and emerging recreational activities. Park users are creative people, looking to push the limits of themselves, technology, and sport. In some cases, DPOR may offer expanded recreational opportunities; in other cases, some uses may be limited to protect resources.

Bicycling

Off-road cycling has significantly increased in popularity since the last plan was completed. The recent development of fat-tire bikes (tire widths of 3.7 inches or greater) enables cyclists to travel on a wider range of ground surfaces with the potential for less surface damage. Park

users would like to be able to ride mountain bikes on designated trails within KBSP and fat-tire bikes on the beaches of Kachemak Bay and the Gulf of Alaska.

Personal Watercraft (PWC)

Personal watercraft ownership is increasing and now represents a large segment of overall boat sales in the United States. In 2001, regulations were promulgated prohibiting PWC use within KBSP, KBSWP, and the Kachemak Bay Critical Habitat Area (KBCHA), which overlaps KBSP and is managed by ADF&G.¹ Interest in allowing this activity to occur within Kachemak Bay was expressed during the planning process as was support for retaining the current prohibition on their use. Some feel that allowing PWC use is an equal-access issue, would provide business opportunities, and that recent advances in technology and design have largely addressed previous concerns related to fuel, exhaust emissions, and noise. Others think that PWC use will degrade the park experience for other park users, disturb wildlife, erode the shoreline, and pollute the bay.

In January of 2021, ADF&G repealed the regulation prohibiting PWC use in the KBCHA. As of June 2022, a court case challenging this repeal remains unresolved. State park regulations still prohibit PWC use in Kachemak Bay State Park waters that overlap the KBCHA.

Rotary-winged aircraft (Recreational and Commercial)

Helicopters are used to access parks areas, mostly commercially. There has been increased interest in expanding landing areas for summer operations; but since 1989 DPOR has only authorized helicopter landings on Grewingk Glacier as part of commercial flightseeing tours. People have raised concerns regarding helicopter use including: potential expansion of the use; and disturbance to wildlife, sensitive areas, and the park's quietude. Additionally, concerns were raised about compatibility with park purposes.

Recently, commercial operators have applied for helicopter landings in support of heli-skiing operations. Typically, this type of use includes multiple flights to ferry skiers to the top of the run from the base. Other potential helicopter uses might include heli-hiking (transport from an access point to an elevated drop-off point in the summer, without ferry flights) or heli-backcountry-skiing (transport from an access point to an elevated drop-off point in the winter, without ferry flights).

Fixed-wing aircraft (Recreational and Commercial)

Current regulations allow aircraft landings on saltwater, gravel bars (KBSP only), saltwater beaches (KBSWP only), Emerald Lake, China Poot Lake, Hazelle Lake and Petrof Lake. Requests to allow float plane use on Upper Hazelle Lake, Wosnesenski Lake, Gore Point Lake, and Port Dick Lake were received. Conflicts can arise between those seeking a quiet and remote backcountry experience and those reaching the park by air. Aircraft can easily reach remote areas in the park, whereas other backcountry users may have undergone considerable effort just to get away from exactly this kind of motorized activity.

¹ 11 AAC 20.115, 11 AAC 20.215, and 5 AAC 95.310, respectively.

Unmanned Aerial Vehicles (UAVs)

The commercial and recreational use of Unmanned Aerial Vehicles, commonly referred to as drones, is increasing. Government agencies are also using drones to gather aerial data in a cost-effective manner.

Some appreciate that drones offer amazing landscape views with low impact and would draw users to the park. There are concerns that DPOR doesn't have enough staff to monitor drone use; that many drone users will lack the expertise needed to determine how far they are from wildlife or people; and that drone use will invade the privacy of park users. Others believe that due to vegetation and topography, an operator may not know the drone is disturbing someone nearby; that at 400 feet, a drone would impact a large area; that allowing recreational drone use conflicts with the definition of a scenic park (AS 41.21.990) because drones introduce an "artificial feature," albeit temporarily; and that fines for misuse of drones should be instituted.

Unmanned Underwater Vehicles (UUVs)

Unmanned underwater vehicles operate underwater and can be either remotely operated by a human or be autonomous. UUVs are used for oceanic research, seafloor mapping, and the installation, maintenance and inspection of submerged pipelines and fiberoptic cables. UUVs can record conditions and terrain below sea ice when this activity is too risky for a manned vessel.

Commercial Activities

Commercial Activities Facilitating Recreation

DPOR generally encourages commercial activities that provide or enhance recreation services in state parks. Commercial activities should be consistent with the purpose of the park and the appropriate level of commercial development must be determined. Commercial uses of park lands and waters (except for some fishing uses) are managed by DPOR through a fee-based commercial use permit system. Commercial operators include such visitor services as water and air taxis, fishing charters, guided hiking and hunting, and wildlife tours. Producing films, publications, video guides, and commercials are also considered commercial activities.

Commercial tours facilitate sea-kayaking and other human-powered boating, offer instruction of various types, equipment, and half-day to multi-day guided trips. One of the operators is a general guide service, willing to help individuals recreate via multi-sport trips in KBSP. Two of the operators are resort lodges, with fixed assets on the south side of the bay, but whose customers use the park units for hiking, bird-watching, and fishing, among other activities.

Water taxi services range from simple trips across the bay to cargo delivery and research support using larger and more capable vessels. Many of the water taxi permittees offer service to docks at Halibut Cove, Seldovia, public use cabins, and private lodges, as well as

beach landings at Glacier Spit, China Poot, Saddle Trail, and elsewhere for hikers looking to explore the park.

Fishing charters use portions of the bay for salmon and halibut fishing. In addition, guided fishing excursions are available to the many streams that flow through the park, offering fishing for salmon, trout, and Dolly Varden.

Commercial Fishing

The Kachemak Bay area is divided into nine commercial fishing subdistricts and includes Port Graham to the south. There are only five beach areas along the southern shore of Kachemak Bay where set gillnets are allowed.

Pacific cod, Pacific halibut, walleye pollock, sablefish, lingcod, salmon, and many species of rockfish, skates, and flatfish are commercially important species that occur within the marine waters of the Parks. The Pacific cod fishery is the largest commercial groundfish fishery in the Cook Inlet Area with about half of the total harvest occurring in the Cook Inlet District, which includes Kachemak Bay.

In Kachemak Bay and the waters of the Outer Coast unit, there have been commercially important pot fisheries for Tanner, Dungeness, and king crab, and spot shrimp; and a trawl fishery for northern and sidestriped shrimp. The commercial herring fishery has been closed since 1990 due to low abundance. Fisheries have been closed since 1995 for Tanner crab, 1997 for Dungeness crab and shrimp, and 1984 for king crab, due to low abundance of these species. Tanner crab continues to be harvested but only through sport and subsistence fisheries and some years even these have been closed or limited. Hardshell clams were once abundant in Kachemak Bay but commercial fisheries were closed by regulation in 2007. There was a short-lived commercial fishery for blue mussels, but it has been closed since 1998. Red sea cucumber and green sea urchin populations in Kachemak Bay once supported commercial dive fisheries, but these were closed in 1997 due to low stock abundance. Weathervane scallops also occur in Kachemak Bay and the outer coast; however, abundance is low, historical harvests minimal, and no recent permits have been issued.

Disposals

When the Alaska Legislature created KBSP and KBSWP, these lands were withdrawn from the public domain and designated as special purpose sites under Article VIII, section 7 of the Alaska Constitution. As legislatively designated lands, the executive branch is prohibited from disposing of any real property interests in these lands. Therefore, the Division of Parks and Outdoor Recreation (DPOR), tasked with managing these parks, must avoid issuing permits or entering any agreements that constitute impermissible disposals of state park lands.

In 2000, the Alaska Supreme Court in *Northern Alaska Environmental Center v. State, Dep't of Natural Resources*², adopted the functionally irrevocable test to determine if a permit or agreement constitutes a disposal of an interest. The test does not focus on the wording of the permit or agreement, but instead considers “the likelihood of revocation” and “the long-term and harmful character of the environmental impact.” A significant investment in a project and the need for it to continue to generate revenue pursuant to that investment means there is a low “likelihood of revocation” of any agreement related to that project.³ In 2013, the Alaska Supreme court in *SOP, Inc. v. Alaska*⁴ held that a “non-revocable ATV permit” created an easement and thus constituted an unconstitutional disposal of legislatively designated lands. In the 2015 case *Nunamta Aulukestai v. State, Dept. of Natural Resources*⁵, the Alaska Supreme Court determined that even boreholes represented a “long-term and harmful” impact to state lands under the functionally irrevocable test.

Applying the functionally irrevocable test to activities within the parks, the Tutka Bay Lagoon Hatchery (TBLH) operated by the Cook Inlet Aquaculture Association (CIAA) under an agreement with ADF&G appears to constitute an impermissible disposal of state park lands for the following reasons:

- The plain language of ADF&G’s 2014 agreement with CIAA allows CIAA to operate the TBLH for twenty years and states that the parties would work towards transferring the TBLH facilities and buildings to CIAA.
- The hatchery has extensive infrastructure and its operational expenses are funded through cost recovery.
- There is a \$16.1 million investment in the TBLH by the Department of Commerce, Community and Economic Development (DCCED); wherein continued operation of the TBLH is needed to ensure that return.
- The TBLH buildings and the operations within the lagoon have a long-term effect and environmental impact on state park lands and waters.

Private property rights and utility easements that pre-date the park’s creation on land lying within the statutorily-described boundaries of the parks do not constitute a disposal of park lands. Park management decisions should respect these valid entries while implementing statutory and regulatory park management mandates and protecting park resources.

Tutka Bay Lagoon Hatchery

After the creation of KBSP as a scenic park in 1970, the legislature in 1974 authorized private, non-profit corporations to operate salmon hatcheries. The Tutka Bay Lagoon

² *Northern Alaska Environmental Center v. State, Dep't of Natural Resources*, 2 P.3d 629 (Alaska 2000).

³ *Nunamta Aulukestai v. State, Dept. of Natural Resources*, 351 P.3d 1041 (Alaska 2015); *NAEC*, 2 P.3d 629.

⁴ *SOP, Inc. v. Alaska*, 310 P.3d 962 (Alaska 2013).

⁵ *Nunamta*, 351 P.3d 1041.

Hatchery (TBLH) – located within KBSP – was constructed by ADF&G in 1976. ADF&G’s Fisheries Rehabilitation, Enhancement, and Development (FRED) Division, using general funds, operated the TBLH hatchery for 16 years as a state managed hatchery. In 1991, ADF&G contracted with Cook Inlet Aquaculture Association (CIAA) to operate the hatchery, activating cost recovery to fund operations; and in 1994 CIAA took over operations while the state retained ownership of the facility. The current services agreement for CIAA to operate the TBLH expires in 2031.

The hatchery cultivated sockeye salmon from 1976-1978 as well as in 1990, 1996, 1997, and 1999, and chum salmon from 1978-1990. Pink salmon have been cultivated since 1976 with no releases occurring from 2005-2011. In addition to being released in Tutka Bay Lagoon, pink salmon produced at this facility have been remote released at three locations in Kachemak Bay: Halibut Cove (1986-1992), the Nick Dudiak Fishing Lagoon (1987-1992), and Halibut Cove bight (2012). Remote releases of hatchery-produced sockeye salmon from the Trail Lakes Hatchery have occurred within KBSP in China Poot Lake, Hazelle Lake, and Tutka Bay Lagoon for decades. These releases support both commercial and sport fisheries, as well as the Kachemak Bay Personal Use Dipnet Fishery (5 AAC 77.545) that occurs in China Poot Bay.

In 2013, CIAA applied for a DPOR permit to imprint pink salmon in net pens at the head of Tutka Bay at a site approved by ADF&G. Over the course of several years and several commissioners, various appeal decisions were issued about locating net pens in Tutka Bay. These decisions provided different, and thus inconsistent, guidance about the appropriateness of net pens in Tutka Bay. In 2019, CIAA submitted two permit applications. The first was again seeking approval to place net pens in Tutka Bay. The second was to dispose of brood stock carcasses (hatchery waste) in Tutka Bay. These applications were subsequently denied by the DPOR Director. CIAA appealed both decisions to the Commissioner and in 2020 the Commissioner denied both appeals. Because KBSP is a scenic park, the Commissioner determined placing net pens in the open waters of Tutka Bay would be inconsistent with the legislature’s reasons for setting aside the lands to create KBSP. The Commissioner also determined 11 AAC 12.050 specifically prevents the disposal of waste in a state park, and that there was no valid reason to allow CIAA to deposit such waste in KBSP. As of late fall, 2020, both of these decisions are being litigated in state court.

During the planning process, the public offered many comments on the hatchery and its operations. Many suggested that the common property fishery arising from hatchery fish was so minimal that the hatchery should be reclassified as a commercial operation, rather than a state management operation designed to enhance fisheries. Concerns were raised that moving the net pens outside Tutka Bay Lagoon degrades the scenic beauty of the park and the quality of recreational opportunities and that the pens’ associated discharges harm the environment. Other concerns expressed included that the large number of pink salmon produced at the hatchery clogs personal set nets; leads to straying far outside Tutka Bay; impacts the food web, thereby depleting many marine species (including king and Tanner crab, halibut, shrimp, herring, Pacific cod, clams, and mussels); and supplants wild salmon genomes. Other

commenters lauded the hatchery's cost recovery as good for commercial fisherman and thought the hatchery complements the natural scenery.

Homer Electric Association

The HEA distribution line easements predate the park's formation; therefore, the easement interest in the land is not part of the park. HEA utilizes helicopters for powerline maintenance with landing sites located at intervals adjacent to distribution lines. DPOR authorizes these temporary landing sites and support activities through special use permits. In maintaining their lines, HEA faces environmental challenges including flooding and the increased incidence of treefall due to spruce bark beetle infestations. HEA does not have authorization to reroute or install new lines outside of their current easements.

In 2015-16, the Wosnesenski River spilled into Stonehocker Creek, which then began flooding a section of the powerline easement in KBSP near China Poot Bay. This compromised the powerline which serves Peterson Bay and Halibut Cove. In early 2019 DPOR permitted HEA to install a sheet pile dam to divert Stonehocker Creek away from the easement. This temporarily dewatered the powerline corridor until Stonehocker Creek breached the dam in July 2019 and water again flowed down the easement.

A review of available aerial imagery and on-the-ground reconnaissance reveals that electrical lines have been constructed within KBSP. While Homer Electric Association's distribution lines (and possibly others) predate the park, in some cases, lines appear to have been constructed outside of existing easements, on park land.

Division of Parks & Outdoor Recreation Facilities and Trails

Park facilities include structures such as cabins, ranger stations, campgrounds, and marine docks to name a few. Often associated with these facilities are trail systems – terra, snow, and water – that further facilitate public use in park units. A primary purpose of a plan is to recommend facility and trail development to not only meet the current recreational needs of the public, but also meet the expected potential recreational needs for the 20-year period of the plan. Costs associated with construction, operation, and maintenance were considered as a factor in recommending facilities and trails as were current and desired recreational use patterns. This plan recommends those facilities and trails that are consistent with the long-term vision for these units. In some instances, existing public facilities are inadequate to accommodate even current use levels (which can lead to degradation of park resources) or are situated in an area that no longer receives high levels of agency or public use (e.g. Halibut Cove Lagoon Ranger Station). Facilities developed by DPOR (when properly sited, designed, and developed) can accommodate use while at the same time minimizing impacts to the surrounding environment or neighboring private property.

Trails provide access for the public to enjoy scenic views, the wilderness quality, and other resources and recreation opportunities within the park units. When viewed as a system in concert with facilities, trails can greatly influence how and where the public chooses to recreate. Currently, most public use of trails occurs at Grewingk Glacier and in the vicinity of Halibut Cove and China Poot Lake. Much of the park units' interior or southern coast is unreachable by trail, and is visited only by those willing to bushwhack or fly in. The existing trails in certain areas are becoming more popular, and many could be upgraded to accommodate increased use and different use types. Although higher class trails (e.g. Class 4 or 5 ADA-accessible terra trails) are suitable in some areas of the park units, they are not appropriate in all areas. There is a desire from users for multi-use trails, paths that can support "hut to hut" hiking between public use cabins, and trail networks that can accommodate 2-3 day long backpacking trips. Many of the trails on published maps were constructed long ago and have since fallen into disuse due to lack of maintenance. Multiple users have discovered trails marked on published maps are impassable due to downed trees and/or overgrown vegetation. Maintenance of existing trails is as important as construction of new trails – otherwise the investment in the new trail is lost. In addition, maps of the park units need to be updated to include changes to the trail system. For more on trails, see Appendix E: Trail Plan.

Effects of Human Use on the Environment

Humans influence the marine, freshwater, and terrestrial environments through recreational and commercial use. Use of boats and other vessels as a means of recreation and transportation to other recreation opportunities is extensive – this use includes the potential for releases of fuels and lubricants directly into marine and freshwater environments. Additional human impacts include the old Sadie Cove quarry site; alteration of the natural habitat to facilitate human uses (such as trails, docks, PUCs, yurts, etc.); commercial activity within the parks (fishing, guiding, water taxis, hatchery operations, etc.); and numerous potential trespass structures (waterlines, powerlines, etc.) adjacent to private properties.

Exxon Valdez Oil Spill

The 1989 Exxon Valdez Oil Spill (EVOS) directly impacted natural resources and the subsistence, private, and commercial interests that depend on those resources. The EVOS Trustee Council was formed to oversee ecosystem restoration through the use of a \$900 million civil settlement. The Council consists of three state and three federal trustees (or their designees); and is advised by members of the public and the scientific community. When EVOS funding has been used to acquire lands for habitat protection, conservation easements that restrict land use are routinely included. In 1993, the state acquired 23,701 acres of private inholdings within KBSP that included prime habitat. The purchase was funded with \$14.5 million from the state and \$7.5 from the EVOS Trustee Council. Other parcels that were purchased through EVOS funding and are being managed as part of the state park

system include Overlook Park and Diamond Creek State Recreation Sites. Management of these lands must be consistent with conservation easements associated with the land.

Fees, Park Pass, and Visitor Use Management

User fees (commercial and visitor) play an important role in funding continued development and maintenance of state park facilities. In the face of fiscal budget concerns, there have been suggestions for the park to become more self-sufficient through adjustment and expansion of DPOR's fee collection system. Per AS 41.21.026, DPOR may not collect a fee for ordinary use of a park unit or a restroom within a park unit. DPOR may charge fees for parking (if restrooms are also available), camping, boat launching, admission to visitor centers and historic sites, sale of certain merchandise, and overnight lodging rentals such as public use cabins. DPOR may also charge for commercial use permits and special park use permits.

Spruce Bark Beetle Infestations

During the 1980s and 1990s, the spruce forests of Kachemak Bay's watershed experienced a large spruce bark beetle outbreak – part of an infestation that resulted in the death of over 2.3 million acres of spruce on the Kenai Peninsula. These vast acres of dead trees changed the uplands habitat, the hydrology of rivers and streams, and affected the diversity and distribution of wildlife inhabiting the parks. The large number of standing and fallen dead trees throughout the park post-outbreak presented a significant maintenance, public safety, and fire hazard mitigation challenge. Despite a major, ongoing outbreak in other areas of Southcentral Alaska that began around 2016, recent survey data suggests that spruce beetle populations are at endemic levels on the southern Kenai Peninsula.

Invasive Species

Presidential Executive Order 13112 defines an “invasive species” as a non-native species that causes or is likely to cause economic or environmental harm or harm to human health. Invasive species can change ecosystems by altering habitat composition, increasing wildfire risk, competing with native species for food and territory, changing existing predator/prey relationships, reducing productivity, or otherwise disrupting natural habitat functions.

Management

ADF&G is responsible for management of fisheries, wildlife, and habitats – the agency strives to protect native fish and wildlife and their habitats from the impacts of invasive species. ADNDR has management responsibility for terrestrial and freshwater plants. As appropriate, the two agencies collaborate to safeguard Alaska ecosystems from aquatic

invasive species. Management of specific invasive species occurs based on decisions of priority and available resources. There are many non-native species present in Alaska. ADF&G and ADNR will prioritize management of an invasive species when it is proven to cause significant negative impacts on native species or habitats, and management is determined to be feasible.

The Kenai Peninsula Cooperative Weed Management Area (KP-CWMA) is a partnership dedicated to preventing the introduction and managing the spread of non-native, invasive plants across the peninsula. Through a signed cooperative agreement, relevant and interested agencies, organizations, tribal landowners, and other groups work together to develop management objectives, set realistic priorities, and facilitate effective treatment. The KP-CWMA strategic plan outlines the strategic, landscape approach to invasive species with an emphasis on early detection and rapid response to specific invasive plant species.

Spruce Aphid Invasion

In 2015, the spruce aphid, a non-native insect originally from Europe, was documented to have caused extensive Sitka spruce defoliation in Halibut Cove and to a lesser extent in Homer. The outbreak extended completely around Kachemak Bay by 2016 and had subsided by 2017. Spruce aphid outbreaks commonly occur following mild, relatively warm winters and can quickly crash if winter temperatures are cold enough. The aphids begin actively feeding and reproducing in early spring. Individual needles initially show yellow mottled blotches where aphids are feeding and eventually turn reddish-brown and drop, leaving infested parts of the tree without foliage. In Alaska, spruce aphids occur only in forests adjacent to the coast and have thus far only been found within the range of Sitka spruce in the state. Infested trees can often recover from spruce aphid-caused defoliation.

Invasive Terrestrial Plants

While not all are confirmed to exist in the parks, these are the ten most harmful species of invasive plants that are within, or currently threaten, the parks. They all would damage native habitat and are listed from most harmful to less harmful:

- Japanese Knotweed (*Fallopia japonica*)
One infestation in Seldovia is currently being contained – no other known infestations in Kachemak Bay
- Reed Canary Grass (*Phalaris arundinacea*)
Abundant near Homer; present in Seldovia and at Bradley Lake; and possibly exists in park areas across the bay
- White Sweet Clover (*Melilotus alba*)
Only known infestation is at Bradley Lake Hydroelectric Site

- Orange Hawkweed (*Hieracium aurantiacum*)
Common in Homer and Seldovia; reported in Cottonwood Eastland, Diamond Creek, Bradley Lake, and at Tutka Bay near the hatchery (where CIAA is treating it)
- Canada Thistle (*Cirsium arvense*)
Only two known populations are along East End Road
- Bull Thistle (*Cirsium vulgare*)
Seldovia only
- European Bird Cherry (*Prunus padus*)
- Chokecherry (*Prunus virginiana*)
- Bird Vetch (*Vicia cracca*)
May have been eradicated near Homer
- Common Tansy (*Tanacetum vulgare*)
A few infestations in Homer & Seldovia

Many more harmful and aggressive invasive plants may be introduced into the parks in the future but have not yet arrived. There are also many less-damaging invasive plant species threatening or existent within the parks. Dandelions are present in all park units near Homer and in the Upper Hazelle Lake area (and likely other areas); plantain and buttercup have been recorded in park areas across the bay; and several species of yellow hawkweed have been reported in Homer, Seldovia, or Bradley Lake.

Managing vectors by cleaning boots, gear, equipment, and vehicles is critical in preventing the introduction and spread of invasive plants. After prevention activities, early detection and rapid response is considered the next highest priority to mitigate the introduction and spread of invasive weeds. This approach, as defined by the National Invasive Species Council, is the most effective means for eradicating invasive species and is intended to be the keystone of invasive plant management within the parks.

Aquatic Invasives

In 2002, ADF&G prepared the Alaska Aquatic Nuisance Species Management Plan to address the threat invasive species pose to the aquatic ecosystems of the state.

Japanese skeleton shrimp (*Caprella mutica*) is the only verified record of an invasive aquatic species in Kachemak Bay or other park areas. Although elodea and northern pike are present in the waters of Kenai National Wildlife Refuge (KNWR), they are not known to occur in the parks. Float planes landing in remote lakes can be a vector for spreading elodea. European green crab are not yet known to occur in Alaska. They are of concern because invasive populations in the Pacific Northwest, as far north as British Columbia, are expected to expand their range into Alaska waters where they could have detrimental impacts on native crabs and their habitat. Eelgrass beds, which European green crab populations decimate, are

important in the nearshore ecosystem as they provide shelter and foraging habitat for salmonids, and spawning surfaces for Pacific herring.

Other Non-native Species

Rock doves, starlings, and house sparrows are invading the parks (and other areas of Alaska) and may be endangering native bird species. The following feral, non-native game birds have been detected within or near KBSP: bobwhite quail (*Colinus virginianus*), chukar partridge (*Alectoris chukar*), Hungarian partridge (*Perdix perdix*), ring-necked pheasant (*Phasianus colchicus*), and wild turkey (*Meleagris gallopavo*). Coyotes are also present in park areas. ADF&G knows of no assessment demonstrating that these species cause negative environmental, economic, or human health impacts in Alaska. Thus, while these species are non-indigenous, at this time they do not fit the definition of “invasive species” as previously described.

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) is a federal grant program that is administered by the National Park Service (NPS). LWCF provides matching funding to state and local governments to acquire, develop, and plan for public outdoor recreation areas. In Alaska, DPOR is the government agency that disperses federal grant dollars under this program. LWCF provisions require the agency receiving the grant dollars to maintain the funded project for public use and must identify and reserve enough area around the project to ensure continued public use. The boundary for the reserved lands is included on a map that is mutually agreed to by the State and the NPS. Any property where LWCF funds have been expended may not be wholly or partly converted to anything other than public outdoor recreation uses without the prior approval of the Secretary of the U.S. Department of the Interior. If for some reason the recreational nature of the property is lost, it represents a conversion of use requiring mitigation in the form of acquisition of other recreational properties or outdoor recreational enhancement as approved by the National Park Service. The process to convert LWCF-protected lands can be lengthy and costly for the agency requesting the conversion.

The entirety of both KBSP and KBSWP are subject to LWCF program provisions. Actions that may represent a conversion of use include installing above-ground utilities; development of roads with a non-recreational primary purpose; development for private purposes; or encroachments such as driveways.

Park User Trespass

Trespass onto private lands can create conflict between park users and landowners. Whether unintentional, or with knowledge of the recreationist, use of private property by visitors to the park units has occurred, but this type of use should be curtailed.

Private Structures and Uses

There are nearly 150 private parcels adjacent to the park units and over 200 private parcels bounded within the park units. (This includes the state and wilderness parks and the park units on the north side of Kachemak Bay.) Private parcels are generally five acres or less in size and many are located along prime areas of the coast. Most of these parcels predate the establishment of the park and were obtained through state and federal land disposal programs. Private inholdings present potential areas of conflict between park users, park management, and private landowners regarding management practices, policies, and the development of park facilities. The largest communities are Halibut Cove and subdivisions in Peterson Bay, Petrof View, and Bear Cove. There are also some private inholdings on the coast of Tutka Bay and Sadie Cove.

DPOR has identified many unauthorized structures that may have been placed, constructed, or maintained in a park unit without a special park use permit issued under 11 AAC 18.010. A more detailed review of many of these structures in relation to property boundaries is warranted prior to contacting the upland owner to determine a corrective action. Other structures, such as docks or water collection and storage structures, that are clearly within a park unit will not need to undergo further review before a corrective action is determined. Similarly, some uses are occurring within park units that are prohibited or need to be authorized before they are conducted. These include gathering firewood for use at adjacent private property, riding a bicycle off a road or parking area, or using hand tools to clear trails, to name a few. In some instances, DPOR may not be able to authorize structures or other permanent modifications to park resources. In these instances, DPOR will notify the owner of record of the prohibited structure and work with the owner to rectify the issue.

Based on a 2004 survey by ADF&G, over 1000 docks, buoys, piers, walkways, and other types of mooring and access structures have been constructed, placed, or maintained on tide and submerged lands below mean-high-waterline within the Kachemak Bay Critical Habitat Area (KBCHA); some of these structures were also located within KBSP. Many of these structures required authorization by both DPOR and ADF&G prior to their construction or placement, but in many cases, this has not been completed. Without a permit, these constitute an unauthorized encroachment upon park waters and can be a safety issue. In 2015, ADF&G conducted an outreach effort, which resulted in permit renewals for a number of docks throughout the KBCHA.

Many private parcels have unplanned and informal social trail networks connecting private land to the park. While relatively minimal in nature, many of these trails extend onto DPOR managed lands and connect to existing hiking trails. These trails invite use by the public – most have not been developed to sustainable trail standards and may be contributing to degradation of park resources.

Visitor Safety

Recreating anywhere in Alaska’s frontcountry and backcountry comes with inherent risks. Weather, terrain, wildlife, earthquakes, tsunamis, availability of communications, trail conditions, and travel logistics are just a few of the possible variables that visitors to KBSP and KBSWP should prepare for. People are encouraged to research the conditions they are likely to encounter in the area where they are planning to recreate. Visitor safety is important to DPOR and up-to-date information is usually provided through websites, social media, or email.

International Dark Sky Park Designation

The dark-sky movement works toward a reduction in light pollution. Reduced light pollution saves energy and reduces negative impacts on nocturnal animals and on human circadian rhythms. Light pollution can be greatly reduced through usage of light fixtures that cast less light upward. In order to better promote dark skies, DPOR staff should pursue an International Dark Sky Park designation from the International Dark-Sky Association. This organization assists in light pollution reduction and has recognized parks around the globe as International Dark Sky Parks.

Quiet Park Nomination

Quiet Parks International is a non-profit dedicated to preserving quiet spaces for the benefit of all life. DPOR will consider working toward nominating the parks for an award from Quiet Parks International or other organization that celebrates quiet parks.

Western Hemisphere Shorebird Reserve Network

In 1995, 7260 acres that included Fox River Flats Critical Habitat Area, parcels near the Homer Spit, and other areas in Kachemak Bay were designated part of the Western Hemisphere Shorebird Reserve Network (WHSRN). In 2016 the rest of the Kachemak Bay Critical Habitat Area (as well as Beluga Slough and Sixty-Foot Rock) were added to the network for a total of 232,462 acres. Kachemak Bay’s 320 miles of shoreline attract many

species of shorebirds. The Network's goal is to protect shorebirds and their habitats throughout the Americas.

Climate Change

Kachemak Bay water temperatures have been warmer than the long-term average since early 2014. Oceanographic surveys documented significant warming of the entire water column of the bay during the 2014-2016 Pacific marine heat wave and again in 2019.

While rising sea levels are a global concern, Kachemak Bay is somewhat protected from sea level rise for the foreseeable future. This is due to land levels around Kachemak Bay rising more quickly than sea level. This land-level rise is caused both by isostatic processes (loss of ice in glaciers and icefields) and tectonic processes (the tectonic plate the area sits on is rising as plates collide). The land-level uplift around Kachemak Bay is currently around 8.6 mm per year, while global sea-level rise is around 3.2 mm per year.

Glaciers feeding into Kachemak Bay are rapidly retreating. Grewingk Glacier, for instance, has retreated nearly 2 miles since the early 1950s. This ice melt during the summer produces a strong fresh-water signal in the surface waters of Kachemak Bay, even during periods of little to no rain. The surface waters of Bear Cove and off the end of the Homer Spit remained relatively fresh in August of 2019, even though there was almost no rain during that time period. Research underway in 2019 will help assess the contribution of fresh water and nutrients entering the bay from melting glaciers.

Coastal erosion is an ongoing concern in the Kachemak Bay area, although it is more significant on the north side of the bay, which consists of softer sedimentary rock than the south side. Increasing frequency and magnitude of storms associated with climate change may increase erosion problems on the north side.

Ocean acidification is a concern for Kachemak Bay marine resources. Data from the Kachemak Bay National Estuarine Research Reserve's System Wide Monitoring Program shows a potential trend of decreasing pH at all four long-term water quality monitoring sensors.

Chapter 5: Area-wide Management Direction and Guidelines

Introduction

This chapter provides area-wide management intent and guidelines that apply to the lands and waters within the park units addressed by this plan. It also allocates lands and waters within the park in land use zones. This management intent is consistent with the statutory purposes for the units, the mission of DPOR, and the policy direction contained in the Alaska State Park System: Statewide Framework (the Framework). The Framework serves to standardize the language that addresses management and establishes a land use designation system for management and development of land and resources within all park units. Four designations: Recreational Development, Cultural, Natural, and Wilderness, have been applied to lands within the park to meet this intent.

The management intent provided below is intended to guide DPOR when implementing guidelines and recommendations contained in this and subsequent chapters of this plan. The area-wide intent and guidelines in this chapter coupled with the unit-specific guidelines for uses and activities and the management and facility recommendations contained in Chapter 6 will guide DPOR management for the park units addressed in this plan. For detailed trail information, please see Appendix E: Trail Plan.

Overarching Management Intent

Inherent in the DPOR's mission is the concept of public use of the resources. As such, the lands and waters were intended to be more than held by the DPOR, they were to be managed to facilitate use, to inform through interpretation, and be conserved for future generations. Therefore, this plan provides management direction that includes facility and trail development; allows for certain commercial uses; and identifies and interprets cultural and historic resources all while conserving the lands and waters ensuring that future use will continue. All new, expanded, or redeveloped trails will be constructed consistent with the Alaska State Parks Sustainable Trail Policy.

DPOR shall work collaboratively with ADF&G, Homer Electric Association (HEA), Cook Inlet Aquaculture Association (CIAA), inholders, commercial operators, pilots, and other interested parties and organizations to safeguard the parks from invasive aquatic and terrestrial plants and other invasive species utilizing best management practices for prevention, control, and eradication. The vectors of greatest concern for invasive spread into Kachemak Bay State Park are float planes, horse riding, domestic llamas, inholders

landscaping, HEA and CIAA heavy equipment, and other public uses. Public outreach and education are paramount for early detection. Those accessing remote areas of the parks for any purpose should exercise caution and take preventative measures to prevent invasive spread. Examples of strategies to prevent invasives include:

- Commercial float plane operators requiring clients to clean footwear before entering the parks;
- Only allowing livestock fed on weed free feed access to the parks;
- Not authorizing park access for float planes from a home port lake that has an invasive infestation;
- Posting images of the most concerning invasives at common vector access points.

It is the intent of DPOR to become less reliant on state general funds and more self-sufficient. Some of the options for generating additional revenue for Kachemak Bay State Park and State Wilderness Park include developing new recreation opportunities which could generate additional revenue, implementing a daily park fee or park pass, increasing fees for special park use and commercial use permits, and selling park merchandise.

The management intent for each of the park system units is provided below.

Kachemak Bay State Park Intent

Lands within this unit on the south side of the bay will be managed to preserve the outstanding natural features while providing facilities, trails, and other developments that facilitate year-round public use and enjoyment. Trail-based recreation will be facilitated adjacent to existing popular access points. New and upgraded public use cabins will enhance opportunities to engage in year-round recreational pursuits. Culturally sensitive lands will be preserved with only minimal interpretive development. Within KBSP, motorized use of boats will remain restricted to areas identified in current regulations. Aircraft use will remain restricted to areas identified in current regulations, except this plan recommends a regulation change to open Wosnesenski Lake to this use as well. Helicopter operations may continue to be authorized at Grewingk Glacier from May 1 to October 15.

Electrical lines have been constructed within KBSP outside of existing easements. DPOR will work with HEA and property owners to rectify this issue.

As discussed in Chapter 1, DPOR has co-management responsibilities with ADF&G where the Kachemak Bay Critical Habitat Area and state park areas overlap – approximately 21,439 acres of tide and submerged lands on the south side of the bay. (See Appendix F: Cooperative Agreement.)

Lands in this unit on the south side of the bay will be managed to:

- Provide a slightly higher level of trail density and trail class in nodes around popular access points and areas currently experiencing moderate to high levels of use.
- Provide a lower level of trail density and class in areas outside of nodes.
- Expand and enhance the public use cabin system to facilitate year-round recreational use.
- Transition yurt sites to public use cabin sites.
- Expand and enhance non-motorized trail-based recreation opportunities through new or redeveloped trails, some of which will accommodate multimodal access.
- Provide trail connectivity within and between management units.
- Develop camping sites that facilitate land and water-based recreation.

Lands within this unit on the north side of the bay will be managed to preserve the outstanding natural features while providing facilities, trails, and other developments that facilitate recreation opportunities for residents and visitors. Trails will maximize opportunities to view the lands across the bay. Lands on the north side of the bay will be managed to:

- Identify node(s) where road-based campgrounds, including RV campsites, could be developed.
- Provide a higher level of trail class and trail density within and adjacent to nodes, including ADA accessible trails.
- Provide trail connectivity within the unit and with new or existing trails in KBSP.
- Trails away from the node(s) will be lower classed and less dense.
- Provide access to Kachemak Bay.
- Expand the public use cabin system, including at least one ADA-accessible cabin.

Kachemak Bay State Wilderness Park Intent

Lands within this unit will be managed to preserve unique and exceptional wilderness values while providing limited trail and facility developments that facilitate access and use with minimal impacts to wilderness park users. Motorized use will largely remain restricted to boats on marine waters and aircraft landings on saltwater and saltwater beaches. Exceptions are this plan recommends a regulation change to open Upper Hazelle Lake to motorized boat use; and aircraft use may be authorized under 11 AAC 18.010 at Upper Hazelle Lake.

Lands within the wilderness state park will be managed to:

- Provide a limited, mostly class 2 trail system that facilitates access across and within the wilderness park.
- Provide limited development to facilitate access and use.

Eveline State Recreation Site Intent

Lands within this unit will be managed to provide year-round medium to high density trail-based recreation opportunities. Lands within this unit will be managed to:

- Provide enhanced parking and redeveloped outhouses.
- Develop a warming shelter for winter use.
- Provide a diversity of terra and snow trails.

Diamond Creek State Recreation Site Intent

Lands within this unit will be managed to provide high density, trail-based recreation opportunities and to facilitate use through development of a campground and public use cabins. This parcel was purchased with EVOS funds to protect habitat.

These lands will be managed to:

- Provide enhanced parking.
- Provide road-based camping and public use cabins.
- Continue relationship with partners to construct and maintain looped biking trails.

Overlook Park State Recreation Site Intent

The DPOR has entered into an agreement with the Kachemak Bay Conservation Society (KBCS) to manage the lands within this unit. Lands within this unit will be managed to:

- Maintain the area's unique physical and natural resources.
- Continue to provide low levels of public use (as provided in KBCS's Overlook Park Management Plan) with an emphasis on educational hikes led by KBCS knowledgeable members and invited scientists.

- Maintain existing habitat for raptors, waterfowl, passerines, and other bird species, as well as local wildlife populations.

This plan also recommends that the Overlook site be re-designated as the Overlook Park State Preserve based on its habitat and educational values.

Land Use Zones

To further clarify the management intent and to satisfy policies contained in the Framework, state land and waters within park units are classified into one of four land-use zones: Recreational Development, Natural, Wilderness, or Cultural. The allocation of lands and waters into a land-use zone is based on the current and recommended development provided in this plan. These are the same zones used in the 1995 Plan; however, the configuration of the zones is changed to reflect current and proposed use, access, and management intent for these units. (See Map 6: Land Use Zones.) The Guideline Table in this chapter provides specific guidance for uses, activities, and structures within each of the land use designations. The following text describing the Purpose and Characteristics as well as the Developments and Activities for each land-use zone used in this plan is taken directly from the Framework.

Recreational Development Zone

Purpose and Characteristics

“Recreational development zones are established within State Park System units to meet the more intensive recreational needs of the public with convenient and well-defined access via roads, railroads, boating anchorages, airstrips, and high standard trails; with more intensively-developed recreational facilities such as campgrounds or picnic areas; with guided activities; and with information centers to orient visitors to the unit’s special features.

“The landscape within this zone can be modified to support educational and recreational activities and/or to enhance wildlife habitat and scenic qualities. These zones are established where soils, slope, drainage, and vegetation can support more intensive recreational activities. Fire suppression and insect and disease control may be used, where appropriate, within this zone to maintain or enhance recreational use. A recreational development zone may already have been influenced by prior developments and is intended to provide a transition area to absorb heavy human impacts.

Developments and Activities

“The highest level of developments and activities is meant to occur in this zone within park units. The developments allowed in this zone include - but are not limited to - roads and

trails, private vehicle and public transportation routes or access, campgrounds, picnic areas, visitor and interpretive centers, high-standard trails for all ages and abilities, park management facilities, and commercial lodges or resorts as provided for within the unit management or site development plan. High intensity activities related to the use of these developed facilities are generally encouraged. Summer and winter off-road vehicles (ORV'S) and other motorized recreational vehicles may be allowed in this zone within specifically designated areas or through management techniques such as time and/or space allocations.” (Framework, page 17.)

Application Areas

Within this plan most of Diamond Creek, Eveline State Recreation Site, and the northern portion of the Cottonwood Eastland Unit are classified as Recreational Development zones. Several nodes of higher development on the south side of the bay near Grewingk Glacier; Halibut Cove Lagoon and China Poot Bay and Lake; Tutka Bay Lagoon; and Petrof Lake are also zoned for Recreational Development.

Natural Zone

Purpose and Characteristics

“Natural environment zones are established to provide for moderate-to-low impact and dispersed forms of recreation and to act as buffers between the recreational development areas and the wilderness areas.

“These zones are relatively undeveloped and undisturbed and are managed to maintain high scenic qualities and to provide visitors with opportunities for significant, natural outdoor experiences. An area’s natural landscape character is the dominant feature within this zone. Landscape modification may be allowed to enhance, maintain, or protect the natural setting according to the unit management plan. Use of fire suppression, insect or disease control, or wildlife habitat enhancement as management techniques in natural zones will be defined in the unit management plan.

Developments and Activities

“Developments in a natural zone are intended to provide for the safety of park visitors and to provide for a moderate level of convenience in a high-quality natural setting. Allowable developments include - but are not limited to - backcountry shelters, public use cabins, high standard hiking and bicycle trails (paved or gravel), bridges and roads where necessary to access development zones and as provided for in an approved management plan. A medium level of activity is encouraged in this zone. Activities include - but are not limited to - hang-gliding, bicycling, backpacking, fishing, hunting, cross-country skiing, camping, sledding,

Map 6: Land Use Zones

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Direction and Guidelines*

tobogganing [sic], berry picking, and rock climbing. Snowmobiles may be allowed in this zone - within specifically designated areas - depending on resource sensitivities and potential conflicts with other park uses. Other private, motorized off-road vehicle use is generally prohibited within this zone.” (Framework, page 18.)

Application Areas

As shown in the Land Use Zones Map, the majority of the KBSP lands are zoned Natural, partly acting as a buffer between Recreational Development zones along Kachemak Bay and the Wilderness zone in KBSWP. Several areas in the portion of KBSP east of KBSWP are zoned Natural, as are the southern portion of the Cottonwood Eastland Unit, all of Overlook Park, and part of Diamond Creek. All marine waters within the park units are also zoned Natural.

Wilderness Zone

Purpose and Characteristics

“Wilderness zones are established to promote, to perpetuate and, where necessary, to restore the wilderness character of the land and its specific values of solitude, physical and mental challenge, scientific study, inspiration, and primitive recreational opportunities.

“Wilderness zones are of such size as to maintain the area’s wilderness character, are tailored to protect the associated values and, if possible, are defined by watershed boundaries. These zones are characterized by the natural landscape, its vegetation, and its geologic forms. Resource modification can occur in this zone only to restore areas to a natural state. Natural processes will be allowed to operate freely to the extent that human safety and public and private property are protected. The use of fire suppression and insect and disease as management techniques may occur only through the implementation of a plan approved by the director of the Division of Parks. Wildlife habitat enhancement activities, such as vegetation manipulation, may not occur in this zone.

Developments and Activities

“A wilderness zone should have no man-made conveniences within its boundaries except for the most primitive of trails with minimum trail maintenance, bridges, and signing. Developments or other improvements will be undertaken only if it has been determined by the director of the Division of Parks that significant threats to public safety exist or in order to reduce adverse impacts on the area's resources and values. Access to and within this zone, for other than rescue or management purposes, will be by foot or other nonmotorized means except for 1) use of designated aircraft landing access sites where alternative means of access

do not exist, 2) authorized research projects, or 3) situations specifically allowed by law. Aircraft landing for recreational access or research purposes may be restricted by the director as to daily time or season of use. The dropping of people or objects from aircraft is prohibited except by special permit issued by the director. Activities which threaten the character of the wilderness zone will be restricted. If overuse or misuse occurs, the director may restrict entry and use of the area. Methods of restriction may include separation and control of use activities through time and space allocation, use/area rotation schemes, and/or a permit system.” (Framework, page 19.)

Application Areas

The entirety of Kachemak Bay State Wilderness Park is designated Wilderness. In addition, the majority of the portion of KBSP that lies east of KBSWP is zoned Wilderness.

Cultural Zone

Purpose and Characteristics

“Cultural zones are established to preserve, investigate, document, and interpret Alaska’s cultural resources and heritage.

“Cultural zones are designated to provide adequate protection of historical, cultural, archaeological, or anthropological resources. These zones may contain a single feature or an assemblage of historic features.

Developments and Activities

“The intensity of development in a cultural zone is managed to ensure that use levels in the area do not impair the integrity of historical, cultural, archaeological, or anthropological resources. Any development within a cultural zone should have minimal impact on the cultural and historical values within the unit and should involve minimal introduction of artificial [sic] features for activities not related to the cultural resource and its values. Development generally will be associated with the necessities of public access, safety, and interpretation of the cultural resources present. Paved trails, automobile parking, toilets, and interpretive displays are examples of such development. Activities in this zone are for educational or scientific purposes. Recreation-related facilities are generally secondary and will be separated from the site(s) of cultural resources by sufficient buffers. Activities in keeping with the historical period of the cultural resource may be encouraged. To protect the cultural values for which the unit was created, resource modification, fire suppression, and insect and disease control management techniques will be utilized only when absolutely necessary in this zone.” (Framework, page 20.)

Application Areas

Chugachik Island is designated as a Cultural zone.

Management Guidelines and Compatibility of Uses

In addition to identifying land-use zones to be used within the park system units, the Framework identifies guidelines for many activities for each of the zones. It does this by identifying the compatibility for many public use activities generally for the four land-use zones. The Framework directs DPOR to use this general guidance to determine more specific management direction through a plan. This portion of the chapter builds upon the general guidelines identified in the Framework and provides specific guidelines that must be followed by DPOR when determining if a use is allowed or may be authorized and identifies the compatibility of specific uses for each land-use zone. The Guideline Table identifies the guidelines and compatibility for many uses that are, or could, occur within the park units. This table will be used by DPOR to determine if a use is allowed or could be authorized and what guidelines must be followed when adjudicating authorizations for certain uses. It is a more specific determination of uses than is provided in the Framework. If inconsistencies exist between the general guidelines of the Framework and the more specific guidelines contained in the Guideline Table, the latter will supersede the former.

Guideline Tables

The Guideline Tables comprising the rest of this chapter are divided by general types of use: Public Uses; Private Structures; Commercial Uses; and Resource Management Activities. The table shows whether a use is “compatible,” “conditionally compatible,” or “incompatible” within the four zones: Recreational, Cultural, Natural, or Wilderness.

Where a use is indicated as “compatible” the use is consistent with the primary function of the land as public recreation land under AS 41.21.130 – 41.21.142. Compatible uses are allowed without authorization or are allowed through area-wide authorization. Areawide authorizations may limit the use to certain locations or time of year or mandate certain design requirements. Seasonal or location limitations placed upon allowed uses are noted in the guidelines in the table.

In cases where a use is indicated as “conditionally compatible,” the use is considered incompatible with the primary function of the land under AS 41.21.130 – 41.21.142 *unless* certain conditions are met. Conditionally compatible uses may be authorized either by a Special Park Use Permit under 11 AAC 18.010 (including 11 AAC 18.010 (a)(11)) and 11 AAC 18.025 or a restricted opening pursuant to 11 AAC 12.335. Conditions may be identified in this plan, in permit stipulations, or may be developed to address a specific use or activity. Conditions are developed and imposed on the use or activity in order to make the

use or activity compatible with the statutory purpose of the park or existing regulations, protect park resources, and mitigate use conflicts. Restricted openings, use designations, and use restrictions may be temporary in nature, but management actions that meet the requirements of 11 AAC 12.335 must be adopted as regulations. DPOR may assess the demand for certain activities and the impact of certain activities on park resources through the use of special use permits and restricted openings prior to implementing permanent changes through regulations.

In cases where a use is indicated as “incompatible,” DPOR has determined that the use is not compatible with the primary function of the unit as set forth in AS 41.21.130 – 41.21.142 and implementing regulations. When determining a use incompatible, DPOR considers the statutory purposes of park units, the known impacts of that use, and the history of a particular use. Incompatible uses may be designated as incompatible in this plan or prohibited in existing regulation. Incompatible uses will not be authorized under 11 AAC 18.010 and 11 AAC 18.025(c), absent exigent circumstances, unforeseen changes in park management requirements, or as described below.

DPOR may assess the demand for incompatible or unidentified activities and their impact on park resources through the use of special use permits, restricted openings, use designations, and use restrictions prior to implementing permanent changes through regulations. For this purpose, special use permits, restricted openings, use designations, and use restrictions may be implemented on a temporary or trial basis. Management actions that meet the requirements of 11 AAC 12.335(b) must be adopted as regulations. When issuing these types of permits, consideration will be given to the nature of each of the land use zones for determining the appropriateness of the activity in a given area. Administrative activities carried out by park management in support of daily park operations do not require a permit. Some activities may be considered a conversion of use under the LWCF grant program. DPOR is required to go through a LWCF approval process to document and mitigate for the conversion prior to the conversion action. The person or agency requesting an activity or use that requires a conversion will be responsible for compensating DPOR for all costs incurred through the conversion process.

Uses not specifically included in the Guideline Table that are not identical, but are similar, to an included use may be determined compatible and may be authorized by DPOR staff through a determination of compatibility. Uses that are dissimilar to those included in the matrix may be authorized based on a finding in a determination of compatibility that the use is sufficiently similar to other uses that are authorized that the potential use can be permitted. All such uses that are authorized must be consistent with the enabling statutes, regulations, and the management intent provided in this plan, including the management intent of the individual management units.

Guideline Table

Public Uses

Included below are the majority of uses and activities that are known to occur or uses that staff thought could possibly occur in the park units. They include most outdoor recreational pursuits commonly conducted in the area already (e.g. hiking, boating, skiing, among others), and uses that are already occurring but are not currently allowed by regulation (e.g. bicycle use on trails, long-term moorage of boats, etc.). Administrative activities carried out by park management in support of daily park operations do not require a permit.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Fixed Wing Aircraft (Private)</p> <p>Includes airplanes, non-rigid wing (parafoil), or ultralight aircraft. In KBSP landing of fixed wing aircraft is allowed without authorization on saltwater, gravel bars, Emerald Lake, China Poot Lake, Hazelle Lake, Petrof Lake, except for practice landings. In KBSWP landing aircraft is allowed on saltwater and saltwater beaches without authorization. Landings on Upper Hazelle Lake, and Wosnesenski Lake require authorization under 11 AAC 18.010.¹ Use in other areas may be authorized under 11 AAC 18.010.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.110. Conditionally Compatible; may be authorized under 11 AAC 18.010. Permits may be issued in other areas in a limited manner only after special consideration is given to mitigating use conflicts and protecting park resources. This may include restricting</p>	<p>N/A</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.110 or 11 AAC 20.210. Conditionally Compatible; may be authorized under 11 AAC 18.010 on Wosnesenski Lake until a regulation allowing use is promulgated. Permits may be issued in other areas in a limited manner only after special consideration is given to mitigating</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.110 or 11 AAC 20.210. Conditionally Compatible; may be authorized under 11 AAC 18.010 on Upper Hazelle Lake until regulation allowing use is promulgated. Permits may be issued in other areas in a limited manner only after special consideration is given to the</p>

¹ Regulations need to be promulgated to allow fixed wing aircrafts to land on Upper Hazelle Lake and Wosnesenski Lake without authorization.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
	landing areas, time of year, and the number of permits issued.		use conflicts and protecting park resources. This may include restricting landing areas, time of year, and the number of permits issued. All marine waters in the parks are zoned Natural.	wilderness values and protection of park resources.
<p>Rotary Winged Aircraft (Private)</p> <p>Includes helicopters and gyrocopters. Helicopter landings anywhere within KBSP require a permit from the director under 11 AAC 18. Landing is allowed on saltwater and saltwater beaches within KBSWP.</p>	Incompatible.	Incompatible.	Conditionally Compatible; Use may be authorized under 11 AAC 18.010 in very rare circumstances when other means of access are not possible. All marine waters in the parks are zoned Natural.	Compatible consistent with 11 AAC 20.210 in KBSWP; Incompatible in KBSP.
<p>Paragliding & Hang Gliding</p> <p>Unpowered flight using fixed or flexible wing(s).</p>	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Unmanned Aerial Vehicles (UAVs)</p> <p>Rotary or fixed wing aircraft, also known as drones, without human pilots aboard. Used recreationally by the public.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Conditionally compatible, may be authorized under 11 AAC 18.010 if the UAV weighs less than 55 lbs., is flown within visual line of sight, below 400 feet above ground level, at speeds of not more than 100 mph, during daylight, is not flown above people, and is not used to harass or otherwise come within 500' of wildlife.</p>	<p>Incompatible.</p>
<p>Unmanned Underwater Vehicles (UUVs)</p> <p>UUVs operate underwater and can be either remotely operated by a human or be autonomous. Recreational use similar to the use of UAVs may become more common.</p>	<p>Incompatible.</p>	<p>N/A</p>	<p>Incompatible.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Hunting and Fishing</p> <p>Hunting and non-commercial, private, and personal use fishing are allowed consistent with ADF&G regulations. Discharge of a weapon (including firearms and bow & arrow) is prohibited within ¼ mile of a developed facility (i.e. a public use cabin, campground, RV park, ranger or maintenance station, or parking lot).²</p>	<p>Compatible; Allowed without authorization subject to state hunting and fishing regulations.</p>	<p>Compatible; Allowed without authorization subject to state hunting and fishing regulations.</p>	<p>Compatible; Allowed without authorization subject to state hunting and fishing regulations.</p>	<p>Compatible; Allowed without authorization subject to state hunting and fishing regulations.</p>
<p>Archery</p> <p>Bow and arrow use for hunting is not allowed within ¼ mile of a facility under 11 AAC 12.190.</p>	<p>Compatible; Allowed without authorization subject to state hunting regulations.</p>	<p>Compatible; Allowed without authorization subject to state hunting regulations.</p>	<p>Compatible; Allowed without authorization subject to state hunting regulations.</p>	<p>Compatible; Allowed without authorization subject to state hunting regulations.</p>
<p>Bear Baiting</p> <p>Establishing a bear baiting station to attract bears for hunting. Bear baiting must be consistent with ADF&G regulations, requires registration with ADF&G and requires an authorization from DPOR under 11 AAC 18.010.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Conditionally Compatible; Requires authorization under 11 AAC 18.010 and is subject to state hunting regulations.</p>	<p>Conditionally Compatible; Requires authorization under 11 AAC 18.010 and is subject to state hunting regulations.</p>
<p>Trapping</p> <p>Trapping of furbearers for private or commercial use.</p>	<p>Compatible; Subject to state trapping regulations.</p>	<p>Compatible; Subject to state trapping regulations.</p>	<p>Compatible; Subject to state trapping regulations.</p>	<p>Compatible; Subject to state trapping regulations.</p>

² Per 11 AAC 12.190 as repealed and readopted in May 2022.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Berry Picking; Vegetation Gathering; Gathering Dead and Down Firewood</p> <p>Gathering edible resources for personal consumption; gathering seaweed and kelp for personal use; gathering dead and downed wood for use in a fire in the park unit; and disturbing natural objects in a reasonable and customary manner while lawfully trapping is allowed. Gathering dead or burnt wood for personal use off of state park land is prohibited. This use must be conducted consistent with regulations at 11 AAC 12.170.</p>	<p>Compatible; Allowed without authorization, consistent with regulation.</p>	<p>Compatible; Allowed without authorization, consistent with regulation.</p>	<p>Compatible; Allowed without authorization, consistent with regulation.</p>	<p>Compatible; Allowed without authorization, consistent with regulation.</p>
<p>Bicycles (Non-motorized)</p> <p>Use of bicycles is currently restricted to existing roads and parking areas under 11 AAC 12.020. DPOR may allow use of bicycles on certain trails through special use permits or restricted openings to assess the level of use and impact on park resources. These authorizations may occur on certain trails that are recommended to be developed or re-developed as a sustainable trail designed for bicycle use. A general opening of certain trails to bicycle use would require a unit specific regulation.</p>	<p>Allowed on existing roads and parking areas consistent with 11 AAC 12.020. Conditionally Compatible; May be authorized under 11 AAC 18.010 in other areas and trails designated for use until a regulation is promulgated to allow use on designated trails designed to accommodate bicycles without authorization.</p>	<p>Incompatible.</p>	<p>Allowed on existing roads and parking areas consistent with 11 AAC 12.020. Conditionally Compatible; May be authorized under 11 AAC 18.010 in other areas and trails designated for use until a regulation is promulgated to allow use on designated trails designed to accommodate bicycles without authorization.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 subject to conditions that mitigate use conflicts and protect park resources.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Human-powered transport</p> <p>Hiking, Skiing, Snowboarding, Snowshoeing, Mountaineering, Paddling, Rowing.</p>	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.
<p>Airboats and Hovercraft</p> <p>Air-fan driven near-surface vehicles, including boat-hulled, air-cushioned, or wing-in-ground-effect vehicles.</p>	Incompatible.	N/A	Allowed on saltwater only. Prohibited in tidal flats or any uplands. ³	Incompatible.
<p>Motorized Boating</p> <p>Use of inboard and outboard motorized boats (including trolling motors) and jet boats on rivers, lakes, and saltwater. Does not include house boats, or personal watercraft. Use of motorized boats is currently restricted to saltwater, China Poot Lake, Hazelle Lake, and Petrof Lake under park specific regulations at 11 AAC 20.115 and 11 AAC 20.215.</p>	Compatible; Allowed without authorization on saltwater, and on designated lakes consistent with 11 AAC 20.115.	N/A	Compatible; Allowed without authorization on saltwater, and on designated lakes consistent with 11 AAC 20.115 and 11 AAC 20.215.	Compatible; Allowed without authorization in saltwater consistent with 11 AAC 20.215. Conditionally Compatible on Upper Hazelle Lake. Boats with motors of 10 horsepower or less may be authorized under 11 AAC 18.010 on Upper Hazelle Lake until a regulation allowing use is promulgated.

³ All marine waters within the parks are zoned Natural.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Non-motorized Boating</p> <p>Includes vessels such as canoes, rafts, rowboats, kayaks, pack rafts, sailboats, sailboards, surfing, and stand up paddle boards.</p>	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.	Compatible; Allowed without authorization.
<p>Personal Watercraft (PWC)</p> <p>Use of PWC is currently prohibited under 11 AAC 20.115(b) and 11 AAC 20.215(b). PWC use on marine waters is allowed within that portion of the Kachemak Bay Critical Habitat Area (KBCHA) that is not within KBSP.⁴</p>	Incompatible.	N/A	Incompatible. DPOR may consider a change to the regulation prohibiting PWC use in state park waters, given the regulation change by ADF&G in 2021 allowing use in the KBCHA. PWC use may be authorized under 11 AAC 18.010 until a regulation allowing use is promulgated.	Incompatible.
<p>Camping Within Developed Campgrounds</p> <p>Camping that occurs within a developed campground facility.</p>	Compatible; Requires registration and payment of applicable fees.	Compatible; Requires registration and payment of applicable fees.	Compatible; Requires registration and payment of applicable fees.	Compatible; Requires registration and payment of applicable fees.

⁴ See Map 1.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Primitive Camping – Undeveloped Areas</p> <p>Camping that occurs outside of designated sites or campgrounds is limited to 10 consecutive days in a calendar year at the same location. Camping at the same location for longer periods of time may be authorized under 11 AAC 18.010.</p>	<p>Compatible; Allowed without authorization; however, camping at the same site in excess of 10 days is conditionally compatible and requires an authorization under 11 AAC 18.010.</p>	<p>Compatible; Allowed without authorization; however, camping at the same site in excess of 10 days is conditionally compatible and requires an authorization under 11 AAC 18.010.</p>	<p>Compatible; Allowed without authorization; however, camping at the same site in excess of 10 days is conditionally compatible and requires an authorization under 11 AAC 18.010.</p>	<p>Compatible; Allowed without authorization; however, camping at the same site in excess of 10 days is conditionally compatible and requires an authorization under 11 AAC 18.010.</p>
<p>Campfires</p> <p>Fires are restricted to camp stoves, structures provided by DPOR, or on non-vegetated gravel bars and saltwater beaches. Fires in other locations may be authorized under 11 AAC 18.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.120 or authorization.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.120 or authorization.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.120 and 11 AAC 20.220 or authorization.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.120 and 11 AAC 20.220 or authorization.</p>
<p>Use of Chainsaw</p> <p>Use of chainsaw for gathering dead and down trees for campfires within the park unit. Must be done consistent with 11 AAC 12.170.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>
<p>Use of Generators</p> <p>Use of a generator for electrical power generation at a developed campground or designated campsite.</p>	<p>Compatible; Allowed without authorization subject to established quiet hours.</p>	<p>Compatible; Allowed without authorization subject to established quiet hours.</p>	<p>Compatible; Allowed without authorization subject to established quiet hours.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Rock Climbing</p> <p>Includes any type of climbing on the rocky bluffs of the park with or without gear.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 12.170.</p>	<p>N/A</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 12.170.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 12.170.</p>
<p>Diving</p> <p>Swimming or exploring under water, either with breathing apparatus (SCUBA/rebreather) or without (skin). A diver down flag is required.</p>	<p>Compatible; Allowed without authorization.</p>	<p>N/A</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>
<p>Fireworks</p> <p>Use of fireworks by individuals or organized groups is prohibited unless authorized under 11 AAC 18.010.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>
<p>Geo-caching</p> <p>The activity where participants use a Global Positioning System receiver or other navigational techniques to hide and seek containers or caches. Caching items in areas with identified cultural resources is prohibited. May be authorized under 11 AAC 18.010.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 but caches must be limited to micro-cache size.</p>	<p>Incompatible.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 but caches must be limited to micro-cache size.</p>	<p>Conditionally Compatible; Only virtual caches will be authorized under 11 AAC 18.010.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Recreational Gold Panning</p> <p>Recreational gold panning is allowed as provided under 11 AAC 20.918 provided no motorized equipment is used, a person uses no more equipment than a gold pan and shovel, and no chemicals are used. Anadromous fish streams are only open to recreational gold panning between May 16 and July 14 annually. No person may stake a mining claim or leasehold location in a state park and no person may extract or disturb natural materials for the purpose of recreational gold panning above the ordinary highwater line or where vegetative material exists.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.918.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.918.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.918.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.918.</p>
<p>Highway Vehicles</p> <p>Includes vehicles such as cars, trucks, motorcycles and other highway vehicles registered for use on state-maintained roads or parking areas with minimal impact (11 AAC 12.020). Use of highway vehicles by mobility-impaired park users may be authorized to provide access to a developed facility on the north side of the bay under 11 AAC 18.010. All highway vehicle use is subject to 11 AAC 12.110.</p>	<p>Allowed without authorization on existing roads and parking on lands on the north side of the bay. Prohibited on all lands on the south side of the bay.</p>	<p>Incompatible.</p>	<p>Allowed without authorization on existing roads and parking on lands on the north side of the bay. Prohibited on all lands on the south side of the bay.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Off Road Vehicles (Including Snowmachines)</p> <p>Includes mechanical devices as defined in 11 AAC 12.340(12). Use is currently restricted under 11 AAC 12.020.</p>	<p>Compatible. Allowed without authorization only on existing roads and parking areas.</p>	<p>Incompatible.</p>	<p>Compatible. Allowed without authorization only on existing roads and parking areas.</p>	<p>Incompatible.</p>
<p>Power Driven Mobility Device (Mobility Device)</p> <p>Any mobility device powered by batteries and used for the purpose of locomotion including electronic personal assistance mobility devices such as a 3 or 4 wheeled scooter or a Segway® but not including a golf cart. Use of a mobility device with an internal combustion motor is prohibited on all lands. This includes battery-powered wheelchairs but does not include manual wheelchairs or other manually driven mobility devices used by a mobility-impaired person.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 on designated trails for the mobility impaired only. Prohibited on all other lands.</p>	<p>Incompatible.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 on designated trails for the mobility impaired only. Prohibited on all other lands.</p>	<p>Incompatible.</p>
<p>ADA Access by Wheelchairs</p> <p>Only includes manually operated wheelchairs or other manually driven devices designed for use by people with mobility impairments.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Horses, Pack Animals</p> <p>Use of horses, mules, and burros is allowed under 11 AAC 20.910⁵ with the exception of campgrounds, swim beaches, picnic areas, officially designated and marked hiking trails and areas above timberline. Loose herding of animals is prohibited. Groups using 10 or more animals must obtain authorization under 11 AAC 18.010 before entering the parks. Tethering horses and burros within 100 feet of fresh water is prohibited. To reduce the spread of invasive plants, horses should be fed weed-free hay.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.910.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.910.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.910.</p>	<p>Compatible; Allowed without authorization consistent with 11 AAC 20.910.</p>
<p>Dog Sledding and Skijoring</p> <p>Use of dog teams for sledding or skiing as a means of winter access and recreation.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Incompatible.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>
<p>Pets</p> <p>Pets are allowed in developed and undeveloped areas consistent with 11 AAC 12.130. Walking llamas, alpacas, and goats in the park units is discouraged due to the concern of disease transmission to native wildlife⁶.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>

⁵ The use of llamas, alpacas and goats as pack animals is not recommended because of concern of disease transmission to native wildlife. A change to the regulation is recommended to prohibit the use of llamas, alpacas, and goats.

⁶ Recommend promulgating park-specific regulations to limit llamas, alpacas, and goats.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Anchoring and mooring</p> <p>Anchoring and mooring of boats, and float planes is generally allowed on saltwater up to 30 days⁷ per calendar year. All such vessels shall be moored in a manner that will not impede navigation or affect adjacent private riparian interests. An anchored vessel may not be left unattended for more than 72 hours unless engaged in a recreational use on a daily basis. A permit is required from ADF&G to moor for longer than 14 days.</p>	Incompatible.	N/A	Compatible; Allowed without authorization consistent with 11 AAC 12.235 up to 30 days.	Incompatible.
<p>Anchoring and mooring – Greater than 30 days</p> <p>Anchoring or mooring a boat or floating structure on saltwater within a park for more than 30 days per calendar year is currently prohibited by regulations at 11 AAC 12.235 unless the use is authorized by DPOR under 11 AAC 18.010. All such vehicles shall be moored in a manner that will not impede navigation or affect adjacent riparian interests. Mooring of boats does not include the mooring of a houseboat at the owner’s private property.</p>	Incompatible.	N/A	Conditionally Compatible; May be authorized under 11 AAC 18.010 to allow use for more than 30 days in a calendar year. Where a person owns a waterfront parcel on saltwater, the upland owner can request an annual moorage authorization that does not limit the number of	Incompatible.

⁷ Recommend promulgating a park-specific regulation to align anchoring and mooring restrictions more closely to the AD&G regulations limiting the activity to 14 days without authorization.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
			days a vessel owned by and registered to the owner can be moored. Boats shall be moored at the owner's private property within or contiguous to the park unit boundary.	
<p>Organized Events</p> <p>Any promotional or entertainment event, including an organized athletic event, competitive recreational event, or spectator event, or an organized or promoted assembly of more than 20 people.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 subject to conditions that mitigate use conflicts and protect park resources.</p>
<p>Personal Property Storage</p> <p>Includes storing any personal equipment within the park units and could include items such as camping equipment or small boats among other types of property. This type of use is currently prohibited under 11 AAC 12.220 for all park units. This plan identifies areas where canoes or kayaks may be stored; all storage of other personal property is prohibited.</p>	<p>Storage of canoes or kayaks at identified storage areas is conditionally compatible and may be authorized under 11 AAC 18.010. Storage of other personal property is prohibited.</p>	<p>Incompatible.</p>	<p>Storage of canoes or kayaks at identified storage areas is conditionally compatible and may be authorized under 11 AAC 18.010. Storage of other personal property is prohibited.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Wildlife and Nature Observation</p> <p>Wildlife, wildlife habitat, and landscape features viewed and enjoyed in their natural setting. Includes photography and filming of natural objects and fish and wildlife for personal use. Encouraged throughout the area and facilitated in some areas consistent with specific recommendations contained in the plan.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>
<p>Placement of Flags</p> <p>Will only be authorized for the United States or Alaskan State flags.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18.010 consistent with the DPOR flag policy.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>

Private Structures

State law prohibits granting permanent, exclusive access rights and property interests in legislatively reserved areas. Furthermore, no person may place, construct, or maintain structures in a state park unless authorized by the Director under 11 AAC 18.010. The uses listed below include the majority of uses and activities commonly associated with the improvement of private waterfront land or access to resources within the adjacent park unit. These structures facilitate access to navigable water or water dependent recreation from the private lands that are within or share a common boundary with KBSP or KBSWP. When considering whether these uses were compatible, DPOR staff considered how these private structures affected the public’s ability to access and use the waterbodies and how much of the public trust resource is impacted by the structure. Installation of structures identified in this table may require authorization from additional state and federal agencies where they have authority to regulate the use or activity. Examples include: discharges regulated by EPA, the U.S. Army Corps of Engineers, and the Alaska Department of Environmental Conservation; fill materials or structures placed in waters of the United States may be regulated by the U.S. Army Corps of Engineers; or, placement of a structure in anadromous waterbodies regulated by ADF&G. These examples are not intended to be an exhaustive list. It is the applicant’s responsibility to acquire all necessary authorizations prior to installing or constructing a structure within KBSP or KBSWP. The use of community docks, mooring buoys, and running lines is encouraged.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Private Docks</p> <p>Includes anchored or pile supported floating docks developed and maintained for private use or anchors by private individuals. Authorization is required prior to constructing or maintaining a structure in a park unit under 11 AAC 12.140.</p>	N/A	N/A	Conditionally Compatible; May be authorized under 11 AAC 18.010 to facilitate access to private property. A person must own the waterfront parcel for which the dock is intended to be constructed. Docks must be the minimum size necessary to accommodate site	N/A

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
			development characteristics and moorage. All docks will be constructed of non-polluting materials and any foam floatation used must be commercially encapsulated. Under no circumstances will a dock be authorized that facilitates a non-water dependent use. Docks must be placed as close as practicable to the private property in a manner that minimizes impacts to scenery and recreational use.	
<p>Private Mooring Structures</p> <p>Permanent anchors and buoys where boats can be temporarily secured.</p>	N/A	N/A	Conditionally Compatible; May be authorized under 11 AAC 18.010 to facilitate access to private property. The buoy must be placed as close as practicable to the private property	N/A

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
			in a manner that minimizes impacts to scenery and recreational use.	
<p>Discharge Structures</p> <p>Any pipe, ditch, or other structure that discharges surface water, grey water, black water, or any other substance directly into the surface waters within KBSP. This use is prohibited under 11 AAC 12.050.</p> <p>Point and non-point source discharges are regulated by other state and federal governmental agencies: EPA, the U.S. Army Corps of Engineers, the Alaska Department of Environmental Conservation, and ADF&G.</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Structures facilitating Storage of Personal Property</p> <p>Storage of personal property such as boats, canoes, or kayaks.</p>	Conditionally Compatible; Use may be authorized under 11 AAC 18.010 at the designated storage sites at Grewingk and Petrof Lakes. No fuel may be stored longer than 72 hours.	Incompatible.	Incompatible.	Incompatible.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Water Collection and Transmission Structures</p> <p>Water collection structures and water distribution lines placed on park lands. An authorization is required prior to constructing or maintaining private water delivery structures in a park unit under 11 AAC 12.140. Structures will not be approved for commercial water delivery operations but may be approved as part of a commercial operation such as a lodge or other similar commercial operation. In some cases, an authorization may be required from the Division of Mining, Land & Water, Water Resources Section and an applicant is encouraged to contact section staff to determine if an authorization is needed.</p>	<p>Conditionally Compatible; Only small, easily removed structures may be authorized under 11 AAC 18.010. Structures must be of a size and type that they can be removed within 72-hour notice. Placement and size of structures will be the minimum necessary to provide water to the applicant.</p>	<p>N/A</p>	<p>Conditionally Compatible; Only small, easily removed structures may be authorized under 11 AAC 18.010. Structures must be of a size and type that they can be removed within 72-hour notice. Placement and size of structures will be the minimum necessary to provide water to the applicant.</p>	<p>Conditionally Compatible; Only small, easily removed structures may be authorized under 11 AAC 18.010. Structures must be of a size and type that they can be removed within 72-hour notice. Placement and size of structures will be the minimum necessary to provide water to the applicant.</p>
<p>Electrical Distribution Lines</p> <p>Electrical distribution lines placed on park lands from an existing distribution line to private property.⁸</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>

⁸ DPOR does not have authority to authorize permanent private distribution lines within a legislatively designated area.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Easements and rights-of-way for access to private land</p> <p>The department may grant a public easement or right-of-way within a state park unit for access to private property under AS 41.21.024 if it will not unduly affect park resources and is in the public interest.</p>	<p>May be authorized consistent with AS 41.21.024.</p>	<p>N/A</p>	<p>May be authorized consistent with AS 41.21.024.</p>	<p>May be authorized consistent with AS 41.21.024.</p>

Commercial Uses

Park regulations 11 AAC 12.300 prohibit commercial activities, defined in 11 AAC 12.340(19), within State Park Units unless permitted under 11 AAC 18.030, 11 AAC 18.040, AS 41.21.027 or other legal means. Prior to issuing these permits, a determination must be made that the park facilities and natural and cultural resources will not be adversely affected; the park is protected from pollution; public use values will be maintained and protected; public safety, health and welfare will not be adversely affected; and that the activity is consistent with planning efforts affecting the park and adopted park and local plans. The activity must also not result in an exclusive use of park land and water, meaning that it will neither exclude non-commercial, public use nor other commercial operators by virtue of location, timing, or type of park land and water. There are a number of commercial operators who use KBSP and offer services such as water taxi; guided kayak; sightseeing and hiking tours; and helicopter and fixed aircraft sightseeing tours. A commercial permit requires operators to carry liability insurance, possess appropriate professional licenses and certificates, and provide basic equipment.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Fixed Wing Aircraft (Commercial)</p> <p>Includes airplanes, non-rigid wing (parafoil), or ultralight aircraft. Commercial fixed wing aircraft use in the parks requires a permit from the director under 11 AAC 18 consistent with 11 AAC 20.110 or 11 AAC 20.210.</p>	<p>Compatible consistent with 11 AAC 20.110.</p>	<p>N/A</p>	<p>Compatible consistent with 11 AAC 20.110 or 11 AAC 20.210. All marine waters in the parks are zoned Natural. Conditionally Compatible; May be authorized under 11 AAC 18 on Wosnesenski Lake until a regulation allowing use is promulgated.</p>	<p>Compatible consistent with 11 AAC 20.110 or 11 AAC 20.210 and may be authorized under 11 AAC 18 only for park management purposes, research, or in support of other authorized activities. Conditionally Compatible; May be authorized under 11 AAC 18 on Upper Hazelle Lake until a regulation allowing use is promulgated.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Rotary Winged Aircraft (Commercial)</p> <p>Commercial rotary-winged aircraft including helicopters and gyrocopters. Helicopter landings anywhere within the parks require a permit from the director under 11 AAC 18 consistent with 11 AAC 20.110 or 11 AAC 20.210.</p>	<p>Conditionally Compatible; HEA may be authorized under 11 AAC 18 for distribution line maintenance on pre-approved landing areas only.⁹ The use of helicopters in other areas may be authorized under 11 AAC 18 only for park management purposes, research, or in support of other authorized activities.</p>	<p>Incompatible.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 from May 1 to October 15 at the designated landing area on Grewingk Glacier. HEA may be authorized under 11 AAC 18 for distribution line maintenance on pre-approved landing areas only. The use of helicopters in other areas may be authorized under 11 AAC 18 only for park management purposes, research, or in support of other authorized activities. (All marine waters in the parks are zoned Natural.)</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 only for park management purposes, research, or in support of other authorized activities.</p>

⁹ If HEA helicopters land outside pre-approved areas for the purpose of emergency maintenance, HEA must notify DPOR where such landings occurred within 24 hours.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Commercial Docks and Other Mooring Structures</p> <p>Anchored or pile supported floating docks for commercial use developed and maintained by commercial landowner. Authorization is required prior to constructing or maintaining a structure in a park unit under 11 AAC 12.140.</p>	<p>Incompatible.</p>	<p>N/A</p>	<p>Conditionally compatible, may be authorized to facilitate access to the privately-owned uplands where the commercial activity occurs. A person must own the waterfront parcel for which the dock is intended to be constructed. Docks must be the minimum size necessary to accommodate site development characteristics and moorage. All docks will be constructed of non-polluting materials and any foam floatation used must be commercially encapsulated. Under no circumstances will a dock be authorized that facilitates a non-water dependent use. Docks must be placed</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
			as close as practicable to the private property in a manner that minimizes impacts to scenery and recreational use.	
<p>Floating Facilities (Commercial)</p> <p>Includes floating lodges, fueling barge/dock, or other structures that facilitate activities on the adjacent upland. Currently not allowed under the Kachemak Bay Critical Habitat Area Management Plan (under revision).</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Barge</p> <p>Commercial barges used for construction and development of private land adjacent to DPOR managed land and water. Commercial barges may be moored at a project site while being used. Long-term or permanent moorage is not authorized on any waterbody.</p>	Incompatible.	N/A	Conditionally Compatible; May be authorized subject to conditions that mitigate use conflicts and protect park resources.	Incompatible.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>House Boats (Commercial)</p> <p>Includes all boats where the primary purpose is to provide a permanent or temporary domicile whether or not a fee is charged for the occupancy. Currently not allowed under the Kachemak Bay Critical Habitat Area Management Plan.</p>	Incompatible.	N/A	Incompatible.	Incompatible.
<p>Commercial Fishing Gear Storage</p> <p>Storage of commercial fishing gear, in submerged lands only, longer than 72 hours.</p>	N/A	N/A	Conditionally Compatible; May be authorized under 11 AAC 18.010 consistent with ADF&G or Board of Fish regulations.	N/A
<p>Commercial Fishing</p> <p>Lawful commercial fishing operations conducted aboard vessels operating in saltwater and not using stationary gear or dredges.¹⁰</p>	N/A	N/A	Compatible; Allowed without authorization.	N/A

¹⁰ 11 AAC 12.300

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Aquatic Farming – Mariculture and Aquaculture</p> <p>Includes the installation of facilities for the purpose of culturing of shellfish and aquatic plant organisms in captivity under positive control in the near shore environments. It includes operations to raise oysters, clams, and mussels.</p>	N/A	N/A	Incompatible.	N/A
<p>Lodges, Cabins, Yurts, or Other Recreation Oriented Long-Term Facilities</p> <p>State owned lodging facilities on park lands or waters. May be operated under concession contract if compatible with park purposes. These facilities are subject to commercial regulatory requirements. These facilities may be subject to regulation by other local, state, or federal agencies.</p>	Conditionally Compatible; May be authorized as part of commercial operation.	Incompatible.	Conditionally Compatible; May be authorized as part of commercial operation.	Incompatible.
<p>Off Road Vehicles (including snowmachines)</p> <p>Includes all mechanical devices as defined in 11 AAC 12.340(12). Use is currently regulated under 11 AAC 12.020.</p>	Conditionally Compatible; Use may be authorized under 11 AAC 18.010 only for park management purposes, research, or in support of other authorized activities.	Incompatible.	Conditionally Compatible; Use may be authorized under 11 AAC 18.010 only for park management purposes, research, or in support of other authorized activities.	Incompatible.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Power Generation Development</p> <p>Includes wind, solar, tidal, geothermal, and hydroelectric power development for commercial purposes and any associated support facilities.</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Hydroelectric Power Development</p> <p>Power generation from impounded or natural waterbodies.</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Distribution Lines/Pipelines</p> <p>Extensive distribution lines and associated structures, which predate formation of the park, are located within KBSP. No distribution lines exist within KBSWP. No pipelines exist within the boundaries of KBSP or KBSWP.</p> <p>Maintenance of existing lines and structures or installation of new replacement lines and structures can only occur within the existing right-of-way. New easements or rights-of-ways for commercial activities cannot be established without legislative action.</p>	Allowed within existing easement only.	N/A	Allowed within existing easement only.	N/A

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Communication & Transmission Structures</p> <p>Towers, antennas, repeaters, dishes, and other structures used for cellular phone, television and satellite.</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Easements and Rights-of-Ways</p> <p>Easement for any commercial purpose within a Legislatively Designated Area (LDA).¹¹</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Equipment Storage and Staging</p> <p>Includes the equipment, tools, and materials used for maintenance by HEA for its installed distribution lines.</p>	Conditionally Compatible; May be authorized under 11 AAC 18.010 immediately adjacent to existing distribution line easement only.	N/A	Conditionally Compatible; May be authorized under 11 AAC 18.010 immediately adjacent to existing distribution line easement only.	N/A

¹¹ Those easements that pre-date the LDA’s establishment can continue. New easements and rights-of-way constitute a disposal and are prohibited in an LDA unless consistent with AS 41.21.024 which is for public access to private land only.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Tree/Vegetation Removal</p> <p>Removal of trees or other vegetation from the park for commercial purposes.</p>	<p>Conditionally Compatible; May be authorized only when consistent with KBSP vegetation management policies, when it meets some management objective, or when it provides public benefit or for public safety.</p>	<p>Conditionally Compatible; May be authorized only when consistent with KBSP vegetation management policies, when it meets some management objective, or when it provides public benefit or for public safety.</p>	<p>Conditionally Compatible; May be authorized only when consistent with KBSP vegetation management policies, when it meets some management objective, or when it provides public benefit or for public safety.</p>	<p>Incompatible.</p>
<p>Commercial Wildlife and Nature Photography and Filming</p> <p>Includes commercially guided photography and filming.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>
<p>Grazing</p> <p>Grazing or loose herding of domestic or wild animals for personal or commercial purposes.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Guiding and Outfitting</p> <p>Licensed big game hunting, small game hunting including waterfowl, fishing charters, mountaineering, water sports, and backcountry guiding, outfitting, transporting, and other commercial operations. Must be conducted consistent with regulations for commercial activities.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to 11 AAC 12.335 and to conditions that mitigate use conflicts and protect park resources.</p>	<p>Incompatible.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to 11 AAC 12.335 and to conditions that mitigate use conflicts and protect park resources.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 subject to 11 AAC 12.335 and to conditions that mitigate use conflicts and protect park resources.</p>
<p>Oil, Gas, and Coal Exploration and Development</p> <p>Lands and waters identified in AS 41.21.130 - 41.21.142 were withdrawn from the public domain by the Legislature as a special purpose site consistent with Article 8, Section 7 of the Alaska Constitution. Land within KBSP is no longer subject to management under Title 38 of the Alaska Statutes, including statutes related to leasing and development of oil and gas resources and cannot be disposed.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Unmanned Underwater Vehicles (UUVs – Commercial)</p> <p>UUVs operate underwater and can be either remotely operated by a human or be autonomous.</p>	<p>Incompatible.</p>	<p>N/A</p>	<p>Conditionally Compatible; Use may be authorized under 11 AAC 18.010 only for park management purposes, research, or in support of other authorized activities.</p>	<p>Incompatible.</p>
<p>Unmanned Aerial Vehicles (UAVs – Commercial)</p> <p>Rotary or fixed wing aircraft without human pilots aboard, also known as a drone.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 if operator meets requirements for certification, registration, and operation of small, unmanned aircraft under 14 C.F.R. Part 107.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 if operator meets requirements for certification, registration, and operation of small, unmanned aircraft under 14 C.F.R. Part 107.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 if operator meets requirements for certification, registration, and operation of small, unmanned aircraft under 14 C.F.R. Part 107.</p>	<p>Conditionally Compatible; May be authorized under 11 AAC 18 if operator meets requirements for certification, registration, and operation of small, unmanned aircraft under 14 C.F.R. Part 107.</p>

Resource Management Activities

Within this group are the uses conducted by DPOR or by other local, state, or federal agencies. In some circumstances, these uses may be conducted by a qualified individual or non-governmental organization with DPOR authorization. A permit is not required for DPOR to conduct these uses within the park units; however, a policy, procedure, or guideline may require that a permit be acquired by another agency prior to conducting the work or activity. These uses are necessary for the management and understanding of cultural and natural resources within the park units. ADNR’s Office of History and Archaeology administers archaeological research authorizations on state land. Activities in this section will be done after adequate research and consideration to ensure that any detrimental effects to park resources are minimized.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Archaeological and Historical Study</p> <p>Field-based research and study of historical and archeological sites within the park units by state agencies is compatible and is allowed without authorization. Federal agencies, regional and local Native corporations, and university researchers may be authorized to conduct archaeological and historical studies. All information gathered through studies will be shared with DPOR, Office of History and Archaeology.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff. Conditionally Compatible for DPOR contractors or other qualified individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff. Conditionally Compatible for DPOR contractors or other qualified individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff. Conditionally Compatible for DPOR contractors or other qualified individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff. Conditionally Compatible for DPOR contractors or other qualified individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Fire Management</p> <p>Use of fire as a management tool to reduce fire fuel loads or to modify vegetation for some other management purpose. Fire management is typically conducted by Division of Forestry staff on behalf of DPOR.</p>	<p>Compatible; May be conducted pursuant to an interagency agreement.</p>	<p>Compatible; May be conducted pursuant to an interagency agreement.</p>	<p>Compatible; May be conducted pursuant to an interagency agreement.</p>	<p>Compatible; May be conducted pursuant to an interagency agreement; however, this activity should be minimized in this zone.</p>
<p>Fire Suppression</p> <p>Actions taken to suppress wildfires and the potential for wildfires. Suppressing fires by any method deemed appropriate by the incident commander or designated personnel. Fire suppression is typically conducted by Division of Forestry (DOF), or local fire department.</p>	<p>Compatible consistent with the Alaska Interagency Wildfire Management Plan and other interagency agreements.</p>	<p>Compatible consistent with the Alaska Interagency Wildfire Management Plan and other interagency agreements.</p>	<p>Compatible consistent with the Alaska Interagency Wildfire Management Plan and other interagency agreements.</p>	<p>Conditionally Compatible consistent with the Alaska Interagency Wildfire Management Plan and other interagency agreements when life and property are in danger as determined by DOF staff.</p>
<p>Maintenance Agreements</p> <p>DPOR may enter into agreement for the maintenance of a facility, road, trail, or other similar development with another local, state, or federal agency, a non-governmental agency, or an individual.</p> <p>Requires a signed agreement between the parties.</p>	<p>Compatible.</p>	<p>Compatible.</p>	<p>Compatible.</p>	<p>Compatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Motorized Equipment</p> <p>Includes, but is not limited to, motorized equipment such as chainsaws, chippers, blowers, and weed eaters used for maintenance and management. A permit is not required for this use in any area of the park units by agency staff or representatives.</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives.</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives.</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives.</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives.</p>
<p>Research, Monitoring and Management Studies</p> <p>Collection of data necessary for park management purposes, to increase understanding of recreational use and natural, biological, or physical conditions or for scientific research. Priority will be given to studies that contribute to management of native fish and wildlife populations and their habitats. Studies may be conducted by the Division or by other researchers under Division permit.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff and its contractors. Conditionally Compatible for other individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff and its contractors. Conditionally Compatible for other individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff and its contractors. Conditionally Compatible for other individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>	<p>Compatible; Allowed without authorization by qualified DPOR staff and its contractors. Conditionally Compatible for other individuals and may be authorized under 11 AAC 18 subject to conditions that mitigate use conflicts and protect park resources.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Resource Extraction</p> <p>Removal of timber, gravel, rocks, sand, plants or other park resources for use by DPOR or for DPOR management purposes within the park units. These resources must be used for projects within the park units. If the extraction site is a one-time site, it should be reclaimed as soon as practicable with natural vegetation. Any activity under this use will take into account the sensitivity of cultural sites.</p>	<p>Compatible; DPOR and its contractors are allowed without authorization.</p>	<p>Compatible; DPOR and its contractors are allowed without authorization.</p>	<p>Compatible; DPOR and its contractors are allowed without authorization.</p>	<p>Conditionally Compatible; may be authorized only for DPOR and its contractors and only to address public safety or for facility and trail development.</p>
<p>Vegetation Management</p> <p>Cutting and/or removal of vegetation where necessary for management purposes by DPOR staff, Department of Natural Resources staff, DPOR contractors, or recognized representatives acting in an official capacity on behalf of DPOR.¹² Includes hazard tree removal, tree and vegetation removal for facility development, trail maintenance, development of open space areas, or other management activities. Also includes the planting of both native and non-native vegetation on disturbed sites, for aesthetic purposes, or as part of a designed facility. (Non-native species should not be planted outside the planters.)</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives. Incompatible and remains prohibited for all others.</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives. Incompatible and remains prohibited for all others.</p>	<p>Compatible; Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives. Incompatible and remains prohibited for all others.</p>	<p>Conditionally Compatible; Will be conducted in this zone for safety & resource protection purposes only. Allowed without authorization only for DPOR staff, contractors, or when conducted by DPOR recognized representatives. Incompatible and remains prohibited for all others.</p>

¹² “Recognized representatives” includes those people or groups that have signed a maintenance agreement with DPOR or those people that are identified as volunteers or are acting in an official capacity for DPOR.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Vegetation Enhancement and Restoration</p> <p>Use of native plants for revegetation. The introduction of exotic species of plants or animals or those not indigenous to the area shall be discouraged, unless to meet specific and well-defined management objectives. Significant work shall be completed assessing the risks and rewards prior to introduction of any non-native species.</p>	<p>Conditionally Compatible; May be authorized only adjacent to developed facilities for landscaping purposes.</p>	<p>Conditionally Compatible; May be authorized only adjacent to developed facilities for landscaping purposes.</p>	<p>Conditionally Compatible; May be authorized only adjacent to developed facilities for landscaping purposes.</p>	<p>Incompatible, except as part of stream rehabilitation performed by ADF&G under AS 16.05.092.</p>
<p>Traffic Control Devices¹³</p> <p>Includes any sign or physical barrier that is placed by DPOR to control access or use of DPOR managed land and water.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Compatible; Allowed without authorization.</p>	<p>Incompatible; Use will not be conducted in this zone with the exception of construction of a gate where the park boundary meets Rocky River Road.</p>

¹³ “Traffic control device” has the same meaning as provided in 11 AAC 12.340(22).

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Trail Development and Maintenance</p> <p>Trail maintenance performed by individuals or groups. Work must be done consistent with Trail Management Objectives (TMOs) identified by DPOR. See Appendix E: Trail Plan for more details. Work performed by DPOR staff does not require authorization. Activity under this use will take into account the sensitivity of cultural sites.</p>	<p>Compatible; May be conducted as part of a trail maintenance agreement with individuals or groups consistent with the DPOR's approved Trail Management Objectives.</p>	<p>Compatible; May be conducted as part of a trail maintenance agreement with individuals or groups consistent with the DPOR's approved Trail Management Objectives.</p>	<p>Compatible; May be conducted as part of a trail maintenance agreement with individuals or groups consistent with the DPOR's approved Trail Management Objectives.</p>	<p>Compatible; May be conducted as part of a trail maintenance agreement with individuals or groups consistent with the DPOR's approved Trail Management Objectives.</p>
<p>Waterbody Modification</p> <p>Changing a salt or fresh waterbody to improve use for boats. Includes alteration of channel or bed morphology and removal of beaver dams, logs, and other woody material. Is allowed without authorization for DPOR staff, contractors, and recognized representatives acting in an official capacity on behalf of DPOR.</p>	<p>Compatible; Allowed without authorization for DPOR staff, contractors, or when conducted by DPOR recognized representatives. Incompatible and remains prohibited for all others.</p>	<p>N/A</p>	<p>Compatible; Allowed without authorization for DPOR staff, contractors, or when conducted by DPOR recognized representatives. Incompatible and remains prohibited for all others.</p>	<p>Incompatible.</p>
<p>Water Discharge – Storm Water Drainage</p> <p>Causing the shedding of storm water in an unnatural way into the park as a result of development activities within or adjacent to the park.</p>	<p>Conditionally Compatible; May be authorized if consistent with the Clean Water Act, and in consultation with the DPOR Design and Construction section.</p>	<p>N/A</p>	<p>Conditionally Compatible; May be authorized if consistent with the Clean Water Act, and in consultation with the DPOR Design and Construction section.</p>	<p>Incompatible.</p>

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Water Discharge – Other Drainage or Discharge</p> <p>Allowing or causing drainage or discharge into the park associated with sewage, gray water, or other wastewater and materials.</p>	Incompatible.	Incompatible.	Incompatible.	Incompatible.
<p>Aids to Navigation</p> <p>USCG approved navigational aids, buoys, markers, and lights used to mark channels and hazards.</p>	Compatible; Allowed without authorization for DPOR staff, contractors, or when conducted by DPOR recognized representatives.	N/A	Compatible; Allowed without authorization for DPOR staff, contractors, or when conducted by DPOR recognized representatives.	N/A
<p>Fisheries Enhancement - General</p> <p>Action taken to increase fishery stocks above historical levels within park units such as building fish passages, artificially incubating or stocking fish in streams and lakes, and fertilizing lakes. Use may be authorized only after peer-reviewed research to ensure there will be no detrimental impact on other resident species.</p>	Conditionally Compatible; Use may be authorized at existing release sites or other sites determined appropriate by ADF&G in consultation with DPOR.	N/A	Conditionally Compatible; Use may be authorized at existing release sites or other sites determined appropriate by ADF&G in consultation with DPOR.	Conditionally Compatible; Use may be authorized at existing release sites or other sites determined appropriate by ADF&G in consultation with DPOR.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Fisheries Enhancement – Hatchery</p> <p>Includes construction, maintenance, and operation of hatchery facilities, including imprinting net pens for the purpose of providing fish to the common property sport, commercial, and personal use fisheries, and for use by the hatchery as a brood stock or cost recovery harvest.</p>	Incompatible. ¹⁴	Incompatible.	Incompatible.	Incompatible.
<p>Fisheries Rehabilitation</p> <p>Action taken to restore native fish access to spawning and rearing habitat or to restore populations to historical levels. Includes fish ladders, fish passages, fish stocking, and lake fertilization.</p>	Conditionally Compatible; May be authorized in limited circumstances in conjunction with ADF&G.	N/A	Conditionally Compatible; May be authorized in limited circumstances in conjunction with ADF&G.	Conditionally Compatible; May be authorized in very, limited circumstances in conjunction with ADF&G and with special consideration given to the wilderness values of the area.

¹⁴ The state believes the Tutka Bay Lagoon Hatchery operations are incompatible within KBSP because it likely constitutes an impermissible disposal of state park lands, it is incompatible with the Legislature’s mandate that KBSP be managed as a scenic park, and ADNR lacked authority to enter into an ILMA for ADF&G to manage KBSP lands and waters for this purpose.

Use, Activity, Facility	Recreational Zone	Cultural Zone	Natural Zone	Wilderness Zone
<p>Terrestrial Wildlife Habitat Enhancement or Restoration</p> <p>Modification of habitat to increase or decrease target wildlife population. Includes both enhancement and restoration activities, such as prescribed burning and mechanical manipulation. This type of activity will typically be conducted by, or in consultation with, the ADF&G.</p>	<p>Conditionally Compatible; May be authorized in limited circumstances in conjunction with ADF&G.</p>	<p>N/A</p>	<p>Conditionally Compatible; May be authorized in limited circumstances in conjunction with ADF&G.</p>	<p>Incompatible.</p>
<p>Wildlife Restoration</p> <p>Used to re-establish native species within their original breeding range.</p>	<p>Conditionally Compatible; May be authorized after adequate research to ensure there will be no detrimental impact on other resident species.</p>	<p>Conditionally Compatible; May be authorized after adequate research to ensure there will be no detrimental impact on other resident species.</p>	<p>Conditionally Compatible; May be authorized after adequate research to ensure there will be no detrimental impact on other resident species.</p>	<p>Conditionally Compatible; May be authorized after adequate research to ensure there will be no detrimental impact on other resident species.</p>
<p>Wildlife Introduction</p> <p>Introduction of non-indigenous or exotic species.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>	<p>Incompatible.</p>
<p>Invasive Plants, Pest, and Disease Control</p> <p>The use of poisons or chemicals or other means to control or eradicate invasive or noxious weeds, insect pests, and/or diseases to indigenous animals, plants, or forests.</p>	<p>Conditionally Compatible; May be authorized only to control species not indigenous to the area.</p>	<p>Conditionally Compatible; May be authorized only to control species not indigenous to the area.</p>	<p>Conditionally Compatible; May be authorized only to control species not indigenous to the area.</p>	<p>Conditionally Compatible; May be authorized only to control species not indigenous to the area.</p>

Chapter 6: Unit Specific Management

Introduction

This chapter of the plan identifies management units and provides unit specific management intent and facility recommendations. The management intent and recommendations for each unit build upon plan information, area-wide intent, and land-use zone guidelines presented in previous chapters. It makes specific recommendations on how each unit should be managed to meet the area-wide and unit specific intent and guidelines, and what facilities are needed to accommodate current and future recreation. For information on trails, see Appendix E: Trail Plan.

Management Units

Management units have been identified based on geographic and use similarities, the land use zones, and information presented in previous chapters of this plan. See Map 7: Management Units for a depiction of the units. Management of these park system units not only needs to be responsive to current types and levels of recreational use but must also provide management direction for the level of development and use that is expected to occur over the next 20 years. The management intent and facility recommendations provided in this chapter are consistent with the management direction provided for the land-use zones in Chapter 5.

This chapter provides a brief description and an overview of the current uses for each unit. Following this background information, the management intent, special management considerations, existing facilities, and facility recommendations are provided for each unit. The planning units on the south side are defined by topographic features as well as the boundary of KBSWP, while units on the north side are defined by designated boundaries.

The units identified and addressed in this plan are:

- Eveline Management Unit (79 acres)
- Diamond Creek Management Unit (324 acres)
- Overlook Park Management Unit (254 acres)
- Cottonwood Eastland Management Unit (2,643 acres)
- Northern Management Unit (12,254 acres)
- Grewingk Glacier Management Unit (8,902 acres)

Chapter 6: Unit Specific Management

- Halibut Cove - China Poot Management Unit (28,166 acres)
- Sadie - Tutka Management Unit (39,069 acres)
- Outer Coast Management Unit (187,762 acres)

Map 7: Management Units

Eveline Management Unit

Unit Description

The Eveline Unit shares the footprint of the 79-acre Eveline State Recreation Site located 15 miles east of Homer. (See Map 8: Eveline Management Unit.) Eveline offers hiking opportunities in the spring, summer, and fall and Nordic ski trails in the winter that are widely used by local residents. Sweeping views of the bay and mountains beyond can be had from this site. This unit was donated to the state in the name of Eveline Schuster, who “especially loved the wildflowers as they blew gently in a summer breeze.” Eveline SRS is owned by ADNR and was administratively designated as an SRS managed by DPOR via management right.¹ Nordic ski trails in this unit are managed by the Kachemak Nordic Ski Club (KNSC). A small, minimally developed parking area on Alpine Meadows Drive (off East End Road) provides vehicle access. The unit is wooded, with large copses of trees separated by open shrublands. The entire area is classified as forest habitat. Eveline is renowned for its beautiful meadows and spectacular wildflowers and views.

Current Uses

This SRS is used by Nordic skiers in the winter and hikers in the summer, in addition to use as an outdoor educational space for nearby schools. There is also a popular snowshoe trail. In 2011, volunteers contributed more than 250 hours of service upgrading and maintaining trails in the site. Boardwalks help to provide dry trails except for a few wet spots. The trail difficulty is low in this mostly gentle terrain. There are usually trail maps and often a flower guide or other educational display at the trailhead bulletin board that is maintained by volunteers. Summer use is hampered by the generally waterlogged condition of soils in this area. This area is currently designated as a no hunting unit.

Management Intent

This unit is zoned recreational development, and as such should be managed to enhance recreation potential, with a concentration on Nordic ski use in the winter and foot traffic in the summer. This unit should be managed to facilitate moderate to high-density recreation and to accommodate high levels of recreational use through necessary facility development such as terra trails and appropriate toilet infrastructure. Focus should be on enhancing recreation opportunities and enabling visitors to experience and reflect on the scenic resources in this unit and those visible across the bay. ADA accessibility should also be enhanced where possible.

Special Management Considerations

Land Use Restrictions

The State accepted title to these lands subject to restrictions on use as follows: 1. The property will only be used for public park purposes; 2. The property will not be used for motorized recreation, except for accessing a parking facility and for developing and

¹ ADL 228451

maintaining trails and facilities; and 3. The property will be named after Eveline Schuster and a memorial may be constructed on the site.

Kachemak Nordic Ski Club

In 2001, DPOR signed an MOU with the Kachemak Nordic Ski Club to manage and maintain a system of hiking, biking, and ski trails in this unit. DPOR should continue to work with the Ski Club to facilitate additional Nordic skiing opportunities, and also encourage walking, picnicking, scenery viewing, and school educational use.

Bicycle Use

Use of bicycles should not be allowed or authorized on trails in this unit, except for a single snow trail from the trailhead to an access point for trails on general state land outside the unit.

Existing Facilities

This small unit plays a large part in the integrated Nordic ski trail systems in this area. Current facilities include a parking area and toilets. Approximately 3 miles of looped trails (including a short wheelchair-accessible trail to a viewing platform) are found in the unit. For information on trails, see Appendix E: Trail Plan.

Facility	Comments
Eveline Schuster Parking Area	Small parking area lies directly adjacent to Alpine Meadows Drive. Public outhouses, as well as a viewing platform and picnic table, are located near this parking area.

Facility Recommendations

Eveline is well located to enable ADA access to view scenery within the unit and KBSWP across the bay. Enhanced parking and additional trails will facilitate and enhance winter and summer use.

Ref. No.	Facility or Structure	Recreation Opportunity Provided
EV-01	Parking Area and Materials Storage	Enhance access through redevelopment of a small parking area accessible from Alpine Meadows Drive. Install an orientation kiosk. A materials storage area should be developed to facilitate trail development and maintenance. Public outhouses should be redeveloped as part of this facility redevelopment. Develop a warming shelter for winter use, that may also be used for group rentals.

Map 8: Eveline Management Unit

Diamond Creek Management Unit

Unit Description

The Diamond Creek Unit is composed of the Diamond Creek State Recreation Site, a 324-acre minimally developed area located about 1½ miles north of Homer at milepost 167 of the Sterling Highway. (See Map 9: Diamond Creek Management Unit.) This unit is composed of five parcels of state land that are administratively designated as a State Recreation Site and are managed by DPOR via management rights² or agreement³. There are no inholders in this small unit.

The unit is characterized by relatively flat uplands bisected by the ravine formed by Diamond Creek. The uplands drop precipitously to Kachemak Bay at the bluff and are incised by many steep ravines. This unit is mainly treed, with a stream cutting through the south side of the unit. The remaining lands along the Cook Inlet coastline are coastal/estuarine habitat.

Access to the unit is via the Sterling Highway, which runs just to the east of the unit. Within the unit, a nearly mile-long gravel road provides access to a small parking area near the western edge. Multiple pull-off areas provide additional parking along the road.

Current Uses

Diamond Creek SRS is easily accessible from the Sterling Highway, and is used by birders, horseback riders, dog walkers, cyclists, and hikers throughout the year. The Homer Cycling Club (HCC) has developed approximately 2 miles of multi-modal trails in the unit – most of this trail use is by mountain bike.

Management Intent

As a state recreation site, this unit is intended to be intensively managed to provide for a variety of recreational opportunities.

Special Management Considerations

Bicycle Trails

This site is intended to be managed to enhance singletrack biking opportunities. In 1996, DPOR entered into an MOU with the Homer Cycling Club to “develop and maintain multi-purpose recreation trails” in this unit. This MOU should be maintained.

Bluff Area

Approximately 83 acres of land in the southern portion of the unit will be classified as Natural Zone. This area is comprised of a steep bluff with many steep ravines which make it less suitable for development – this area should be retained in a natural state.

² See ADL 228211 for four parcels

³ ADL 228240

Beach Access

Multiple use access to the beach should be maintained on the existing beach access trail and include signage to notify visitors of the various allowed trail uses. About \$1 million was requested from FEMA to reconstruct the Diamond Creek Beach Access trail after it was severely eroded by a flood event in 2013. The FEMA funding was scheduled for 2019, but subsequently pushed back indefinitely due to the November 2018 earthquake. Beach signage should include language directing users to avoid hauled out seals when traveling along the beach.

Access Road Management

A gate will be installed near the highway just past the proposed parking area (DC-01) to control access to the existing road into the area. In order to reduce maintenance costs, DPOR may seek a cooperative agreement with the Kenai Peninsula Borough to manage the road and the easement.

Existing Facilities

Facilities are limited to an access road that is minimally maintained by DPOR. Please see Appendix E: Trail Plan for information on trails.

Facility	Comments
Access road and parking area	The 3/4 mile-long road originates at the Sterling Highway and continues west to a small (about 3,000 square foot) parking area. A traffic control gate is located at the beginning of the road.

Facility Recommendations

Ref. No.	Facility or Structure	Recreation Opportunity Provided
DC-01	Parking Area and Materials Storage	Enhance access through development of a parking area near the Sterling Highway. Associated with this parking area is a materials storage area. The storage of trail building materials on-site will facilitate maintenance of existing trails and development of new trails. Realign park access road at Sterling Highway with Diamond Ridge Road. Vacate existing road easement.
DC-02	Public Use Cabin	Develop a public use cabin to provide overnight accommodations.

Ref. No.	Facility or Structure	Recreation Opportunity Provided
DC-03	Public Toilet	Develop a public outhouse near the terminus of the beach access trail.
DC-04	Campground and PUC	Develop a campground in an area west of the existing singletrack trails. The campground may include a public use cabin and a caretaker cabin.

*Chapter 6: Unit Specific Management
Diamond Creek Management Unit*

Map 9: Diamond Creek Management Unit

*Chapter 6: Unit Specific Management
Diamond Creek Management Unit*

Overlook Park Management Unit

Unit Description

The 254-acre Overlook Park unit covers the same area as the Overlook Park State Recreation Site. It is located along the Sterling Highway at milepost 169 north of Kachemak Bay (see Map 10: Overlook Park Management Unit) just west of the popular Baycrest Overlook that offers breathtaking views of Kachemak Bay. This unit includes an area between the Sterling Highway and Kachemak Bay that slopes steeply down to the ocean. Just to the north of the Overlook Park Unit, on the Sterling Highway, is an RV park.

Overlook Park is composed of three parcels⁴, all owned by the state. Two of the parcels were purchased in 1997 with EVOS money and are operated by DPOR under a Management Right; the other parcel was donated to the state in 1999 and is operated under a Management Agreement with ADNR. A 1998 Memorandum of Understanding (MOU) (updated in 2001) between DPOR and the Kachemak Bay Conservation Society (KBCS) provides guidance for research and maintenance of all three parcels that comprise this site.

Access to the unit is severely restricted: there are no developed trails or facilities, and a 600-foot drop down rugged bluffs into the unit from the Baycrest Overlook. Aside from this overlook, most access to this unit is limited to foot traffic from Diamond Creek or Bishop's Beach, and only during low and mid-tide heights.

The majority of the unit is composed of woodland, shrubs, and grassland. Three small lakes/ponds cover 11 acres, and freshwater wetlands in low-lying areas comprise 21 acres. The remaining land area is coastal/estuarine habitat along Kachemak Bay. These rich, diverse habitats are home to a variety of wildlife such as ducks and birds, moose and bear, and small mammals. As of 2018, total bird species is 83, along with 6 land mammal species, and 2 marine mammal species.

Current Uses

KBCS intends to continue ongoing research and to provide natural history hikes led by knowledgeable members and invited scientists. Little public use currently occurs on the lands and it is anticipated that this area will see incremental increases in use in the years to come. User counts supplied by KBCS from the annual spring hikes during the Shorebird Festival show slightly increasing participation (23 attendees in 2017).

Management Intent

The Overlook Park unit is currently identified as a State Recreation Site; however, access is limited, and topography is extreme. Due to the unique remnant native habitat contained in this unit, and the importance of the area for ongoing research, it should be converted to a State Preserve. The primary management objective of a State Preserve is resource protection;

⁴ ADL 228239, ADL 228213, ADL 228447

the purpose is to provide for applied research, basic research, and/or outdoor environmental education.⁵ For consistency with the purpose for this area, the site should be referenced as the Overlook Park State Preserve. This area is zoned Natural, which is in keeping with a State Preserve. DPOR will continue to work closely with KBCS to follow and update the 2002 plan mentioned below as appropriate.

Special Management Considerations

Kachemak Bay Conservation Society (KBCS)

Overlook Park has been managed by KBCS since 1998. As envisioned in the 2002 *Community-based Management Plan for Overlook Park* developed by KBCS, with community input, the majority of the area is to be preserved as habitat and for research purposes. Planned development on the lands at the bottom of the bluff, while originally included in the plan, is now thought to be too much for the resource. Interpretive development planned on the top of the bluff may occur in the future.

Potential for Unauthorized ATV Use

Increasing use on the tidelands could result in unauthorized use of ATVs in the unit. If monitoring indicates ATV use is occurring, signs should be posted to curtail this use.

Existing Facilities

No DPOR developed facilities or trails currently exist in the unit.

Facility Recommendations

No facilities recommended. Facilities suggested in the 2002 *Community-based Management Plan for Overlook Park* may be developed on lands atop the bluff; however, KBCS should contact DPOR and ADOT/PF early in any planning process that may lead to such development.

⁵ Alaska State Park System: Statewide Framework, Page 14

Map 10: Overlook Park Management Unit

*Chapter 6: Unit Specific Management
Overlook Park Management Unit*

Cottonwood Eastland Management Unit

Unit Description

The Cottonwood Eastland unit is composed of the Cottonwood Eastland parcels of KBSP. Combined, these cover 2,643 acres on the north side of Kachemak Bay (see Map 11: Cottonwood Eastland Management Unit). This area is 18 miles east of Homer, located between East End Road and the bay. This unit is surrounded mainly by private properties to the west and north, and Kachemak Bay to the south. Within the Cottonwood Eastland unit, there are four private parcels, totaling just under 54 acres and six parcels of state-owned land totaling 231 acres that are administratively managed as part of KBSP.

This unit is characterized by southeast sloping terrain that falls precipitously at a bluff to Kachemak Bay. Deeply incised, northwest-southeast trending ravines bisect the middle and southern portions of the unit. These ravines make access through the entire unit challenging. The exception is a large area of land in the northern part of the unit that would be suitable to both trail and facility development. East End Road provides direct access to this portion of the unit.

The vast majority of this unit is forested, with five streams entering the bay from the unit. The remaining area is composed of coastal/estuarine habitat along the north side of Kachemak Bay. Since a 2009 burn, 400 acres of the forest area is now *Calamagrostis*/shrub dominated habitat.

Current Uses

Due to lack of parking, facilities, and quality trails, use of the Cottonwood Eastland Management Unit is currently limited, although there are some user defined trails. Hunting occurs in this unit for moose, bear, and game birds. Some of the heaviest use originates at beach access points. Camping is common where Cottonwood Creek dumps into Kachemak Bay – this site is a designated stop on the Kachemak Bay Water Trail.

Management Intent

More intensive multi-modal trail-based recreation opportunities should be facilitated where access and terrain can support this level of use with minimal impact to resources. A campground facility with recreational vehicle camping opportunities should be developed. The Natural Zone will be managed to facilitate lower levels of use limited to development that facilitates access and enjoyment of the scenic resources. ADA accessible trails and public use cabins and barrier free facilities should also be developed in this unit.

Special Management Considerations

Private Parcels

DPOR should, to the greatest extent practicable, minimize visual and audio impacts to adjacent private properties through appropriate siting and design of facilities and trails.

Shafford Heights Public Easement

On May 25, 2012, a DPOR director's determination established a public easement⁶ within Kachemak Bay State Park to provide legal access to private property owners in Shafford Heights subdivision. (LAS 28480 – Sections 18 & 19 in Township 5 South, Range 11 West, Seward Meridian). DPOR will continue to work with landowners on affordable means to develop the easement in phases. This easement will not be a Kenai Peninsula Borough maintained road.

Interagency Land Management Assignment (ILMA) for East End Road Parcel

DPOR will pursue an ILMA for the general state land near mile 17 East End Road with the intent of developing access to the park at this location.

Cottonwood Creek Campsite

DPOR should establish an MOU with the Friends of Kachemak Bay State Park to manage the campsite at Cottonwood Creek.

Cottonwood Creek Cultural Sites

There are cultural sites near Cottonwood Creek. Best management practices should be employed when working around these sites.

Coal Seams

Historically, beach campfires have ignited coal seams in Cottonwood Eastland that burned for several weeks. Users should be careful to avoid igniting coal seams.

Horse Use

There has been a history of horseback riding and reports of loose herding⁷ occurring in this area. Loose herding is not allowed. This plan calls for expanded parking for horse trailers and for trails that would specifically allow horse use. Horses are allowed on designated trails only.

Existing Facilities

No DPOR constructed or maintained facilities or trails currently exist in this unit. There is, however, a campsite managed by Friends of Kachemak Bay State Park by permit. For information on trails, see Appendix E: Trail Plan.

Facility	Comments
Campsite (Cottonwood Creek)	This primitive campsite at the mouth of Cottonwood Creek includes a latrine, fire ring, and picnic table. This is a convenient campsite for Water Trail users.

⁶ Under AS 41.21.024

⁷ 11 AAC 20.910 disallows groups with more than 10 horses from entering any Kenai Peninsula state park without a permit, tethering horses within 100 feet of fresh water, and loose herding.

Facility Recommendations

Ref. No.	Facility or Structure	Recreation Opportunity Provided
CE-01	Campground	Provide new road-based camping opportunities within KBSP. This will be accomplished through development of a campground that offers tent and recreational vehicle sites and potable water. A parking area for the campground will include parking suitable for horse trailers. ⁸ Up to three public use cabins could be incorporated into the campground. All three public use cabins should be ADA accessible and barrier free. One of the cabins should serve as a host cabin seasonally and be available on the reservation system other times of the year.
CE-02	Trailhead	Facilitate access and use of proposed trail systems and public use cabins through development of a trailhead parking area. A public toilet should be provided at the trailhead.
CE-03	Viewing Platform	Facilitate public visitation and viewing state park lands through development of a viewing platform.
CE-04	Trailhead	Facilitate access and use of proposed trail systems in the southern portion of the unit through development of a trailhead parking area. Public toilet should be provided at the trailhead.
CE-05	Public Use Cabin	Provide overnight accommodations at up to two trail-accessible public use cabins. The final site planning for these cabins should minimize conflict with nearby residents.
CE-06	Public Use Cabin	Provide overnight accommodations at a trail-accessible public use cabin.

⁸ 11 AAC 20.910 states that horses are not allowed in campgrounds in Kenai state parks. Allowing horse use in this campground will require a regulation change.

Map 11: Cottonwood Eastland Management Unit

*Chapter 6: Unit Specific Management
Cottonwood Eastland Management Unit*

Northern Management Unit

Unit Description

The Northern Management Unit is the northernmost unit on the south side of the bay and occupies 12,254 acres (see Map 12: Northern Management Unit). It is bounded by Kachemak Bay to the west, Kenai National Wildlife Refuge to the east, and Grewingk Creek to the south. 46 private parcels, totaling approximately 157 acres, are located within the unit.

The northern portion of this unit consists of moderately rolling topography which gives way to the steep walls of the previously glaciated Portlock River valley and the alpine of Portlock Plateau. The southern portion of the unit consists of the Humpy Creek and Grewingk Creek valleys and a relatively small north-south trending ridge. Elevations in this unit rise to just over 3,000 feet on the plateau. An old-growth spruce forest, showing impact from the recent spruce beetle infestations, covers much of the unit. Chugachik Island is of archeological interest – dating suggests occupation from 360 BCE. 1.2 acres of the island was listed on the National Register of Historic Places in 1976.

Current Uses

Much of the use of the Northern Management Unit is focused on hiking and hunting, with popular trails including Emerald Lake and Humpy Creek (connecting to the Grewingk Glacier and Glacier Lake trails). Big game species pursued in this unit include black and brown bear, as well as moose and mountain goat; the majority of the mountain goat harvest occurs in the adjacent Kenai National Wildlife Refuge. Coastal areas of this unit are of particular importance to waterfowl hunters. With limited lodging available, many users visit for the day, hike out of the unit, or camp in the backcountry.

Management Intent

This unit should be managed to protect scenic values while facilitating low to moderate levels of use. New and redeveloped trails will enhance hiking, access to camping, and scenic viewing opportunities in the northern most unit on the south side of the bay. A limited number of new trails should be developed in the northern portion of the unit where none currently exist. Trails accessing scenic overlooks should be developed or enhanced to provide hiking and scenic viewing opportunities. Public use cabins should be constructed to facilitate use and access, and the existing yurt at the Humpy Creek Trailhead should be converted to a public use cabin. Scenic viewsheds will be maintained through visual screening of structures where possible. Only minimal clearing of a site will be undertaken for construction and to improve the view.

Special Management Considerations

Private Parcels

DPOR should, to the greatest extent practicable, minimize visual and audio impacts to adjacent private properties at Bear Cove through appropriate siting and design of trails.

Chugachik Island Cultural Zone

The 44 acres of land on Chugachik Island are zoned Cultural due to the cultural, archaeological, and anthropological resources found there. Regulatory and interpretive signage should be added here, as “cultural zones are established to preserve, investigate, document, and interpret Alaska’s cultural resources and heritage” (Framework, p. 20). However, care should be taken to protect the integrity of the identified, and any as yet unidentified, resources. DPOR should establish an MOU with the Friends of Kachemak Bay State Park to manage the campsite on Chugachik Island.

Existing Facilities

Little development exists within this unit. Overnight accommodations consist of one yurt at the outlet of Humpy Creek and five developed campsites – one campsite near Mallard Bay, two located at the west end of Emerald Lake, one located at the Humpy Creek Trailhead, and one on Chugachik Island. See Appendix E: Trail Plan for information on trails.

Facility	Comments
Chugachik Island Campsite	This campsite includes a bear box, fire ring, picnic tables, tent platform, trail register, and outhouse.
Emerald Lake Campsites	This site consists of two tent platforms and a developed campsite situated near the west end of Emerald Lake. A bear box is available for food storage. Access to the campsites is provided via the Emerald Lake Spur Trail and Emerald Lake Camp Trail.
Humpy Creek Trailhead	This site is adjacent to the Humpy Creek beach landing site. Facilities consist of a primitive campsite, a yurt, a bear box for food storage, and an outhouse. It is accessed from the beach landing or via the Humpy Creek Trail.
Mallard Bay Trailhead	This site has a tent platform (currently not in a usable state) and is located adjacent to the Mallard Bay beach access site. A primitive campsite is accessed from the beach and the Mallard Bay Trail, which provides access to an overlook on the Portlock River.

Facility Recommendations

Ref. No.	Facility or Structure	Recreation Opportunity Provided
NO-01	Mooring Buoy	Facilitate access to the Mallard Bay Trailhead and proposed public use cabin (NO-02) and existing tent platform. Note that Mallard Bay empties at low tide.
NO-02	Public Use Cabin	Develop a new public use cabin at Mallard Bay to support use of the Humpy Creek and Portlock River areas.
NO-03	Public Use Cabin	Replace existing yurt at Humpy Creek Trailhead with a public use cabin. This new cabin will facilitate recreational use and access to the Humpy Creek area and trails and use of the Grewingk Glacier area and trails to the south.
NO-04	Public Use Cabin	Develop a new public use cabin at the west end of Emerald Lake to facilitate recreational use and access for hunting.

*Chapter 6: Unit Specific Management
Northern Management Unit*

Map 12: Northern Management Unit

*Chapter 6: Unit Specific Management
Northern Management Unit*

Grewingk Glacier Management Unit

Unit Description

The Grewingk Glacier unit occupies 8,902 acres on the south side of Kachemak Bay, generally encompassing the area around Grewingk Lake, Grewingk Glacier, and Grewingk Creek (see Map 13: Grewingk Glacier Management Unit). Of this, approximately 16 acres is privately owned with another 120 acres in federal ownership. Currently there are approximately 16 miles of trails in the unit. The terminus of Grewingk Glacier peaks into this unit from the east above Grewingk Lake. Grewingk Creek travels across the Grewingk outwash plain which has significant stands of alder and willow growing in the cobbly outwash material.

Current Uses

Access to this unit is costly for visitors from outside of the area and requires some logistic work in advance of visitation. Local area residents access the site through use of boats and fixed-wing aircraft, including using commercial operators.

Popular activities include hiking, kayaking, exploring the beach, looking for wildlife, watching icebergs in Grewingk Lake, glacier viewing, and camping. This is one of the most heavily used portions of KBSP, with significant numbers of visitors hiking to Grewingk Lake and other destinations.

Other uses include stand-up paddle boarding and kayaking at Grewingk Lake, glacier travel, and hunting. Game species pursued in this unit include mountain goats, bear (black and brown), game birds (upland and waterfowl), and moose. A number of concessionaries use this area, offering a yurt for rent at Right Beach and stand-up paddle boards for rent at Grewingk Lake.

Management Intent

The intent is to manage the Grewingk Glacier unit to accommodate moderate to high levels of diverse recreational use, while maintaining the scenic and natural resources. Visitors should be careful neither they nor their dogs disturb birds or bird nests in the area. Redevelopment of existing trails and development of new trails will provide a connected looped system and enhance recreation opportunities and access to scenic lookouts throughout this unit. Bicycles may be allowed on designated trails after they have been redeveloped appropriately. New cabins and developed campsites will enhance overnight use opportunities.

Special Management Considerations

Facility Development

New or redeveloped access facilities, trails, and structures should be sited and designed to minimize impacts, if possible, to adjacent private land and to avoid hazard areas as appropriate.

Potential for Large Grewingk Glacier Lake Surface Wave

In 1967, a very large landslide slumped into Grewingk Glacier Lake from the mountainside to the south, creating a surface wave that severely impacted adjacent lands and carried debris 4 miles into Kachemak Bay. DPOR is currently partnering with organizations to evaluate the condition of the mountain. Notices should be posted on the lake to inform the public of possible damaging waves in this location.

Glacier Helicopter Landings

Helicopter operators are currently authorized to land on Grewingk Glacier. As the glacier recedes, an alternate landing site may need to be identified on adjacent land.

Existing Facilities

While this unit experiences much of the total use of the lands on this side of the bay, it has surprisingly little development to support that use. This unit’s trail system consists of five terra trails that provide access to Grewingk Lake, Creek, and Glacier; Emerald Lake; and Halibut Cove. Access through this unit to adjacent units is possible on existing trails. Two coastal trailheads, one on Glacier Spit and one in Halibut Cove, provide access from the coast. Overnight use is accommodated at four developed campsites or by staying in the single yurt operated by a concessionaire. For trail information, see Appendix E: Trail Plan.

Facility	Comments
Campsite Glacier Spit	Site includes a primitive campsite, outhouse, registration box, and traffic counter.
Campsite Grewingk Creek	Primitive campsite adjacent to a creek and near Grewingk Hand Tram.
Grewingk Hand Tram	Hand tram connects trail systems in the Grewingk Glacier Unit to those in the Northern Unit.
Equipment Storage Area Grewingk Lake	Small area where small boats and equipment are stored for commercial use as part of a concession contract.
Public Outhouse Grewingk Lake	Public outhouse located near the terminus of the Glacier Lake trail.
Yurt and Campsites Near Glacier Spit Trailhead	Yurt is located southeast of the Glacier Spit Trailhead. There is room for tents at Rusty’s campsite on the beach berm, so accommodation in the yurt can be combined with tent camping. Two campsites (Left Beach and Right Beach) exist in the area of Kachemak Crack climbing wall.

Facility Recommendations

Ref. No.	Facility or Structure	Recreation Opportunity Provided
GG-01	Dock	Dock to facilitate improved access to Saddle Trail and Grewingk Lake.
GG-02	Mooring Buoy	Mooring Buoy to facilitate access to existing Saddle Trail and Grewingk Lake area. Will be superseded by a dock.
GG-03	Campsite with Tent Platform	Campsite will facilitate overnight recreation by visitors to the Grewingk Lake area and people traveling through the unit on the proposed Coast to Coast Trail.
GG-04	Campsite with Tent Platform	Campsite will facilitate overnight recreation by visitors to the Grewingk Lake and Halibut Cove area and those hiking in the alpine via the Alpine Ridge Trail. Campsite will also accommodate overnight use by people traveling through the unit on the proposed Coast to Coast Trail.
GG-05	Public Use Cabin	Beach accessible cabin will be situated inland of the current trailhead at Glacier Spit. This cabin will support enhanced recreation on multimodal trails and trails proposed for development at the Grewingk outwash plain to enable multiday stays.
GG-06	Public Use Cabin	Cabin on the southwest of Grewingk Lake to support recreational users of the area. PUC should be larger than usual size – perhaps 24x24 – and constructed high enough above the lake to mitigate the danger from an avalanche-induced surface wave.
GG-07	Boat and Equipment Storage Area	Located near the terminus of the Glacier Lake Trail, an area will be identified for a structure designed for seasonal, secure storage of canoes and kayaks and equipment.

*Chapter 6: Unit Specific Management
Grewingk Glacier Management Unit*

Map 13: Grewingk Glacier Management Unit

*Chapter 6: Unit Specific Management
Grewingk Glacier Management Unit*

Halibut Cove - China Poot Management Unit

Unit Description

The Halibut Cove - China Poot unit comprises 28,166 acres between Kachemak Bay and the eastern edge of KBSP, just south of the Grewingk Glacier unit (see Map 14: Halibut Cove - China Poot Management Unit). This unit has many facilities and is visited often. The unit includes: the lowlands on the south side of Halibut Cove and surrounding Halibut Cove Lagoon; China Poot Lake; Moose Valley; and Poot Peak and extends into the Kenai Mountains.

A wide variety of habitats are found in this unit, ranging from estuarine wetlands to alpine. These include the Halibut Cove Lagoon and China Poot estuaries; saltwater beaches; glacier moraines and outwash plains; spruce and hemlock forests; and alpine tundra.

This unit is bordered by the community of Halibut Cove – a regional tourist attraction. Several well-known resort lodges are in or near this unit, chiefly in Halibut Cove, Peterson Bay, and China Poot Bay. The unit has also seen a moderate amount of additional private development.

A relatively new industry in the area is commercial oyster and mussel farming, with mariculture facilities just outside the park units. The farms are known for raising some of the most desirable shellfish in the world.

Current Uses

Tour boats and water taxis from Homer bring many visitors to the community of Halibut Cove (which neighbors this unit) and to trailheads within the unit. Visitors to the park and residents of Halibut Cove can access the unit via water taxi, aircraft, or overland trail. Other visitors can be dropped off by water taxi in the Halibut Cove and China Poot areas to hike or kayak. This unit offers four looped trails that provide access to five public use cabins and five developed campsites. Poot Peak is a popular hiking destination for those seeking a rigorous adventure, while the other trails traverse flat to rolling topography. The five public use cabins in this unit are booked almost continuously during the summer season (June through August) with increased availability during the fall and winter seasons. Two yurts, operated under a concession contract, also provide overnight accommodations.

King salmon fishing is popular at times in park waters. In July, sockeye salmon are harvested from China Poot Creek in the Kachemak Bay Personal Use Dip Net Fishery. These sockeye are a hatchery return, originating from broodstock collected in Tutka Bay by Cook Inlet Aquaculture Association and released as fry into China Poot Lake the following year. In addition, China Poot Lake offers good fishing and camping – floatplane access is common.

Hunting also occurs in this unit for black bear, moose, mountain goats, and game birds. Most mountain goat hunting in the unit is accessed via the trails that provide relatively easy access

to the alpine. Moose hunting is concentrated in the lower valley regions of the unit and black bears and game birds are hunted throughout the unit with most waterfowl hunting occurring on the coast.

Management Intent

Halibut Cove and Halibut Cove Lagoon receive moderate to high levels of use seasonally. This unit should be managed to accommodate moderate to high numbers of visitors while protecting scenic qualities and continuing to be a good neighbor to the adjacent private landowners. Mooring buoys may be placed at trailheads and adjacent to proposed public use cabins or campsites. Land-based recreation will be enhanced through redevelopment of existing trails to sustainable standards and through providing looped trails and connector trails that link with adjacent trails. Public use cabins should be developed to facilitate land-based and water-based recreation, including usage of the proposed Coast to Coast Trail.

Special Management Considerations

Private Parcels

There are a significant number of private parcels within or adjacent to this unit. DPOR should, to the greatest extent practicable, minimize visual and audio impacts to adjacent private properties through siting and design of facilities, structures, and trails. Scenic viewsheds will be maintained through visual screening of structures where possible. Only minimal clearing of a site will be undertaken for construction and to enhance views.

Relocation or Repurposing of Existing Facilities

Some structures in this unit are not well suited for their current purpose and should be relocated, possibly outside of the unit, or repurposed. The existing ranger station at Halibut Cove Lagoon should be relocated to another area where access is not restricted at lower tides, and the existing structures should be repurposed for use as a group camp facility.

Stonehocker Creek Flooding

As described in Chapter 4, in 2015-16 Stonehocker Creek flooded a powerline easement near China Poot Bay, compromising the powerline which serves Peterson Bay and Halibut Cove. In early 2019 DPOR permitted HEA to divert Stonehocker Creek away from the easement. This proved successful only until Stonehocker Creek breached the diversion dam in July 2019. DPOR should continue working with HEA to find a viable solution to this issue.

Halibut Cove Lagoon Access

Halibut Cove Lagoon has a narrow and shallow outlet channel that limits flushing and water turnover. Boat access is tide dependent.

Existing Facilities

Halibut Cove Lagoon is the former site of a salmon hatchery, with many of the buildings repurposed for park use, including the ranger station, staff bunkhouse, maintenance shed, and other facilities. The ranger station is staffed full-time during the main summer season by DPOR staff and volunteers. Three public use cabins are available in the Halibut Cove Lagoon area: Lagoon Overlook Cabin, Halibut Cove East Cabin, and Halibut Cove West

Cabin. In addition, two tent campsites are available in the lagoon area. Elsewhere in the unit, there are two additional PUCs, three campsites, and two yurts. For trail information, see Appendix E: Trail Plan.

Facility	Comments
Public Use Cabin China Poot Lake	16'x16' cabin sleeps 6 and is located on the shores of scenic China Poot Lake. The lake is approximately 2.4 trail miles from Halibut Cove Lagoon trailhead or 13 air miles from Homer. Air taxis can land on the lake, but there is no dock facility at the cabin. Water is available from the lake and a woodstove is available for heat.
Public Use Cabin Halibut Cove Lagoon East	16'x16' cabin sleeps 6 and is located on a rock bluff that overlooks the lagoon and the Halibut Cove Lagoon Public Dock. The 1-room cabin is equipped with a double wooden bunk, a wooden sleeping platform, table, counter, and benches. A latrine is nearby. During the summer months water may be available at the East and Overlook cabins but the system may be down at any time for several reasons. A woodstove is available for heat. This cabin is designed for persons with mobility disabilities.
Public Use Cabin Halibut Cove Lagoon Overlook	16'x20' cabin sleeps 8 and is located on a rocky point, overlooking the lagoon. Access the cabin at the Halibut Cove Lagoon Public Dock. The 2-bedroom cabin is equipped with double wooden bunks, a table, counter, and chairs or benches. A latrine is nearby. During the summer months water may be available at the East and Overlook cabins but the system may be down at any time for several reasons. A woodstove is available for heat.
Public Use Cabin Halibut Cove Lagoon West	16'x16' cabin sleeps 6 and is located on a rock bluff overlooking the lagoon. The cabin sits just east of the Halibut Cove Lagoon Trailhead. A long, steep stairway to the beach or a short trail to the trailhead provide access. The 1-room cabin is equipped with a double wooden bunk, a wooden sleeping platform, table, counter, and benches. A latrine is nearby. During the summer months water may be available at a nearby stream. A woodstove is available for heat.

Chapter 6: Unit Specific Management
Halibut Cove - China Poot Management Unit

Facility	Comments
Public Use Cabin Moose Valley	12'x12' cabin sleeps 2 and is located just off the Moose Valley Loop trail. It is approximately 3 miles from the Halibut Cove Lagoon Ranger Station. Water can be taken from the stream just off the front porch. A small outhouse is nearby. A small woodstove is available for heat. The cabin is suitable for use later in the season as this trail is not normally cleared until mid to late June.
Administrative Cabins Halibut Cove Lagoon	Several cabins used by DPOR staff and volunteers are located south of the Halibut Cove Lagoon Dock slightly removed from the public use cabins. These buildings include a ranger station, a bunkhouse for volunteers and trail maintenance crews, and a cooking structure.
Dock Halibut Cove Lagoon	This facility consists of a large floating dock and an articulating ramp that provides moorage and access to the facilities and trails in this unit.
Campsite China Poot (Coalition Trailhead)	Tent platform, latrine, fire ring.
Campsite Halibut Cove Lagoon	Tent platform, latrine, fire ring.
Campsite Halibut Cove Lagoon Estuary	Developed campsite, latrine, fire ring.
Campsite Moose Valley	Located about 5 miles from Halibut Cove Lagoon trailhead. Includes a developed campsite and fire ring.
Campsite Halibut Cove Lagoon Trailhead	Tent platform, fire ring, latrine.
Yurt China Poot	Tucked on the north side of the very shallow China Poot Bay, this yurt is accessible for most boats when the tide provides a minimum of 8 feet of water.
Yurt Haystack Beach	Access is tidally dependent due to the shallow water approach. The yurt is about 100 yards from the drop-off on a wooded ledge just above beach level. The Wosnesenski River enters the bay almost a mile south of the site.

Facility Recommendations

Ref. No.	Facility or Structure	Recreation Opportunity Provided
HC-01	Dock	Upgrade existing Halibut Cove Lagoon dock to meet surrounding facility needs.
HC-02	Mooring Buoy	Mooring Buoy to facilitate access to planned public use cabin (HC-10) and to looped trails within this Management Unit.
HC-03	Mooring Buoy	Mooring Buoy to facilitate access to facilities at the head of Halibut Cove Lagoon and planned public use cabin (HC-11) and tent platform (HC-04).
HC-04	Tent Platform	New platform will provide additional camping opportunities and facilitate use of higher density trails in this area and trails within the Grewingk Glacier unit. This platform may be converted to a public use cabin at a future date.
HC-05	Tent Platform	Tent platform will enhance camping opportunities for people recreating in the Wosnesenski Glacier area and users on the proposed Coast to Coast Trail. This platform may be converted to a public use cabin at a future date.
HC-06	Tent Platform	Tent platform will enhance camping opportunities for visitors to China Poot Lake area and for people recreating on the looped trails within the larger area. This platform may be converted to a public use cabin at a future date.
HC-07	Tent Platform	Develop new tent platform to enhance camping opportunities on the existing Wosnesenski River Trail and China Poot Lake trails.
HC-08	Group Camp	If existing administrative structures at the Halibut Cove Ranger Stations are no longer needed, the structures will be re-purposed to provide a group camp area that can accommodate medium to large numbers of people as part of a group function.
HC-09	Public Use Cabin	New cabin at McKeon Flats will support recreational use of Kachemak Bay Water Trail and visitors to the larger area. This cabin will replace an existing yurt.

Chapter 6: Unit Specific Management
Halibut Cove - China Poot Management Unit

Ref. No.	Facility or Structure	Recreation Opportunity Provided
HC-10	Public Use Cabin	Construct new cabin near Coalition Trailhead to support use of looped trails within the Management Unit and water-based recreation including the Kachemak Bay Water Trail. This cabin will replace existing yurt.
HC-11	Public Use Cabin	New cabin near the mouth of Halibut Cove south of Halibut Creek will support use of Halibut Cove - China Poot trails and water-based recreation including the Kachemak Bay Water Trail.
HC-12	Public Use Cabin	New public use cabin on southern shore of un-named lake will enhance use of the Wosnesenski River area.
HC-13	Hand Tram	Provide a hand tram.

Map 14: Halibut Cove - China Poot Management Unit

*Chapter 6: Unit Specific Management
Halibut Cove - China Poot Management Unit*

Sadie - Tutka Management Unit

Unit Description

The Sadie - Tutka Management Unit is the southernmost (and with 39,069 acres, the largest) of the units bordering the southern shore of Kachemak Bay. The unit extends north to the Wosnesenski River valley boundary with the Halibut Cove - China Poot unit; south across Sadie Cove and Tutka Bay; and west to the edge of KBSP (see Map 15: Sadie - Tutka Management Unit). The unit encompasses the waters and the uplands north and west of KBSWP.

This unit is characterized by two large glacier-carved, silled fjords with deep basins, known for low flushing and circulation patterns. These geological landforms indent the mountains and contain sensitive tideland and very biologically productive nursery habitats of vegetated seagrass and canopied salt marshes and coastal lagoons that rank among the most productive ecosystems on earth. The forest habitat largely consists of old growth spruce/hemlock trees. The remainder of the unit is dominated by alpine environments, with the tree line near 1,000 feet of elevation.

There are 28 private inholdings in the unit, primarily in Sadie Cove. Two near the head of Tutka Bay and four along the southern shore of Neptune Bay round out the private ownership. A hatchery has operated in Tutka Bay Lagoon since 1978, first by ADF&G and as of 1991 by Cook Inlet Aquaculture Association (CIAA).

Current Uses

Public use of the majority of the uplands in this area is lower than the most heavily used areas of the park, due to its rugged terrain and challenging trail system (Grace Ridge and Sadie Knob). Use is increasing due to the newly developed Tutka Alpine Traverse connecting Tutka Bay with the Gulf of Alaska. The Sea Star Cove Public Use Cabin is a popular destination, as are the four yurts in the unit, especially when the pink and sockeye salmon are returning to Tutka Bay Lagoon. Private use of the marine waters and tidelands include fishing, hunting, boating, kayaking, beach hiking, and wildlife observation, among others. Commercial use is similar to private use and is facilitated through commercial water taxi operators, transporters, and private lodge operations. Commercial and sport fisheries exist within marine waters. Pink salmon produced at the Tutka Bay Lagoon Hatchery have been released at Tutka Bay Lagoon since 1978. Sockeye salmon produced at the Trail Lakes Hatchery have been released into Tutka Bay Lagoon since 2005.

This unit is an important area for mountain goat viewing and hunting, and is very popular with black bear hunters. Mountain goats in this unit can be found right down to the tide line during the spring and winter, providing exceptional viewing opportunities for less mobile park users. Black bear hunters take advantage of the steep slopes for spot and stalk opportunities in the spring; salmon tidal flats provide harvest opportunities for less adventurous hunters.

Management Intent

This unit should be managed to protect scenic values and provide facilities and trails necessary to accommodate relatively low numbers of park visitors. Water-based recreation opportunities will be enhanced through development of public use cabins and tent platform sites. Land-based recreation will be enhanced through redevelopment of existing trails to sustainable standards and through providing looped trails and connector trails that link with adjacent trails. Scenic viewsheds will be maintained through visual screening of structures where possible. Only minimal clearing of a site will be undertaken for construction and to improve the view.

Special Management Considerations

Private Parcels

A significant number of private parcels lie within or are adjacent to this unit. DPOR should, to the greatest extent practicable, minimize visual and audio impacts to adjacent private properties through siting and design of facilities, structures, and trails.

Campsite at Kayak Beach

DPOR should establish an MOU with the Friends of Kachemak Bay State Park to manage the campsite at Kayak Beach.

Tutka Bay Lagoon Hatchery (TBLH)

There are three legal reasons why TBLH's continued operation within KBSP should end:

1. TBLH is inconsistent with the Legislature's mandate to manage KBSP as a "scenic park;"
2. ADNR lacked the authority to issue an Interagency Land Management Assignment (ILMA) to ADF&G to manage the land as a hatchery; and
3. The functionally irrevocable agreements related to the operation of TBLH yield an impermissible disposal of these legislatively designated lands.⁹

Legislation would be needed for TBLH to continue to operate within KBSP. If TBLH operations cease, any state agencies with interests in TBLH will need to address how to restore the site, which structures should be retained on the site, and any future plans and uses for the site.

Existing Facilities

Currently, development in the Sadie - Tutka unit is composed of a single public use cabin, eight identified campsites, and four yurts operated by a concessionaire. These developments are mostly concentrated at the mouth of Sadie Cove and in the middle of Tutka Bay. A wood stove and pit privy are amenities at the public use cabin. See Appendix E: Trail Plan for information on trails.

⁹ See Chapter 4, "Disposals" for information on the functionally irrevocable test and disposals.

Facility	Comments
Public Use Cabin Sea Star Cove	16' x 16' cabin sleeps up to 6. Heated by wood stove. Includes table, benches, and counter for food preparation. Latrine located nearby. A freshwater stream near the cabin provides water.
Campsite Kayak Beach	2 tent platforms, 2 outhouses, and a fire ring. A freshwater stream is nearby.
Campsite North Eldred	Outhouse, hardened gravel campsite.
Campsite South Eldred	Outhouse, tent platform.
Campsite South Grace Ridge	Outhouse shared with yurt, fire ring.
Campsite Tutka Isthmus	Outhouse, fire ring, and a developed campsite.
Campsite Tutka Bay Lagoon	Outhouse, fire ring, and a developed campsite.
Campsite Tutka Lake Trailhead	Outhouse, tent platform, and a fire ring.
Campsite Upper Tutka	Developed campsite with a fire ring.
Yurt Kayak Beach	Situated about 10 miles from the Homer harbor, on the SW side of Tutka Point, the Kayak Beach yurt is nestled in the alders approximately 250 yards from the beach.
Yurt Quarry Beach	Located about 10 miles from the Homer harbor on the opposite side of Tutka Point from Kayak beach. Anchorage is marginal, due to the deep water. Quarry Beach yurt sits 30 yards from the rocky shore historically used as a loading area for stones from a nearby quarry.
Yurt Tutka #1	Situated about 12 miles from the spit, on the north shore of Tutka Bay, the South Grace yurt is about 100 yards from the drop-off point on a rocky beach and is protected from wind by the mature forest found in Tutka Bay. The yurt is very close to the South Grace Ridge Trailhead. A solid gravel bottom provides good anchorage.

Facility	Comments
Yurt Tutka #2	The Tutka Lake yurt sits in mature spruce forest on the south side of the bay, well protected from the day breeze, about 100 yards from the drop-off at the Tutka Lake Trailhead. It is adjacent to a pleasant gravel beach with summer sunset views. There is good anchorage for boats near the drop-off point.

Facility Recommendations

Ref. No.	Facility or Structure	Recreational Opportunity Provided
ST-01	Mooring Buoy	Mooring Buoy to facilitate access to existing Grace Ridge Trail and planned public use cabin.
ST-02	Mooring Buoy	Mooring Buoy to facilitate access to existing Grace Ridge trail and planned Quarry Point public use cabin.
ST-03	Mooring Buoy	Mooring Buoy to facilitate access to existing Sadie tent platform and Eldred Trail.
ST-04	Mooring Buoy	Mooring Buoy to facilitate access to existing Eldred Trail and planned Anisom Point tent platform (ST-06).
ST-05	Mooring Buoy	Mooring Buoy to facilitate access to existing Sea Star and planned Sea Urchin public use cabins.
ST-06	Tent Platform	Tent platform with potential to be converted to a public use cabin at Anisom Point to support Kachemak Bay Water Trail and other users.
ST-07	Public Use Cabin	Public use cabin near the existing Sea Star Cabin to enable more recreational use of Tutka Bay and facilitate joint use of Sea Star/Sea Urchin cabins by a group too large for one cabin.
ST-08	Public Use Cabin	Public use cabin to support water-based recreation on Tutka Bay and upland trail use, including the Tutka Alpine Traverse.
ST-09	Public Use Cabin	Public use cabin at the western end of Grace Ridge to support Kachemak Bay Water Trail users, hikers, and other users.

Ref. No.	Facility or Structure	Recreational Opportunity Provided
ST-10	Public Use Cabin	Public use cabin near head of Tutka Bay adjacent to waterfall to support use of the bay and upland trails.
ST-11	Mooring Buoy	Mooring Buoy to facilitate access to Tutka Bay and adjacent upland public use cabin (ST-08) for recreational use.
ST-12	Tent Platform	Tent platform with potential to be converted to a public use cabin on a small lake to the west of Tutka Bay Lagoon, with reasonable access.
ST-13	Tent Platform	Tent platform with potential to be converted to a public use cabin at the head of Sadie Cove to support recreational uses.
ST-14	Tent Platform	Tent platform with potential to be converted to a public use cabin to support use on the Coast to Coast Trail, and support use on Hazelle Lake.
ST-15	Public Use Cabin	Public use cabin in Tutka Bay to support multiday users of Tutka Bay and the Grace Ridge Trail.
ST-16	Public Use Cabin	Public use cabin will support water-based recreation in Tutka Bay and surrounding areas. Due to its location adjacent to the HEA distribution lines, this cabin may offer electricity. The final site planning for ST-16 should seek to minimize conflict with nearby residents.
ST-17	Public Use Cabin	Public use cabin to support Eldred Trail and Sadie Cove recreational use. Due to its location adjacent to the HEA distribution lines, this cabin may offer electricity.
ST-18	Tent Platform	Provide up to two tent platforms to facilitate overnight use of the Coast to Coast Trail and recreation in the area.
ST-19	Group Camp	When existing structures at the Tutka Bay Lagoon Hatchery site are no longer needed for operation of a hatchery, DPOR will determine which structures could remain on site and be re-purposed to provide a group camp area and/or an educational and research area that can accommodate medium to large numbers of people.

Map 15: Sadie - Tutka Management Unit

Outer Coast Management Unit

Unit Description

The Outer Coast unit encompasses all of the KBSWP and the portion of the KBSP located adjacent to Petrof Lake and Nuka Island (See Map 16: Outer Coast Management Unit). The unit's total area is nearly 260,000 acres. About 188,000 acres are uplands and the remainder are tidal and submerged lands.

The majority of the uplands in this unit consist of steep mountain terrain, ice fields, and glaciers that give way to the rugged coastline of the outer coast on the Gulf of Alaska. Port Dick, including West Arm Port Dick and Taylor Bay, deeply incise the terrestrial terrain on the south side and offer protected waters for boat moorage. Gore Point juts into the gulf and is the southern extent of the park units addressed in this plan. Access to this unit is overland from the Sadie - Tutka Unit to the north, or via airplane or boat. The steep mountains, open vistas, and wild areas of this unit provide ideal mountain goat and black bear habitat and have been well preserved. There are few trails and few structures or facilities of any kind in this unit. Despite this, the unit has long been recognized for its recreation potential, with both the 1989 and 1995 plans suggesting facility development.

This unit is unique in that there is a subdivision on the south shore of Petrof Lake, between the lake and Nuka Passage in the Gulf of Alaska. This 60-lot subdivision was created in 1983 and offered in a state land sale in 1984. Lands were conveyed to successful bidders in 1987. Lots range in size from 2.5 to 5.2 acres. Of the original lots, 51 (216 acres) are currently privately owned and therefore not classified in zones; if the lands in this subdivision revert to the state, they automatically become part of KBSP.¹⁰

The unit contains Nuka Island, the largest island in KBSP and much larger than any island in KBSWP. Nuka Island is 8½ miles long, 3½ miles wide, and is separated from the Kenai Peninsula by the Nuka Passage, which provides some shelter from the open waters of the Gulf of Alaska. Access to the Gulf of Alaska side of the island is difficult and generally only possible in larger boats.

Current Uses

Due to its remoteness, this unit sees very little use as compared to all other units addressed by this plan. Certain areas are used more than others, including: Gore Point – a remote destination that provides panoramic views of the southern peninsula and the gulf coast; Nuka Island – a rugged and remote island with little signs of development; Port Dick and Tonsina Bay – two protected bays that provide anchorages for boats; and Petrof Lake – the remote aforementioned subdivision.

¹⁰ AS 41.21.131

The heaviest use of this unit is currently by big game hunters, the majority from out of state. Big game transporters and guides from the Homer area concentrate efforts in this unit for spring black bear hunting. Mountain goats are pursued when the season opens in late summer.

Access to the alpine environment east of the Sadie - Tutka unit was recently improved through development of a terra trail. Access and use of this area are expected to increase but remain at low levels. A perhaps surprising (and low-level) use on the outer coast is visitation by surfers on the remote beaches.

Airplane use is known to occur on marine waters and beaches throughout this region to transport hikers and hunters. Petrof Lake offers freshwater floatplane access to users and residents of the Petrof Lake subdivision. Float planes drop off and pick up hunters and Tutka Alpine Traverse hikers at Taylor Bay, Home Cove, Herring Pete Cove, and Mike's Bay on Nuka Island are common places for camping, while the beach south of Petrof Lake offers favorable landing spots for boats and kayaks if the ocean tides are not too large.

Management Intent

This unit will continue to be managed to provide a remote wilderness experience where natural processes are maintained and development is minimal. Current and anticipated use levels are considered low due to the area's remoteness and difficult access via aircraft or boat. Trails in this unit should be developed to a minimum standard to provide access while maintaining the wilderness and scenic character of the area. The majority of new trails should be developed to a Class 2 standard with minimal route identification. In some limited cases, trails may need to be developed to a slightly higher standard to address increased use, impacts to resources, or other management concerns. Some facilities will be developed to enhance access, use, provide safety to the visiting public, and to address anticipated impacts to natural resources. These facilities will be sited and designed to minimize visual impacts while still serving to facilitate use. Motorized access shall remain restricted to methods provided in general and unit specific regulations. Use levels are anticipated to be low in the near-term.

Special Management Considerations

Petrof Lake Subdivision

An area bordering Petrof Lake Subdivision is zoned Recreational Development. This zone will have a somewhat higher level of recreational use and recreational facility development to facilitate use of the lands and waters adjacent to the Petrof Lake Subdivision. The Natural Zone surrounding this area is meant to serve as buffer between the Recreational Development and Wilderness Zones.

Development in Wilderness Zone

Undirected use results in pioneering of new camping sites, issues associated with human waste, fire pit development, and compacted soil and vegetation loss. These impacts are more visible in the alpine environment; however, they occur wherever multi-day use occurs and is not directed to developed facilities. DPOR should, to the greatest extent practicable, direct

use and construct facilities that minimize the impacts of people recreating in this unit to preserve the scenic resources and wilderness character. Only minimal clearing of a site will be undertaken for construction of structures and facilities. All structures will be visually screened where possible to preserve the scenic resources and wilderness character. An exception will be the proposed mountain huts on the Tutka Alpine Traverse Trail. Due to the location of these structures in alpine habitat, they cannot be visually screened. They will however be constructed to resemble the character of other mountain huts in Alaska.

3-sided Shelters

DPOR should consider, as an alternative to tent platforms, developing 3-sided shelters with shed roofs for increased protection from inclement weather. If tent platforms are developed, they may later be converted to 3-sided shelters or PUCs if interest and the level of use warrants.

Seal Haulouts

DPOR will site any new trails or facilities in this unit at least ¼ mile away from known seal haulout locations.

Legislative Intent for Nuka Island

The 1989 legislation that expanded KBSP and KBSWP states that “the legislature intends that [Nuka] island support (1) a commercial lodge in a suitable place; (2) renovation of existing facilities at Herring Pete’s Cove; (3) the construction and operation of one or two public use cabins; (4) docks, trails, and moorings necessary to provide for recreational use; and (5) maintenance of Berger Bay in an undeveloped state.”¹¹

Existing Facilities

There are no DPOR-maintained facilities in this unit. Currently there are no intact cabins located within this unit – the Port Dick Administrative Cabin burned in 2000. For trail information, see Appendix E: Trail Plan.

Facility Recommendations

Ref. No.	Facility or Structure	Recreation Opportunity Provided
OC-01	Mountain Hut	Mountain hut to support existing Tutka Alpine Traverse Trail. These mountain huts are envisioned as a shared shelter available for use on a first-come, first-served basis. Hut should be designed with sleeping space for 6-8 people, animal-resistant food storage boxes, a communal cooking area, and appropriate latrine facilities.

¹¹ § 4 ch 110 SLA 1989

Ref. No.	Facility or Structure	Recreation Opportunity Provided
OC-02	Mountain Hut	Mountain hut to support existing Tutka Alpine Traverse Trail. These mountain huts are envisioned as a shared shelter available for use on a first-come, first-served basis. Hut should be designed with sleeping space for 6-8 people, animal-resistant food storage boxes, a communal cooking area, and appropriate latrine facilities.
OC-03	Public Use Cabin	Public use cabin near Taylor Bay Trailhead will serve as an administrative cabin. When not used for administrative or management purposes, the cabin will be available on the public reservation system. It will also serve as a safety cabin for people unable to leave due to inclement weather or sea conditions.
OC-04	Public Use Cabin	Public use cabin located adjacent to Petrof Lake in an area of existing cabins. Adjacent to the cabin is one of two designated boat storage areas. A tent platform may be constructed in close proximity to this public use cabin to facilitate larger group camping and to allow the facilities to share a common public outhouse.
OC-05	Public Use Cabin	Public use cabin located on the Gulf of Alaska shoreline northeast of Brown Mountain. Adjacent to the cabin is the second of two boat storage areas. Cabin offers an extension of the Kenai Fjord campsite system to the north.
OC-06	Tent Platform or Shelter	Tent platform or shelter located on the Gulf of Alaska shoreline near the public use cabin (OC-05). Proximity allows both facilities to utilize a shared bear resistant food storage box and latrine. Platform is near the second of two boat storage areas. Platform offers an extension of the Kenai Fjord campsite system to the north.
OC-07	Tent Platform or Shelter	Tent platform or shelter located on the small bay on the north side of Nuka Passage. Offers an extension of the Kenai Fjords campsite system to the north.

Ref. No.	Facility or Structure	Recreation Opportunity Provided
OC-08	Public Use Cabin	Develop a public use cabin northeast of Cape Horn to facilitate access and use of Nuka Island. Offers an extension of the Kenai Fjords campsite system to the north.
OC-09	Tent Platform or Shelter	Tent platform or shelter located on the protected bay on the southern end of Nuka Island. This structure facilitates access and use on Nuka Island. Offers an extension of the Kenai Fjords campsite system to the north.
OC-10	Tent Platform or Shelter	This tent platform or shelter within the protected waters of Tonsina Bay, an area already experiencing increased use levels. Platform will facilitate water-based access and access to the proposed Gore Point Trail.
OC-11	Tent Platform or Shelter	Located near Port Dick Lake, this tent platform or shelter site will facilitate water-based access from the south, land-based access from proposed trails from the west and north, and access to Port Dick Lake and the proposed trail to Qikutulig Bay and the Gulf of Alaska to the south.
OC-12	Boat Storage Area	Located adjacent to the public use cabin, an area will be identified for the seasonal storage of boats near Petrof Lake.
OC-13	Boat Storage Area	Located adjacent to the public use cabin and tent platform, an area will be identified for the seasonal storage of boats near the beach west of the Petrof River.
OC-14	Public Use Cabin	Develop a new public use cabin near the outlet of Port Dick Creek into West Arm Port Dick. This cabin will facilitate recreation within the area and will be available on the public reservation system. It will also serve as a safety cabin for people unable to leave due to inclement weather or sea conditions.

*Chapter 6: Unit Specific Management
Outer Coast Management Unit*

Map 16: Outer Coast Management Unit

*Chapter 6: Unit Specific Management
Outer Coast Management Unit*

Chapter 7: Implementation

The guidelines in this plan are intended to be flexible so as to respond to changing conditions, shifts in demand and use patterns, and availability of funds. Regular review is essential throughout the implementation of this plan to continuously analyze public need and ensure that those needs are being met.

Phasing

Implementation of the management recommendations should begin immediately upon adoption of the final plan and proceed as opportunities allow. Facility recommendations are intended to be implemented in phases as staffing and funding allow. Specific phased project steps for the facility recommendations are not listed in this document since its focus is to provide broad policy direction and this type of phasing is more appropriate for the more detailed site planning process. Throughout the planning process however, the public consistently identified certain areas of interest that need to be considered as implementation priorities.

While this document will not address phasing of specific projects, the projects below were identified as priorities and would greatly enhance recreational opportunities:

- The Facility Recommendations for the Cottonwood Eastland unit, including but not limited to a campground with a parking area, several public use cabins, and a viewing platform.
- Repurpose the old ranger station in Halibut Cove Lagoon to a group camp facility and develop a Ranger Station in an area that is easier to access at all tides.
- Develop a Homer-based Park Maintenance/Operations Facility to include: a maintenance shop able to house a boat, offices, tools, dry heat storage, and dry cold storage; and a yard able to accommodate multiple vehicles, boats, ATVs, lumber storage, and a large fuel storage locker.
- Develop more public use cabins and tent platforms/shelters.
- Supply drinking water (well or catchment system) to public use cabins and to popular camping areas with poor or no water.

Site Planning

Locations of facilities provided in this section of the plan are intended to be general in nature. The exact location of a facility is dependent upon more detailed site analysis and design work that is done as part of a specific project. A detailed site analysis may yield minor revisions to the numbers and locations of the facilities recommended in this plan.

Plan Review and Modification

Due to changes in use patterns and demands, funding realities as well as changes in data associated with specific plan recommendations, adjustments to the plan will have to be made over time. If proposed adjustments are a major departure from the plan's intent, the Director may determine the need to initiate a public review process.

This plan reflects the best efforts of the Division of Parks and Outdoor Recreation to analyze the resources of the park and to provide recreational/interpretive opportunities that do not significantly compromise the park's cultural and natural resources or character.

The planned outlook for the document is 20 years, with the realization that intermediate reviews and modifications may be warranted and are appropriate. The Director may initiate a review at any time.

The following procedure will be used for plan deviations and modifications:

Periodic Review. The Division will coordinate periodic review of the Management Plan when the Director considers it necessary and so directs. The decision to review may be triggered by:

- Written public or agency requests for review;
- Policy changes within the Division;
- Availability of new data;
- Availability of new technology; or
- Changing social or economic conditions that place different demands on the park or affect the Division's capabilities.

The Management Plan review will include meetings, as determined appropriate, with the local advisory board, interested groups, the general public, affected agencies, the area superintendent, and other Division of Parks and Outdoor Recreation personnel. The periodic review will lead to one of the following actions:

- No modification of the plan;

- Modification of the plan; or the
- Granting of a special exception.

Modification of the Plan. Plan modifications are of two types:

- Minor changes – These are changes which, if accomplished, would not cause a deviation from the original intent of the Management Plan. Minor changes may be necessary for clarification, consistency, or to facilitate plan implementation. Minor changes do not require public review but should be coordinated with the area superintendent and appropriate staff.
- Major changes – These are changes which, if accomplished, would cause a deviation from the original intent of the Management Plan. Major changes require public notice and review prior to adoption.

Granting of a Special Exception. Exceptions to the provisions of the Management Plan may be made without modification of the plan. Special exceptions shall occur only when compliance with the plan is excessively difficult or impractical, and an alternative procedure can be implemented which adheres to the purposes and spirit of the plan.

The Division of Parks and Outdoor Recreation may make a special exception in the implementation of the plan through the following procedures. The person or agency requesting the special exception shall prepare a written finding which specifies:

- The nature of the special exception requested;
- The extenuating conditions which require a special exception;
- The alternative course of action to be followed; and
- How the intent of the plan will be met by the alternative.

The Director of DPOR will review the findings and issue a determination. If warranted by the degree of controversy or the potential impact, the Director may hold a public hearing before reaching a decision. The decision of the Director may be appealed to the Commissioner of ADNR, whose decision will be final.

Proposed Regulations

Regulation changes will be needed for some plan recommendations to be enforceable by DPOR. If a regulation needs to be promulgated to fully implement a recommendation in the plan, it is mentioned in Chapter 5 under the relevant park use category and/or in the Trail Plan. Some of these regulations may be developed as soon as practicable after this plan is completed. Other regulations that are determined necessary in the future may be developed from time to time as determined necessary by DPOR.

Recommended Staffing

Adequate staffing of park units is important to provide positive public/staff interactions that foster appreciation and support for state park units; to provide public safety and emergency response to the recreating public; to protect the natural and cultural resources; to maintain facilities so they are safe and clean; and to supervise seasonal workers, contract workers, and volunteers that are critical to day-to-day functions of park units. These additional staff are recommended to properly fulfill current operations, without the addition of any of the facilities proposed in this plan:

- Upgrade seasonal Park Specialist to a 12-month Park Specialist position to provide expertise in trail construction and maintain trails on a year-round basis. As existing trails keep deteriorating and are being redeveloped and new trails are constructed, it will be increasingly important to ensure these trails are properly maintained to minimize impacts on natural and cultural resources and to provide safe recreational opportunities. This position will be involved in the planning, layout, and constructions of trails and it will supervise volunteer and contract construction and maintenance crews.
- Permanent part-time Park Interpreter Position. This position would have a unique opportunity to provide interpretative and educational opportunities. These services would provide a positive interaction with the public and would foster support for parks and park programs.
- Create two natural resource technician positions (7 months each). These two positions would each oversee a four-person trail crew funded for four months. The park currently has one park specialist that juggles grant funds to work on trail projects. These positions would oversee the proposed trail crew listed below and provide maintenance on public use cabins and other park facilities.
- Create two four-person Alaska Conservation Corps (ACC) trail crews (4 months each). Currently, the park relies on Recreation Trails Program grant funding to oversee trail maintenance projects. This funding is not guaranteed and is limited to working on specific projects. Dedicated trail crews will help to ensure the maintenance of park trails and greatly improve the condition of the trails by maintaining them to high standards.
- Create volunteer coordinator position (6 months). Currently, DPOR hires a 3-month ACC position to coordinate volunteers for the park. During the time this has been implemented it has proven to be an excellent way to leverage the volunteer effort in the park.
- Create a volunteer grant writer position. This position would write and administer grants for the parks to fund the part-time positions that this plan recommends adding, and to fund new PUCs, trails, and trail maintenance.

If additional facilities in the plan are implemented, DPOR should also add the following positions to the park:

- Create another natural resource technician (8 months) to oversee public use cabin maintenance and supervise the cabin maintenance crew.
- Create a three-person ACC cabin maintenance crew that is dedicated to cabin maintenance.

Appendix A: Glossary

AAC. Alaska Administrative Code that includes state regulations.

ACC. Alaska Conservation Corps.

Access. A way or means of approach. Includes transportation, trail, easements, rights-of-way, and public use sites.

Accessible. A term used to describe a site, building, facility, or trail that complies with the Americans with Disabilities Act (ADA) Accessibility Guidelines and can be approached, entered, and used by people with disabilities.

ADA (Americans with Disabilities Act of 1990). A federal law prohibiting discrimination against people with disabilities. Requires public entities and public accommodations to provide accessible accommodations for people with disabilities.

ADEC. The State of Alaska Department of Environmental Conservation.

ADF&G. The State of Alaska Department of Fish and Game.

ADNR or Department. The State of Alaska Department of Natural Resources.

ADOT/PF. The State of Alaska Department of Transportation and Public Facilities.

Airboat. A shallow draft boat driven by an airplane propeller and steered by a rudder (11 AAC 20.990).

Aircraft. Any motorized device under 12,500 pounds gross weight that is used or intended for flight or movement of people or goods in the air (11 AAC 12.340 and 11 AAC 20.990).

All-Terrain Vehicle (ATV). See Off-Road Vehicle.

Anadromous Stream. Those water bodies identified by the Alaska Department of Fish and Game under 5 AAC 95.011.

ANCSA. The Alaska Native Claims Settlement Act.

AS. Alaska Statutes.

Assembly. The gathering or meeting of a group of people for a common purpose (11 AAC 12.340).

Beach. An expanse of pebbles, sand, or other loose particles, along the shore of an ocean, sea, large river, lake, etc., washed by the tide or waves.

Bench (Full, Half, Partial) Cut. The excavation cut into a slope to provide support for the trail tread surface. “Full” refers to the bench being constructed entirely on an excavated surface. “Partial” refers to the bench being constructed in part on compacted fill.

Best Trail Management Practices (BTMPs). A series of management components developed to reflect the current “state-of-the-art” practices for effective and efficient trails management.

BLM. The United States Bureau of Land Management.

Boat or Vessel. A device that is used or designed to be used for the movement of people or goods in or on the water, whether manually or mechanically propelled, but does not include personal floatation devices or other floats such as inner tubes, air mattresses, or surf boards (11 AAC 20.990).

Camp and Camping. To use a vehicle, tent, or shelter, or to arrange bedding, or both, with the intent to stay overnight in a park (11 AAC 12.340).

Campground. An area developed and maintained by the division which contains one or more campsites (11 AAC 12.340).

CIAA. Cook Inlet Aquaculture Association.

CIP. Capital Improvement Project.

Citizen Advisory Board. Appointed by the Director of the Alaska Division of Parks and Outdoor Recreation, this board assists park staff with management and development issues.

Climbing Turn. A wide, ascending curve that gradually reverses the direction of the trail while gaining elevation. Used in favor of switchbacks on side slopes of less than 22% when possible.

Clinometer. A small, hand-held device used to measure grade (or slope) in terms of degrees or percent. In trails and roads, grade or slope is referred to in percent (%).

Commercial Activity. The sale of, delivery of, or soliciting to provide, goods, wares, edibles, or services in exchange for valuable consideration through barter, trade, or other commercial means; a service offered in conjunction with another sale of goods, wares, edibles, or services, which service involves the use of state park land or water, is a

commercial activity whether or not it is incidental to, advertised with, or specifically offered in the original sale; all guide, outfitter, and transportation services are commercial activities if any payment or valuable consideration through barter, trade, cash, or other commercial means is required, expected, or received beyond the normal and customary equally shared costs for food and fuel for any portion of the stay in the park (11 AAC 12.340).

Commissioner. The Commissioner of the Alaska Department of Natural Resources.

Compaction. The compression of aggregate, soil, or fill material by tamping or trail traffic.

Conservation Easement. A restriction placed on a piece of property to protect its associated resources. As defined in statute, a conservation easement is: A nonpossessory interest of a holder in real property imposing limitations or affirmative obligations to retain or protect natural, scenic, or open space values of real property, ensure its availability for agricultural, forest, recreational, or open space use, protect natural resources, maintain or enhance air or water quality, or preserve the historical, architectural, archaeological, or cultural aspects of real property (AS 34.17.060).

Contour Trail (also a Curvilinear or Traverse Trail). Concept whereby the trail is designed to rise and/or descend gradually along natural contours. The alignment crosses the contours at a shallow angle so that the natural drainage patterns are easily maintained during the construction process.

Control Point. A specific point, area, or feature that is important in trail layout. Positive control points are places you want the trail to go to or near (such as trailheads, scenic points, good water crossings, other trails, etc.). Negative control points are places you want to stay away from (such as hazards, sensitive habitat, private property, etc.).

Crib (or Crib Wall). A retaining device used to support the trail tread or backslope, typically composed of wood or rock.

Critical Edge. The outside (downslope) edge of the tread, most pronounced on a bench cut.

Culvert. A pipe or box-like structure of wood, metal, plastic, concrete, or rock that conveys a water course under a tread.

Curvilinear (Trail) Layout. Concept whereby the trail layout is designed to rise or descend gradually along natural contours. The alignment crosses the contours at a shallow angle so that the natural drainage patterns are easily maintained during the construction process. See also Contour Trail.

Design Parameters. Technical specifications for trail construction and maintenance, based on the Designed Use and Trail Class.

Design Turn Radius. The minimum horizontal radius required for various user groups to navigate a curve in a single maneuver; this includes switchbacks, climbing turns, and horizontal turns.

Designed Use. The intended use that controls the desired geometric design of the trail and determines the subsequent maintenance parameters for the trail.

Developed Facility. Includes a building, boat ramp, campground, picnic area, rest area, visitor information center, swim beach, trailhead, parking area, and a developed ski area (11 AAC 12.340 and 11 AAC 20.990).

Difficulty Level. The degree of challenge a trail presents to an average user's physical ability and skill, based on trail condition and route location factors such as alignment, steepness of grades, gain and loss of elevation, and amount and kind of natural barriers that must be crossed.

DMLW. The State of Alaska Department of Natural Resources, Division of Mining, Land and Water.

DPOR or Division. The State of Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation.

Director. The Director of the Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources, or the Director's authorized agent (11 AAC 12.340).

Easement. An interest in land, of specified dimensions, owned by another that entitles its holder to a specific limited use.

EPA. United States Environmental Protection Agency.

EVOS. Exxon Valdez Oil Spill.

Fall-line. The path water flows down a slope under most circumstances.

Full Bench (Construction) Cut. Trail structure used to create a tread along a Contour Trail, whereby the tread is built entirely on an excavated surface (no fill) which is less subject to compaction, erosion, and surface slumping. It is the preferred method of bench construction on trails construction on side slopes >30%. See also Partial Bench Cut.

Firearm. Includes a pistol, rifle, shotgun, revolver, mechanical, gas or air-operated gun (11 AAC 12.340 and 11 AAC 20.990).

GeoBlock. A trademark name structural geogrid material (see Porous Pavement Panel).

Geotextile (Geofabric, Filter Fabric). A pervious, woven or non-woven, petrochemical fabric that provides a stable base and separation layer used in a variety of applications including aggregate capping.

Grade. Relative steepness (rise and fall) of the trail as compared to a flat horizontal plane. Trail steepness is measured in grade as a percentage.

Grade Control. Fundamental part of Sustainable Trail construction whereby strict trail grade restrictions are placed in the design parameters, primarily to minimize erosion due to natural forces and trail users.

Grade Reversals (or Grade Dip). A short change from positive (climbing) grade, to negative (descending) grade for approximately 6 to 12 feet designed into the trail alignment to shed water. Grade reversals are an important component in Contour Trail construction. See also Rolling Grade Dip.

Gravel Bar. An elevated region of sediment in a river (largely comprised of gravel) that has been deposited by water flow. A gravel bar is not a saltwater or freshwater beach.

Green Infrastructure. An interconnected network of green space (hubs + corridors) that conserves natural ecosystem values and functions and provides associated benefits to human populations.

Guideline. A specific course of action that must be followed when a DPOR resource manager permits, leases, or otherwise authorizes use of state lands. Guidelines range from giving general guidance for decision-making or identifying factors that need to be considered, to setting detailed standards for on-the-ground decisions.

Half Rule. A trail's grade should not exceed half the grade of the sideslope. If the grade is steeper than half the grade of the sideslope, it is considered a Fall-line trail.

Hardening. Any number of methods of strengthening a tread surface in response to degradation or to better accommodate a particular type of use. Examples include: aggregate capping, boardwalk or puncheon construction, turnpiking, or the use of porous pavement panel.

HCC. Homer Cycling Club.

HEA. Homer Electric Association.

ILMA. Interagency Land Management Agreement.

Integrated Water Control. Instituting water management into basic trail design, usually during construction. Primary components include Grade Reversals and Outslope.

Invasive Species. Presidential Executive Order 13112 defines an “invasive species” as a non-native species that causes or is likely to cause economic or environmental harm or harm to human health.

Kachemak Bay Water Trail. A 125-mile route extending from the Homer Spit east along Kachemak Bay to the head of the bay, and further along the southern side of the bay to the City of Seldovia.

KBCS. Kachemak Bay Conservation Society.

KBFRFCHA. Kachemak Bay and Fox River Flats Critical Habitat Areas Management Plan (1993).

KBSP. Kachemak Bay State Park.

KBSWP. Kachemak Bay State Wilderness Park.

KEAP. Kenai Area Plan.

Knicks. A semi-circular, shaved down section of trail, about 5-10 feet in length, and canted to the outside with exaggerated outslope. Most commonly employed as a maintenance action on existing low gradient trail sections. A Knick is smooth and subtle, often an unnoticeable feature to users.

KNSC. Kachemak Nordic Ski Club.

Latrine. Vault toilet or bathroom facility.

LDA. Legislatively Designated Area.

Logging Out. Clearing a trail of fallen trees.

LWCF. Land and Water Conservation Fund. A federal program which provides monies and matching grants to federal, state, and local governments for the acquisition and/or development of land and water for public outdoor recreation use.

Managed Trail. A state park trail that has some type or level of Managed Use. To qualify as a Managed Trail, one or more of the following must apply: 1) The trail is depicted on a state park map distributed for public use; 2) The trail is maintained by park staff or volunteers on a regular schedule (up to several years interval) for public use purposes; 3) The trail is, or was, constructed for public use; 4) The trail is abandoned or closed to public use but is used for administrative purposes; or 5) The trail is signed or marked by state parks for public use.

Managed Use. The type of use that is actively managed and appropriate on a trail, considering the design and management intent.

Maximum Trail Grade. A defined maximum tread grade that can be constructed along the trail.

May. Same as “should,” see Should.

Motorized Vehicle. A motorized device for carrying persons or objects over land, water, or through the air, and includes automobiles, snowmachines, bicycles, off-road vehicles, boats, and aircraft (11 AAC 21.290).

National Register of Historic Places. The nationwide catalog of significant historic districts, sites, buildings, structures, and objects established by the National Historic Preservation Act of 1966 and maintained by the U.S. Secretary of the Interior (11 AAC 16.900).

Natural Soundscape. Natural Soundscape is the aggregate of all the natural sounds that occur in the parks together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that a human can perceive and can be transmitted thru air, water, or solid materials.

NPS. National Park Service.

Obstacles (Natural). Objects that add challenge by impeding travel. They include: rocks, roots, logs, holes, ledges, drop-offs, etc.

Off-Road Vehicle (ORV). A motorized vehicle designed or adapted for cross-country operation over irregular terrain, consisting of more than one drive wheel or track, having a gross vehicle weight less than 1,500 pounds or exerting less than eight pounds per square inch ground pressure, and that is 64 inches wide or less, and does not include snowmobiles (11 AAC 20.990).

Organic Soils. The term is also used to refer to the uppermost layer of dark surface soil that has a high organic material content. Organic soils have a propensity of readily absorbing and holding water and are poorly suited as a trail tread material.

Outslope. The amount the tread slopes from side-to-side to promote drainage off the trail instead of down the trail.

Partial Bench Cut. A trail structure used to support the tread along a Contour Trail, whereby the tread is partially supported by an excavated bench cut into a side slope and partially supported by a fill section of compacted excavated material. See also Full Bench Cut.

Permit. A written authorization to engage in uses or activities that are otherwise prohibited or restricted (11 AAC 18.200).

Personal Watercraft (PWC). A vessel that is less than 16 feet in length, propelled by a water-jet pump or other machinery as its primary source of motor propulsion, and designed to be operated by a person sitting, standing, or kneeling on the vessel, rather than by a person sitting or standing inside it. (11 AAC 20.990.)

Porous Pavement Panel. A permeable, rigid, multi-pocketed structural geogrid, typically plastic, that is used to harden areas of saturated or unstable soils without the use of gravel infill, bridges, or boardwalks. e.g. GeoBlock.

Protrusion. An object that protrudes from the surface of a trail.

Retaining Wall (Revetment). See Crib.

Rolling Grade Dip. A trail structure that utilizes a ramp-like excavation, a flat-bottomed drain, and a built up compacted soil dam to direct water off the tread. Typically utilized as a maintenance structure on existing trails.

Route. See Social Trail.

ROW. Right-of-way. The legal right to cross the land of another.

RV. Recreational Vehicle, such as a motor home or camper.

SCORP. Statewide Comprehensive Outdoor Recreation Plan.

Shall. Same as “will,” see Will.

Short Pitch Maximum. See Maximum Trail Grade.

Should. States intent for a course of action or a set of conditions to be achieved. Guidelines modified by the word “should” state the plan’s intent and allow the manager to use discretion in deciding the specific means for best achieving the intent or whether particular circumstances justify deviations from the intended action or set of conditions.

Sideslope. See Slope.

Slope. Refers to the relative steepness of the natural terrain. Slope can be calculated by determining the vertical rise over a given horizontal distance, but, is more often directly read from a slope measurement instrument called a Clinometer. Slope can be expressed in degrees, but for trail use is more commonly expressed as a percentage.

Snow Trails. Trails that have a surface consisting predominantly of snow or ice, which are designed and managed to accommodate use on that surface.

Snowmobile (snowmachine). A self-propelled vehicle intended for off-road travel on snow, having a maximum width of 50 inches and a curb weight of not more than 1,000 pounds, driven by one or more tracks in contact with the snow, and steered by one or more skis in contact with the snow (11 AAC 20.990).

Social Trail (also a Route). An unplanned, usually unmaintained and typically undesirable trail alignment that develops informally as a result of public route pioneering, overuse, degraded trail avoidance, or generally poorly planned trail design.

SRS. State Recreation Site.

State. The State of Alaska.

Surface Protrusions. Surface imperfections that are within the acceptable challenge level for the trail and do not obstruct the managed uses of the trail. Examples include rocks, roots, holes, stumps, or fallen logs.

Sustainable. Capable of being continued with minimal long-term effect on the environment and meets the needs of the present generation without compromising the ability of future generations to meet their needs.

Sustainable Trail. A trail that conforms to its terrain and environment, is capable of handling its intended use without serious degradation, and requires minimal maintenance.

Switchback. A sharp turn in the tread alignment, often 180 degrees, used to gain elevation on steep side slopes (typically required on slopes above 22%).

TBLH. Tutka Bay Lagoon Hatchery.

Ten-Percent Average Grade Guideline. Refers to the practice of keeping the average trail grade or overall trail grade from exceeding 10% along the alignment of the trail.

Terra Trails. Trails that have a tread surface consisting predominantly of native soil or rock, which are designed and managed to accommodate use on that surface. A Terra Trail may also have sections of boardwalk, or other hardened tread.

Tethering. Fastening or restraining an animal so that it can range only within a set radius (11 AAC 20.990).

TMO. See Trail Management Objective.

Traffic Control Device. Any physical barrier, including a boulder, ditch, berm, railing, fence, post, or gate (11 AAC 12.340).

Trail. A linear route managed for human-powered, stock, boats, or ORV forms of transportation or for historic, heritage, or commercial values.

Trail Class. The prescribed scale of trail development, representing the intended design and management standards of the trail.

Trail Corridor. The total cleared area on both sides of a trail.

Trail Hardening. A technique to improve the surface characteristics of a tread. Usually applied in wet or boggy ground or to enhance ADA characteristics.

Trailhead. The point at which a trail starts.

Trail Management Objective (TMO). Documentation of the management intention of a trail based on its Designed Use, Design Parameters, and special considerations. TMOs provide basic reference information for trail planning, management, condition surveys, and reporting.

Trail Segment. A specific section of a trail with identified starting and ending points.

Trail Standards. Trail maintenance specifications that define the level of quality and service the agency intends to provide for the public.

Trail Structures. Any component of a trail that has been purposely constructed. This would include: developed treadway, bench cuts, switchbacks, retaining walls, drainage devices, culverts, bridges, hand railings, boardwalks, trail signs, and posts, etc.

Trail Type. A category that reflects the predominant trail surface and general mode of travel accommodated by a trail. There are three Trail Types: Terra, Water, and Snow Trails.

Tread. The wear surface of the trail upon which a user travels. The tread, or treadway, is the most fundamental component of a trail.

Tread Creep. Areas along a contour trail where the tread is sliding downslope due to compaction, slope failure, or fill failure of a Partial Bench Cut. May be caused by trailside features such as trees, bushes, roots, or another projection that forces traffic onto the Critical Edge, compacting it downslope.

UAV. Unmanned Aerial Vehicle. Also referred to as a drone.

USCG. United States Coast Guard.

USFS. The United States Forest Service.

Vehicle. A mechanical device for carrying persons or objects over land, water, or through the air, including automobiles, motorcycles, snowmachines, bicycles, off-road vehicles, motorized boats, and aircraft. Vehicle does not include non-motorized sailboats, canoes, kayaks, rafts, sailboards, hang gliders, gliders, or parasails (11 AAC 12.340 and 11 AAC 20.990).

Vessel or Boat. A device that is used or designed to be used for the movement of people or goods in or on the water, whether manually or mechanically propelled, but does not include personal floatation devices or other floats such as inner tubes, air mattresses, or surf boards (11 AAC 20.990).

Waterbar. A trail structure typically constructed of wood, rock, or reinforced rubber and soil that is set at an angle across tread to direct water off the treadway. Generally being phased out in favor of Grade Reversals and Outslope integrated into new construction, and Outslope and Rolling Grade Dips retrofit into existing construction.

Water Trail. Trails that have a surface consisting predominantly of water, which are designed and managed to accommodate use on that surface, and which may include land-based portages.

Weapon. Includes a bow and arrow, slingshot, crossbow, and firearm (11 AAC 12.340 and 11 AAC 20.990).

Will. Requires a course of action or a set of conditions to be achieved. A guideline modified by the word “will” must be followed by land managers and users. If such a guideline is not complied with, a written decision justifying the noncompliance is required.

Appendix B: Statutes and Regulations for Kachemak Bay State Park and Kachemak Bay State Wilderness Park

Park Enabling Legislation

Sec. 41.21.131. Kachemak Bay State Park established. (a) The presently state-owned land and water, and all that acquired in the future by the state, lying within the parcels described in this section are designated as the Kachemak Bay State Park. In order to protect and preserve this land and water for its unique and exceptional scenic value, the park is established and shall be managed as a scenic park. The land and water lying within the following described parcels is reserved from all uses incompatible with its primary function as a scenic park and is assigned to the department for control, development, and maintenance:

- (1) Township 5 South, Range 10 West, Seward Meridian Chugachik Island
Sections 31 - 32;
- (2) Township 5 South, Range 11 West, Seward Meridian
Section 2: Lot 1, excluding Tract A
Section 3: Lots 1 - 8, SW1/4NE1/4, S1/2NW1/4, N1/2SW1/4
Section 4: Lots 1 - 4, S1/2N1/2, SE1/4, E1/2SW1/4
Section 8: E1/2NE1/4, SE1/4
Section 9: Lots 1 and 2, NW1/4NE1/4, NE1/4NW1/4, W1/2NW1/4,
N1/2NE1/4SW1/4, SW1/4NE1/4SW1/4, excluding Lot 6
Section 10: Lot 1
Section 16: Lot 1
Section 17: Lots 1, 3, 4, NW1/4SW1/4, S1/2NW1/4
Section 18: Lot 4, SE1/4, E1/2NE1/4
Section 19: Lots 1 - 6, NW1/4NE1/4, NE1/4NW1/4
Section 20: Lot 1
Sections 24 - 25, excluding tide and submerged land within the Kachemak Bay
Critical Habitat Area
Section 26: SE1/4, excluding tide and submerged land within the Kachemak Bay
Critical Habitat Area
Section 35, excluding tide and submerged land within the Kachemak Bay Critical
Habitat Area
Section 36;
- (3) Township 6 South, Range 11 West, Seward Meridian;

*Appendix B: Statutes and
Regulations*

- (4) Township 7 South, Range 11 West, Seward Meridian
Sections 1 - 4
Section 5: N1/2
Sections 7 - 36;
- (5) Township 7 South, Range 12 West, Seward Meridian
Section 12, except N1/2NE1/4
Section 13
Sections 19 - 36;
- (6) Township 7 South, Range 13 West, Seward Meridian
Sections 25 - 26
Sections 35 - 36;
- (7) Township 8 South, Range 11 West, Seward Meridian
Sections 1 - 8
Section 9: N1/2
Section 10: N1/2
Section 11: N1/2
Section 12: N1/2
Sections 17 - 18;
- (8) Township 8 South, Range 12 West, Seward Meridian;
- (9) Township 8 South, Range 13 West, Seward Meridian
Sections 1 - 2
Sections 10 - 14
Section 15: E1/2
Section 23: N1/2 and SE1/4
Sections 24 - 25
Section 26: E1/2
Section 35: E1/2
Section 36;
- (10) Township 9 South, Range 8 West, Seward Meridian
Section 2: W1/2
Section 3 - 10
Sections 15 - 22
Sections 27 - 34;
- (11) Township 9 South, Range 9 West, Seward Meridian;
- (12) Township 9 South, Range 10 West, Seward Meridian
Sections 10 - 15
Sections 22 - 27
Sections 34 - 36;
- (13) Township 9 South, Range 12 West, Seward Meridian
Sections 1 - 6
Section 8: NE1/4
Sections 9 - 12
Section 13: N1/2
Section 14: N1/2;

- (14) Township 9 South, Range 13 West, Seward Meridian
Sections 1 - 2;
- (15) Township 10 South, Range 8 West, Seward Meridian
Sections 4 - 8
Sections 17 - 19;
- (16) Township 10 South, Range 9 West, Seward Meridian
Sections 1 - 4
Sections 10 - 15
Sections 22 - 24.

(b) The following public domain land shall be selected by the state, and classified as scenic park land and designated as part of Kachemak Bay State Park immediately upon receipt of management authority by the state:

- (1) Township 6 South, Range 10 West, Seward Meridian: W1/2;
- (2) Township 7 South, Range 10 West, Seward Meridian: W1/2;
- (3) Township 8 South, Range 10 West, Seward Meridian
Section 6
Section 7: N1/2.

(c) Land lying within the parcels described in (a) and (b) of this section upon which there are valid entries or upon which there are valid applications for lease filed under AS 38.05 before May 9, 1970, is excepted from (a) and (b) of this section. However, if any land excepted under this subsection is subsequently relinquished to the state, it shall be included as part of Kachemak Bay State Park.

Sec. 41.21.132. Incompatible uses.

The commissioner shall designate by regulation incompatible uses within the boundaries of the Kachemak Bay State Park in accordance with the requirements of AS 41.21.130 - 41.21.142, and those incompatible uses designated shall be prohibited or restricted, as provided by regulation.

Sec. 41.21.133. Discharge of firearms. [Repealed, § 2 ch 126 SLA 1984.]

Sec. 41.21.134. Purchase authorized; eminent domain prohibited.

The commissioner may acquire, by purchase in the name of the state, title to or interest in real property lying within the boundaries of the Kachemak Bay State Park. The state may not acquire by eminent domain privately owned land for inclusion in the Kachemak Bay State Park.

Sec. 41.21.140. Kachemak Bay State Wilderness Park established.

(a) The presently state-owned land and water, and all that acquired in the future by the state, lying within the parcels described in this section are designated as the Kachemak Bay State Wilderness Park. In order to protect and preserve this land and water for its unique and exceptional wilderness value, the park is established and shall be managed as a wilderness park. The land and water lying within the following described parcels is reserved from all uses incompatible with its primary function as a wilderness park and is assigned to the department for control and maintenance:

Appendix B: Statutes and Regulations

- (1) Township 8 South, Range 11 West, Seward Meridian
Section 9: S1/2
Section 10: S1/2
Section 11: S1/2
Section 12: S1/2
Sections 13 - 16
Sections 19 - 36;
- (2) Township 9 South, Range 10 West, Seward Meridian
Sections 1 - 3;
- (3) Township 9 South, Range 12 West, Seward Meridian
Section 7
Section 8: S1/2 and NW1/4
Section 13: S1/2
Section 14: S1/2
Sections 15 - 36;
- (4) Township 9 South, Range 13 West, Seward Meridian
Section 11: NE1/4
Sections 12 - 13;
- (5) Township 10 South, Range 9 West, Seward Meridian
Sections 5 - 7;
- (6) Township 10 South, Range 10 West, Seward Meridian;
- (7) Township 10 South, Range 11 West, Seward Meridian;
- (8) Township 10 South, Range 12 West, Seward Meridian;
- (9) Township 11 South, Range 10 West, Seward Meridian;
- (10) Township 11 South, Range 11 West, Seward Meridian;
- (11) Township 11 South, Range 12 West, Seward Meridian
Sections 1 - 10
Section 11: W1/2 and E1/2
Sections 12 - 17
Sections 21 - 24.

(b) The following public domain land shall be selected by the state, and classified as wilderness park land and designated as part of Kachemak Bay State Park immediately upon receipt of management authority by the state:

- (1) Township 8 South, Range 10 West, Seward Meridian
Sections 4 - 5
Section 7: S1/2
Sections 8 - 9
Sections 16 - 21
Sections 28 - 33;
- (2) Township 9 South, Range 10 West, Seward Meridian: W1/2;
- (3) Township 9 South, Range 11 West, Seward Meridian.

Sec. 41.21.141. Certain land excepted.

Land lying within the parcels described in AS 41.21.140 upon which there are valid entries or upon which there are valid applications for leases filed under AS 38.05 before March 9,

1972 or that is withdrawn for or selected by Native village or regional corporations under 43 U.S.C. 1610, 1611 and 1613 (P.L. 92-203, §§ 11, 12 and 14 of the Alaska Native Claims Settlement Act), is excepted from AS 41.21.140. However, if any land excepted under this subsection is subsequently relinquished to the state, it shall be included as part of Kachemak Bay State Wilderness Park.

Sec. 41.21.142. Stream rehabilitation permitted.

Nothing in AS 41.21.140 - 41.21.142 prohibits the Department of Fish and Game from engaging in stream rehabilitation enhancement and development under AS 16.05.092 on land lying within the parcels described in AS 41.21.140.

Sec. 41.21.990. Definitions.

In this chapter,

(1) “scenic park” means relatively spacious areas of outstanding natural significance, where major values are in their natural geological, faunal, or floral characteristics, the purpose of which is directed primarily toward the preservation of its outstanding natural features and where development is minimal and only for the purpose of making the areas available for public enjoyment in a manner consistent with the preservation of the natural values such as camping, picnicking, sightseeing, nature study, hiking, riding, and related activities which involve no major modification of the land, forests, or waters, and without extensive introduction of artificial features or forms of recreational development that are primarily of urban character;

(2) “wilderness park” means an area whose predominant character is the result of the interplay of natural processes, large enough and so situated as to be unaffected, except in minor ways, by what takes place in the nonwilderness around it, a physical condition which activates the innermost emotions of the observer and where development of man-made objects will be strictly limited and depend entirely on good taste and judgment so that the wilderness values are not lost.

Regulations that Apply Specifically to the Park

Article 2

Kachemak Bay State Park

11 AAC 20.100. Use of weapons

The use and discharge of a weapon for the purpose of lawful hunting or trapping is allowed in Kachemak Bay State Park, except within one-half mile of a developed facility.

11 AAC 20.110. Aircraft

(a) The use of aircraft is allowed in Kachemak Bay State Park on saltwater, gravel bars, Emerald Lake, China Poot Lake, Hazelle Lake, and Petrof Lake except for the purpose of practice landings. (b) A person may not land a helicopter in Kachemak Bay State Park without a permit from the director under 11 AAC 18.

Appendix B: Statutes and Regulations

11 AAC 20.115. Motorized boats

(a) The use of a boat with a motor, other than a personal watercraft, is allowed in Kachemak Bay State Park only on saltwater, China Poot Lake, Hazelle Lake, or Petrof Lake. (b) A person may not launch or operate a personal watercraft in Kachemak Bay State Park. (c) A person may not operate a motorized boat in excess of “Slow No-wake” speed, five miles per hour maximum, within two hundred feet of a state managed dock, swimming beach, or boat launch, or within an area designated and marked as a “Slow No-wake” zone.

11 AAC 20.120. Campfires

Open fires are allowed on non-vegetated gravel bars below timberline or on saltwater beaches.

Article 3

Kachemak Bay State Wilderness Park

11 AAC 20.200. Use of weapons

The use and discharge of a weapon for the purpose of lawful hunting or trapping is allowed in Kachemak Bay State Wilderness Park.

11 AAC 20.210. Aircraft

The use of aircraft is allowed in Kachemak Bay State Wilderness Park on saltwater and saltwater beaches or where authorized by the director under 11 AAC 18.010.

11 AAC 20.215. Motorized boats

(a) The use of a boat with a motor, other than a personal watercraft, is allowed in Kachemak Bay State Wilderness Park only on saltwater. (b) A person may not launch or operate a personal watercraft in Kachemak Bay State Wilderness Park.

11 AAC 20.220. Campfires

Open fires are allowed on non-vegetated gravel bars below timberline or on saltwater beaches.

Appendix C: Mammal List

This list was created as part of the Research Reserve's Kachemak Bay Ecological Characterization CD-ROM project.

Marine Mammals

Common name	Scientific name	Common name	Scientific name
Sea Otter	<i>Enhydra lutris</i>	Humpback Whale	<i>Megaptera novaeangliae</i>
Steller Sea Lion	<i>Eumetopias jubatus</i>	Gray Whale	<i>Eschrichtius robustus</i>
California Sea Lion	<i>Zalophus californianus</i>	Bering Sea / Stejneger's Beaked Whale	<i>Mesoplodon stejnegeri</i>
Northern Fur Seal	<i>Callorhinus ursinus</i>	Killer Whale	<i>Orcinus orca</i>
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	Beluga or White Whale	<i>Delphinapterus leucas</i>
Harbor Seal	<i>Phoca vitulina</i>	Harbor Porpoise	<i>Phocoena phocoena</i>
Minke Whale	<i>Balaenoptera acutorostrata</i>	Dall's Porpoise	<i>Phocoenoides dalli</i>
Fin Whale	<i>Balaenoptera physalus</i>		

Terrestrial Mammals

Status

C – common

UC – uncommon

R – reported

E – extirpated

UK - unknown

Common name	Scientific name	Status	Common name	Scientific name	Status
Coyote	<i>Canis latrans</i>	C	Little Brown Bat	<i>Myotis lucifugus</i>	C
Wolf	<i>Canis lupus</i>	C	Hoary Marmot	<i>Marmota caligata</i>	C
Red Fox	<i>Vulpes vulpes</i>	E	Red Squirrel	<i>Tamiasciurus hudsonicus</i>	C

Appendix C: List of Marine and Terrestrial Mammals

Common name	Scientific name	Status	Common name	Scientific name	Status
Lynx	<i>Lynx canadensis</i>	C	Beaver	<i>Castor canadensis</i>	UC
River or Canadian Otter	<i>Lontra canadensis</i>	C	Northern Red-backed Vole	<i>Clenthionomys rutilus</i>	C
Wolverine	<i>Gulo gulo</i>	C	Singing Vole	<i>Microtus miurus</i>	UK
Short-tail Weasel or Ermine	<i>Mustela erminea</i>	C	Tundra Vole	<i>Microtus oeconomus</i>	C
Least Weasel	<i>Mustela nivalis</i>	UC	Muskrat	<i>Ondatra zibethicus</i>	UC
Mink	<i>Mustela vison</i>	UC	Northern Bog Lemming	<i>Synaptomys borealis</i>	UK
Black Bear	<i>Ursus americanus</i>	C	House Mouse	<i>Mus musculus</i>	C
Brown Bear	<i>Ursus arctos</i>	C	Norway Rat	<i>Rattus norvegicus</i>	E
Marten		R	Dusky or Montane Shrew	<i>Sorex monticolus</i>	C
Moose	<i>Alces alces</i>	C	Common or Masked Shrew	<i>Sorex cinereus</i>	C
Mountain Goat	<i>Oreamnos americanus</i>	C	Porcupine	<i>Erethizon dorsatum</i>	C
Keen's myotis		R			
Dall Sheep	<i>Ovis dalli</i>	E	Snowshoe Hare	<i>Lepus americanus</i>	C

Appendix D: Bird List

Legend

C Common - Easily found in small to large numbers in appropriate habitat.

U Uncommon - Occasionally, but not always, found in small numbers with some effort in appropriate habitat.

R Rare - occurs in very small numbers or in a very limited number of sites and may not be found every year or even with concentrated effort. There are more than a few records of these species in appropriate habitats.

A Accidental - Represents an exceptional occurrence of birds outside their normal range that might not be repeated again for decades.

Status

r - resident

b - confirmed breeder

s - summer resident

w - winter resident

m - migrant - passing through on way to summer or winter grounds, may only be found in narrow migration route

i - introduced species

Sp - spring: March - May

Su - summer: June - Aug.

F - fall: Sept. - Nov.

W - winter: Dec. - Feb.

There are 204 species of birds represented on this list. The area covers the Anchor River drainage, the watersheds draining into Kachemak Bay including all of Kachemak Bay State Park, and the Bay itself. The northern boundary crosses the southern end of the Kenai National Wildlife Refuge; the eastern border coincides with the western boundary of Kenai Fjords National Park and runs in the highlands above the southern drainages to Kachemak Bay down to Point Pogibshi. Some of the species on this list can only be seen on the south side of Kachemak Bay or in other areas off of the road system.

Species	Sp	Su	F	W	Status
<i>Anatidae - Swans, Geese & Ducks</i>					
Greater White-fronted Goose	C	C	U	A	m
Emperor Goose	R	A	-	R	v
Snow Goose	R	-	U	-	m
Ross's Goose	A	-	-	-	v
Cackling Goose	C	U	C	-	m
Brant	C	C	R	A	m
Trumpeter Swan	C	U	C	R	smb
Tundra Swan	U	U	U	-	m
Gadwall	U	R	R	-	m
Eurasian Wigeon	U	R	R	R	m
American Wigeon	C	C	C	U	smb

Species	Sp	Su	F	W	Status
Mallard	C	C	C	C	rmb
Blue-winged Teal	A	-	A	-	m
Northern Shoveler	C	U	U	R	m
Northern Pintail	C	U	C	A	smb
Green-winged Teal	C	C	C	R	s
Canvasback	U	-	R	-	m
Redhead	U	-	R	-	m
Common Pochard	A	-	-	-	v
Ring-necked Duck	U	R	U	-	mb
Greater Scaup	C	C	C	C	rmb
Lesser Scaup	U	-	U	-	m
Steller's Eider	C	R	C	C	w
Spectacled Eider	-	-	-	A	v
King Eider	R	R	R	R	w
Common Eider	C	C	C	U	rb
Harlequin Duck	C	C	C	C	rb
Surf Scoter	C	C	C	C	rm
White-winged Scoter	C	C	C	C	rm
Black Scoter	C	C	C	C	rmb
Long-tailed Duck	C	R	C	C	w
Bufflehead	C	R	C	C	rmb
Common Goldeneye	C	C	C	C	rb
Barrow's Goldeneye	C	C	C	C	rmb
Hooded Merganser	A	-	A	-	v
Common Merganser	C	C	C	C	rb

Species	Sp	Su	F	W	Status
Red-breasted Merganser	C	C	C	C	rb
Ruddy Duck	-	-	A	-	v
<i>Phasianidae – Pheasants & Grouse</i>					
Ring-necked Pheasant	C	C	C	C	rbi
Spruce Grouse	C	C	C	C	rb
Willow Ptarmigan	U	U	U	U	rb
Rock Ptarmigan	U	U	U	U	rb
White-tailed Ptarmigan	R	R	R	R	rb
<i>Gaviidae - Loons</i>					
Red-throated Loon	C	U	C	U	rm
Pacific Loon	C	U	C	C	rb
Common Loon	C	C	C	C	rb
Yellow-billed Loon	U	U	R	U	wr
<i>Podicipedidae - Grebes</i>					
Horned Grebe	C	U	C	C	rm
Red-necked Grebe	C	C	C	C	rmb
Eared Grebe	-	-	A	-	v
<i>Procellariidae - Shearwaters</i>					
Northern Fulmar	R	R	R	-	sr
Sooty Shearwater	U	C	C	-	v
Short-tailed Shearwater	U	U	U	-	v
<i>Hydrobatidae – Storm-Petrels</i>					
Fork-tailed Storm-Petrel	C	C	C	-	sr
Leach's Storm-Petrel	-	R	R	-	v
<i>Phalacrocoracidae - Cormorants</i>					

Species	Sp	Su	F	W	Status
Brandt's Cormorant	-	A	-	-	v
Double-crested Cormorant	U	U	U	R	r
Red-faced Cormorant	C	C	C	R	rb
Pelagic Cormorant	C	C	C	C	rb
<i>Ardeidae - Herons</i>					
Great Blue Heron	R	R	R	R	v
<i>Cathartidae New World Vultures</i>					
Turkey Vulture	-	-	A	-	v
<i>Accipitridae – Eagle & Hawks</i>					
Osprey	R	R	R	-	m
Bald Eagle	C	C	C	C	rb
Northern Harrier	C	U	U	R	sb
Sharp-shinned Hawk	C	C	C	U	rb
Northern Goshawk	C	C	C	C	rb
Red-tailed Hawk	C	C	C	-	sb
Rough-legged Hawk	U	U	U	-	sb
Golden Eagle	R	R	R	A	s
<i>Falconidae - Falcons</i>					
American Kestrel	R	R	R	-	m
Merlin	U	C	R	R	sb
Gyr Falcon	R	R	R	R	w
Peregrine Falcon	U	U	R	R	sb
<i>Rallidae – Rails, Coots & Gallinules</i>					
American Coot	-	-	A	-	v
<i>Gruidae - Cranes</i>					

Species	Sp	Su	F	W	Status
Sandhill Crane	C	C	C	-	smb
<i>Charadriidae - Plovers</i>					
Black-Bellied Plover	C	U	U	A	m
American Golden-Plover	U	R	U	-	m
Pacific Golden-Plover	C	R	U	-	m
Semipalmated Plover	C	C	C	-	smb
Killdeer	R	R	-	-	v
<i>Haematopodidae - Oystercatchers</i>					
Black Oystercatcher	C	C	U	U	sb
<i>Scolopacidae – Sandpipers & Phalaropes</i>					
Greater Yellowlegs	C	C	C	-	sb
Lesser Yellowlegs	U	U	U	-	sb
Solitary Sandpiper	R	U	R	-	sb
Wandering Tattler	C	C	C	-	s
Spotted Sandpiper	C	C	C	-	sb
Whimbrel	C	C	C	-	sm
Bristle-thighed Curlew	A	-	-	-	m
Hudsonian Godwit	U	R	-	-	m
Bar-tailed Godwit	U	A	R	-	m
Marbled Godwit	U	R	A	-	m
Ruddy Turnstone	U	R	R	-	m
Black Turnstone	C	U	U	-	m
Surfbird	C	C	C	-	sm
Red Knot	U	R	R	-	m
Sanderling	U	U	U	R	m

Species	Sp	Su	F	W	Status
Semipalmated Sandpiper	U	R	U	-	m
Western Sandpiper	C	C	C	-	m
Red-necked Stint	A	A	-	-	v
Temminck's Stint	A	-	-	-	v
Least Sandpiper	C	U	U	-	smb
Baird's Sandpiper	R	R	U	-	m
Pectoral Sandpiper	C	U	C	-	m
Sharp-tailed Sandpiper	-	-	U	-	m
Rock Sandpiper	C	R	U	C	w
Dunlin	C	U	U	R	m
Stilt Sandpiper	-	-	R	-	m
Ruff	A	-	-	-	v
Short-billed Dowitcher	C	C	U	-	m
Long-billed Dowitcher	U	U	U	-	sm
Jack Snipe	-	-	A	-	v
Wilson's Smipe	C	C	C	R	sb
Red-necked Phalarope	C	C	C	-	sb
Red Phalarope	A	A	A	-	v
<i>Laridae – Gulls & Terns</i>					
Franklin's Gull	-	A	-	-	v
Black-headed Gull	-	A	-	-	v
Bonaparte's Gull	C	C	C	R	sb
Black-tailed Gull	-	A	-	-	v
Mew Gull	C	C	C	C	rb
Ring-billed Gull	A	-	-	A	v

Species	Sp	Su	F	W	Status
California Gull	-	-	A	-	v
Herring Gull	C	C	C	C	r
Heermann's Gull	-	A	-	-	v
Thayer's Gull	R	A	R	R	v
Lesser Black-backed Gull	-	A	-	-	v
Slaty-backed Gull	R	A	A	R	v
Western Gull	-	A	-	-	v
Glaucous-winged Gull	C	C	C	C	rb
Glaucous Gull	U	R	U	U	w
Sabine's Gull	R	R	R	-	v
Black-legged Kittiwake	C	C	R	U	sb
Ross's Gull	-	A	-	-	v
Caspian Tern	R	R	-	-	v
Arctic Tern	C	C	R	-	sb
Aleutian Tern	C	C	-	-	sb
White-winged Tern	-	A	-	-	v
<i>Stercorariidae - Jaegers</i>					
Pomarine Jaeger	U	U	R	-	m
Parasitic Jaeger	U	U	R	-	sb
Long-tailed Jaeger	R	R	R	-	v
<i>Alcidae – Auks, Murres & Puffins</i>					
Common Murre	C	C	C	C	rb
Thick-billed Murre	A	A	A	R	w
Pigeon Guillemot	C	C	C	C	rb
Marbled Murrelet	C	C	C	C	rb

Species	Sp	Su	F	W	Status
Kittlitz's Murrelet	C	C	C	U	rb
Ancient Murrelet	R	U	U	R	s
Cassin's Auklet	-	R	R	-	v
Parakeet Auklet	A	A	A	-	v
Crested Auklet	R	A	A	R	v
Rhinoceros Auklet	A	R	R	-	v
Horned Puffin	C	C	C	R	sb
Tufted Puffin	C	C	C	-	sb
<i>Columbidae – Pigeons & Doves</i>					
Rock Pigeon	C	C	C	C	ri
Eurasian Collared-Dove	-	A	-	-	vi
Mourning Dove	-	-	A	A	v
<i>Strigidae - Owls</i>					
Western Screech-Owl	-	A	-	-	v
Great Horned Owl	C	C	C	C	rb
Snowy Owl	R	-	-	R	w
Northern Hawk-Owl	R	R	R	R	ir
Great Gray Owl	R	R	R	R	v
Short-eared Owl	U	U	R	R	sb
Boreal Owl	U	U	U	U	r
Northern Saw-whet Owl	U	U	U	U	rb
<i>Caprimulgidae - Goatsuckers</i>					
Common Nighthawk	A	A	-	-	v
<i>Trochilidae - Hummingbirds</i>					
Anna's Hummingbird	-	-	R	A	v

Species	Sp	Su	F	W	Status
Rufous Hummingbird	U	U	U	-	smb
<i>Alcedinidae - Kingfishers</i>					
Belted Kingfisher	C	C	C	U	rb
<i>Picidae – Woodpeckers</i>					
Red-breasted Sapsucker	-	-	R	R	v
Downy Woodpecker	C	C	C	C	rb
Hairy Woodpecker	U	U	U	U	rb
American Three-toed Woodpecker	U	U	U	U	rb
Black-backed Woodpecker	R	R	R	R	rb
Northern Flicker	R	R	R	R	r
<i>Tyrannidae - Flycatchers</i>					
Olive-sided Flycatcher	R	U	U	-	sb
Western Wood-Pewee	R	R	-	-	sb
Alder Flycatcher	R	C	C	-	sb
Say's Phoebe	R	R	R	-	m
<i>Laniidae - Shrikes</i>					
Northern Shrike	U	U	U	U	rb
<i>Corvidae – Crows, Magpies & Jays</i>					
Gray Jay	C	C	C	C	rb
Steller's Jay	C	C	C	C	rb
Black-billed Magpie	C	C	C	C	rb
Northwestern Crow	C	C	C	C	rb
Common Raven	C	C	C	C	rb
<i>Alaudidae - Larks</i>					
Horned Lark	R	U	U	A	sb

Species	Sp	Su	F	W	Status
<i>Hirundinidae - Swallows</i>					
Tree Swallow	C	C	C	-	sb
Violet-green Swallow	C	C	C	-	sb
Bank Swallow	C	C	C	-	sb
Cliff Swallow	C	C	C	-	sb
Barn Swallow	-	A	-	-	v
<i>Paridae - Chickadees</i>					
Black-capped Chickadee	C	C	C	C	rb
Boreal Chickadee	C	C	C	C	rb
Chestnut-backed Chickadee	U	U	U	U	rb
<i>Sittidae - Nuthatches</i>					
Red-breasted Nuthatch	C	C	C	C	rb
<i>Certhiidae - Creepers</i>					
Brown Creeper	C	C	C	C	r
<i>Troglodytidae - Wrens</i>					
Pacific Wren	C	C	C	C	rb
<i>Cinclidae – Dippers</i>					
American Dipper	C	C	C	C	rb
<i>Regulidae - Kinglets</i>					
Golden-crowned Kinglet	C	C	C	C	rb
Ruby-crowned Kinglet	C	C	C	R	sb
<i>Turdidae - Thrushes</i>					
Northern Wheatear	R	R	R	-	m
Mountain Bluebird	-	-	A	A	v
Townsend's Solitaire	-	A	R	R	v

Species	Sp	Su	F	W	Status
Gray-cheeked Thrush	U	U	U	-	sb
Swainson's Thrush	C	C	U	-	sb
Hermit Thrush	C	C	C	A	sb
American Robin	C	C	C	U	sb
Varied Thrush	C	C	C	U	sb
<i>Sturnidae - Starlings</i>					
European Starling	-	-	R	R	vi
<i>Matacillidae – Pipits and Wagtails</i>					
Eastern Yellow Wagtail	-	A	-	-	v
White Wagtail	-	A	-	-	v
American Pipit	C	C	C	R	s
<i>Bombycillidae - Waxwings</i>					
Bohemian Waxwing	-	R	C	C	m
Cedar Waxwing	R	R	R	R	rb
<i>Calcariidae – Longspurs and Snow Buntings</i>					
Lapland Longspur	C	R	C	R	m
Smith's Longspur	A	-	-	-	v
Snow Bunting	U	-	-	U	w
McKay's Bunting	-	-	-	A	v
<i>Parulidae – Wood Warblers</i>					
Orange-crowned Warbler	C	C	C	A	sb
Yellow Warbler	C	C	C	-	sb
Yellow-rumped Warbler	C	C	C	-	sb
Townsend's Warbler	C	C	C	-	sb
Blackpoll Warbler	U	U	U	-	s

Species	Sp	Su	F	W	Status
American Redstart	-	A	-	-	v
Northern Waterthrush	U	U	-	-	s
Common Yellowthroat	-	A	-	-	vb
Wilson's Warbler	C	C	U	R	sb
<i>Emberizidae - Sparrows</i>					
Spotted Towhee	A	-	-	-	v
American Tree Sparrow	U	U	U	U	w
Savannah Sparrow	C	C	C	-	sb
Fox Sparrow	C	C	C	R	sb
Song Sparrow	C	C	C	C	rb
Lincoln's Sparrow	C	C	C	R	sb
White-throated Sparrow	A	-	R	R	v
Harris's Sparrow	-	-	A	A	v
White-crowned Sparrow	C	C	C	U	rmb
Golden-crowned Sparrow	C	C	C	U	rmb
Dark-eyed Junco	C	C	C	C	rmb
Rustic Bunting	A	-	-	-	v
<i>Cardinalidae - Tanagers</i>					
Western Tanager	A	-	-	-	v
<i>Icteridae - Blackbirds</i>					
Red-winged Blackbird	R	R	R	-	v
Yellow-headed Blackbird	-	A	-	-	v
Western Meadowlark	A	-	-	-	v
Rusty Blackbird	U	U	U	R	sb
Brown-headed Cowbird	-	-	A	A	v

Species	Sp	Su	F	W	Status
<i>Fringillidae - Finches</i>					
Brambling	R	-	-	R	v
Gray-crowned Rosy Finch	C	A	C	C	w
Pine Grosbeak	C	C	C	C	rb
Purple Finch	A	-	A	A	v
Cassin's Finch	A	-	-	A	v
Red Crossbill	R	R	R	R	v
White-winged Crossbill	C	C	C	C	b
American Goldfinch	-	-	-	A	v
Common Redpoll	C	C	C	C	rb
Hoary Redpoll	R	-	R	R	w
Pine Siskin	C	C	C	C	rb

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Appendix D: List of Birds

Appendix E: Trail Plan

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Appendix E: Trail Plan

Introduction

Background

Much of the trail management effort in Kachemak Bay State Park (KBSP) and Kachemak Bay State Wilderness Park (KBSWP) until recently has been directed to the upkeep of existing trails in a heavily vegetated coastal region. New growth of brush and windfall of old trees is a constant issue and heavy rains and snowfall have caused drainage issues that need to be constantly kept up with. Little funding has been available to expand the system and so the basic trail network in the park in recent times has generally remained the same. Over time many of the trails have been upgraded into a more sustainable design and now it is possible to look forward to the eventual construction of new sustainable trails.

Since the 1995 Kachemak Bay State Park and Kachemak Bay State Wilderness Park Management Plan, the thinking on overall trail construction and management philosophy has evolved nationwide as most trail management agencies, like Alaska State Parks, have struggled to keep trails in acceptable condition. Trails in the Kachemak Bay area are no exception to this. To provide good trail experiences and to protect public safety and welfare, it became clear that best management practices needed to be upgraded to create a system where trails could be managed to enhance recreational opportunities, provide greater resource protection, and most importantly, given the limited availability of trail resources, require minimal maintenance.

In March 2009, the Division of Parks and Outdoor Recreation (DPOR) finalized a Trail Management Policy that provides direction on how DPOR will manage, develop, maintain, and assess the condition of state park trails. The policy provides goals and trail management concepts for sustainable and responsible trail development and management. This trail plan was developed consistent with the concepts in the Trail Management Policy and will serve as the framework for management and trail development within KBSP and KBSWP. The use of sustainable design will create important long-term benefits, principally a reduced need for regular maintenance and repairs into the future. The use of the recently developed interagency trail classification system will enable DPOR to better coordinate with partners, share resources, and allow for greater efficiency and seamless trail connectivity.

Accommodating a variety of recreational uses and trail user groups is a challenge within the park because topography influences use patterns and park users are frequently competing to use the “best” areas. Under this plan, sustainable construction and trail maintenance practices will be utilized on all future trail management activities including both trail-related project work and regular trail maintenance. The trail system will remain multi-use in nature but will

abide by the standards in the new Trail Classification System. This system defines trail standards and design parameters by a trail's designed and managed uses.

Plan Purpose

The Kachemak Bay State Park and Kachemak Bay State Wilderness Park Trail Management Plan is needed as a strategic tool to plot the course of trail management in the coming years. Plan recommendations are based on an analysis of existing access points, trails, the park environment and resources, land ownership and status, and current and anticipated trends in recreational use. The plan identifies management objectives and establishes guidelines for the future use and development of trails in KBSP and KBSWP. The primary purposes of this plan are to provide:

- A trail system which allows for optimum recreational use of the area while protecting the natural resources of the park.
- A consistent set of principles and policies for trail management.
- A basis for future funding.
- A roadmap for the trail building and maintenance efforts.
- A trail system that is user friendly and safe.

Planning Process

The Alaska Department of Natural Resources (ADNR) began the planning process to revise the 1995 Kachemak Bay State Park Management Plan in 2013, and the Trail Plan was started in 2014. Public scoping workshops were held in Anchorage, Homer, and surrounding communities to gather information and identify issues and concerns. Many comments were received during the scoping phase of the process that focused on trails and trail maintenance. To learn more specific details about how people use the park and would like to use the park, additional focus group meetings were held in 2015 and 2016 with a variety of user groups.

The Public Review Draft (PRD) of this plan was released September 19, 2018 with a deadline for public comments to be received by October 19. The public comment period was later extended to November 16. Public meetings on the PRD were held in Homer in October and November of 2018.

Trail Inventory Process

In the Spring of 2011, a Trail Inventory and Assessment Project began in Kachemak Bay State Park and has proven to be a major asset in the development of this plan. The pilot program was initiated by the Kachemak Bay State Park Citizens Advisory Board using the National Park Service's (NPS) River Trails and Conservation Assistance Program resources. It was a collaborative effort between State Parks, the U.S. Forest Service (USFS), and the Alaska Department of Natural Resources' Land Records Information Section. Park staff used Global Positioning System (GPS) and ground station equipment to hike and catalog the condition, features, and exact locations of the trails within the park.

The project plan was to map existing trail centerlines as accurately as possible while recording basic trail condition and associated constructed features found directly adjacent to the trail and processing and archiving these data in a Geographical Information System (GIS). Over two summers the field mapping crew used GPS units with sub-meter accuracy and basic trail inventory equipment to collect data for approximately 265 miles of trails. The crew collected information based on uniform standards like those adopted by the USFS and utilized by the NPS and the Municipality of Anchorage. The data included trail centerlines; trail condition information such as amount of brush, erosion, trail width, grade, and surface type; trail structures such as bridges, culverts, boardwalks, and signs; trailheads and associated features including gates, kiosks, parking, fee stations, and toilets; physical features such as ford sites and viewpoints; and photographs with spatial coordinates to create photo links.

For the first time, accurate trail alignments and distances are known for a large portion of the trails within the park and the condition of the trails and associated structures are documented. In the future, this information can be used to make further assessments and prescription decisions, to generate maps and trail websites, to help in securing grant funding, and for further planning purposes.

Use and Users

Perhaps the most heavily used resource within Kachemak Bay State Park is the trail system and increased focus should be put on the maintenance of these trails. Park trails offer a wide variety of recreational opportunities year-round for residents and out-of-state visitors alike. Summer uses include hiking, mountaineering, bicycling, fishing, running, horseback riding, orienteering, kayaking, rafting, canoeing, pack rafting, paragliding, berry picking, nature walking, sightseeing, and hunting. Winter activities include skiing, snowboarding, snowshoeing, dog mushing, skijoring, winter biking, and trapping. Demands for organized events within the park areas such as bike races, ski races, fund raisers and other gatherings continue to grow as does commercial use of the park. The differing skill levels of park users and the multitude of competing interests and uses often overlap seasonally and geographically. This plan seeks to lay the framework for a network of trails that over time will provide diverse trail opportunities and experiences for a wide variety of park users.

General Trail Policies

The Kachemak Bay area needs a lot of work to improve existing trails and plan for exciting new trail routes through DPOR-managed areas in KBSP and KBSWP. DPOR plans to transform the trail system into a sustainable and functional trail system that meets the needs of user groups while simultaneously providing for the protection of natural resources. Using the new interagency trail classification system, sustainable trail design and proper maintenance, improvements will be made over time to create a functional, high-quality trail system. The following general trail management policies and management concepts apply to trails in the park in conjunction with the trail specific recommendations provided later in this plan.

Sustainable Trail Framework

In complying with the Division of Parks and Outdoor Recreation’s Trail Management Policy, this plan implements a Sustainable Design Framework to create a trail system that has minimum impact on natural systems and low maintenance costs. A Sustainable Trail is defined as a trail that conforms to its terrain and environment, can handle its intended use without serious resource degradation, and requires minimal maintenance. Sustainable Trails focus on initial trail design to minimize resource degradation and maximize the user experience. This involves the use of integrated water control, curvilinear layout, grade control and full bench construction. While initial construction costs may be more, reduced future maintenance costs should compensate for those initial investments.

The following guidelines will be considered and integrated when building or improving trails within the park. At times, certain circumstances may make the use of some of these guidelines difficult or impossible to fully implement. In these cases, reasonable measures should be taken while maintaining the spirit of the guidelines. Some segments of the existing park trails do not yet meet the sustainable standards. Where this is the case, a higher level of maintenance is required to keep the trail tread in reasonably good condition while minimizing impacts on park resources. The ultimate result will create a park resource that provides transportation alternatives, recreational opportunities, environmental aesthetics, open space preservation, and increased adjacent property values.

The following six guidelines will be considered and integrated when building or improving trails within the park.

The Six Essential Elements of Sustainable Trails¹

1. ***The Half Rule:*** Trail grade should not exceed ½ the side slope that the trail traverses, if so, it becomes a Fall-line Trail.
2. ***The 10% Average Guideline:*** The average trail grade, or overall trail grade should not exceed 10% along the alignment of the trail. In many cases, keeping trail grades at about 10% will assure longer term sustainability, and this should be an objective for all trail projects, unless specifically designed at greater grades.
3. ***Maximum Sustainable Grade:*** A defined maximum tread grade that can be constructed along the trail. Typically restricted to runs of less than 50 feet, and no more than 5% of total length of the trail. Determining the Maximum Sustainable Grade for a trail involves many variables that are specific to a region or trail section. For example, soils that have a very high organic content will be less stable than those that are composed of weathered granite. Variables influencing the Maximum Sustainable Grade include:
 - Soil type
 - Presence of surface rock or bedrock

¹ Derived from Alaska Trails Curriculum

- Annual rainfall / intensity
 - Type and spacing of integrated water control features
 - Types of users
 - Numbers of users
 - Desired level of difficulty
4. **Grade Reversals:** A spot at which a climbing trail levels out and then changes direction, dropping subtly a short distance (6-12 feet) before rising again. Ideally, Grade Reversals are incorporated into a trail's initial design as part of its Curvilinear Layout. Water control features such as Rolling Grade Dips and Knicks can be integrated into an existing trail as a maintenance item. Waterbars are not recommended due to their higher maintenance requirements.
 5. **Outslope:** As the trail contours across a hillside, the downhill or outer edge of the tread should tilt slightly downhill and away from the uphill trail edge. Under typical circumstances, this "Outslope" should be less than 5%. Anything greater will usually lead to tread creep and user discomfort. Outslope is influenced by the forces of compaction, displacement, and erosion, which collectively reduce the effectiveness of the design element. Even on trails that are constructed with proper outslope, it will often deform through time and routine maintenance is needed to restore a trail tread to its designed Outslope with these forces in mind. The integration of Grade Reversals and Rolling Grade Dips insure that water is managed along the trail if Outslope is compromised.
 6. **Durable Tread Surface:** Surfacing should take into consideration special characteristics of the soils such as the presence of permafrost, organic/muskeg soils, volcanic ash, saturated soils, or some other environmental challenge. Many trails in Alaska are not sustainable due to flat terrain or the soil characteristics noted above. In these cases, tread surfaces require trail hardening to ensure sustainability. Trail hardening includes techniques such as gravel capping, boardwalk and plank decking, the use of geotextile surfaces and other means to provide a sustainable tread.

Avoid Flat Terrain Trails when Possible

The premise of Trail Sustainability is built around integrated water control. Flat terrain (<3% surface slope) represents a great challenge since often when trails are constructed in these situations, there is no provision for drainage – the trail tread becomes the lowest point and thus collects water. These situations include: valley floors, glacial plains, deltas, and wetlands. This is especially problematic in Alaska where many historic trails which were originally intended for winter use were built across wetlands, but are now being used in the summer.

Common Trail Practices or Structures to Avoid when Possible

- Fall-Line Trails (exceeding the half rule)

- Waterbars (difficult to properly construct, high-maintenance)
- Culverts – installing too small of diameter (difficult to maintain, fish passage issues)
- Grades too steep for sustainability (exceeding 10% average grade)
- Improper bridge location
- Lack of Grade Control along alignment (highly variable grades)
- Improper trail location (or non-curvilinear layout)
- Improper outslope (entrenched tread, <3% or >7%, poorly maintained)
- Failure to identify critical control points during layout
- Improper or failure to acquire proper permits (poor planning)
- Construction in a flood zone (poor planning)
- Construction in a sensitive habitat (poor planning)
- Construction on flat terrain (valley bottoms, ridgelines, etc.)

Visitor Experience

There are many aspects that contribute to a visitor's experience when visiting an area and especially a trail. Efforts shall be made throughout the trail planning and construction process to consider the visitor's experience. It is important to keep trails interesting, appreciated, well signed and respected to engender stewardship among users. Understanding core values is the key to being able to provide a good visitor experience. There are basic values associated with safety and convenience and recreational values associated with fitness and various transportation methods. Human values are important to recognize, understand and consider. These values include how trails and their surroundings are perceived, and how their shape affects people. An individual perception of how safe and appropriate the trail is to use must be balanced with the reality that a certain amount of risk is also a trail attractor in the context of the trail's designed and managed uses. Humans have a desire for efficiency that translates to making sure a trail is easier to use than to bypass, shortcut, or avoid. The notion that nature's randomness has a playful quality should be represented in the trail experience while considering the concept of harmony that is felt when all the core values work together to support a desired trail experience.

Trail Design and Development

There are several different philosophies and thought processes that need to be considered during the development and design phase for any functional trail. AS 41.21.131(a) states that Kachemak Bay State Park will be managed as a scenic park to protect its exceptional scenic values. AS 41.21.140(a) similarly states that Kachemak Bay State Wilderness Park will be managed as a wilderness park to protect its exceptional wilderness values. This affects trail location, layout, and design for renovations of current trails and any new trails. This plan puts forth new direction in the way trails will be designed and managed. Below you will find trail direction by different categories.

Trail Design Process

Achieving a sustainable trail begins with establishing an integrated design process, which relies on a multidisciplinary team working collaboratively from the pre-design phase through construction to ensure that a site is developed in keeping with the spirit of the trail design. A typical design process entails finding the interesting features that currently exist along a proposed trail alignment. These features become positive control points that are incorporated into the trail design, effectively connecting all the interesting features in a linear fashion.

Trail Layout

While popular destination trails like the Saddle Trail will always be a major trail type in Kachemak Bay State Park, the public has indicated a desire to see more loop trails incorporated within the trail system. Loop trails provide a more diverse experience for park users and can be an important trail management tool when different elevations and terrain configurations are incorporated to take advantage of superior park features. Additionally, greater use can be accommodated using loops in the park's development zones without placing greater impact in backcountry areas or wilderness zones. Where appropriate, construction of connecting links with existing trails or connecting other loops should be incorporated in future trail design to create more loop options within the existing trail infrastructure.

Re-Vegetation

Native and/or self-sustaining plant materials should be used for re-vegetation of disturbed areas. Re-vegetation can be used to provide screening and help to stabilize slopes. Construction techniques to preserve vegetation and trail routing techniques should be used to minimize visual intrusion. Where possible, plants that are removed from the trail corridor for clearance should be transplanted to other locations where re-vegetation is necessary. When possible, native and self-sustaining plant materials will be used for re-vegetation.

Clearing

Clearing widths and heights shall conform to the trail class and design parameter specifications assigned to a trail or trail segment. Deviations to the design parameters may occur only when the deviation is documented in the trail management objective (TMO) form for a trail or trail segment (see Appendix E-1 for a sample TMO). Additional clearing may be done to remove fire or falling hazard trees adjacent to developed areas or to improve views as guided by park zoning and a trail's classification.

Natural Considerations

Where significant wildlife or other natural features exist, special trail routing, construction methods and trail use should be used. Trails should have a natural flow and rhythm that avoids long, straight alignments. Where hazards are present, special trail construction techniques or locations should be used to mitigate the hazard. Hazardous areas, such as steep slopes, avalanche prone areas and rockslide areas should either be avoided or be closed seasonally when hazardous conditions are a problem.

Historic and Cultural Resource Conditions

Like natural resources, cultural resources must be considered when planning and constructing trails. There is a Cultural Zone on Chugachik Island, but the entire region has the potential to contain cultural sites due to the rich sea life and coastal food resources traditionally found in the area. Resource identification and evaluation should occur early in any trail project and possible impacts assessed. As needed and in consultation with the Office of History and Archaeology, special trail routing and construction techniques should be used to reduce adverse impacts to cultural resources.

Environmentally Sensitive Sites

Special location or construction methods may be necessary to reduce impacts and minimize disturbance in environmentally sensitive areas. Examples of environmentally sensitive sites include: wetlands, highly visible hillsides, significant vegetation areas, threatened and endangered species habitat, highly erodible soils, unstable slopes, and ridgelines. Techniques, such as site-specific trail routing, erosion control measures, site-specific adjustment of construction standards, and site-specific construction practices should be implemented to minimize environmental, visual or construction impacts. Construction methods that should reduce impacts include installing retaining walls to reduce cut and fill slopes on a visually prominent hillside, hand construction of the trail, or stabilizing a hazard that is located within or adjacent to a trail corridor.

Special care should be taken in areas close to streams or wetlands. Trails that cross or are located adjacent to wetlands should be designed for minimal impact. Boardwalks or other techniques may be necessary to impose minimal construction impacts. Wildlife needs should also be considered when setting trails near wetlands. Consider decommissioning underutilized trails in sensitive areas to minimize erosion of sediment into streams. Connectivity between drainage ditches and streams should be minimized to reduce sediment delivery potential.

Seasonal Trail Use Opportunities

Many trails in the Kachemak Bay area are used year-round and any new trail renovation or new trail construction should take into account the potential for use in different seasons. DPOR should identify snow retention areas for possible cross-country ski trails. In open areas, trails should be aligned to take advantage of wind protection and shaded canyon areas.

Signage

Sign standards will vary according to park zoning and trail classification. All signs will need to be constructed of materials that will stand up to the inclement weather and high humidity and precipitation of Kachemak Bay. Generally, all trail signage should be kept to a minimum and include only that needed to convey necessary information. Most current signs within the parks have needed replacement for years. Replacement of these should be a priority while maintaining a minimalist approach. Highly developed trails will typically include more directional signage and interpretive information. Locations of signs need to be evaluated on a case-by-case basis and signs should only be posted where necessary to avoid visual pollution.

Trail Closures

Trail closures due to seasonal environmental conditions or trail damage, wildlife considerations, trail construction and other DPOR activity is an important management tool that will be utilized when needed within the DPOR managed areas. Trails may be temporarily closed throughout the year due to other hazardous conditions that may threaten visitor safety and park resources. Trail conditions will be closely monitored by staff and when appropriate, closures will be lifted. Trail closures and openings will be public noticed and well signed.

Health and Fitness

The health benefits derived from recreational activities, such as bicycling and walking, lessen health-related problems and reduce health care costs. Regular, moderate exercise has been proven to reduce the risks of many health problems, such as coronary heart disease, diabetes, certain kinds of cancers, and obesity. Regular exercise can also protect against injury and disability because it builds muscular strength and flexibility. In addition to the health benefits that bicycling, walking and other activities offer, the improvement of physical health reduces health care costs. Trails, including greenbelt-connecting trails, offer adults and children alternative transportation networks that provide an opportunity to integrate moderate, individualized exercise with daily trips to work or school. Health and fitness shall be encouraged throughout the park by looking for opportunities to connect with other trail networks that may offer alternatives to vehicular transportation for day-to-day activities and through the consideration of trail design and trail-related facilities that enhance health and fitness.

Americans with Disabilities Act

In 1990, Congress passed the Americans with Disabilities Act. Among other provisions, the act prohibits state and local governments from discriminating on the basis of disability and requires government services, programs, and activities to be accessible to people with disabilities. This act attempts to remove the physical and social barriers facing the millions of Americans with disabilities. The United States Access Board is developing new guidelines covering access to trails, beaches, and picnic and camping areas. The guidelines will supplement those the Board has issued for the built environment and will address unique constraints specific to outdoor developed areas. Until that time every effort will be made to maximize the accessibility of trails while at the same time recognizing and protecting the unique characteristics of the park. While it is clearly not practical for all types of trails in a mountainous environment to be fully accessible, where appropriate, the trail system should comply with the standards set forth in this law. In addition, not all ADA accessible trails will be of the same difficulty. Information on trail grade, cross-slope, width, and surface will allow individuals with disabilities to decide if they have the ability and interest to use that segment of the trail. The Division of Parks and Outdoor Recreation will strive to create new opportunities for people with disabilities and while they will not necessarily be able to make every existing and new trail ADA accessible, DPOR will make every effort to remove barriers to access for those park users who wish to attempt more difficult routes.

Land Acquisition and Park Additions

Occasionally lands are purchased or donated for addition to the park. These additions are typically important to provide access or protect areas with special features. Trail development in newly acquired areas may need to go through a site-specific planning process if these areas are not addressed in this plan. Trail development in newly acquired areas shall also consider management recommendations provided in the Kachemak Bay State Park Management Plan.

Trail Classification System

The Division of Parks and Outdoor Recreation through the Trail Management Policy has adopted a new Trail Classification System. The Trail Classification System is a close adaptation of the National Trail Classification System that has been formally adopted by most federal land management agencies. Using this system is an important step towards enhancing partnerships with organizations and agencies that border the park and developing resource efficiencies with the use of consistent trail management terminology and standards. The Trail Classification System is similar to past systems in that the scale of trail development is defined by a particular trail class that identifies applicable design parameters and provides management intent for what maintenance standards apply. This new system differs in that the design parameters for a particular class are further refined by the trail type and designed use of the trail. The new system allows for more thorough assessments of trail conditions, an expanded means to record and communicate intended design and management guidelines, and better planning for trail management and maintenance. Below is a brief description of how the Trail Classification System is organized and functions.

Trail Type

There are two trail types used in this plan:

1. Terra Trail.
2. Snow Trail.

Since only one trail type may be used for each trail or trail segment, you may see multiple entries for the same physical location of a trail. For example: trail “X” may have specifications for terra type and different specifications for snow type. The trail is in the same physical location but is described differently for seasonal purposes.

Trail Class

Five trail classes ranging from least developed (Class 1) to highly developed (Class 5) will uniformly apply to all trail types; however, some trail classes may not be applicable to a trail use (such as Class 5 Pack and Saddle). The actively managed uses, user preferences, setting, protection of sensitive resources and other management activities were considered to determine which trail class to apply. Trail classes describe the typical attributes but exceptions may occur. The trail class that most closely matches the managed objective for a

trail is applied. Only one trail class may be applied to a trail or trail segment. See figure E-1 for the general trail class criteria and figure E-2 for photo examples of each trail class.

Figure E-1: General Trail Criteria

General Trail Criteria					
Trail Attributes	Trail Class 1 Minimal/Undeveloped	Trail Class 2 Simple/Minor Development	Trail Class 3 Developed/Improved	Trail Class 4 Highly Developed	Trail Class 5 Fully Developed
Tread & Traffic Flow	-Tread intermittent & often indistinct -May require route finding -Native materials only	-Tread discernible & continuous, but narrow and rough -Few or no allowances constructed for passing -Native materials	-Tread obvious & continuous -Width accommodates unhindered one-lane travel, occasional allowances constructed for passing -Typically native materials	-Tread wide & relatively smooth with few irregularities -Width may consistently accommodate two-lane travel -Native or imported materials -May be hardened	-Width generally accommodates two-lane and two-directional travel, or provides frequent passing turnarounds -Commonly hardened with asphalt or other imported material
Obstacles	-Obstacles common -Narrow passages; brush, steep grades, rocks and logs present	-Obstacles occasionally present -Blockages cleared to define route and protect resources -Vegetation may encroach into trailway	-Obstacles infrequent -Vegetation cleared outside of trailway	-Few or no obstacles exist -Grades typically <12% -Vegetation cleared outside of trailway	-No obstacles -Grades typically <8%
Constructed Features & Trail Elements	-Minimal to non-existent -Drainage is functional -No constructed bridges or foot crossings	-Structures are of limited size, scale and number -Drainage is functional -Structures adequate to protect trail infrastructure and resources -Primitive foot crossings and fords	-Trail structures (walls, steps, drainage, raised trail) may be common & substantial -Trail bridges as needed for resources protection and appropriate access -Generally native materials	-Structures frequent and substantial -Substantial trail bridges are appropriate at water crossings -Trailside amenities may be present	-Structures frequent or continuous; may include curbs, handrails, trailside amenities and boardwalks -Drainage structures frequent; may include culverts and road-like designs
Signs	-Minimum required -Generally limited to regulation and resource protection -No destination signs present	-Minimum required for basic direction -Generally limited to regulation and resource protection -Typically very few or no destination signs present	-Regulation, resource protection, user reassurance -Directional signs at junctions, or when confusion is likely -Informational and interpretative signs may be present	-Wide variety of signs likely and present -Informational signs likely -Interpretive signs possible	-Wide variety of signage is present -Information and interpretive signs likely

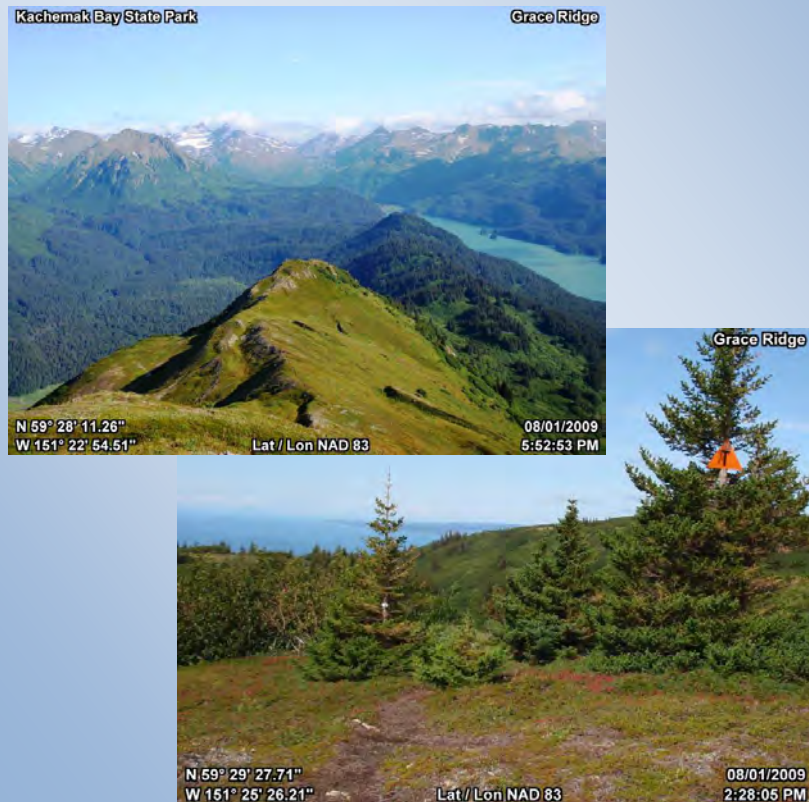
General Trail Criteria					
Trail Attributes	<u>Trail Class 1</u> Minimal/Undeveloped	<u>Trail Class 2</u> Simple/Minor Development	<u>Trail Class 3</u> Developed/Improved	<u>Trail Class 4</u> Highly Developed	<u>Trail Class 5</u> Fully Developed
Typical Recreation Environs & Experience	-Natural, unmodified -Primitive setting	-Natural, essentially unmodified -Primitive to Semi-primitive	-Natural, primarily unmodified -Semi-primitive to roaded natural setting -Transition	-May be modified -Typically roaded natural to rural setting -Transition, rarely present in wilderness	-Can be highly modified -Typically rural to urban setting -Commonly associated with visitor centers or high-use recreation sites -Not present in wilderness
Trail Management Typically managed to accommodate:	-Low level use -Highly skilled users, comfortable off trail -Users with high degree of orienteering skill -Some travel modes & ability levels may be impractical or impossible -Water trail users require high level of navigation/orientation and paddling skills	-Low-to-moderate use levels -Mid-to-highly skilled users, capable of traveling over awkward conditions/obstacles -Users with moderate orienteering skill -Trail suitable for many user types but challenging and involves advanced skills -Water trails: moderate to high level of navigation/orientation and paddling/piloting skills required	-Moderate to heavy use -Users with intermediate skill level and experience -Users with minimal orienteering skills -Moderately easy travel by managed use types -Random potential for accessible use -Water trails: Basic to moderate navigation and paddling/piloting skills required	-Very heavy use -Users with minimal skills and experience -Users with minimal to no orienteering skills -Easy/comfortable travel by managed use types -Maybe or has the potential to be made accessible -Water trails: Basic navigation and paddling/piloting skills required	-Intensive use -Users with limited trail skills and experience -Trail typically meets agency requirements for accessibility

General Trail Criteria					
Trail Attributes	<u>Trail Class 1</u> Minimal/Undeveloped	<u>Trail Class 2</u> Simple/Minor Development	<u>Trail Class 3</u> Developed/Improved	<u>Trail Class 4</u> Highly Developed	<u>Trail Class 5</u> Fully Developed
Maintenance Indicators & Intensity	-Resource protection or safety commensurate with targeted recreational experience -Infrequent or no scheduled maintenance, usually in response to reports of unusual resource problems requiring repair	-Resource protection or safety commensurate with targeted recreational experience -Maintenance scheduled to preserve trail facility & route location or in response to reports of unusual resource problems	-User convenience -Resource protection or safety commensurate with targeted recreational experience -Trail cleared to make available for use early in use season and to preserve trail integrity -Maintenance typically in response to trail or resource damage or significant obstacles to managed use type and experience level	-User comfort and ease -Resource protection or safety commensurate with targeted recreational experience -Trail cleared to make available for use at earliest opportunity in use season -Maintenance typically performed at least annually	-User comfort and ease -Targeted high level of accessibility to key recreational opportunities -Safety commensurate with targeted recreational experience -Maintenance performed at least annually or as needed to meet posted conditions, major damage or safety concerns typically corrected or posted within 24 hours of notice
Additional Criteria	-Typically not managed for Pack and Saddle and Motorized Trails				-Not managed for Pack and Saddle stock, Watercraft or Motorized use.

Figure E-2: Trail Class Photo Examples

Trail Class 1

- Low level use
- Highly skilled users, comfortable off trail with high degree of orienteering skill
- Some travel modes may be impractical or impossible



Trail Class 2

- Low or moderate use levels
- Mid-to-highly skilled users, capable of traveling over awkward conditions/obstacles
- Trail suitable for many types but challenging, involving advanced skills



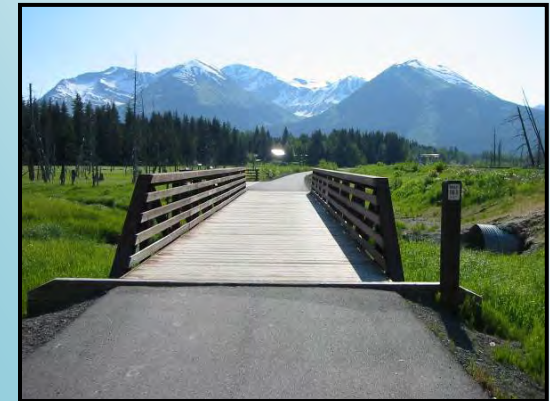
Trail Class 3

- Moderate to heavy use
- Users with intermediate skill level and trail experience
- Moderately easy travel by managed use types



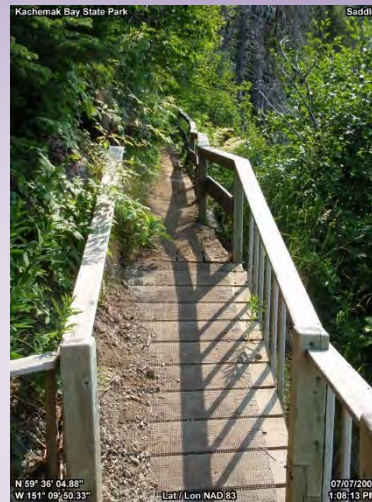
Trail Class 5

- Intensive use
- Users with limited skills and trail experience
- Trail typically meets agency requirements for accessibility



Trail Class 4

- Very heavy use
- Users with minimal skills and trail experience
- Easy/comfortable travel by managed use types



Managed Use

Managed Use is a term that is used to describe the modes of travel that are actively managed and appropriate on a trail considering the design of the trail. There can be many managed uses per trail or trail segment. Managed Use is applied to indicate a management decision or intent to accommodate or encourage a specific type of use but it does not necessarily mean that other uses are prohibited.

Designed Use

Designed Use is the intended use that controls the desired design of the trail and determines the subsequent maintenance parameters for a trail. There can only be one Designed Use per trail or trail segment. Five different designed uses are applied in this plan. They are:

1. Hiker/Pedestrian
2. Bicycle
3. Pack and Saddle
4. Cross Country Ski (Classical/Diagonal)
5. Nordic Ski (Skate)

Design Parameters

Design parameters provide guidance for the assessment, survey, design, construction, repair and maintenance of trails. While the five trail classes apply, the specific design parameters vary under each trail class depending on the designed use. Site-specific circumstances may demand some exceptions or variances to the design parameters based on trail-specific conditions, topography, or other factors, if the deviations are consistent with the general intent of the applicable trail class. Trail design parameters are provided in figures E-3 – E-7 for the designed uses in this plan.

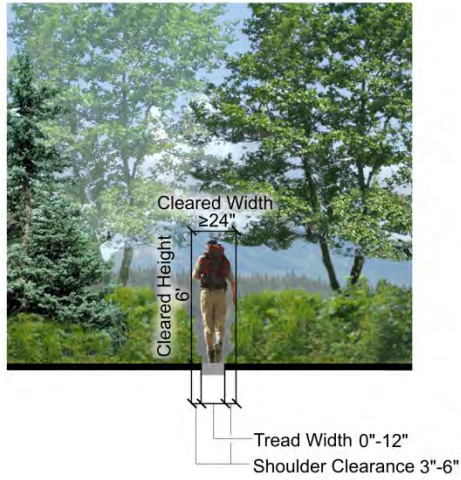
Trail Management Objectives

Trail Management Objectives (TMOs) are the mechanisms that link the Trail Classification System and direction given in this plan to on-the-ground trail management. TMOs synthesize and document in one form the management intention for the trail while providing basic reference information for any subsequent trail planning, management, condition surveys, and reporting. A TMO is required for each trail or trail segment as a pre-requisite for completing trail condition assessment surveys and subsequent prescriptions for work needed to meet standard. Each TMO is approved by management staff to ensure that the objectives for the trail are consistent with this plan and anticipated future land management actions. After approval, the TMOs provide the mechanism for trail maintenance staff and volunteers to know how to maintain and bring a trail or trail segment up to standard as needed. A sample TMO is provided in Appendix E-1.

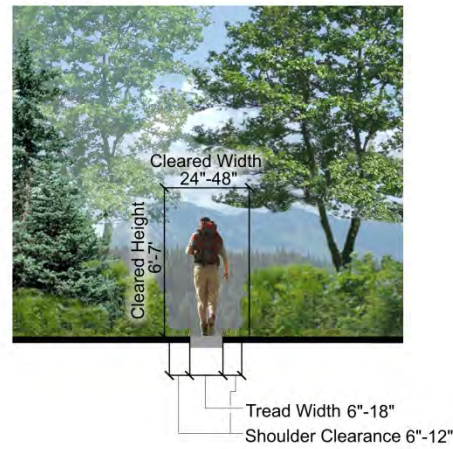
Figure E-3: Hiker/Pedestrian Design Parameters

Designed Use HIKER/PEDESTRIAN		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	0" – 12"	6" – 18"	18" – 36"	24" – 60"	36" – 72"
	Double Lane	36"	36"	36" – 60"	48" – 72"	72" – 120"
	Structures (Minimum Width)	18"	18"	18"	36"	36"
Design Surface	Type	Native, ungraded May be continuously rough	Native, limited grading May be continuously rough	Native, with some on-site borrow or imported material where needed for stabilization and occasional grading Intermittently rough	Native with improved sections of borrow or imported material, and routine grading Minor roughness	Likely imported material, and routine grading Uniform, firm, and stable
	Protrusions	≤ 24" Likely common and continuous	≤ 6" May be common and continuous	≤ 3" May be common, not continuous	≤ 3" Uncommon, not continuous	No protrusions
	Obstacles (Maximum Height)	24"	14"	10"	8"	No obstacles
Design Grade	Target Grade	5% – 25%	5% – 18%	3% – 12%	2% – 10%	2% – 5%
	Short Pitch Maximum	40%	35%	25%	15%	5% – 12%
	Maximum Pitch Density	20% – 40% of trail	20% – 30% of trail	10% – 20% of trail	5% – 20% of trail	0% – 5% of trail
Design Cross Slope	Target Cross Slope	Natural side slope	5% – 20%	5% – 10%	3% – 7%	2% – 3% (or crowned)
	Maximum Cross Slope	Natural side slope	25%	15%	10%	3%
Design Clearing	Height	6'	6' – 7'	7' – 8'	8' – 10'	8' – 10'
	Width	≥ 24" Some vegetation may encroach into clearing area	24" – 48" Some light vegetation may encroach into clearing area	36" – 60"	48" – 72"	60" – 72"
	Shoulder Clearance	3" – 6"	6" – 12"	12" – 18"	12" – 18"	12" – 24"
Design Turn	Radius	No minimum	2' – 3'	3' – 6'	4' – 8'	6' – 8'

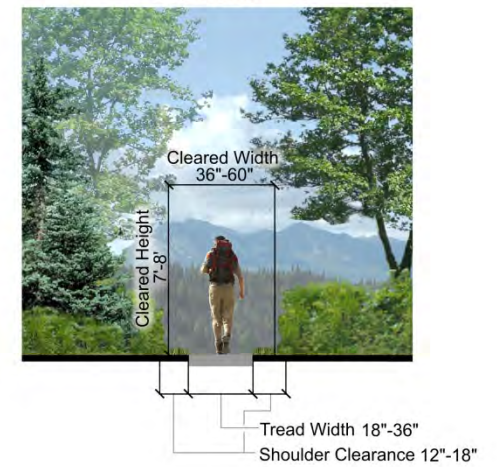
Class 1



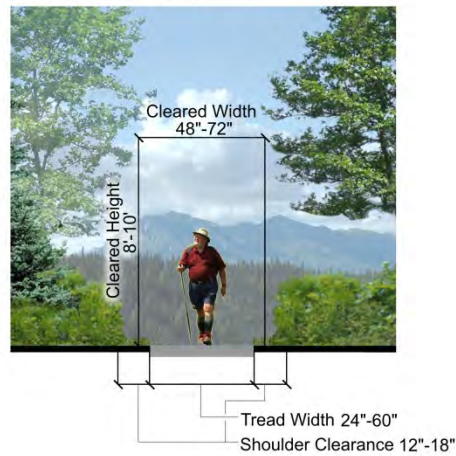
Class 2



Class 3



Class 4



Class 5

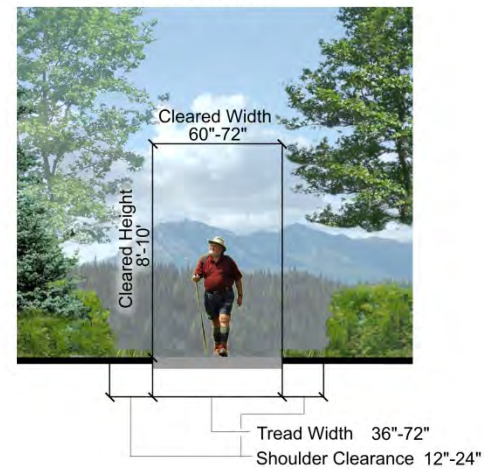
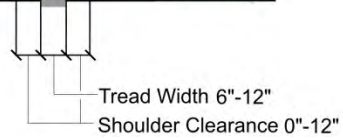
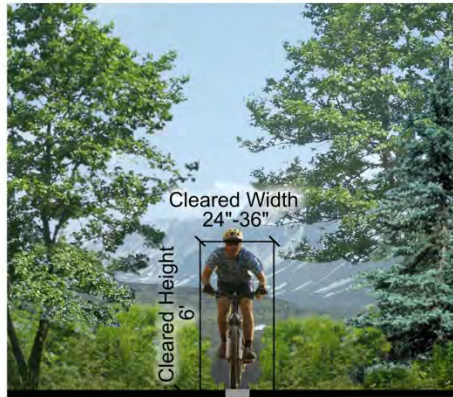


Figure E-4: Bicycle Design Parameters

Designed Use BICYCLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	6" – 12"	12" – 24"	18" – 36"	24" – 48"	36" – 60"
	Double Lane	36" – 48"	36" – 48"	36" – 48"	48" – 84"	72" – 120"
	Structures (Minimum Width)	18"	18"	36"	48"	60"
Design Surface	Type	Native, ungraded May be continuously rough Sections of soft or unstable tread on grades < 5% may be common and continuous	Native, with limited grading May be continuously rough Sections of soft or unstable tread on grades < 5% may be common	Native, with some on-site borrow or imported material where needed for stabilization and occasional grading Intermittently rough Sections of soft or unstable tread on grades < 5% may be present, but not common	Native, with improved sections of borrow or imported materials and routine grading Stable, with minor roughness	Likely imported material and routine grading Uniform, firm, and stable
	Protrusions	≤ 24" Likely common and continuous	≤ 6" May be common and continuous	≤ 3" May be common, but not continuous	≤ 3" Uncommon and not continuous	No protrusions
	Obstacles (Maximum Height)	24"	12"	10"	8"	No obstacles
Design Grade	Target Grade	5% – 20%	5% – 12%	3% – 10%	2% – 8%	2% – 5%
	Short Pitch Maximum	30% 50% on downhill segments only	25% 35% on downhill segments only	15%	10%	8%
	Maximum Pitch Density	20% – 30% of trail	10% – 30% of trail	10% – 20% of trail	5% – 10% of trail	0% – 5% of trail
Design Cross Slope	Target Cross Slope	5% – 10%	5% – 8%	3% – 8%	3% – 5%	2% – 3%
	Maximum Cross Slope	10%	10%	8%	5%	5%
Design Clearing	Height	6'	6' – 8'	8'	8' - 9'	8' - 9'
	Width	24" – 36" Some vegetation may encroach into clearing area	36" – 48" Some light vegetation may encroach into clearing area	60" – 72"	72" – 96"	72" – 96"
	Shoulder Clearance	0" – 12"	6" – 12"	6" – 12"	6" – 18"	12" – 18"
Design Turn	Radius	2' – 3'	3' – 6'	4' – 8'	8' – 10'	8' - 12'

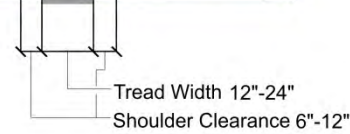
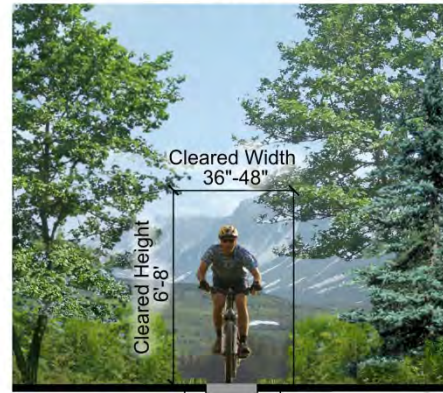
Class 1



Tread Width 6"-12"

Shoulder Clearance 0"-12"

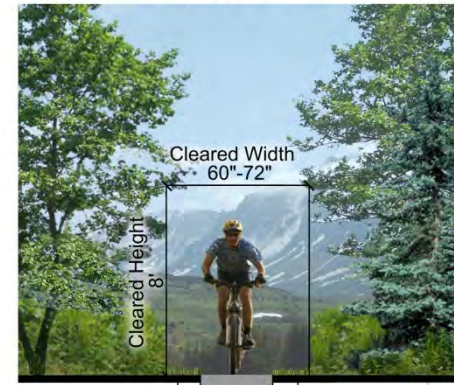
Class 2



Tread Width 12"-24"

Shoulder Clearance 6"-12"

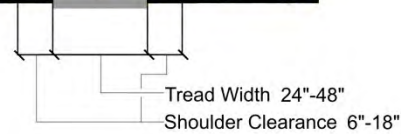
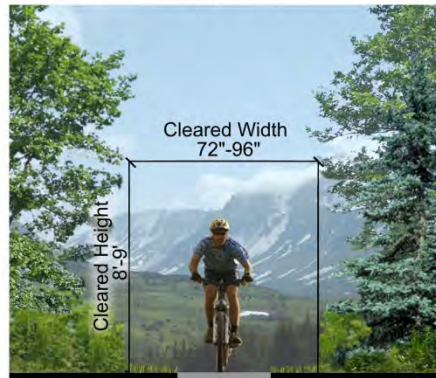
Class 3



Tread Width 18"-36"

Shoulder Clearance 6"-12"

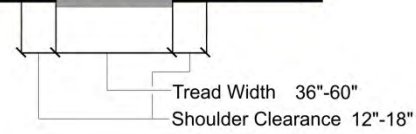
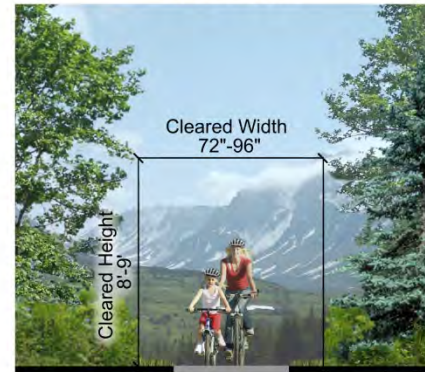
Class 4



Tread Width 24"-48"

Shoulder Clearance 6"-18"

Class 5



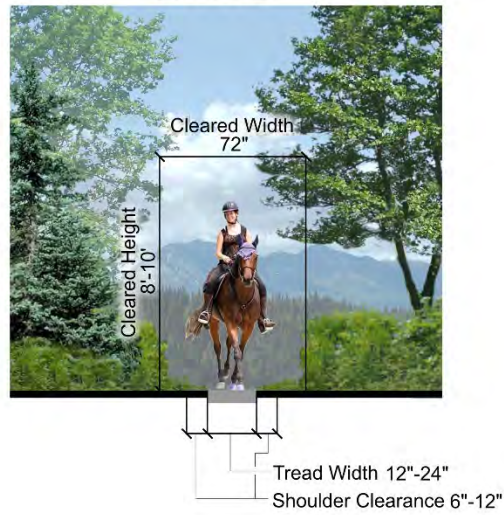
Tread Width 36"-60"

Shoulder Clearance 12"-18"

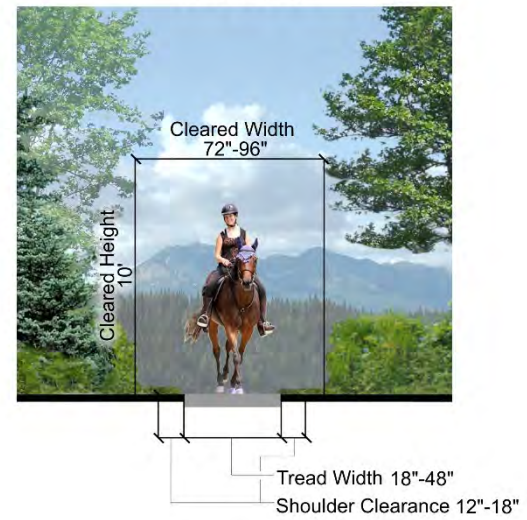
Figure E-5: Pack and Saddle Design Parameters

Designed Use PACK AND SADDLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	Typically not designed or actively managed for equestrians, although use may be allowed	12" – 24" May be up to 48" along steep side slopes 48" – 60" or greater along precipices	18" – 48" 48" – 60" or greater along precipices	24" – 96" 48" – 60" or greater along precipices	Typically not designed or actively managed for equestrians, although use may be allowed
	Double Lane Structures (Minimum Width)		60" Other than bridges: 36" Bridges without handrails: 60" Bridges with handrails: 84" clear width	60" – 84" Other than bridges: 36" Bridges without handrails: 60" Bridges with handrails: 84" clear width	84" – 120" Other than bridges: 36" Bridges without handrails: 60" Bridges with handrails: 84" clear width	
Design Surface	Type		Native, with limited grading May be frequently rough	Native, with some on-site borrow or imported material where needed for stabilization and occasional grading Intermittently rough	Native, with improved sections of borrow or imported material and routine grading Minor roughness	
	Protrusions		≤ 6" May be common and continuous	≤ 3" May be common, not continuous	≤ 3" Uncommon, not continuous	
	Obstacles (Maximum Height)		12"	6"	3"	
Design Grade	Target Grade		5% – 20%	3% – 12%	2% – 10%	
	Short Pitch Maximum		30%	20%	15%	
	Maximum Pitch Density		15% – 20% of trail	5% – 15% of trail	5% – 10% of trail	
Design Clearing	Height		8' – 10'	10'	10' – 12'	
	Width		72" Some light vegetation may encroach into clearing area	72" – 96"	96"	
	Shoulder Clearance	6" – 12" Pack clearance: 36" x 36"	12" – 18" Pack clearance: 36" x 36"	12" – 18" Pack clearance: 36" x 36"		
Design Turn	Radius	4' – 5'	5' – 8'	6' – 10'		

Class 2



Class 3



Class 4

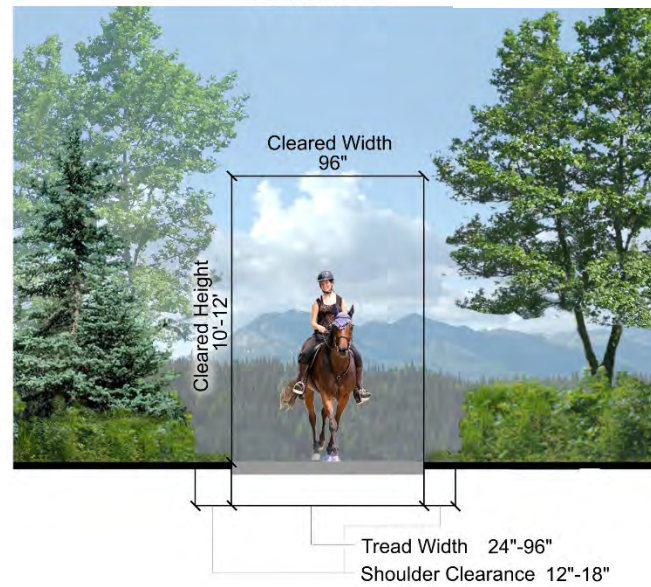
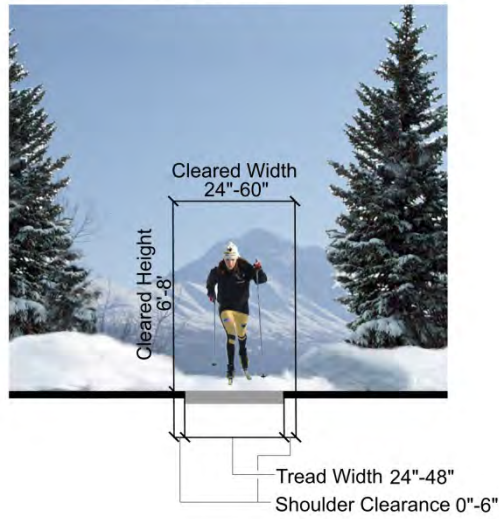


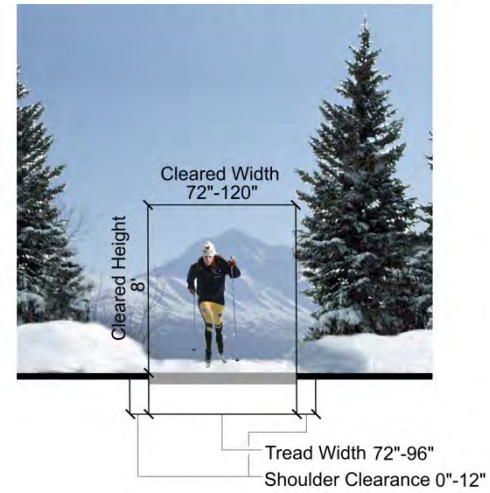
Figure E-6: Cross-Country Ski (Diagonal/Classical) Design Parameters

Designed Use CROSS-COUNTRY SKI (Diagonal/Classic ski)		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Groomed Width	Single Lane	Typically not designed or actively managed for cross-country skiing, although use may be allowed	24" – 48"	72" – 96"	96" – 120"	Typically not designed or actively managed for cross-country skiing, although use may be allowed
	Double Lane		Typically not groomed	Or width of grooming equipment	Or width of grooming equipment	
	Structures (Minimum Width)		72" – 96"	96" – 144"	144" – 192"	
Design Grooming and Surface	Type		Generally no machine grooming	May receive occasional machine grooming for snow compaction and track setting	Regular machine grooming for snow compaction and track setting	
	Protrusions Obstacles (Maximum Height)		No protrusions	No protrusions	No protrusions	
			12"	8"	No obstacles	
			Uncommon	Uncommon (no obstacles if machine groomed)		
Design Grade	Target Grade		5% – 15%	2% – 10%	0% – 8%	
	Short Pitch Maximum		25%	20%	12%	
	Maximum Pitch Density		10% – 20% of trail	5% – 15% of trail	0% – 10% of trail	
Design Cross Slope	Target Cross Slope	0% – 10%	0% – 5%	0% – 5%		
	Maximum Cross Slope (For up to 50°)	20%	15%	10%		
Design Clearing	Height (Above normal maximum snow level)	6' – 8'	8' Or height of grooming equipment	8' – 10'		
	Width	24" – 60"	72" – 120"	96" – 168"		
	Shoulder Clearance	Light vegetation may encroach into clearing area	Light vegetation may encroach into clearing area	Widen clearing at turns or if increased sight distance needed		
Design Turn	Radius	0" – 6"	0" - 12"	0" – 24"		
		8' – 10'	15' – 20' Or to accommodate grooming equipment	≥ 25'		

Class 2



Class 3



Class 4

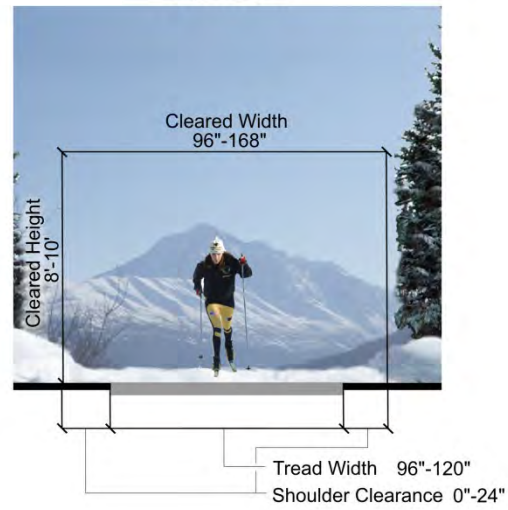
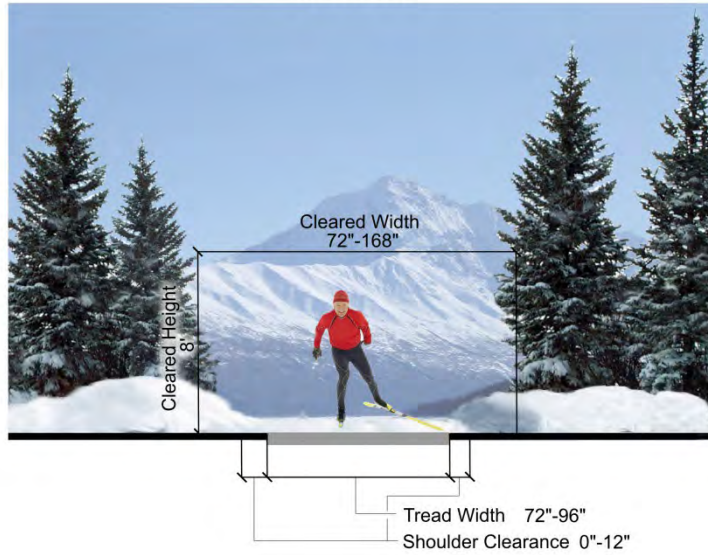


Figure E-7: Nordic Ski (Skate) Design Parameters

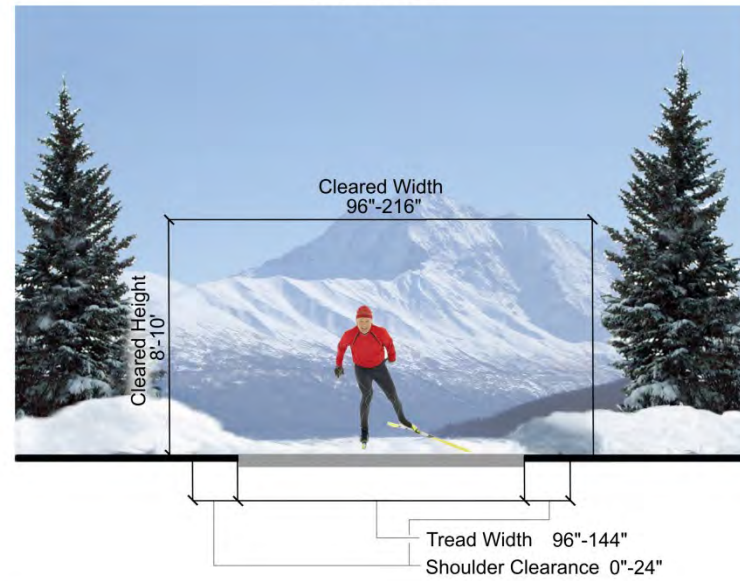
Designed Use NORDIC SKI (Skate Ski)		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5		
Design Groomed Width	Single Lane	Typically not designed or actively managed for skate skiing, although use may be allowed	Typically not designed or actively managed for skate skiing, although use may be allowed	72" – 96"	96" – 144"	144" - 192"		
	Double Lane ² Structures (Minimum Width)			Or width of grooming equipment	Or width of grooming equipment	Or width of grooming equipment		
96" – 144"				144" – 192"	168" - 288"			
Design Grooming and Surface	Type					36"	36"	36"
	Protrusions					May receive occasional machine grooming for snow compaction and track setting	Smooth compaction using implements designed for creating skate lanes.	Smooth compaction using implements designed for creating skate lanes.
	Obstacles (Maximum Height)					No protrusions	No protrusions	No protrusions
						8"	No obstacles	No obstacles
Design Grade	Target Grade					Uncommon (no obstacles if machine groomed)		
	Short Pitch Maximum					2% – 10%	0% – 8%	0% – 6%
	Maximum Pitch Density					20%	20%	20%
Design Cross Slope	Target Cross Slope			5% – 15% of trail	5% - 10% of trail	5 - 8% of trail		
	Maximum Cross Slope (For up to 50')			0% – 5%	0% – 5%	0% – 5%		
Design Clearing	Height (Above normal maximum snow level)			15%	12%	10%		
	Width			8'	8' – 10'	At least 10'		
				Shoulder Clearance	Or height of grooming equipment	Or height of grooming equipment	Or height of grooming equipment	
	Height				72" – 168"	96" – 216"	96" – 312"	
Design Turn	Radius			Light vegetation may encroach into clearing area	Widen clearing at turns or if increased sight distance needed	Widen clearing at turns or if increased sight distance needed		
	0" - 12"			0" – 24"	0" – 24"			
				15' – 20'	≥ 25'	25' - 30'		
				Or to accommodate grooming equipment	Or to accommodate grooming equipment	Or to accommodate grooming equipment		

² Double lane may accommodate a combination of diagonal and skate ski lanes with room to pass.

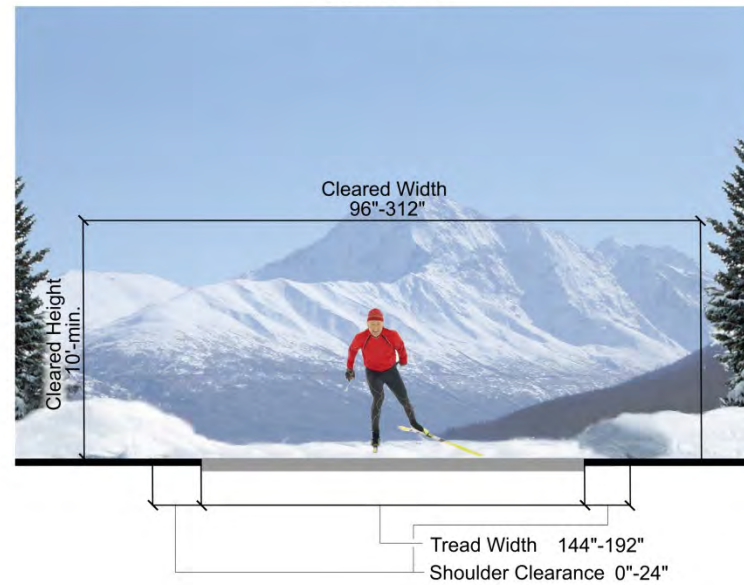
Class 3



Class 4



Class 5



Trail Management Recommendations

In the Kachemak Bay State Park and Kachemak Bay State Wilderness Park Trail Management Plan, the park trail system has been divided into nine management units which correspond roughly with important geographic regions. Each unit will have a brief description and a trail table that will describe the specific management intent for each trail or trail segment within the unit. The exception is the Overlook Park unit, which has no existing or proposed DPOR managed trails. It is important to realize that the recommendations in the tables describe the desired future condition for the trails within the park and not necessarily a trail's current condition or trail class. For example, if an existing class 2 trail is proposed to be upgraded to class 3, the trail will only be shown on the map as a class 3. Some trails that span multiple units will be listed in more than one table.

Routes and Unmanaged Trails

The recommendations in the following trail tables pertain to trails where DPOR has identified clear management intent for their future development. Some commonly used areas are not included in these tables. These areas are typically social trails or hunting routes that the park is consciously choosing not to commit resources to or manage for visitor use. This may be for resource protection purposes or to preserve a level of challenge or experience for those with the skills and desire to use these areas.

Trail Tables Organization

The individual fields that make up the trail tables are described below. The maps included with the trail tables are provided to facilitate understanding of the management intent for a particular trail or trail segment and are not intended to be used for any other purpose. The trail alignments depicted on the maps are approximate and may vary as new trails are constructed or as existing trails are improved and rerouted.

Trail Number – Correlates the table description to a trail or trail segment depicted on the maps.

Map Number – Corresponds with the map depicting the trail.

Trail Name/Segment – The name of the trail is entered in this field. Where a trail is segmented for a specific reason (different trail class or design parameter), the name of the trail and trail segment will appear.

Trail Type – This field indicates what type of trail is being discussed. There will always be only one type per trail or trail segment so that managers can assign specific design parameters and management needs for a particular use or season. Where the same trail has various types, the trail will be listed individually for that type.

Trail Class – The class describes the scale of trail development representing the intended design and management standards of a trail. There is only one trail class per trail or trail segment. They define a typical scenario or combined factors and exceptions within the class may occur but the class that most closely fits is chosen.

Designed Use – This describes the intended use that controls the geometric design of the trail and determines the subsequent maintenance parameters for the trail. There is only one designed use per trail or trail segment. A trail may be actively managed for more than one use and various uses may be permitted but it has only one design driver that determines the technical specifications for the trail.

Managed Use – This describes the modes of travel that are actively managed on a particular trail indicating the management decision or intent to accommodate and encourage those uses on a specific trail. Additional uses besides what is listed may be permitted on a trail but this field simply alerts users to the uses that are primarily intended on a trail.

Approximate Distance – The approximate distance of a trail or trail segment will be entered in this field in miles.

Comments – Contains additional information about a trail.

Trail Tables

Trail tables showing existing and proposed trails are included for each management unit (except for Overlook Park) below.

KBSP and KBSWP Management Units

- Eveline SRS Unit
- Diamond Creek SRS Unit
- Overlook Park Unit (no DPOR-managed trails exist or are proposed)
- Cottonwood Eastland Unit
- Northern Unit
- Grewingk Glacier Unit
- Halibut Cove - China Poot Unit
- Sadie - Tutka Unit
- Outer Coast Unit

Eveline Unit

This small unit is a State Recreation Site on donated land and is managed and groomed for skiing cooperatively with Kachemak Nordic Ski Club. Fewer trails are usable in the summer due to wet areas. Figures E-6 and E-7 depict ski trail classes as single-lane trails only; however, some snow trails in this unit may be constructed using double-laned parameters.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
EV-100	E-1.1	Overlook Loop	Terra	4	Hiker-Pedestrian	Hiker	0.2 Miles	Develop to ADA accessible standards.
EV-200	E-1.2	Overlook Loop	Snow	4	Ski (Skate)	Ski; Hiker	0.2 Miles	Develop to ADA accessible standards.
EV-101	E-1.1	Alpine Meadows Loop	Terra	3	Hiker-Pedestrian	Hiker	0.8 Miles	
EV-201	E-1.2	Alpine Meadows Loop	Snow	3	Ski (Diagonal)	Ski; Hiker	0.4 Miles	
EV-102	E-1.1	Alpine Meadows Connector	Terra	3	Hiker-Pedestrian	Hiker	0.1 Miles	
EV-202	E-1.2	Alpine Meadows Connector	Snow	3	Ski (Diagonal)	Ski; Hiker	0.1 Miles	
EV-103	E-1.1	Glacierview Loop	Terra	3	Hiker-Pedestrian	Hiker	0.8 Miles	
EV-203	E-1.2	Glacierview Loop	Snow	3	Ski (Diagonal)	Ski; Hiker	0.6 Miles	
EV-204	E-1.2	Glacierview Connectors	Snow	3	Ski (Diagonal)	Ski; Hiker	0.4 Miles	
EV-205	E-1.2	Winter Multiuse Access (New Trail)	Snow	3	Ski (Diagonal)	Bicycle; Ski; Hiker	0.4 Miles	Winter-only multiuse trail connecting the trailhead with state lands to the west of the unit. Requires a regulation change to allow bicycles.
EV-206	E-1.2	Perimeter Loop	Snow	4	Ski (Skate)	Ski; Hiker	1.2 Miles	

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
EV-207	E-1.2	Wolf Ridge-Eveline Connector	Snow	4	Ski (Skate)	Ski; Hiker	0.1 Miles	Connects the unit with the Wolf Ridge trails.

Map E-1.1: Eveline Unit Terra Trails

Map E-1.2: Eveline Unit Snow Trails

Diamond Creek Unit

This unit includes the mouth of Diamond Creek where it enters Cook Inlet along a bluff. It is a State Recreation Site with access near the intersection of Diamond Ridge Road and the Sterling Highway. Several existing and proposed trails are or will be managed by the Homer Cycling Club.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
DC-100	E-2	Rollin' Coal	Terra	3	Bicycle	Bicycle; Hiker	2.2 Miles	
DC-101	E-2	Rollin' Coal Two	Terra	3	Bicycle	Bicycle; Hiker	1.2 Miles	
DC-102	E-2	Beach Access	Terra	3	Pack and Saddle	Bicycle; Pack and Saddle; Hiker	0.6 Miles	<p>This trail extends from the access road to the beach. Redevelop and reroute the existing trail to facilitate pedestrian, bicycle, and equestrian access.</p> <p>About \$1 million was requested from FEMA to reconstruct the Diamond Creek Beach Access trail after it was severely eroded by a flood event in 2013. The FEMA funding was scheduled for 2019, but subsequently pushed back indefinitely due to the November 2018 earthquake.</p>
DC-103	E-2	Dozer's Demise	Terra	3	Bicycle	Bicycle; Hiker	0.9 Miles	
DC-104	E-2	Old Cat Road	Terra	3	Bicycle	Bicycle; Hiker	0.3 Miles	
DC-105a	E-2	Bluff Loop (New Trail)	Terra	3	Bicycle	Bicycle; Hiker	0.7 Miles	
DC-105b	E-2	Bluff Loop (New Trail)	Terra	4	Bicycle	Bicycle; Hiker	0.4 Miles	
DC-106	E-2	Old Access Road	Terra	4	Hiker-Pedestrian	Hiker	0.9 Miles	

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
DC-107	E-2	Proposed Loop Trail (New Trail)	Terra	3	Bicycle	Bicycle; Hiker	0.3 Miles	Loop trail in the area of the proposed campground.

Map E-2: Diamond Creek Unit Terra Trails

Cottonwood Eastland Unit

This unit includes the newer portion of Kachemak Bay State Park and is located on the north side of Kachemak Bay near East End Road and includes portions of the Cottonwood Creek and Eastland Creek drainages. It is surrounded mainly by private homes to the west and north, and Kachemak Bay to the south. No DPOR constructed or maintained trails currently exist in this unit. All the proposed trails below that are listed for pack & saddle or bicycle use (marked with *) will require a regulation change before the use is allowed.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
CE-100	E-3.1	Eastland Express* (New Trail)	Terra	4	Pack and Saddle	Pack and Saddle; Bicycle; Hiker	0.7 Miles	From trailhead to the proposed overlook.
CE-101	E-3.1	Falls Flats Connector* (New Trail)	Terra	3	Pack and Saddle	Pack and Saddle; Bicycle; Hiker	1.0 Miles	
CE-102	E-3.1	Falls Flats Loop* (New Trail)	Terra	3	Pack and Saddle	Pack and Saddle; Bicycle; Hiker	3.2 Miles	
CE-200	E-3.2	Falls Flats Loop (New Trail)	Snow	3	Ski (Diagonal)	Ski; Hiker	5.0 Miles	
CE-103	E-3.1	Falls Nose Beach Access (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	0.6 Miles	
CE-104	E-3.1	Eastland Creek Loop* (New Trail)	Terra	3	Pack and Saddle	Pack and Saddle; Bicycle; Hiker	1.8 Miles	
CE-105	E-3.1	Singletrack Concepts* (New Trail)	Terra	3	Bicycle	Bicycle; Hiker	2.3 Miles	
CE-106	E-3.1	Eastland Gully Loop* (New Trail)	Terra	2	Bicycle	Bicycle; Hiker	3.1 Miles	

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
CE-107	E-3.1	Falls Flats - Eastland Connector* (New Trail)	Terra	2	Bicycle	Bicycle; Hiker	1.4 Miles	
CE-108	E-3.1	Lower Bluff Express (New Trail)	Terra	3	Pedestrian-Hiker	Hiker	3.5 Miles	
CE-109	E-3.1	South Beach Access (New Trail)	Terra	3	Pedestrian-Hiker	Hiker	0.8 Miles	
CE-110	E-3.1	Middle Beach Access (New Trail)	Terra	3	Pedestrian-Hiker	Hiker	0.4 Miles	
CE-111	E-3.1	Gentle Meadows (New Trail)	Terra	3	Pedestrian-Hiker	Hiker	0.9 Miles	
CE-112	E-3.1	Open Beach Connector* (New Trail)	Terra	4	Pack and Saddle	Pack and Saddle; Bicycle; Hiker	3.2 Miles	There is no equestrian access from park uplands.
CE-201	E-3.2	Eastland Loop (New Trail)	Snow	2	Ski (Diagonal)	Ski; Hiker	3.2 Miles	

Map E-3.1: Cottonwood Eastland Unit Terra Trails

Map E-3.2: Cottonwood Eastland Unit Winter Trails

Northern Unit

This unit is the northernmost portion of the original park on the south side of Kachemak Bay and goes from Bear Cove to Mallard Bay. There are many private parcels along the coastline and this unit is adjacent to the community of Bear Cove.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
NO-100	E-4	Chugachik Island Trail	Terra	3	Hiker-Pedestrian	Hiker	0.4 Miles	
NO-101	E-4	Martin Portlock Connector (New Trail)	Terra	2	Bicycle	Bicycle; Hiker	5.5 Miles	Provides access for those wishing to leave KBSP and packraft out the Martin River. This segment includes part of the proposed Coast to Coast trail route. Requires a regulation change to allow bicycles.
NO-102	E-4	Kachemak Bay Access (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	1.4 Miles	This segment includes part of the proposed Coast to Coast trail route.
NO-103	E-4	Mallard Bay	Terra	3	Bicycle	Bicycle-Hiker	0.5 Miles	This segment includes part of the proposed Coast to Coast trail route. Requires a regulation change to allow bicycles.
NO-104	E-4	Portlock River (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	1.4 Miles	DPOR may work with the US Fish & Wildlife Service in future to extend this trail into the Kenai National Wildlife Refuge to Portlock Lake.
NO-105a	E-4	Emerald Lake Loop	Terra	3	Hiker-Pedestrian	Hiker	7.9 Miles	

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
NO-105b	E-4	Humpy Creek	Terra	3	Bicycle	Bicycle; Hiker	4.0 Miles	The western portion of Emerald Lake Loop. This segment includes part of the proposed Coast to Coast trail route. Requires a regulation change to allow bicycles.
NO-106	E-4	Emerald Lake Spur	Terra	3	Hiker-Pedestrian	Hiker	0.1 Miles	From NO-105 to the lake.
NO-107	E-4	Emerald Lake Camp	Terra	3	Hiker-Pedestrian	Hiker	0.1 Miles	From NO-106 to the camp.
NO-108	E-4	Blue Ice	Terra	3	Hiker-Pedestrian	Hiker	1.7 Miles	
NO-109	E-4	Mallard-Emerald Connector	Terra	3	Hiker-Pedestrian	Hiker	1.1 Miles	This segment includes part of the proposed Coast to Coast trail route.

Map E-4: Northern Unit Terra Trails

Grewingk Glacier Unit

The coastline of this unit extends north from the entrance of Halibut Cove Lagoon almost to Mallard Bay. With numerous homes and lodges in the Halibut Cove community and ready access from Homer Spit, this area sees a lot of use. It is anticipated to remain the busiest area of the park.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
GG-100	E-5	Lower Glacier Flats (New Trail)	Terra	3	Bicycle	Bicycle; Hiker	2.6 Miles	Requires a regulation change to allow bicycles.
GG-101	E-5	Glacier Spit Beach (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	2.7 Miles	
GG-102	E-5	Glacier Lake	Terra	4	Bicycle	Bicycle; Hiker	3.3 Miles	This segment includes part of the proposed Coast to Coast trail route. Requires a regulation change to allow bicycles.
GG-103a	E-5	Grewingk Tram Spur	Terra	3	Bicycle	Bicycle; Hiker	.9 Miles	This segment includes part of the proposed Coast to Coast trail route. Requires a regulation change to allow bicycles.
GG-103b	E-5	Grewingk Tram Spur	Terra	3	Bicycle	Bicycle; Hiker	0.1 Miles	Short trail from Glacier Creek Loop to the hand tram. This segment includes part of the proposed Coast to Coast trail route.
GG-104	E-5	Glacier Creek (New Trail)	Terra	3	Bicycle	Bicycle; Hiker	2.6 Miles	Requires a regulation change to allow bicycles.
GG-105	E-5	Right Beach (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	1.5 Miles	
GG-106	E-5	Right Beach Overlook (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	0.9 Miles	

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
GG-107	E-5	Saddle	Terra	4	Hiker-Pedestrian	Hiker	1.0 Miles	This segment includes part of the proposed Coast to Coast trail route.
GG-108	E-5	Alpine Ridge	Terra	2	Hiker-Pedestrian	Hiker	1.8 Miles	
GG-109	E-5	Lagoon	Terra	3	Hiker-Pedestrian	Hiker	2.1 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
GG-110	E-5	Lagoon Trail Bypass - Hand Tram (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	0.3 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.

Map E-5: Grewingk Unit Terra Trails

Halibut Cove - China Poot Unit

This unit extends from Halibut Cove Lagoon west to Anisom Point and includes the trails in the China Poot Bay area and along the Wosnesenski River. There is the Ranger Station, several public use cabins, tent areas, and some private yurts for rent. The community of Halibut Cove borders this unit.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
HC-100	E-6	Lagoon	Terra	3	Hiker-Pedestrian	Hiker	3.7 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
HC-101	E-6	Dead Valley (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	2.2 Miles	All or part of this trail may be sited in the bordering Grewingk Glacier Unit, depending on the final trail design process.
HC-102	E-6	Lagoon Trail Bypass - Hand Tram (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	0.8 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
HC-103	E-6	Goat Rope Spur	Terra	2	Hiker-Pedestrian	Hiker	0.7 Miles	
HC-104	E-6	Lagoon Facilities Trails	Terra	4	Hiker-Pedestrian	Hiker	0.6 Miles	Mostly boardwalks connecting Halibut Cove Lagoon dock, cabins, and associated facilities. This segment includes part of the proposed Coast to Coast trail route.
HC-105	E-6	Coalition Loop	Terra	3	Hiker-Pedestrian	Hiker	5.2 Miles	
HC-106	E-6	China Poot Lake	Terra	3	Hiker-Pedestrian	Hiker	2.7 Miles	This segment includes part of the proposed Coast to Coast trail route.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
HC-107	E-6	Halibut Spur (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	2.9 Miles	From community of Halibut Cove to Coalition Loop Trail.
HC-108	E-6	Moose Valley	Terra	3	Hiker-Pedestrian	Hiker	6.4 Miles	This segment includes part of the proposed Coast to Coast trail route.
HC-109	E-6	Moose Valley Cabin Spur	Terra	3	Hiker-Pedestrian	Hiker	0.1 Miles	
HC-110	E-6	Poot Peak	Terra	2	Hiker-Pedestrian	Hiker	3.7 Miles	
HC-111	E-6	Poot Peak Summit	Terra	2	Hiker-Pedestrian	Hiker	0.3 Miles	
HC-112	E-6	Wosnesenski River	Terra	3	Hiker-Pedestrian	Hiker	11.1 Miles	
HC-113	E-6	Wosnesenski Lake (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	3.6 Miles	This segment includes part of the proposed Coast to Coast trail route.

Map E-6: Halibut Cove - China Poot Unit Terra Trails

Sadie - Tutka Unit

This unit extends from Anisom Point to the head of Tutka Bay and includes Sadie Cove, Grace Ridge and Tutka Bay Lagoon.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
ST-100	E-7	Woz Grace (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	6.3 Miles	This segment includes part of the proposed Coast to Coast trail route.
ST-101a	E-7	Hazelle Lakes (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	2.3 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
ST-101b	E-7	Hazelle Lakes (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	3.8 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
ST-102	E-7	Sadie Knob	Terra	3	Hiker-Pedestrian	Hiker	4.1 Miles	
ST-103	E-7	South Eldred	Terra	3	Hiker-Pedestrian	Hiker	1.9 Miles	
ST-104	E-7	Grace Ridge	Terra	3	Hiker-Pedestrian	Hiker	9.1 Miles	Accessed from Kayak Beach or Quarry Beach trailheads.
ST-105	E-7	Grace Hazelle Connector (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	4.6 Miles	
ST-106	E-7	Sadie Cove Connector (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	1.4 Miles	
ST-107	E-7	Tutka Cutoff (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	0.8 Miles	This segment includes part of the proposed Coast to Coast trail route.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
ST-108	E-7	Tutka-Jakalof	Terra	3	Hiker-Pedestrian	Hiker	0.4 Miles	This segment is from Tutka Bay Lagoon to park boundary, but trail continues to Jakalof Bay Road.
ST-109	E-7	Tutka Lagoon (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	1.1 Miles	
ST-110	E-7	Hatchery	Terra	3	Hiker-Pedestrian	Hiker	0.8 Miles	
ST-111	E-7	Tutka Lake	Terra	3	Hiker-Pedestrian	Hiker	2.6 Miles	
ST-112	E-7	Tutka Bay (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	5.0 Miles	
ST-113	E-7	Upper Tutka (New Trail)	Terra	3	Hiker-Pedestrian	Hiker	1.8 Miles	This trail has segments in two different units.
ST-114	E-7	Tutka Ascent	Terra	3	Hiker-Pedestrian	Hiker	2.7 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.

Map E-7: Sadie - Tutka Unit Terra Trails

Outer Coast Unit

This Unit includes Kachemak Bay State Wilderness Park and the Nuka Passage area of Kachemak Bay State Park. It borders the Tutka Bay area, where some of these trails originate.

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
OC-100	E-8	Hazelle Lakes (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	7.1 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
OC-101	E-8	Tutka Ascent	Terra	3	Hiker-Pedestrian	Hiker	2.7 Miles	This trail has segments in two different units. This segment includes part of the proposed Coast to Coast trail route.
OC-102	E-8	High Pass (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	9.0 Miles	
OC-103	E-8	Tutka Alpine Traverse (AKA Backdoor)	Terra	2	Hiker-Pedestrian	Hiker	13.7 Miles	This trail was developed in partnership with a local non-profit group – Ground Truth Trekking. This segment includes part of the proposed Coast to Coast trail route.
OC-104	E-8	Port Dick (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	8.0 Miles	
OC-105	E-8	Slide Creek (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	6.3 Miles	
OC-106	E-8	Port Dick Byway	Terra	2	Bicycle	Bicycle; Hiker	3.3 Miles	From Rocky River Road to Port Dick. Requires a regulation change to allow bicycles.
OC-107	E-8	Port Dick Lake (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	4.8 Miles	

ID #	Map #	Trail Name/Segment	Trail Type	Trail Class	Designed Use	Managed Use	Approx. Distance	Comments
OC-108	E-8	Gore Ridge (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	13.7 Miles	This segment includes part of the proposed Coast to Coast trail route.
OC-109	E-8	Tonsina Bay (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	3.1 Miles	
OC-110	E-8	Taylor Petrof (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	7.8 Miles	
OC-111	E-8	Upper Tutka (New Trail)	Terra	2	Hiker-Pedestrian	Hiker	0.8 Miles	This trail has segments in two different units.

Map E-8: Outer Coast Unit Terra Trails

Kachemak Bay Water Trail Route

This 125-mile route that extends from the Homer Spit, northeast along Kachemak Bay, around the head of the bay, and then along the southern side of the bay all the way to the City of Seldovia. The trail includes points of interest, access locations, day-use sites, and camping areas. The water route passes by public and private land, diverse habitat from intertidal areas to alpine trails, and spectacular wildlife viewing opportunities. Most the Water Trail route does not pass through park waters. The route is provided for reference because the Park Management Plan calls for additional facilities (including public use cabins, tent platforms, and mooring buoys) that would support the water trail. See Map E-9: Kachemak Bay Water Trail Route.³

Proposed Coast to Coast Trail Route

An approximately 74-mile long “Coast to Coast Trail” from Kachemak Bay Access trail north of Mallard Bay on the south side of Kachemak Bay to Gore Point on the Outer Coast could be formed by linking existing and proposed trails. The Coast to Coast Trail would start in the Northern Management Unit; pass through the Grewingk Glacier, Halibut Cove - China Poot, and Sadie - Tutka Units; and continue over the mountains on the Tutka Alpine Traverse to end in the Outer Coast Unit. If any portion of a trail segment is part of the Coast to Coast trail route, it is noted in the trail tables. Additionally, a map is provided to facilitate understanding of how the various segments would form the route. See Map E-10: Coast to Coast Trail Route.

³ <http://www.kachemakbaywatertrail.org/index.htm>

Map E-9: Kachemak Bay Water Trail Route

Map E-10: Coast to Coast Trail Route

Implementation

Recommended Regulation Changes

The trail management recommendations made in this plan represent the desired future condition for trails within the park and the general trail policies provide the direction for achieving the desired future condition. Many of the Design Uses identified for a trail or trail segment in this plan represent a standard that may require a change in park regulations to fully facilitate. Other unanticipated changes to regulations may also be needed to implement this plan. These regulation changes will be promulgated over time as the Division of Parks and Outdoor Recreation updates park regulations.

Priorities

The purpose of this Trail Management Plan is to create a strategic tool to plot the course of trail management in the coming years. The main priorities addressed by the plan include: the design of a trail system which allows for optimum recreational use of the area while protecting the natural resources of the park; a consistent set of principles and policies for trail management; a basis for future funding; and a roadmap for the trail building and maintenance efforts.

Due to the extreme precipitation levels and moderate climate in the area, grasses and understory vegetation grows extremely fast and a trail can become completely impassable within a single season. DPOR trail crews work as efficiently as possible to maintain the existing trails. Due to these special conditions, trail maintenance in this area will continue to be a challenge. With uncertain economic times, funding for new trail construction should be secondary to maintaining the existing trail network. Maintenance is a huge expense, both in labor hours and in dollars. A solution to the maintenance issue may be to involve the local community more. During the summer, DPOR publishes a weekly KBSP trail conditions report on their website. This lets the public know where maintenance needs are greatest. Trail clearing uses the largest amount of trail staff resources and having more volunteer involvement would allow the DPOR staff to work with trail crews and/or volunteer crews to focus on more detailed work, such as maintaining and rebuilding trail surfaces and structures. Community involvement in this process creates a sense of ownership with the participating individuals and will lend more public support of DPOR trails initiatives.



Trail Management Objectives (TMO)

Rev. Date:
4/25/2010

Area: Park Unit: District:

Trail Name: <input type="text"/>	Trail ID: <input type="text"/>
Trail Beginning Termini: <input type="text"/>	Beg. Milepost: <input type="text"/>
Trail Ending Termini: <input type="text"/>	End. Milepost: <input type="text"/>
Trail Inventory Length: <input type="text"/> Miles	Trail Mileage Source: <input type="checkbox"/> Wheel <input type="checkbox"/> GPS <input type="checkbox"/> Map <input type="checkbox"/> Unknown

TMO Trail Section (if applicable)

<input type="text"/>	Section Beg. Termini: <input type="text"/>	Beg. Milepost: <input type="text"/>
Sec.#	Section End. Termini: <input type="text"/>	End. Milepost: <input type="text"/>

Designed Use Objectives

(Check one)

Trail Type

Terra Trail

Snow Trail

Water Trail

(Check one)

Trail Class

1 (Primitive/Undeveloped)

2 (Simple/Minor Development)

3 (Developed/Improved)

4 (Highly Developed)

5 (Fully Developed)

Difficulty Rating

(Check one)

Easiest (white circle)

Easy (green circle)

Intermediate (blue square)

Difficult (black diamond)

Most Difficult (dbl diamond)

Elevation Chg

+ or - Feet

Level of Use

Low (0-10 per day)

Moderate (10-100 / day)

High (100+ per day)

Est Act Counter

Designed Use

(Check one)

Hiker / Pedestrian

Pack & Saddle

Bicycle

Wheelchair (ADA stds)

Motorcycle

All Terrain Vehicle (ATV)

Cross-Country Ski

Snowmachine

Snowshoe

Dog Sled

Skijoring

Watercraft - Non Motorized

Watercraft - Motorized

Design Parameters

(Fill in all that apply)

Basic Tread Width, inches

Clearing Width, feet

Clearing Height, feet

Backslope: 1/1, 2/1, 1/2

Target Grade, % (>90% of trail)

Max. Sustainable Grade, % for distance (ft) _____

Turn Radius Min, ft

Target Frequency Maintenance per Year

(Fill in all that apply)

Trail Opening

Tread Repair

Drainage Cleanout

Logging Out

Brushing

Snow Trail Grooming

Condition Survey



Trail Management Objectives (TMO) Part 2

Rev. Date:
4/25/2010

Trail Use Strategies

Managed Use	Season	
(Fill in all that apply)	From	To
	(mm/dd)	(mm/dd)
<input type="checkbox"/> Hiker / Pedestrian	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Pack & Saddle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Bicycle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Wheelchair	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Motorcycle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> All Terrain Vehicle (ATV)	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> _____	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Cross-Country Ski	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Snowmobile	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Dog Sled	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Skijoring	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> _____	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Watercraft - NonMotorized	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Watercraft - Motorized	<input type="text"/>	<input type="text"/>

Prohibited Use	From	To
(Check if applicable)	Date	Date
	(mm/dd)	(mm/dd)
<input type="checkbox"/> All Motorized Use	<input type="text"/>	<input type="text"/>
(Or, fill in all that apply)		
<input type="checkbox"/> Hiker / Pedestrian	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Pack & Saddle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Bicycle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Wheelchair	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Motorcycle	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> All Terrain Vehicle (ATV)	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> _____	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Cross-Country Ski	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Snowmobile	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Dog Sled	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Skijoring	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> _____	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Watercraft - NonMotorized	<input type="text"/>	<input type="text"/>
<input type="checkbox"/> Watercraft - Motorized	<input type="text"/>	<input type="text"/>

Other Use	Accept	Discourage	Eliminate
(Optional: Check any that apply)			
<input type="checkbox"/> Hiker / Pedestrian	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Pack & Saddle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Bicycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Motorcycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> All Terrain Vehicle (ATV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cross-Country Ski	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Snowmobile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Dog Sled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Skijoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Watercraft - NonMotorized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Watercraft - Motorized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Special Considerations
(Check any that apply. Underline appropriate clarifier in parenthesis. Provide specifics and reference information below.)
<input type="checkbox"/> Accessible per Current Agency Guidelines
<input type="checkbox"/> Mechanized Tools or Equipment Prohibited
<input type="checkbox"/> Threat, Endang or Sens Species (<u>Plant / Wildl</u>)
<input type="checkbox"/> Cultural Resource Present
<input type="checkbox"/> Easement across Non-Park Land (<u>Existing / Needed</u>)
<input type="checkbox"/> Existing Permit or Agreement (<u>Trail-Specific / Area</u>)
<input type="checkbox"/> _____

Remarks / Reference Information

Completed by: _____ Title: _____ Date: _____
 Approved by: _____ Title: _____ Date: _____



Trail Management Objectives (FIELD NOTES)

Trail Name

Trail ID:

Remarks / Reference Information (Continuation Sheet)

*Appendix E-1: Example Trail Management
Objectives Form*

COOPERATIVE AGREEMENT
between the
Alaska Department of Fish and Game,
Habitat Division
and the
Alaska Department of Natural Resources,
Division of Parks and Outdoor Recreation

This cooperative agreement is designed to assist the agencies in cooperatively managing the area of overlap of the Kachemak Bay State Park and the Kachemak Bay Critical Habitat Area. The agreement pertains to the responsibilities of the Alaska Department of Fish and Game, Habitat Division and the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation within Kachemak Bay and in no way alters existing authorities and responsibilities either between or within the agencies.

WHEREAS, the Alaska Department of Fish and Game (ADF&G) has a legislatively mandated responsibility to manage the Kachemak Bay Critical Habitat Area (AS 16.20.590); and

WHEREAS, the Alaska Department of Natural Resources (ADNR) has a legislatively mandated responsibility to manage the Kachemak Bay State Park (AS 41.21.130-143); and

WHEREAS, portions of Kachemak Bay are designated as both state critical habitat area and state park; and

WHEREAS, it is desirable to have maximum consistency between state park and state critical habitat area regulation and administration; and

WHEREAS, it is the intention of the ADNR/Division of Parks and Outdoor Recreation (DPOR) and the ADF&G/Habitat Division to coordinate administrative efforts in managing overlapping portions of the state park and state critical habitat area;

NOW, THEREFORE, the parties hereto agree as follows:

THE DEPARTMENT OF NATURAL RESOURCES, DIVISION OF PARKS AND OUTDOOR RECREATION AGREES:

1. To consult with ADF&G, through the Habitat Division, in the development of a management plan for Kachemak Bay State Park.
2. To seek the advice of ADF&G, through the Habitat Division, on regulations and major park policies or decisions which apply to the portions of Kachemak Bay which are designated both state park and state critical

habitat area. These include the management of mariculture, sport fishing charters or other commercial operations, and the development of park facilities when habitat values or use conflicts can reasonably be anticipated to be affected.

3. To monitor tideland and water use activities, to report any special area permit violations or other resource management problems within the area covered by this agreement promptly to the Habitat Division, and to coordinate compliance operations where appropriate.
4. To review and comment on state critical habitat area management plans, regulations, major policies, or decisions and permits for that portion of the critical habitat area which is in the state park.
5. Comply with the notice and, if applicable, ADF&G special area permit requirements of AS 16.20.520-530 and 5 AAC 95 for park developments, uses, and activities in the critical habitat area.

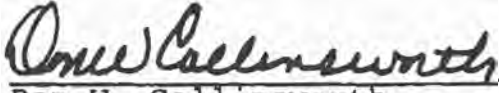
THE DEPARTMENT OF FISH AND GAME, THROUGH ITS HABITAT DIVISION, AGREES:

1. To consult with DPOR in the development of a management plan for the state critical habitat area.
2. To monitor multiple use activities, to report state park permit violations or other resource management problems in the portion of Kachemak Bay which is a state park to DPOR, and to coordinate compliance operations where appropriate.
3. To review and comment on state park management plans, regulations, major policies or decisions, and permits for the portion of the state park which is in the critical habitat area.
4. To seek the advice of DPOR on regulations and major policies or decisions which apply to the portion of the critical habitat area that is in the state park (such as mariculture, habitat enhancement activities, introduction of non-native species or placement of structures or facilities).
5. To apply for a park use permit when required under 11 AAC 18.010 for developments or uses and activities in the state park.

THE DEPARTMENT OF NATURAL RESOURCES AND DEPARTMENT OF FISH AND GAME MUTUALLY AGREE:

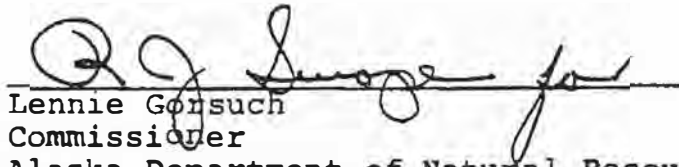
1. Nothing in this cooperative agreement alters the obligation of DPOR and the ADF&G resource management divisions (Wildlife Conservation; Sport Fish; Commercial Fisheries; Fisheries Rehabilitation, Enhancement, and Development; and Subsistence) to work with each other on issues regarding management of fish and wildlife populations and harvest.
2. Nothing in the cooperative agreement shall obligate any party in the expenditure of funds or for future payments of money in excess of appropriations authorized by law.
3. Each party agrees that it will be responsible for its own acts and the results thereof, and each party shall not be responsible for the acts of the other party, and each party agrees it will assume to itself risk and liability resulting in any manner under this agreement.
4. Each party will comply with all applicable laws, regulations, and executive orders relative to equal employment opportunity.
5. Nothing herein is intended to conflict with federal, state, or local laws or regulations. If there are conflicts, the laws and regulations shall prevail; this agreement will be amended at the first opportunity to bring it into conformance with conflicting laws or regulations.
6. Either the ADNR or the ADF&G may terminate its participation in this cooperative agreement by providing to the other party notice in writing 60 days in advance of the date on which its termination becomes effective.
7. A free exchange of research and information between agencies is encouraged and is necessary to attain the management goals of the state.
8. To follow permit consultation procedures that are in compliance with state regulations governing notice and review periods.
9. Amendments to this agreement may be proposed by either agency and shall become effective upon approval of both agencies.

10. The effective date of this agreement shall be from the date of final signature.



Don W. Collinsworth
Commissioner
Alaska Department of Fish and Game

1-11-89
Date



Lennie Gorsuch
Commissioner
Alaska Department of Natural Resources

7/24/89
Date

Appendix G: Bibliography

Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs. Alaska Community Database. Retrieved May 2020 from <https://dcra-cdo-dcced.opendata.arcgis.com/>.

Alaska Department of Fish & Game and U.S. Department of Commerce, NOAA. 1998. Final Environmental Impact Statement/Final Management Plan: Kachemak Bay National Estuarine Research Reserve. Anchorage, AK.

Alaska Department of Fish & Game, Divisions of Habitat & Restoration and Wildlife Conservation. Kachemak Bay and Fox River Flats Critical Habitat Area Management Plan, 1993.

Alaska Department of Fish & Game. Anadromous Waters Catalog and Atlas. Retrieved August 2020 from www.adfg.alaska.gov/sf/SARR/AWC/.

Alaska Department of Fish and Game. 2008. Alaska Wildlife Notebook Series. Juneau, Alaska.

Alaska Department of Fish and Game. October 2002. Alaska Aquatic Nuisance Species Management Plan. Juneau, Alaska. RIR 5J02-10.

Alaska Department of Fish and Game. Invasive Species Website. URL: <http://www.adfg.alaska.gov/index.cfm?adfg=invasive.main>.

Alaska Department of Fish and Game, Marine/Coastal Habitat Management. David C. Burbank. 1977. Environmental Studies of Kachemak Bay and Lower Cook Inlet, Volume III: Circulation Studies in Kachemak Bay and Lower Cook Inlet.

Alaska Department of Fish & Game, Division of Commercial Fisheries. 2012. Mark Stophia and Jake Musslewhite. An Evaluation of the Tutka Bay Lagoon Salmon Hatchery for Consistency with Statewide Policies and Prescribed Management Practices.

Alaska Department of Fish & Game, Divisions of Sport Fish and Commercial Fisheries. 2014. Jan Rumble, et al. Cook Inlet and Prince William Sound Area Management Report for Tanner and King Crab Fisheries through 2013.

Alaska Department of Fish & Game. Habitat - GIS Data Downloads. URL: http://www.adfg.alaska.gov/index.cfm?adfg=maps.habitat_gis.

Appendix G: Bibliography

Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys. 1991. L.E. Burns, et al. Geology of the Northern Chugach Mountains, Southcentral Alaska.

Alaska Department of Natural Resources, Division of Parks. June 1982. Alaska State Park System: Statewide Framework.

Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. March 1995. Management Plan for Kachemak Bay State Park and Kachemak Bay State Wilderness Park.

Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. May 2015. Alaska State Parks - Trail Management Handbook.

Alaska Department of Natural Resources, Division of Mining, Land & Water. 2001. Kenai Area Plan.

Alaska Public Media - KBBI, Homer. 2019. As some sea star populations make a comeback, scientists may have found cause of ‘wasting disease’. URL: <https://www.alaskapublic.org/2019/06/05/as-some-sea-star-populations-make-a-comeback-scientists-may-have-found-cause-of-wasting-disease/>.

Alaska Seafood Marketing Institute. 2016. Research contractor McDowell Group. Alaska Seafood Market Summary & Outlook.

Baird, S. and S. Pegau. 2004. City of Homer Coastal Characterization and Change Analysis. Final report to City of Homer.

Benz, Harley, et al. 2011. Seismicity of the Earth 1900–2010: Aleutian Arc and Vicinity. USGS OFR 2010–1083-B.

Boating Industry. 2017. National Marine Manufacturers Assn. predicts 6 percent gain in boat sales for 2017. URL: boatingindustry.com/news/2017/05/25/nmma-predicts-6-percent-gain-in-boat-sales-for-2017/.

Boating Industry. 2017. PWC market targets Millennials with new features, products. URL: boatingindustry.com/top-stories/2017/04/06/pwc-market-targets-millennials-with-new-features-products/.

Bradley, D.C. et al. 1999. Geologic map of the Seldovia Quadrangle, south-central Alaska: U.S. Geological Survey Open-File Report 99-18.

Bright, D.B., F.E. Durham and J.W. Knudsen. 1960. King Crab Investigations of Cook Inlet, Alaska. Department of Biology, Allan Hancock Foundation, University of Southern California. Los Angeles, CA.

- Briner, Jason P. and Darrell S. Kaufman. 2008. Late Pleistocene mountain glaciation in Alaska: key chronologies. *Journal of Quarterley Science*. URL: www.interscience.wiley.com.
- Brocher, T.M. et al. 2014. The 1964 Great Alaska Earthquake and tsunamis: a modern perspective and enduring legacies: U.S. Geological Survey Fact Sheet 2014-3018.
- Burbank, D.C. 1977. Circulation Studies in Kachemak Bay and Lower Cook Inlet, Volume III. pp. 1-123. In: L.L. Trasky, L.B. Flagg & D.C. Burbank, (ed.) *Environmental Studies of Kachemak Bay and Lower Cook Inlet*, Alaska Dep. Fish and Game, Anchorage.
- City of Homer. 2007. *Climate Action Plan: Reducing the Threat of Global Climate Change Through Government and Community Efforts*. Homer, AK.
- Colorado State Parks. 2005. PWC and Two Stroke Engine Issue Summary. URL: <https://cpw.state.co.us/Documents/ResourceStewardship/JetSkiManagementPrescription.pdf#search=pwc%20two%20stroke>.
- Cook Inlet Aquaculture Association. 2004-05, 2007-08, 2011, 2013-19. *Tutka Bay Lagoon Hatchery – Annual Report*.
- Cook Inlet Aquaculture Association. Gary Fandrei, E.D. 2006. *Tutka Bay Lagoon Hatchery – Annual Management Plan*.
- Cook Inlet Aquaculture Association. Dean Day, E.D. 2020. *Tutka Bay Lagoon Hatchery – Annual Management Plan*.
- Cook Inlet Regional Planning Team. 2007. *Cook Inlet Regional Salmon Enhancement Planning*. URL: www.adfg.alaska.gov/static/fishing/PDFs/hatcheries/plans/ci_salmonenhancement_p2_2006-2025.pdf.
- Cook, Linda and Frank Norris. *A Stern and Rock-Bound Coast: Kenai Fjords National Park Historic Resources Study*. Anchorage: National Park Service, Alaska Support Office, 1998.
- Crowell, A.L., D.H. Mann. 1998. *Archaeology and Coastal Dynamics of Kenai Fjords National Park, Alaska*. National Park Service, Anchorage, Alaska, page 80.
- Crowell, A.L. 2004. *Connecting with the Past - The Kenai Fjords Oral History and Archeology Project*. *Alaska Park Science: Volume 3, Issue 1*.
- de Laguna, Frederica. 1975, 2nd edition. *The Archaeology of Cook Inlet, Alaska*. The Alaska Historical Society, Anchorage.

Appendix G: Bibliography

Doroff, A., S. Baird, J. Freymueller, S. Buckelew, M. Murphy and J. Ryan. 2013. Assessing Coastal Uplift and Habitat Changes in a Glacially Influenced Estuary System: Kachemak Bay, Alaska. Final Report for NERRS Science Collaborative Grant.

Dowl. 2017. Diamond Creek Trail Feasibility Analysis. URL: www.dowl.com.

Duffus, Joshua. 2005. A Recreational Guide to Kachemak Bay State Park and Wilderness Park; Insights into Hiking, Camping, Kayaking, and More. Wizard Works. Homer, AK.

Field, Carmen and Coowe Walker. 2003. A Site Profile of the Kachemak Bay Research Reserve: A Unit of the National Estuarine Research Reserve System. Homer, Alaska. URL: https://coast.noaa.gov/data/docs/nerrs/Reserves_KBA_SiteProfile.pdf.

Fujiwara, Masami and Raymond C. Highsmith. 1997. Harpacticoid copepods: potential link between inbound adult salmon and outbound juvenile salmon. School of Fisheries and Ocean Sciences, University of Alaska Fairbanks.

Giffen, Hall, and Chien. 2008. Alaska: Glaciers of Kenai Fjords National Park and Katmai National Park and Preserve. URL: <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20080039170.pdf>

Gibson, W. 2009. Mean Precipitation for Alaska 1971-2000. National Park Service, Alaska Regional Office GIS Team.

Homer Soil and Water Conservation District. 2007. Integrated Weed Management Strategy Focusing on Early Detection/Rapid Response for the Kenai Peninsula - Cooperative Weed Management Area. URL: <http://www.homerswcd.org/user-files/pdfs/FINCWMASstrategy120107.pdf>.

International Dark-Sky Association. 2018. International Dark Sky Park Program Guidelines. URL: <https://www.darksky.org/wp-content/uploads/2018/12/IDSP-Guidelines-2018.pdf>.

International PADI, Inc. 2005. Mooring Buoy Planning Guide. Rancho Santa Margarita, CA.

Jackinsky, McKibben. October 12, 2017. "Boy finds rare, ancient tapir fossil in Alaska." Homer News, Homer, Alaska.

Kachemak Bay National Estuarine Research Reserve. 2016. Climate Science of Kachemak Bay and the Kenai Peninsula. URL: http://trnerr.org/wp-content/uploads/2016/04/Climate-science_Kachemak-Bay_Kenai-Peninsula.pdf.

Kachemak Bay Water Trail. Homer, AK. URL: www.kachemakbaywatertrail.org/index.htm.

Kaeriyama, M., et al. 2000. Feeding ecology of sockeye and pink salmon in the Gulf of Alaska. N. Pac. Anadr. Fish Comm. Bulletin No.2: 55-63.

Karlstrom, T.N.V. 1964. Quaternary geology of the Kenai Lowland and glacial history of the Cook Inlet region, Alaska: U.S. Geological Survey Professional Paper 443.

Kenai Peninsula Fish Habitat Partnership. 2011. Strategic Plan.

Klein, Janet. 1982. A History of Kachemak Bay: the Country, the Communities. Homer Society of Natural History. Homer, AK.

Klein, Janet R., R.D. Reger. A Late Pleistocene Megafauna, Kenai Peninsula, Southcentral Alaska. Report presented to the Alaska Anthropological Association annual meeting, Fairbanks, March 2015.

Magoon, L.B., Adkison, W.L., and Egbert, R.M. 1976. Map showing geology, wildcat wells, Tertiary plant fossil localities, K-Ar age dates, and petroleum operations, Cook Inlet area, Alaska: U.S. Geological Survey Miscellaneous Investigations Series Map 1019. Scale 1:250,000.

Marion, Jeff and Jeremy Wimpey. 2007. Environmental Impacts of Mountain Biking: Science Review and Best Practices. International Mountain Bicycling Association.

Mason, G.T. and Arndt, R.E. 1995. Mineral Resources Data System (MRDS), Data Series 20. USGS.

Musson Group. 2015. A Preliminary Guide to Mooring Systems, Mooring Choices and Mooring Selection. Moorings. Southwest Harbor, Maine.

National Park Service. Circa 2004. Aron L. Crowell. Cultural Science in Kenai Fjords. URL: www.nps.gov/kefj/learn/historyculture/upload/The-Kenai-Fjords-Oral-History-and-Archeology-Project-MASTER.pdf.

National Park Service. 2018. Map of Kenai Fjords, Alaska.

Natural Resources Defense Council. 2011. Homer, Alaska: Identifying and Becoming More Resilient to Impacts of Climate Change. URL: https://www.nrdc.org/sites/default/files/ClimateWaterFS_HomerAK.pdf.

National Oceanic and Atmospheric Administration, Climate Program Office. 2017. A Town with a Plan: Community, Climate, and Conversations. URL: <https://toolkit.climate.gov/case-studies/town-plan-community-climate-and-conversations>.

National Oceanic and Atmospheric Administration. Kachemak Bay National Estuarine Research Reserve: Management Plan 2012 – 2017. URL: https://coast.noaa.gov/data/docs/nerrs/Reserves_KBA_MgmtPlan.pdf.

Appendix G: Bibliography

National Oceanic and Atmospheric Administration, National Estuarine Research Reserve System (NERRS). System-wide Monitoring Program. URL: <http://www.nerrsdata.org>.

National Oceanic and Atmospheric Administration, National Ocean Service. 2017. United States Coast Pilot 9 – Alaska: Cape Spencer to Beaufort Sea.

Nokleberg, W.J., et al. 1994. Metallogenic map of significant metalliferous lode deposits and placer districts in Alaska, in Plafker, George, and Berg, H.C., eds., *The Geology of Alaska*: Geological Society of America. Scale 1:2,500,000.

Osgood, Geoffrey J., et al. 2016. Historical Diets of Forage Fish and Juvenile Pacific Salmon in the Strait of Georgia, 1966-1968. *Marine and Coastal Fisheries*, 8:1, 580-594.

Plafker, George. 1969. Tectonics of the March 27, 1964, Alaska earthquake: U.S. Geological Survey Professional Paper 543-I, p. I1-I74.

Plafker, George, Moore, J.C., and Winkler, G.R. 1994. Geology of the southern Alaska margin, in Plafker, George, and Berg, H.C., eds., *The Geology of Alaska*: Geological Society of America.

Reger, R.D., Sturmman, A.G., Berg, E.E., and Burns, P.A.C. 2007. A guide to the late Quaternary history of northern and western Kenai Peninsula, Alaska: Alaska Division of Geological & Geophysical Surveys Guidebook 8, 112 p., 6 sheets, scale 1:63,360. URL: <http://doi.org/10.14509/15941>.

Robinson, E. T. 1976. Private Nonprofit Salmon Hatcheries in Alaska. University of Alaska Fairbanks. Sea Grant Report.

University of Alaska Anchorage: Alaska Center for Conservation Science. 2019. Alaska Exotic Plant Information Clearinghouse (AKEPIC). URL: <https://accs.uaa.alaska.edu/invasive-species/non-native-plants/>.

U.S. Department of Agriculture, Alaska Region. 2019. Forest and Grassland Health Website. URL: <https://www.fs.usda.gov/detailfull/r10/forest-grasslandhealth>.

U.S. Department of Agriculture. 2017. Climate Change Vulnerability Assessment for the Chugach National Forest and the Kenai Peninsula. URL: https://www.fs.fed.us/pnw/pubs/pnw_gtr950.pdf.

U.S. Department of Agriculture. Forest Service Alaska Region. 2008. Invasiveness Ranking System for Non-Native Plants of Alaska. R10-TP-143.

U.S. Department of Interior, National Invasive Species Council. 1999. Executive Order 13112 - Invasive Species. Washington, DC.

U.S. Department of the Interior: National Invasive Species Council. Early Detection and Rapid Response Website. URL: <https://www.doi.gov/invasivespecies/early-detection-and-rapid-response>.

U.S. EPA, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Western Ecology Division. 2009. Lee II, H. and Brown, C.A. Classification of Regional Patterns of Environmental Drivers and Benthic Habitats in Pacific Northwest Estuaries. EPA/600/R-09/140.

U.S. Fish and Wildlife Service. 2014. Northern Sea Otter (*Enhydra lutris kenyoni*): Southcentral Alaska Stock. Retrieved 8 November, 2017 from www.fws.gov/alaska/fisheries/mmm/stock/Revised_April_2014_Southcentral_Alaska_Sea_Otter_SAR.pdf.

U.S. Fish and Wildlife Service. 2017. National Wetlands Inventory Website. URL: www.fws.gov/wetlands.

U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge. 2014. Ed Berg, Dick Reger and Bretwood Higman. Geologists determine age of Bluff Point Landslide.

U.S. Forest Service, Alaska Region. Forest Health Conditions in Alaska 2012. 2013. Anchorage, Alaska. Publication R10-PR-32.

U.S. Geological Survey. 2008. Alaska Resource Data File, New and Revised Records Version 1.7, OFR 2008-1225.

U.S. Geological Survey. Roger M. Waller and Kirk W. Stanley. 1966. Effects of the Earthquake of March 27, 1964 in the Homer Area, Alaska. Washington, D.C. Geological Survey Professional Paper 542-D.

University of Vermont. "Personal Watercraft: Safety and Environmental Impact." 2000. URL: https://www.uvm.edu/~vlrs/doc/personal_watercraft.htm.

West, G., et al. 2011. Checklist of Birds of Kachemak Bay, Alaska. Center for Alaska Coastal Studies. Homer, AK.

Western Regional Climate Center. 2017. Halibut Cove, Alaska. Monthly Climate Summary, Period of Record: 9/01/1975 to 01/31/1998. URL: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak3530>.

Wiles, G.C. and Calkin, P.E. 1992. Reconstruction of a debris-slide-initiated flood in the southern Kenai Mountains, Alaska. *Geomorphology*, 5: 535-546.

Wilson, F.H., et al. 2015. Geologic map of Alaska: U.S. Geological Survey Scientific Investigations Map 3340, scale 1:1,584,000. URL: <http://dx.doi.org/10.3133/sim3340>.

Appendix G: Bibliography

Yates, Mike and Steve Adiletta. 2013. Going nodal-Regional 3D seismic acquisition in Cook Inlet, Alaska. *The Leading Edge* 32: 538-544.

Zimmermann, M. and Prescott, M.P. 2014. AFSC/RACE: Cook Inlet Grid, URL:
www.afsc.noaa.gov/RACE/metadata/Zimmermann_CI_bathygrid.xml.

Zimmermann, M. and Prescott, M.P. 2015. AFSC/RACE/GAP/Zimmermann: Central Gulf of Alaska Grid. URL:
www.afsc.noaa.gov/RACE/metadata/Zimmermann_CGOA_bathy_NR1.xml.

Appendix H: Flora Species

Flora species list provided by Kachemak Bay National Estuarine Research Reserve.

Terrestrial Plants

Common name	Scientific name	Common name	Scientific name
Family Lycopodiaceae (Clubmosses)			
Fir clubmoss	<i>Huperzia selago</i>	Creeping Jenny / Christmas green / Groundcedar	<i>Lycopodium complanatum</i>
Stiff clubmoss	<i>Lycopodium annotinum</i>	Alpine clubmoss	<i>Lycopodium alpinum</i>
Stiff clubmoss	<i>Lycopodium annotinum</i> var. <i>pungens</i>	Clubmoss	<i>Lycopodium</i> sp.
Running clubmoss	<i>Lycopodium clavatum</i>		
Family Equisetaceae (Horsetails)			
Variegated scouringrush / Northern scouringrush	<i>Equisetum variegatum</i>	Woodland horsetail / Wood horsetail	<i>Equisetum sylvaticum</i>
Swamp horsetail / Water horsetail	<i>Equisetum fluviatile</i>	Meadow horsetail	<i>Equisetum pratense</i>
Marsh horsetail	<i>Equisetum palustre</i>	Field horsetail / Common horsetail	<i>Equisetum arvense</i>
Family Equisetaceae (Horsetails) continued			
Horsetail	<i>Equisetum</i> sp.		
Family Ophioglossaceae (Adder's Tongues)			
Common moonwort	<i>Botrychium lunaria</i>	Lance-leaved moonwort / Lanceleaf grape fern	<i>Botrychium lanceolatum</i>
Northwestern moonwort / Northern moonwort	<i>Botrychium pinnatum</i>	Rattlesnake fern	<i>Botrychium virginianum</i>
Family Adiantaceae (Maidenhair Ferns)			
Northern maidenhair fern	<i>Adiantum pedatum</i>		
Family Cryptogrammeae (Mountain Parsleys)			
American rockbrake	<i>Cryptogramma acrostichoides</i>	Parsley fern / Mountain parsley / Rock brake fern	<i>Cryptogramma</i> sp.

Appendix H: Flora Species

Common name	Scientific name	Common name	Scientific name
Family Thelypteridaceae (Marsh Ferns)			
Narrow beech fern / Long beech fern	<i>Phegopteris connectilis</i>		
Family Dryopteridaceae (Lady Ferns)			
Lady fern / Common lady fern	<i>Athyrium filix-femina</i>	Rusty woodsia	<i>Woodsia ilvensis</i>
Fragile fern / Brittle bladder fern	<i>Cystopteris fragilis</i>	Ostrich fern	<i>Matteuccia struthiopteris</i>
Mountain bladder fern	<i>Cystopteris montana</i>	Shield fern / Trailing wood fern / Spreading wood fern	<i>Dryopteris expansa</i>
Rocky Mountain woodsia	<i>Woodsia scopulina</i>	Western oak fern	<i>Gymnocarpium dryopteris</i>
Family Aspidiaceae (Shield Ferns)			
Mt. holly fern / Northern holly fern	<i>Polystichum lonchitis</i>	Braun's holly fern	<i>Polystichum braunii</i>
Family Pinaceae (Pines / Spruces / Hemlocks)			
White spruce	<i>Picea glauca</i>	Spruce	<i>Picea</i> spp.
Sitka spruce	<i>Picea sitchensis</i>	Western hemlock	<i>Tsuga heterophylla</i>
Lutz spruce	<i>Picea X lutzii</i>	Mountain hemlock	<i>Tsuga mertensiana</i>
Black spruce	<i>Picea mariana</i>		
Family Cupressaceae (Cypresses / Junipers)			
Common mountain juniper / Common juniper	<i>Juniperus communis</i>		
Family Sparganiaceae (Bur-Reeds)			
Narrowleaf bur-reed	<i>Sparganium angustifolium</i>	Northern bur-reed	<i>Sparganium hyperboreum</i>
Family Potamogetonaceae (Pondweeds)			
Eelgrass / Seawrack	<i>Zostera marina</i>	Sago pondweed	<i>Stuckenia pectinatus</i>
Floating pondweed / Floating-weed pondweed	<i>Potamogeton natans</i>	Fineleaf pondweed	<i>Stuckenia filiformis</i>
Ribbonleaf pondweed	<i>Potamogeton epiphydrus</i>	Sheathed pondweed	<i>Stuckenia vaginatus</i>
Variable pondweed	<i>Potamogeton gramineus</i>		
Family Zannichelliaceae (Horned Pondweeds)			
Horned pondweed	<i>Zannichellia palustris</i>		
Family Juncaginaceae (Arrow Grasses)			
Sea arrow grass / Seaside arrow grass	<i>Triglochin maritimum</i>	Marsh arrow grass	<i>Triglochin palustre</i>

Common name	Scientific name	Common name	Scientific name
Family Poaceae - (Grasses)			
Reed canary grass / Canary reed grass	<i>Phalaris arundinacea</i>	Bentgrass / Ticklegrass	<i>Agrostis</i> sp.
Alpine holy grass / Alpine sweet grass	<i>Hierochloe alpina</i>	Bluejoint / Bluejoint reedgrass	<i>Calamagrostis canadensis</i>
Vanilla grass	<i>Hierochloe odorata</i>	Slimstem reedgrass	<i>Calamagrostis stricta</i>
Arctic sweet grass / Arctic holy grass	<i>Hierochloe pauciflora</i>	Circumpolar reedgrass	<i>Calamagrostis deschampsioides</i>
Alpine timothy / Mountain timothy	<i>Phleum alpinum</i>	Tufted hairgrass	<i>Deschampsia cespitosa</i>
Timothy	<i>Phleum pratense</i>	Bering's tufted hairgrass	<i>Deschampsia beringensis</i>
Field foxtail / Meadow foxtail	<i>Alopecurus pratensis</i>	Hairgrass	<i>Deschampsia</i> sp.
Alpine foxtail / Boreal alopecurus	<i>Alopecurus alpinus</i>	Purple mountain hairgrass / Mountain hairgrass	<i>Vahlodea atropurpurea</i>
Shortawn foxtail	<i>Alopecurus aequalis</i>	Spiked trisetum / Spike trisetum	<i>Trisetum spicatum</i>
Redtop	<i>Agrostis gigantea</i>	Timber oat grass / Downy oat grass	<i>Danthonia intermedia</i>
Spike bentgrass / Alaska bentgrass	<i>Agrostis exarata</i>	Arctic bluegrass	<i>Poa arctica</i>
Rough bentgrass	<i>Agrostis scabra</i>	Arctic bluegrass	<i>Poa arctica</i> ssp. <i>arctica</i>
Merten's bentgrass / Northern bentgrass	<i>Agrostis mertensii</i>	Arctic bluegrass	<i>Poa arctica</i> ssp. <i>lanata</i>
Family Poaceae - (Grasses) continued			
Eminent bluegrass / Large-flower bluegrass / Largeflower speargrass	<i>Poa eminens</i>	Alpine fescue	<i>Festuca brachyphylla</i>
Largeglume bluegrass	<i>Poa macrocalyx</i>	Red fescue	<i>Festuca rubra</i>
Kentucky bluegrass	<i>Poa pratensis</i>	Fescue	<i>Festuca</i> sp.
Glaucous bluegrass	<i>Poa glauca</i>	Fringed brome	<i>Bromus ciliatus</i>
Fowl bluegrass	<i>Poa palustris</i>	Smooth brome	<i>Bromus inermis</i>
Northern bluegrass	<i>Poa stenantha</i>	Pumpelly's brome / Smooth brome	<i>Bromus inermis</i> ssp. <i>pumpellianus</i>
Annual bluegrass	<i>Poa annua</i>	Alaska brome / Sitka brome	<i>Bromus sitchensis</i>
Alaska bluegrass	<i>Poa paucispicula</i>	Italian rye grass	<i>Lolium perenne</i>
Bluegrass	<i>Poa</i> spp.	Meadow barley	<i>Hordeum brachyantherum</i>

Appendix H: Flora Species

Common name	Scientific name	Common name	Scientific name
Weak alkali grass / Pale false manna grass	<i>Torreyochloa pallida</i>	Squirreltail grass / Foxtail barley	<i>Hordeum jubatum</i>
Creeping alkali grass	<i>Puccinellia phryganodes</i>	Barley	<i>Hordeum</i> sp.
Nootka alkali grass	<i>Puccinellia nutkaensis</i>	Beach rye grass / Lyme grass / Seabeach lyme grass / American dune grass	<i>Leymus mollis</i> ssp. <i>mollis</i>
Dwarf alkali grass	<i>Puccinellia pumila</i>	Quackgrass / Slender wheat grass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>
Hulten's alkali grass	<i>Puccinellia hultenii</i>	Alaskan wheat grass	<i>Elymus alaskanus</i> ssp. <i>latiglumis</i>
Anderson's alkali grass	<i>Puccinellia andersonii</i>	Siberian wild rye	<i>Elymus sibiricus</i>
Altai fescue	<i>Festuca altaica</i>	Wheat grass	<i>Elymus</i> sp.
Family Cyperaceae (Sedges)			
Narrow-leaved cotton grass / Tall cotton grass	<i>Eriophorum angustifolium</i>	Chamisso's cotton grass / Red cotton grass	<i>Eriophorum russeolum</i>
Tall cotton grass	<i>Eriophorum angustifolium</i> ssp. <i>subarcticum</i>	Red cotton grass	<i>Eriophorum russeolum</i> var. <i>albidum</i>
Tall cotton grass	<i>Eriophorum angustifolium</i> ssp. <i>triste</i>	Arctic cotton grass	<i>Eriophorum brachyantherum</i>
Slender cotton grass	<i>Eriophorum gracile</i>	Cotton grass	<i>Eriophorum</i> sp.
White cotton grass	<i>Eriophorum scheuchzeri</i>	Alpine cotton grass / Alpine bulrush	<i>Trichophorum alpinum</i>
Family Cyperaceae (Sedges) continued			
Tufted clubrush / Tufted bulrush	<i>Trichophorum caespitosum</i>	Gray sedge / Silvery sedge	<i>Carex canescens</i>
Creeping spike rush / Common spike rush	<i>Eleocharis palustris</i>	Soft-leaved sedge / Softleaf sedge	<i>Carex disperma</i>
Kamchatka spike rush	<i>Eleocharis kamtschatica</i>	Sparseflower sedge	<i>Carex tenuiflora</i>
Needle spike rush	<i>Eleocharis acicularis</i>	Rye grass sedge	<i>Carex loliacea</i>
Spikenard sedge / Spike sedge	<i>Carex nardina</i>	Smooth sedge / Smoothstem sedge	<i>Carex laeviculmis</i>
Yellow bog sedge / Northern bog sedge	<i>Carex gynocrates</i>	Bigelow's sedge	<i>Carex bigelowii</i>
Single-spike sedge / Northern singlespike sedge	<i>Carex scirpoidea</i>	Kellogg's sedge	<i>Carex lenticularis</i> var. <i>lipocarpa</i>
Bristle-stalked sedge / Bristly-stalked sedge	<i>Carex leptalea</i>	Water sedge	<i>Carex aquatilis</i>

Common name	Scientific name	Common name	Scientific name
Yellow-flowered sedge / Grassy slope arctic sedge	<i>Carex anthoxanthea</i>	Sitka sedge	<i>Carex aquatilis</i> var. <i>dives</i>
Coiled sedge	<i>Carex circinata</i>	Hoppner's sedge	<i>Carex subspathacea</i>
Pyrenean sedge	<i>Carex pyrenaica</i> ssp. <i>micropoda</i>	Ramenski's sedge / Ramensk's sedge	<i>Carex ramenskii</i>
Few-seeded bog sedge	<i>Carex microglochin</i>	Lyngby's sedge / Lyngbye's sedge	<i>Carex lyngbyaei</i>
Few-flowered sedge / Fewflower sedge	<i>Carex pauciflora</i>	Golden sedge	<i>Carex aurea</i>
Creeping sedge	<i>Carex chordorrhiza</i>	Long-styled sedge / Variegated sedge	<i>Carex stylosa</i>
Lesser paniced sedge	<i>Carex diandra</i>	Gmelin's sedge	<i>Carex gmelinii</i>
Large-headed sedge / Largehead sedge	<i>Carex macrocephala</i>	Mertens' sedge	<i>Carex mertensii</i>
Thick-headed sedge / Chamisso sedge	<i>Carex pachystachya</i>	Long-awned sedge /	<i>Carex macrochaeta</i>
Presl's sedge	<i>Carex preslii</i>	Shortstalk sedge	<i>Carex podocarpa</i>
Dunhead sedge	<i>Carex phaeocephala</i>	Showy sedge	<i>Carex spectabilis</i>
Liddon sedge	<i>Carex petasata</i>	Small-awned sedge	<i>Carex microchaeta</i>
Meadow sedge	<i>Carex praticola</i>	Bering Sea sedge	<i>Carex microchaeta</i> ssp. <i>nesophila</i>
Closedhead sedge	<i>Carex norvegica</i> ssp. <i>inferalpina</i>	Several-flowered sedge / Manyflower sedge	<i>Carex pluriflora</i>
Family Cyperaceae (Sedges) continued			
Shore sedge / Mud sedge	<i>Carex limosa</i>	Northwest Territory sedge	<i>Carex utriculata</i>
Poor sedge / Bog sedge / Boreal bog sedge	<i>Carex magellanica</i>	Rock sedge	<i>Carex saxatilis</i>
Pale sedge / Livid sedge	<i>Carex livida</i>	Round sedge	<i>Carex rotundata</i>
Beaked sedge / Swollen beaked sedge	<i>Carex rostrata</i>	Sedge	<i>Carex</i> spp.
Family Araceae (Arums)			
Yellow skunk cabbage	<i>Lysichiton americanum</i>		
Family Juncaceae (Rushes)			
Arctic rush	<i>Juncus arcticus</i>	Toad rush	<i>Juncus bufonius</i>
Drummond's rush	<i>Juncus drummondii</i>	Small-flowered woodrush	<i>Luzula parviflora</i>

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Common name	Scientific name	Common name	Scientific name
Mertens' rush	<i>Juncus mertensianus</i>	Many-flowered wood rush / Common wood rush	<i>Luzula multiflora</i> ssp. <i>multiflora</i>
Chestnut rush	<i>Juncus castaneus</i>	Many-flowered wood rush / Common wood rush	<i>Luzula multiflora</i>
Spreading rush / Hairyleaf rush	<i>Juncus supiniformis</i>	Spiked wood rush	<i>Luzula spicata</i>
Northern green rush	<i>Juncus alpinoarticulatus</i> ssp. <i>nodulosus</i>	Wood rush	<i>Luzula</i> sp.
Bog rush / Moor rush	<i>Juncus stygius</i>		
Family Liliaceae (Lilies)			
Northern asphodel	<i>Tofieldia coccinea</i>	Wild chives	<i>Allium schoenoprasum</i> var. <i>sibiricum</i>
Scotch false asphodel	<i>Tofieldia pusilla</i>	Chocolate lily / Kamchatka fritillary / Indian rice	<i>Fritillaria camschatcensis</i>
False asphodel / Sticky false asphodel / Sticky tofieldia	<i>Tofieldia glutinosa</i>	Common alp lily	<i>Lloydia serotina</i>
Green false Hellebore / Corn Lily	<i>Veratrum viride</i>	False lily-of-the-valley	<i>Maianthemum dilatatum</i>
Wild chives	<i>Allium schoenoprasum</i>	Watermelon berry / Clasping twisted stalk / Wild cucumber / Claspleaf twisted stalk	<i>Streptopus amplexifolius</i>
Family Iridaceae (Irises)			
Wild iris / Wild flag / Beachhead iris	<i>Iris setosa</i>	Blue-eyed grass	<i>Sisyrinchium</i> sp.
Alaska blue-eyed grass	<i>Sisyrinchium littorale</i>		
Family Orchidaceae (Orchids)			
Lady's slipper orchid / Spotted lady's slipper	<i>Cypripedium guttatum</i>	Blunt-leaved orchid	<i>Platanthera obtusata</i>
Keyflower	<i>Dactylorhiza aristata</i>	Fringed orchid / Bog orchid	<i>Platanthera</i> sp.
Frog orchis / Longbract frog orchid	<i>Coeloglossum viride</i>	Ladies' tresses / Hooded ladies' tresses	<i>Spiranthes romanzoffiana</i>
Bog orchis	<i>Platanthera convallariifolia</i>	Twayblade orchid / Heart- leafed twayblade / Heartleaf twayblade	<i>Listera cordata</i>
Green-flowered bog orchid / Northern rein orchid / Northern green orchid	<i>Platanthera hyperborea</i>	Lesser rattlesnake plantain	<i>Goodyera repens</i>
White bog orchid / White rein orchid / Bog candle / Scent bottle	<i>Platanthera dilatata</i>	Yellow coralroot	<i>Corallorrhiza trifida</i>

Common name	Scientific name	Common name	Scientific name
Family Salicaceae (Willows)			
Balsam poplar / Cottonwood	<i>Populus balsamifera</i>	Barclay's willow	<i>Salix barclayi</i>
Balsam poplar / Cottonwood	<i>Populus balsamifera</i> ssp. <i>balsamifera</i>	Undergreen willow	<i>Salix commutata</i>
Black Cottonwood	<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Feltleaf willow / Alaska willow	<i>Salix alaxensis</i>
Quaking aspen/American aspen	<i>Populus tremuloides</i>	Feltleaf willow / Alaska willow	<i>Salix alaxensis</i> var. <i>alaxensis</i>
Netleaf willow	<i>Salix reticulata</i>	Bebb willow	<i>Salix bebbiana</i>
Netleaf willow	<i>Salix reticulata</i> ssp. <i>reticulata</i>	Tealeaf willow	<i>Salix pulchra</i>
Least willow	<i>Salix rotundifolia</i>	Scouler's willow	<i>Salix scouleriana</i>
Arctic willow	<i>Salix arctica</i>	Sitka willow	<i>Salix sitchensis</i>
Alaska bog willow	<i>Salix fuscescens</i>	Littletree willow	<i>Salix arbusculoides</i>
Grayleaf willow	<i>Salix glauca</i>	Willow	<i>Salix</i> spp.
Low blueberry willow / Blueberry willow	<i>Salix myrtillofolia</i>		
Family Myricaceae (Wax Myrtles)			
Sweet gale	<i>Myrica gale</i>		
Family Betulaceae (Birches)			
Dwarf birch	<i>Betula nana</i>	Kenai birch	<i>Betula papyrifera</i> var. <i>kenaica</i>
Family Betulaceae (Birches) continued			
Paper birch	<i>Betula papyrifera</i>	Sitka alder	<i>Alnus viridus</i> ssp. <i>sinuata</i>
Birch	<i>Betula</i> spp.	Thin-leaf alder	<i>Alnus incana</i> ssp. <i>tenuifolia</i>
Mountain alder	<i>Alnus viridis</i> ssp. <i>crispa</i>	Alder	<i>Alnus</i> sp.
Family Urticaceae (Nettles)			
California nettle / Stinging nettle	<i>Urtica dioica</i> ssp. <i>gracilis</i>		
Family Santalaceae (Sandalwoods)			
Bastard toad flax / False toad flax	<i>Geocaulon lividum</i>		
Family Polygonaceae (Buckwheats)			
Common sheep sorrel	<i>Rumex acetosella</i>	Alpine mountain sorrel	<i>Oxyria digyna</i>

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Common name	Scientific name	Common name	Scientific name
Arctic dock	<i>Rumex arcticus</i>	Alpine bistort	<i>Polygonum viviparum</i>
Western dock	<i>Rumex aquaticus</i> var. <i>fenestratus</i>	Meadow bistort	<i>Polygonum bistorta</i>
Dock	<i>Rumex</i> spp.	Prostrate knotweed	<i>Polygonum aviculare</i>
Family Chenopodiaceae (Goosefoots)			
Blite goosefoot	<i>Chenopodium capatatum</i>	Alaska orach	<i>Atriplex alaskensis</i>
Pigweed / Lamb's quarter	<i>Chenopodium album</i>	Orach / Saltbush / Seascale / Shadscale / Sea purslane	<i>Atriplex</i> spp.
Salt orach / Spearscale / Seashore saltbush	<i>Atriplex drymarioides</i>	Glasswort / Chicken's claw / Slender grasswort	<i>Salicornia maritima</i>
Gmelin's saltbush	<i>Atriplex gmelinii</i>	Saltwort / Sea pickle / Pursh seepweed / Sea blite	<i>Suaeda calceoliformis</i>
Family Portulacaceae (Purslanes)			
Siberian spring beauty / Candy flower	<i>Claytonia sibirica</i>	Water blinks / Annual water miners lettuce	<i>Montia fontana</i>
Chamisso's spring beauty / Chamisso's montia / Water miners lettuce	<i>Montia chamissoi</i>		
Family Caryophyllaceae (Pinks)			
Common garden chickweed / Common chickweed	<i>Stellaria media</i>	Saltmarsh starwort	<i>Stellaria humifusa</i>
Crisp sandwort / Curled starwort	<i>Stellaria crispa</i>	Northern sandwort / Northern starwort	<i>Stellaria calycantha</i>
Family Caryophyllaceae (Pinks) continued			
Boreal starwort	<i>Stellaria borealis</i>	Twinflower sandwort	<i>Minuartia obtusiloba</i>
Sitka starwort	<i>Stellaria borealis</i> ssp. <i>sitchana</i>	Boreal sandwort / Reddish sandwort / Beautiful sandwort	<i>Minuartia rubella</i>
Boreal startwort	<i>Stellaria borealis</i> ssp. <i>borealis</i>	Stitchwort	<i>Minuartia</i> spp.
Long-stalked starwort / Longstalk starwort	<i>Stellaria longipes</i>	Beach greens / Seabeach sandwort / Sea purslane / Seaside sand plant	<i>Honckenia peploides</i>
Chickweed / Starwort	<i>Stellaria</i> sp.	Slender mountain sandwort	<i>Arenaria capillaris</i>
Fischer's chickweed	<i>Cerastium fischerianum</i>	Grove sandwort / Blunt-leaved sandwort / Bluntleaf sandwort	<i>Moehringia lateriflora</i>
Field chickweed	<i>Cerastium arvense</i>	Merckia	<i>Wilhelmsia physodes</i>

Common name	Scientific name	Common name	Scientific name
Mouse-ear chickweed	<i>Cerastium</i> spp.	Canadian sandspurry	<i>Spergularia canadensis</i>
Arctic pearlwort	<i>Sagina saginoides</i>	Moss campion / Cushion pink	<i>Silene acaulis</i>
Stickystem pearlwort	<i>Sagina maxima</i> ssp. <i>crassicaulis</i>	Apetalous catchfly	<i>Silene uralensis</i> ssp. <i>uralensis</i>
Pearlwort	<i>Sagina</i> sp.	Arctic catchfly	<i>Silene involucrata</i> ssp. <i>involucrata</i>
Sandwort / Longpod stitchwort	<i>Minuartia macrocarpa</i>	Bladder campion	<i>Silene</i> sp.
Arctic stitchwort	<i>Minuartia arctica</i>	Wild carnation / Boreal carnation	<i>Dianthus repens</i>
Family Nymphaeaceae (Water Lilies)			
Yellow pond lily / Yellow water lily / Spatterdock / Rocky Mountain pond lily	<i>Nuphar lutea</i> ssp. <i>polysepala</i>		
Family Ceratophyllaceae (Hornworts)			
Hornwort / Coon's tail	<i>Ceratophyllum demersum</i>		
Family Ranunculaceae (Crowfoots / Buttercups)			
Alpine white marsh marigold / White marsh marigold	<i>Caltha leptosepala</i>	Yellow marsh marigold	<i>Caltha palustris</i> var. <i>radicans</i>
Yellow marsh marigold	<i>Caltha palustris</i>	Fern-leaved goldthread / Fernleaf goldthread	<i>Coptis asplenifolia</i>
Yellow marsh marigold	<i>Caltha palustris</i> var. <i>palustris</i>	Three-leaved goldthread / Threeleaf goldthread	<i>Coptis trifolia</i>
Family Ranunculaceae (Crowfoots / Buttercups) continued			
Red baneberry / Snakeberry	<i>Actaea rubra</i>	Lapland buttercup	<i>Ranunculus lapponicus</i>
Red baneberry / Snakeberry	<i>Actaea rubra</i> ssp. <i>arguta</i>	Shore buttercup / Alkali buttercup / Marsh buttercup	<i>Ranunculus cymbalaria</i>
Western columbine	<i>Aquilegia formosa</i>	Mountain buttercup / Subalpine buttercup / Snowpatch buttercup / Eschscholtz's buttercup	<i>Ranunculus eschscholtzii</i>
Tall larkspur / Glaucous larkspur / Sierra larkspur	<i>Delphinium glaucum</i>	Snow buttercup	<i>Ranunculus nivalis</i>
Mountain monkshood / Larkspurleaf monkshood	<i>Aconitum delphiniifolium</i>	Littleleaf buttercup	<i>Ranunculus abortivus</i>
Larkspurleaf monkshood	<i>Aconitum delphiniifolium</i> ssp. <i>delphiniifolium</i>	Little buttercup / Small-flowered buttercup / Idaho buttercup	<i>Ranunculus uncinatus</i> var. <i>parviflorus</i>

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Common name	Scientific name	Common name	Scientific name
Yellow anemone / Richardson's anemone / Yellow thimbleweed	<i>Anemone richardsonii</i>	Western buttercup	<i>Ranunculus occidentalis</i>
Northern anemone / Small-flowered anemone	<i>Anemone parviflora</i>	Buttercup	<i>Ranunculus</i> spp.
Narcissus anemone / Narcissus-flowered anemone	<i>Anemone narcissiflora</i>	Alpine meadow rue	<i>Thalictrum alpinum</i>
Narcissus anemone	<i>Anemone narcissiflora</i> var. <i>monantha</i>	Few-flowered meadow rue / Fewflower meadow rue	<i>Thalictrum sparsiflorum</i>
Cut-leaf anemone / Pacific anemone	<i>Anemone multifida</i>	Hulten's meadow rue	<i>Thalictrum hultenii</i>
Drummond's anemone	<i>Anemone drummondii</i>	Meadow rue	<i>Thalictrum</i> sp.
High northern buttercup	<i>Ranunculus hyperboreus</i>		
Family Papaveraceae (Poppies)			
White poppy / Pale poppy	<i>Papaver alboroseum</i>		
Family Fumariaceae (Earth Smokes)			
Blue corydalis / Fewflower fumewort	<i>Corydalis pauciflora</i>		
Family Brassicaceae - was Cruciferae (Mustards)			
Arctic pennycress	<i>Thlaspi arcticum</i>	Bird's rape / Field mustard	<i>Brassica rapa</i>
Danish scurvy grass	<i>Cochlearia groenlandica</i>	Winter cress / American yellow rocket	<i>Barbarea orthoceras</i>
American sea rocket	<i>Cakile edentula</i>	Yellow cress	<i>Rorippa</i> sp.
Family Brassicaceae - was Cruciferae (Mustards) continued			
Hispid yellow cress	<i>Rorippa palustris</i> ssp. <i>hispida</i>	Alaska draba	<i>Draba stenoloba</i>
Hoary yellow cress	<i>Rorippa barbareaifolia</i>	White draba / Boreal draba	<i>Draba borealis</i>
Alpine bitter cress	<i>Cardamine bellidifolia</i>	Golden draba	<i>Draba aurea</i>
Pennsylvania bitter cress	<i>Cardamine pennsylvanica</i>	Woodland draba	<i>Draba nemorosa</i>
Cuckoo flower	<i>Cardamine pratensis</i>	Arctic draba / North Pacific draba	<i>Draba hyperborea</i>
Cuckoo flower	<i>Cardamine pratensis</i> var. <i>angustifolia</i>	Draba	<i>Draba</i> spp.
Kamchatka rock cress / Few-seeded bitter cress / Little western bitter cress / Wild water cress / Umbel bitter cress	<i>Cardamine oligosperma</i>	Kamchatka rockcress	<i>Arabis kamchatica</i>

Common name	Scientific name	Common name	Scientific name
Shepherd's purse	<i>Capsella bursa-pastoris</i>	Hairy arabis / Eschscholtz's rockcress	<i>Arabis eschscholtziana</i>
Yellow arctic draba	<i>Draba nivalis</i>	Creamflower rockcress	<i>Arabis hirsuta</i> var. <i>pyncocarpa</i>
Lance-fruited draba / Lancepod draba	<i>Draba lonchocarpa</i>	Spreadingpod rockcress	<i>Arabis divaricarpa</i>
Rainier draba	<i>Draba ruaxes</i>	Holboell's rockcress	<i>Arabis holboellii</i>
Palander's draba	<i>Draba palanderiana</i>	Wormseed mustard / Wormseed wallflower	<i>Erysimum cheiranthoides</i>
Yellowstone draba	<i>Draba incerta</i>	Shy wallflower	<i>Erysimum inconspicuum</i>
Alpine draba	<i>Draba alpina</i>	Yellow Rocket / Wallflower	<i>Erysimum</i> sp.
Milky draba	<i>Draba lactea</i>		
Family Droseraceae (Sundews)			
Great sundew / English sundew	<i>Drosera anglica</i>	Round-leaved sundew / Roundleaf sundew	<i>Drosera rotundifolia</i>
Family Crassulaceae (Stonecrops)			
Roseroot / Ledge stonecrop	<i>Rhodiola integrifolia</i> ssp. <i>integrifolia</i>		
Family Saxifragaceae (Saxifrages)			
Leather-leaved saxifrage Fireleaf leptarrhena	<i>Leptarrhena pyrolifolia</i>	Cushion saxifrage / Ciliate saxifrage	<i>Saxifraga eschscholtzii</i>
Purple mountain saxifrage	<i>Saxifraga oppositifolia</i>	Thymeleaf saxifrage	<i>Saxifraga serpyllifolia</i>
Family Saxifragaceae (Saxifrages) continued			
Bog saxifrage / Yellow marsh saxifrage	<i>Saxifraga hirculus</i>	Tufted alpine saxifrage	<i>Saxifraga caespitosa</i>
Spotted saxifrage / Yellowdot saxifrage	<i>Saxifraga bronchialis</i>	Foam flower / Lace flower / Threeleaf foamflower	<i>Tiarella trifoliata</i>
Funston's saxifrage	<i>Saxifraga bronchialis</i> ssp. <i>funstonii</i>	Smooth alum root / Alpine heuchera	<i>Heuchera glabra</i>
Prickly saxifrage / Three-toothed saxifrage	<i>Saxifraga tricuspidata</i>	Fringe cups / Bigflower tellima	<i>Tellima grandiflora</i>
Heart-leaved saxifrage / Cordate-leaved saxifrage / Heartleaf saxifrage	<i>Saxifraga nelsoniana</i> ssp. <i>nelsoniana</i>	Five-stamened mitrewort /	<i>Mitella pentandra</i>
Cordate-leaved saxifrage / Pacific saxifrage	<i>Saxifraga nelsoniana</i> ssp. <i>pacifica</i>	Northern water carpet / Northern golden saxifrage	<i>Chrysosplenium tetradrum</i>
Brook saxifrage / Weak saxifrage	<i>Saxifraga rivularis</i>	Water carpet	<i>Chrysosplenium</i> sp.

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Common name	Scientific name	Common name	Scientific name
Red-stemmed saxifrage / Redstem saxifrage	<i>Saxifraga lyallii</i>	Grass-of-Parnassus	<i>Parnassia palustris</i>
Snow saxifrage / Alpine saxifrage	<i>Saxifraga nivalis</i>	Northern grass-of-Parnassus / Bog star / Marsh grass-of-Parnassus	<i>Parnassia palustris</i> var. <i>tenuis</i>
Coast saxifrage / Coastal saxifrage / Russethair saxifrage	<i>Saxifraga ferruginea</i>	Kotzebue's grass-of-Parnassus	<i>Parnassia kotzebuei</i>
Grained saxifrage / Leafsystem saxifrage	<i>Saxifraga foliolosa</i>		
Family Grossulariaceae (Currants)			
Stink currant	<i>Ribes bracteosum</i>	Trailing black currant / Trailing currant	<i>Ribes laxiflorum</i>
Northern black currant	<i>Ribes hudsonianum</i>	Northern red currant / Red currant	<i>Ribes triste</i>
Skunk currant	<i>Ribes glandulosum</i>	Currant	<i>Ribes</i> spp.
Family Rosaceae (Roses)			
Alaska spiraea / Beauverd's spiraea	<i>Spiraea stevenii</i>	Greene's mountain ash	<i>Sorbus scopulina</i>
Partridgefoot	<i>Luetkea pectinata</i>	Native mountain ash / Western mountain ash	<i>Sorbus sitchensis</i>
Goatsbeard / Bride's feathers	<i>Aruncus dioicus</i> var. <i>vulgaris</i>	Serviceberry / Saskatoon serviceberry	<i>Amelanchier alnifolia</i>
Oregon crab apple	<i>Malus fusca</i>	Pacific serviceberry	<i>Amelanchier florida</i>
Family Rosaceae (Roses) continued			
Serviceberry	<i>Amelanchier</i> sp.	Diverse-leaved cinquefoil / Varileaf cinquefoil	<i>Potentilla diversifolia</i>
Trailing Raspberry / Strawberryleaf raspberry	<i>Rubus pedatus</i>	Cinquefoil	<i>Potentilla</i> sp.
Cloudberry	<i>Rubus chamaemorus</i>	Silverweed cinquefoil	<i>Argentina anserina</i>
Nagoonberry / Arctic blackberry / Dewberry	<i>Rubus arcticus</i>	Pacific silverweed	<i>Argentina egedii</i> ssp. <i>egedii</i>
Arctic blackberry	<i>Rubus arcticus</i> ssp. <i>arcticus</i>	Creeping sibbaldia	<i>Sibbaldia procumbens</i>
Dwarf raspberry	<i>Rubus arcticus</i> ssp. <i>acaulis</i>	Yellow geum / Large-leaved avens / Largeleaf avens	<i>Geum macrophyllum</i>
Common raspberry / American red raspberry	<i>Rubus idaeus</i>	Caltha-leaved avens / Calthaleaf avens	<i>Geum calthifolium</i>
Salmonberry	<i>Rubus spectabilis</i>	Ross' geum / Ross' avens	<i>Geum rossii</i>

Common name	Scientific name	Common name	Scientific name
Coastal strawberry / Pacific beach strawberry	<i>Fragaria chiloensis</i> ssp. <i>pacifica</i>	Yellow dryas / Yellow mountain avens / Drummond's mountain avens	<i>Dryas drummondii</i>
Strawberry	<i>Fragaria</i> sp.	White dryas / Eightpetal mountain avens	<i>Dryas octopetala</i>
Marsh five-finger / Purple marsh locks	<i>Comarum palustre</i>	Entire-leaved mountain avens / Entireleaf mountain avens	<i>Dryas integrifolia</i>
Tundra rose / Shrubby cinquefoil	<i>Dasiphora floribunda</i>	Entireleaf mountain avens	<i>Dryas integrifolia</i> ssp. <i>integrifolia</i>
Villous cinquefoil	<i>Potentilla villosa</i>	Menzies' burnet	<i>Sanguisorba menziesii</i>
One-flowered cinquefoil	<i>Potentilla uniflora</i>	Sitka burnet / Sitka great burnet / Canadian burnet	<i>Sanguisorba canadensis</i>
Arctic cinquefoil	<i>Potentilla nana</i>	Burnet	<i>Sanguisorba</i> sp.
Norwegian cinquefoil	<i>Potentilla norvegica</i>	Prickly rose / Wild rose	<i>Rosa acicularis</i>
Hooker's cinquefoil	<i>Potentilla hookeriana</i> ssp. <i>hookeriana</i>	Nootka rose	<i>Rosa nutkana</i>
Staghorn cinquefoil	<i>Potentilla bimundorum</i>		
Family Leguminosae / Fabaceae (Peas)			
Arctic lupine	<i>Lupinus arcticus</i>	White clover	<i>Trifolium repens</i>
Nootka lupine	<i>Lupinus nootkatensis</i>	Red clover	<i>Trifolium pratense</i>
Alsike clover	<i>Trifolium hybridum</i>	Clover	<i>Trifolium</i> spp.
Family Leguminosae / Fabaceae (Peas) continued			
Alpine milk vetch	<i>Astragalus alpinus</i>	Alpine sweet vetch	<i>Hedysarum alpinum</i>
Blackish oxytrope / Purple oxytrope	<i>Oxytropis nigrescens</i>	Beach peavine / Beach pea	<i>Lathyrus japonicus</i>
Field locoweed	<i>Oxytropis campestris</i>	Vetchling / Marsh pea	<i>Lathyrus palustris</i>
Field locoweed	<i>Oxytropis campestris</i> var. <i>varians</i>		
Family Geraniaceae (Geraniums)			
Wild geranium / Woolly geranium / Sticky geranium	<i>Geranium erianthum</i>		
Family Balsaminaceae (Touch-Me-Nots)			
Western touch-me-not / Common touch-me-not / Jewelweed	<i>Impatiens noli-tangere</i>		

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Common name	Scientific name	Common name	Scientific name
Family Violaceae (Violets)			
Pioneer violet / Stream violet / Yellow wood violet	<i>Viola glabella</i>	Selkirk's violet	<i>Viola selkirkii</i>
Aleutian violet / Alaska violet	<i>Viola langsdorfii</i>	Dwarf marsh violet	<i>Viola epipsila</i> ssp. <i>repens</i>
Hookedspur violet / Western dog violet / Early blue violet	<i>Viola adunca</i>	Violet	<i>Viola</i> sp.
Family Elaeagnaceae (Oleasters)			
Soapberry / Russet buffalo berry	<i>Shepherdia canadensis</i>		
Family Onagraceae (Evening Primroses / Fireweeds)			
Tall fireweed	<i>Chamerion angustifolium</i> ssp. <i>angustifolium</i>	Hornemann's willow herb	<i>Epilobium hornemannii</i> ssp. <i>behringianum</i>
Dwarf fireweed / River beauty	<i>Chamerion latifolium</i>	Small-leaved fireweed / Fringed willow herb	<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>
Marsh willow herb	<i>Epilobium palustre</i>	Fringed willow herb / Glandular willow herb	<i>Epilobium ciliatum</i> ssp. <i>glandulosum</i>
Pimpernel willow herb	<i>Epilobium anagallidifolium</i>	Willow herb	<i>Epilobium</i> sp.
Willow herb	<i>Epilobium behringianum</i>	Small enchanter's nightshade	<i>Circaea alpina</i>
Family Hippuridaceae - was Haloragaceae (Water Milfoils)			
Common mare's tail	<i>Hippuris vulgaris</i>	Four-leaved mare's tail / Fourleaf mare's tail	<i>Hippuris tetraphylla</i>
Family Araliaceae (Ginsengs)			
Devil's club	<i>Oplopanax horridus</i>		
Family Apiaceae - was Umbelliferae (Parsleys)			
Purple sweet cicely / Purple sweet root	<i>Osmorhiza purpurea</i>	Beach lovage / Scotch lovage / Sea lovage / Scotch licorice root / Scottish licorice root	<i>Ligusticum scoticum</i>
Blunt-fruited sweet cicely / Bluntseed sweet root	<i>Osmorhiza depauperata</i>	Hulten's licorice root	<i>Ligusticum scoticum</i> ssp. <i>hultenii</i>
Thoroughwax / American thow wax	<i>Bupleurum americanum</i>	Pacific hemlock parsley	<i>Conioselinum gmelinii</i>
Western water hemlock / Douglas' water hemlock	<i>Cicuta douglasii</i>	Angelica / Seawatch angelica / Seacoast angelica	<i>Angelica lucida</i>
Mackenzie's water hemlock	<i>Cicuta virosa</i>	Kneeling angelica	<i>Angelica genuflexa</i>
Jakutsk snow parsley	<i>Cnidium cnidiifolium</i>	Common cow parsnip / Pushki or Pootschki	<i>Heracleum maximum</i>

Common name	Scientific name	Common name	Scientific name
Family Cornaceae (Dogwoods)			
Swedish dwarf cornel / Lapland cornel	<i>Cornus suecica</i>	Hybrid dwarf dogwood	<i>Cornus canadensis</i> x <i>suecica</i>
Bunchberry / Dwarf dogwood / Canadian dwarf cornel / Bunchberry dogwood	<i>Cornus canadensis</i>		
Family Pyrolaceae (Wintergreens)			
Pipsissewa	<i>Chimaphila umbellata</i> ssp. <i>occidentalis</i>	Round-leaved pyrola / Green-flowered wintergreen	<i>Pyrola chlorantha</i>
Pink wintergreen / Pink pyrola / Liverleaf wintergreen / Woodland wintergreen	<i>Pyrola asarifolia</i>	Pyrola / Wintergreen	<i>Pyrola</i> sp.
Large-flowered wintergreen / Arctic wintergreen	<i>Pyrola grandiflora</i>	One-sided wintergreen / Sidebells wintergreen	<i>Orthilia secunda</i>
Small pyrola / Snowline wintergreen	<i>Pyrola minor</i>	Shy maiden / Single delight	<i>Moneses uniflora</i>
Family Empetraceae (Crowberries)			
Black crowberry / Moss berry	<i>Empetrum nigrum</i>		
Family Ericaceae (Heaths)			
Copper flower / Copperbush	<i>Cladothamnus pyrolaeiflorus</i>	Northern Labrador tea / Marsh Labrador tea	<i>Ledum palustre</i> ssp. <i>decumbens</i>
Family Ericaceae (Heaths) continued			
Bog Labrador tea	<i>Ledum groenlandicum</i>	Cassandra / Leatherleaf	<i>Chamaedaphne calyculata</i>
Kamchatka rhododendron	<i>Rhododendron camtschaticum</i>	Kinnikinnick / Chipmunk's apples / mealberry	<i>Arctostaphylos uva-ursi</i>
Kamchatka rhododendron	<i>Rhododendron camtschaticum</i> ssp. <i>camtschaticum</i>	Alpine bearberry / Black bear's grapes / Alpine bear grapes	<i>Arctostaphylos alpina</i>
False azalea / Rusty menziesia	<i>Menziesia ferruginea</i>	Red fruit bearberry / Red bear's grape	<i>Arctostaphylos rubra</i>
Alpine azalea	<i>Loiseleuria procumbens</i>	Lingonberry / Lowbush cranberry	<i>Vaccinium vitis-idaea</i>
Yellow mountain heather / Aleutian mountain heath	<i>Phyllodoce glanduliflora</i>	Dwarf blueberry / Dwarf bilberry	<i>Vaccinium cespitosum</i>
White arctic mountain heather	<i>Cassiope tetragona</i>	Oval-leaved blueberry / Oval-leaf blueberry / Early blueberry	<i>Vaccinium ovalifolium</i>

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Common name	Scientific name	Common name	Scientific name
Alaska moss heather / Alaska mountain heather / Alaska bell heather	<i>Cassiope harrimanella</i>	Bog blueberry	<i>Vaccinium uliginosum</i>
Clubmoss mountain heather	<i>Cassiope lycopodioides</i>	Bog cranberry / True cranberry / Small cranberry	<i>Vaccinium oxycoccus</i>
Bog rosemary	<i>Andromeda polifolia</i>		
Family Diapensiaceae (Diapensias)			
Lapland diapensia / Pincushion plant	<i>Diapensia lapponica</i>		
Family Primulaceae (Primroses)			
Pixie eyes / Wedgeleaf primrose	<i>Primula cuneifolia</i>	Few-flowered shooting star / Pretty shooting star / Darkthroat shooting star	<i>Dodecatheon pulchellum</i>
Wedgeleaf primrose	<i>Primula cuneifolia</i> ssp. <i>saxifragifolia</i>	Shooting star	<i>Dodecatheon</i> sp.
Pygmy flower rock jasmine	<i>Androsace septentrionalis</i>	Arctic starflower	<i>Trientalis europaea</i>
Alaska androsace / Alaska douglasia	<i>Douglasia alaskana</i>	Arctic starflower	<i>Trientalis europaea</i> ssp. <i>arctica</i>
Rock jasmine	<i>Androsace</i> spp.	Sea milkwort	<i>Glaux maritima</i>
Family Plumbaginaceae (Leadworts)			
Thrift / Thrift sea pink	<i>Armeria maritima</i>		
Family Gentianaceae (Gentians)			
Whitish gentian	<i>Gentian algida</i>	Autumn dwarf gentian / Northern gentian	<i>Gentiana amarella</i> ssp. <i>acuta</i>
Broad-petaled gentian	<i>Gentiana platypetala</i>	Fourpart dwarf gentian	<i>Gentiana propinqua</i> ssp. <i>propinqua</i>
Inky gentian / Glaucous gentian / Pale gentian	<i>Gentiana glauca</i>	Star gentian / Marsh felwort	<i>Lomatogonium rotatum</i>
Swamp gentian	<i>Gentiana douglasiana</i>	Alpine bog swertia / Felwort	<i>Swertia perennis</i>
Family Menyanthaceae (Buckbeans)			
Buckbean / Bogbean	<i>Menyanthes trifoliata</i>		
Family Polemoniaceae (Polemoniums)			
Tall jacob's ladder	<i>Polemonium acutiflorum</i>	Short jacob's ladder / Beautiful jacob's ladder	<i>Polemonium pulcherrimum</i>
Northern jacob's ladder	<i>Polemonium boreale</i>		

Common name	Scientific name	Common name	Scientific name
Family Hydrophyllaceae (Waterleafs)			
Sitka mistmaiden / Sitka romanzoffia	<i>Romanzoffia sitchensis</i>		
Family Boraginaceae (Borages)			
Alpine forget-me-not / Asian forget-me-not	<i>Myosotis asiatica</i>	Tall bluebells / Lungwort	<i>Mertensia paniculata</i>
Oysterleaf / Sea Lungwort	<i>Mertensia maritima</i>		
Family Lamiaceae - was Labiatae (Mints)			
Common self-heal / Heal-all	<i>Prunella vulgaris</i>	Splitlip hemp nettle	<i>Galeopsis bifida</i>
Family Scrophulariaceae (Figworts)			
Yellow monkeyflower / Seep monkeyflower	<i>Mimulus guttatus</i>	Yellow rattle / Arctic rattlebo	<i>Rhinanthus minor</i> ssp. <i>groenlandicus</i>
American speedwell	<i>Veronica americana</i>	Verticulate lousewort / Whorled lousewort	<i>Pedicularis verticillata</i>
American alpine speedwell	<i>Veronica wormskjoldii</i>	Common yellow lousewort / Labrador lousewort	<i>Pedicularis labradorica</i>
Yellow paintbrush / Unalaska paintbrush / Alaska Indian paintbrush	<i>Castilleja unalaschcensis</i>	Big-toothed lousewort / Muskeg lousewort	<i>Pedicularis macrodonta</i>
Subalpine eyebright	<i>Euphrasia mollis</i>	Langsdorf's lousewort	<i>Pedicularis langsdorfii</i>
Eyebright	<i>Euphrasia disjuncta</i>	Sudetic lousewort	<i>Pedicularis sudetica</i> ssp. <i>interior</i>
Family Scrophulariaceae (Figworts) continued			
Capitate lousewort	<i>Pedicularis capitata</i>	Woolly lousewort / Kenai lousewort	<i>Pedicularis kanei</i>
Oeder's lousewort	<i>Pedicularis oederi</i>	Lousewort	<i>Pedicularis</i> sp.
Family Orobanchaceae (Broomrapes)			
Northern groundcone / Broomrape	<i>Boschniakia rossica</i>		
Family Lentibulariaceae (Bladderworts)			
Common butterwort	<i>Pinguicula vulgaris</i>	Flat-leaved bladderwort / Flatleaf bladderwort	<i>Utricularia intermedia</i>
Hairy butterwort	<i>Pinguicula villosa</i>	Bladderwort	<i>Utricularia</i> sp.
Family Plantaginaceae (Plantains)			
Goosetongue / Seaside plantain	<i>Plantago maritima</i>	Common plantain / Broad-leaved plantain	<i>Plantago major</i>

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Common name	Scientific name	Common name	Scientific name
Goosetongue	<i>Plantago maritima</i> var. <i>juncooides</i>	Plantain	<i>Plantago</i> sp.
Ribgrass / Narrowleaf plantain	<i>Plantago lanceolata</i>		
Family Rubiaceae (Madders)			
Northern bedstraw	<i>Galium boreale</i>	Threepetal bedstraw	<i>Galium trifidum</i> ssp. <i>trifidum</i>
Sweet-scented bedstraw / Fragrant bedstraw	<i>Galium triflorum</i>	Bedstraw	<i>Galium</i> spp.
Small bestraw / Threepetal bedstraw	<i>Galium trifidum</i>		
Family Caprifoliaceae (Honeysuckles)			
Red-berried elder / Red elderberry / Red elder	<i>Sambucus racemosa</i>	Twinflower	<i>Linnaea borealis</i>
Highbush cranberry / Squashberry	<i>Viburnum edule</i>		
Family Adoxaceae (Moschatels)			
Musk root / Moschatel	<i>Adoxa moschatellina</i>		
Family Valerianaceae (Valerians)			
Capitate valerian / Captiate valerian	<i>Valeriana capitata</i>	Sitka valerian	<i>Valeriana sitchensis</i>
Family Campanulaceae (Bluebells)			
Mountain harebell / Common harebell	<i>Campanula lasiocarpa</i>	Common harebell / Bluebells of Scotland / Blue bell / Bell flower / Bluebell bellflower	<i>Campanula rotundifolia</i>
Family Asteraceae - was Compositae (Composites)			
Northern goldenrod / Rocky Mountain goldenrod	<i>Solidago multiradiata</i>	Yarrow	<i>Achillea</i> sp.
Rocky Mountain goldenrod	<i>Solidago multiradiata</i> var. <i>multiradiata</i>	Pineapple weed / Disc mayweed	<i>Matricaria discoidea</i>
Canada goldenrod	<i>Solidago canadensis</i>	Arctic daisy	<i>Dendranthema arcticum</i> ssp. <i>arcticum</i>
Arctic aster / Siberian aster	<i>Eurybia sibirica</i>	Common wormwood / Telesii's wormwood / Tilesius' wormwood	<i>Artemisia tilesii</i>
Douglas aster	<i>Symphyotrichum subspicatum</i> var. <i>subspicatum</i>	Arctic wormwood / Mountain sagwort / Boreal sagebrush	<i>Artemisia arctica</i>
Arctic alpine fleabane / Arctic daisy	<i>Erigeron humilus</i>	Boreal sagebrush	<i>Artemisia arctica</i> ssp. <i>arctica</i>

Common name	Scientific name	Common name	Scientific name
Tundra fleabane	<i>Erigeron hyperboreus</i>	Arctic sweet coltsfoot	<i>Petasites frigidus</i>
Bitter fleabane	<i>Erigeron acris</i>	Arctic sweet coltsfoot	<i>Petasites frigidus</i> var. <i>nivalis</i>
Coastal fleabane / Subalpine daisy / Subalpine fleabane	<i>Erigeron peregrinus</i>	Alpine nodding arnica / Nodding arnica / Lessing arnica	<i>Arnica lessingii</i>
Subalpine fleabane	<i>Erigeron peregrinus</i> ssp. <i>peregrinus</i>	Snow arnica	<i>Arnica frigida</i>
Single-headed pussytoes / Pygmy pussytoes	<i>Antennaria monocephala</i>	Mountain arnica / Broadleaf arnica	<i>Arnica latifolia</i>
Alpine pussytoes	<i>Antennaria alpina</i>	Meadow arnica / Chamisso arnica	<i>Arnica chamissonis</i>
Fries' pussytoes / Alpine pussytoes	<i>Antennaria friesiana</i> ssp. <i>alaskana</i>	Chamisso arnica	<i>Arnica chamissonis</i> ssp. <i>chamissonis</i>
Rosy pussytoes	<i>Antennaria rosea</i>	Alpine arnica	<i>Arnica</i> sp.
Pulvinate pussytoes	<i>Antennaria rosea</i> ssp. <i>pulvinata</i>	Rayless alpine butterweed	<i>Senecio pauciflorus</i>
Pussytoes	<i>Antennaria</i> spp.	Common groundsel / Old-man-in-the-Spring	<i>Senecio vulgaris</i>
Common yarrow / Northern yarrow / Boreal yarrow	<i>Achillea millefolium</i> var. <i>borealis</i>	Seabeach groundsel / Beach sunflower / Beach daisy / Seaside ragwort	<i>Senecio psuedoarnica</i>
Family Asteraceae - was Compositae (Composites) continued			
Arrow-leaved groundsel / Arrow leaf ragwort	<i>Senecio triangularis</i>	Dwarf hawksbeard / Dwarf alpine hawksbeard	<i>Crepis nana</i>
Black-tipped groundsel / Small blacktip ragwort	<i>Senecio lugens</i>	Western rattlesnake root	<i>Prenanthes alata</i>
Common dandelion	<i>Taraxacum officinale</i>	Rattlesnake root	<i>Prenanthes</i> sp.
Common dandelion / Horned dandelion	<i>Taraxacum officinale</i> ssp. <i>ceratophorum</i>	Wooly hawkweed	<i>Hieracium triste</i>
Harp dandelion / Kamchatka dandelion	<i>Taraxacum lyratum</i>	Slender hawkweed	<i>Hieracium gracile</i>
Dandelion	<i>Taraxacum</i> sp.	Orange hawkweed	<i>Hieracium aurantiacum</i>
Short-beaked agoseris / Pale agoseris	<i>Agoseris glauca</i>		

