Chapter 3 - Natural and Cultural Resources

Introduction

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

Four general geologic units exist in the area. The oldest rocks, along the southern shore of Kachemak Bay, are composed of the 1) plutonic core and 2) extrusive portions of an intraoceanic island arc of Jurassic age separated from the somewhat younger McHugh Complex and Valdez Group that form the Chugach Mountains, composed of 3) highly deformed trench-fill, trench-slope, and ocean-basin deposits largely of Cretaceous age. These are discontinuously covered by 4) glacial, colluvial, alluvial and beach deposits derived from the underlying material (See Map 3 - General Geology on page 19 of this chapter).

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. These glaciers occupy a landscape framework formed during shortening and accretion of terranes onto the North American plate.

The Kachemak area is seismically active and earthquakes are common. The most notable seismic event in recent history was the 1964 Good Friday earthquake – the second strongest earthquake ever recorded in the world. The earthquake, centered between Anchorage and Valdez, measured 9.2 on the Richter Scale. Regional uplift and subsidence occurred throughout Cook Inlet, the Kenai Peninsula and the Copper River Delta. In the Kachemak Bay area the most pronounced effects included land subsidence, landslides, earth fissures, submarine landslides, compaction and erosion. Measurements taken along the south side of Kachemak Bay indicate that the total subsidence ranged from three feet near Halibut Cove, to nearly six feet in Seldovia. The effects of this subsidence extended over a two-year period,

causing the gradual loss of uplands due to saltwater inundation and wave erosion. Land subsidence killed trees along the Wosnesenski River, the bars of China Poot Bay and various glacial outwash plains. Due to seismic uplift and subsidence, many landforms of the Kachemak Bay area and Gulf of Alaska coast areas are extremely young. One example is the mouth of the Wosnesenski River. Now draining into Neptune Bay, the river previously entered China Poot Bay to the north before avulsing to its new bed.

Mountains

The landscape of KBSP and KBSWP was driven by the mountains formed by the Chugach terrane. The snow on the mountains collected in cirques to form glaciers; and the glaciers carved the valleys that lead into the mountains, as well as Kachemak Bay itself. The mountains were formed during the subduction of the Pacific tectonic plate under the North American tectonic plate.

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. One major landslide fell into Grewingk Lake in 1967 and other landslide scars exist up-canyon of the glacier. Several avalanche scars also exist on the peaks forming the south edge of the Wosnesenski River valley. Sadie Cove shows extensive avalanche scarring along most of its length.

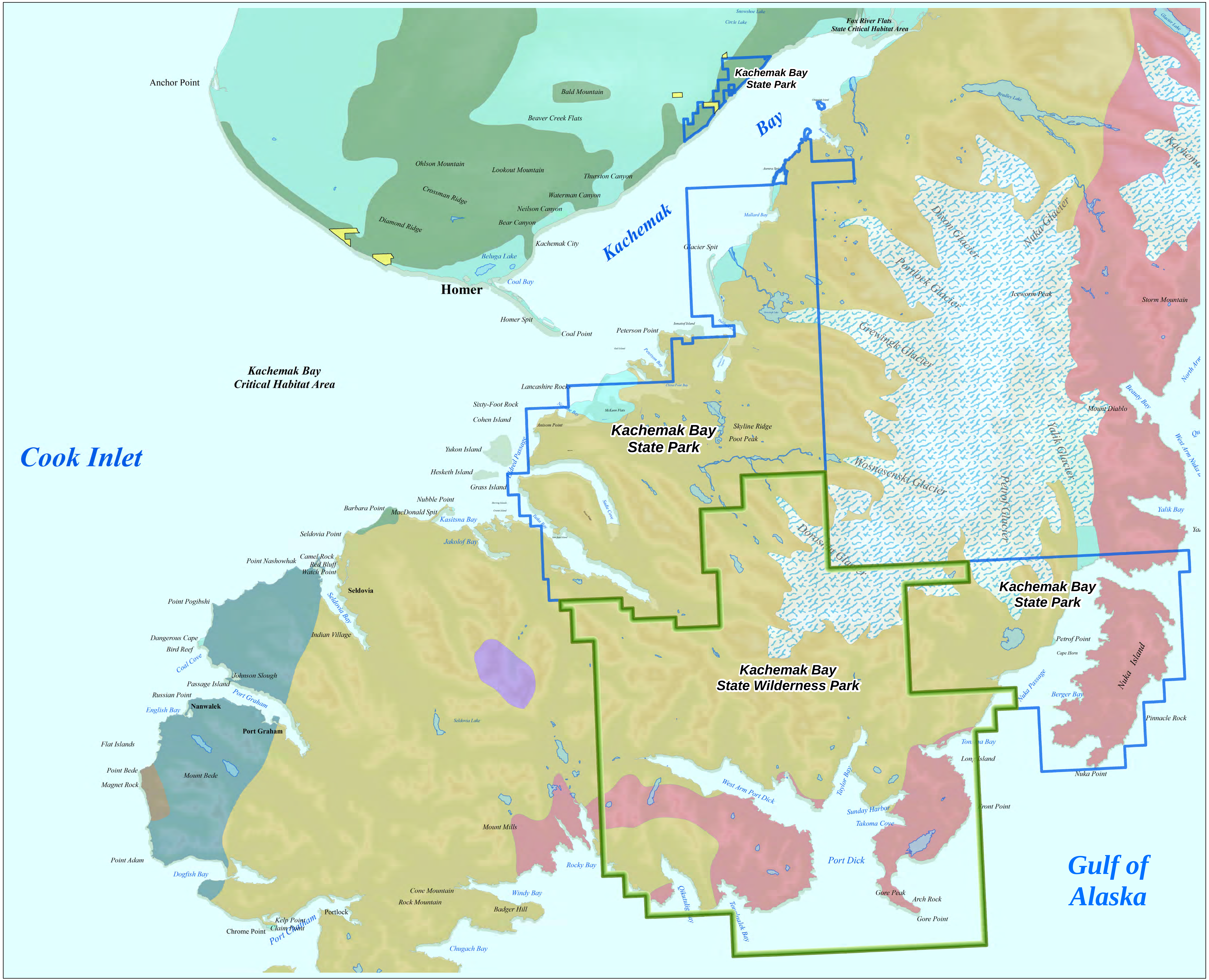
Soils

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 remining. This soil is typically well drained.

Minerals

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



Kachemak Bay State Park & State Wilderness Park

Map 3: General Geology

- State Park (AS 41.21.131)
- State Wilderness Park (AS 41.21.140)
- State Park Managed Areas
- Chugach accretionary complex
- Glaciers
- Limestone and volcanic rocks of the Kenai Peninsula
- Mafic and ultramafic rocks in southern Alaska
- McHugh and Uyak Complexes and similar rocks
- Nearshore and nonmarine sedimentary rocks in southern Alaska
- Quartz diorite and granodiorite
- Unconsolidated and poorly consolidated surficial deposits

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Projected Coordinate System: NAD 1983
UTM Zone 6 North

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.

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. Much of the freshwater in the parks are locked in the glaciers of the Grewingk-Yalik Glacier Complex. Meltwater from these glaciers mixes with runoff from precipitation to fill the lakes and streams of the parks.

Glaciers

Grewingk, Portlock, Wosnesenski, Petrof, Southern Glaciers, and many small unnamed glaciers are part of the Grewingk-Yalik Glacier Complex southwest of the Harding Icefield in the Kenai Mountains.

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

Lakes, Rivers and Streams

Numerous rivers and streams dissect the landscape of the parks. Many are sourced from glaciers in the parks and carry significant volumes of glacial sediment. In addition, they drain the more than 70 inches of rain that fall annually on the southern shore of Kachemak Bay and erode the mountains of the parks.

Bathymetry

Kachemak Bay averages 46m (150ft) in depth, the bottom being relatively flat except for a 100-160m (330-540ft) deep trench that runs along the southern edge. The deepest part of the bay is 176m depression located north of Cohen Island at the entrance to the inner bay, known as the Jakolof Trench.

The bathymetry of the inner bay, northeast of the Homer Spit, is controlled by sediment input from the Fox River at the head of the bay, and the deposition of this sediment along the northern edge of the bay. As sediment-laden water 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. Eroding bluffs along the north side of the inner and outer bay contribute additional sediments.

On the southern side of the Kenai Mountains, the Gulf of Alaska is deeply embayed by glacial fjords. Water depths in the fjords reach 250m (820ft) in Port Dick, but otherwise generally dip to the south-southwest within the marine boundaries of the parks.

Tides and waves

Kachemak Bay and the adjacent Cook Inlet are known for their extreme tidal range. Kachemak Bay has a 4.8m (15.8 ft.) tidal range due to the complex geomorphology of the adjacent Cook Inlet. Average high tides are about +5.5m (+18 ft.), though high tides can reach +8.5m (+28 ft.). Low tide reaches -1.8m (-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 tidal range is approximately 3m (10ft), with tides as high as +4.8m (+16 ft.) and as low as -1m (-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.

Kachemak Bay is in the rain shadow on the north side of the Kenai Mountains, sheltered from the influence of the Alaska Current. The mountains moderate the effects of storms within the Kachemak Bay area. As northwest-moving moist air masses from the Gulf of Alaska are forced up and over the southeast side of the coastal mountains of KBSWP, the air cools and moisture is precipitated as rain or snow. After passing over the Kenai Mountains,

as the air masses descend into the Kachemak Bay area they warm through the process of compression. The northwest exposures of the Kenai Mountains in the parks are therefore dryer and warmer than the southeast exposures.

Precipitation

Annual precipitation for the Gulf of Alaska side of the parks is high, estimated at more than 70 inches/year. 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 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 sheltered areas, snow frequently doesn't melt until April, while on north slopes and at higher elevations snow can persist until late summer.

Temperature

Winter temperatures at Halibut Cove typically range between 20°F for a low and 31°F for a high, while during the summer, temperatures range between a low of 40°F and a high of 59°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. Average time between springtime's last freezing temperature and the first freeze in the fall is 133 days.

Winds

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. The Gulf of Alaska is subject to the severe storms of the north Pacific.

Clouds

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

As seen in Map 4 - General Habitat on page 25 of this chapter, the parks have six types of habitat:

- Marine (23% of the parks/87,400 acres)
- Estuarine and Marine Wetland (2% of the parks/6,950 acres)
- Freshwater Wetland (1% of the parks/4,020 acres)
- Freshwater Lakes and Streams (2% of the parks/8,720 acres)
- Forest (27% of the parks/98,900 acres)
- Alpine (45% of the parks/166,730 acres)

Marine Habitat

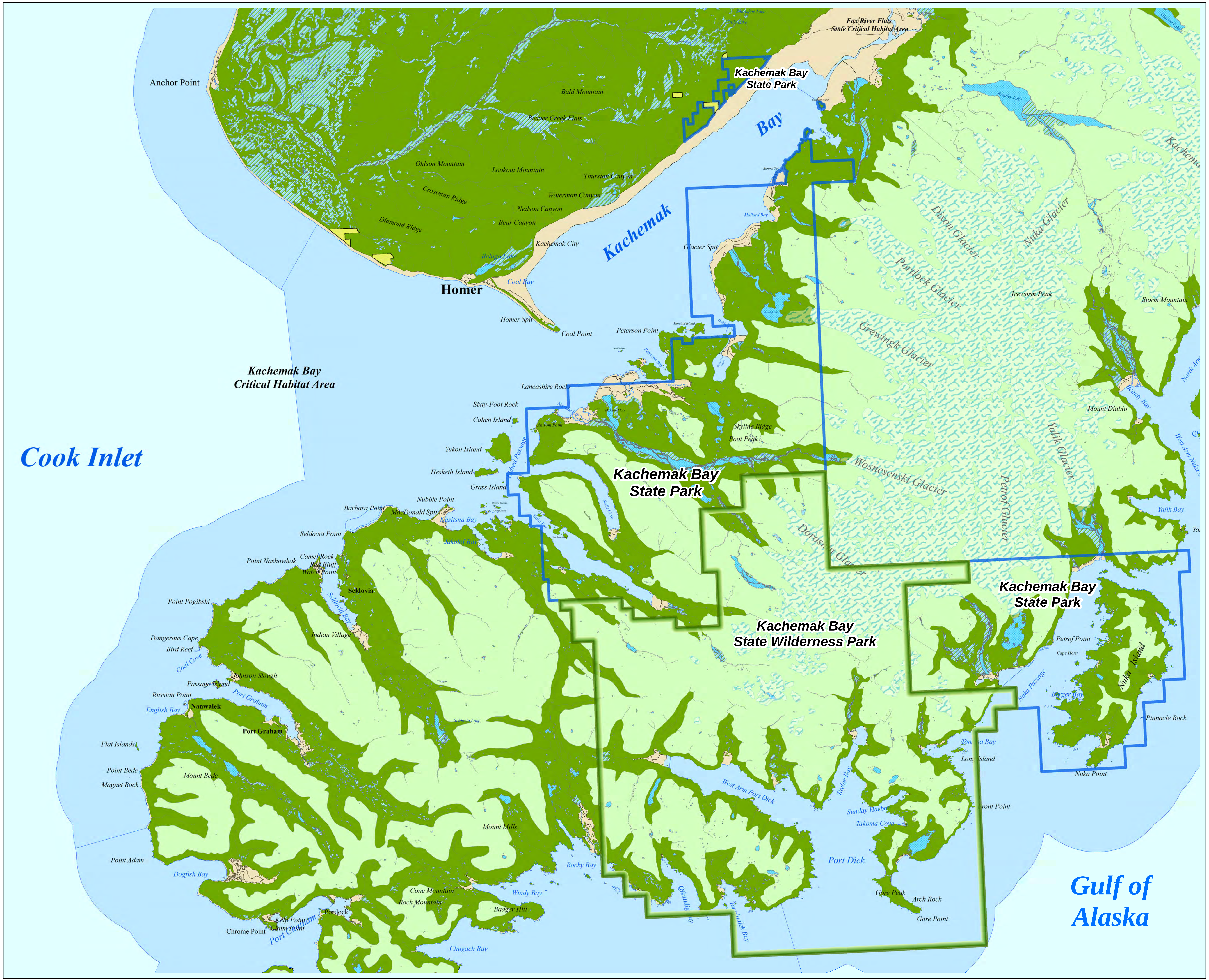
Approximately 23% of the area is marine habitat, both in Kachemak Bay and the Gulf of Alaska. Marine habitat is defined as that habitat that is dominated by salt water influence, extending from the tideline to deep water. Water depths range from zero at the tideline to >200 m (deep marine).

Closest to the shore, the Intertidal Zone is alternately exposed and then covered as the tide ebbs and floods onto the tidelands. In these areas, 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 'nursey' of many shellfish and other small invertebrates which comprise the rich underwater ecosystem that feeds the bay.

Estuarine and Marine Wetland Habitat

Estuaries are partially enclosed bodies of brackish coastal water with one or more inflowing rivers or streams and a free connection to the open sea. They make up 2% of the parks but contribute significantly to the parks' bioproductivity.



Kachemak Bay State Park & State Wilderness Park

Map 4: General Habitat

- State Park (AS 41.21.131)
- State Wilderness Park (AS 41.21.140)
- State Park Managed Areas
- Alpine
- Estuarine
- Forest
- Freshwater Lakes and Streams
- Freshwater Wetland
- Marine
- Glaciers

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Projected Coordinate System: NAD 1983
UTM Zone 6 North

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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 Wetland Habitat

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. Approximately 1% of the parks are freshwater wetlands.

Freshwater Lakes and Streams Habitat

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. Slightly more than 2% of the parks is composed of freshwater lakes and streams.

During the Quaternary Ice Age, glaciers carved most of the drainages occupied by watercourses in the parks. 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.

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.

Many of the streams in the parks are spawning areas for salmon.

Forest Habitat

The parks host two basic forest subzones; Sitka spruce/western hemlock, and black cottonwood. Both are climax forests and occupy approximately 27% of the parks.

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 (500m), tall shrubs (primarily alder, mixed with salmonberry, elderberry and devil's club) are the main vegetation type.

Subalpine Habitat

The transition between Forest Habitat and Alpine Habitat varies by location and is difficult to define. It is highly sensitive to local environmental influences, and microclimates within this zone allow species to interfinger from below and above. Snow slides and geologic activity cause breaks in vegetation. In many areas of the subalpine region small islands of stunted trees are confined to sheltered sites.

Alpine Habitat

The Alpine Habitat (nearly 45% of the parks' area) 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 in Alaska. 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 heath 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.

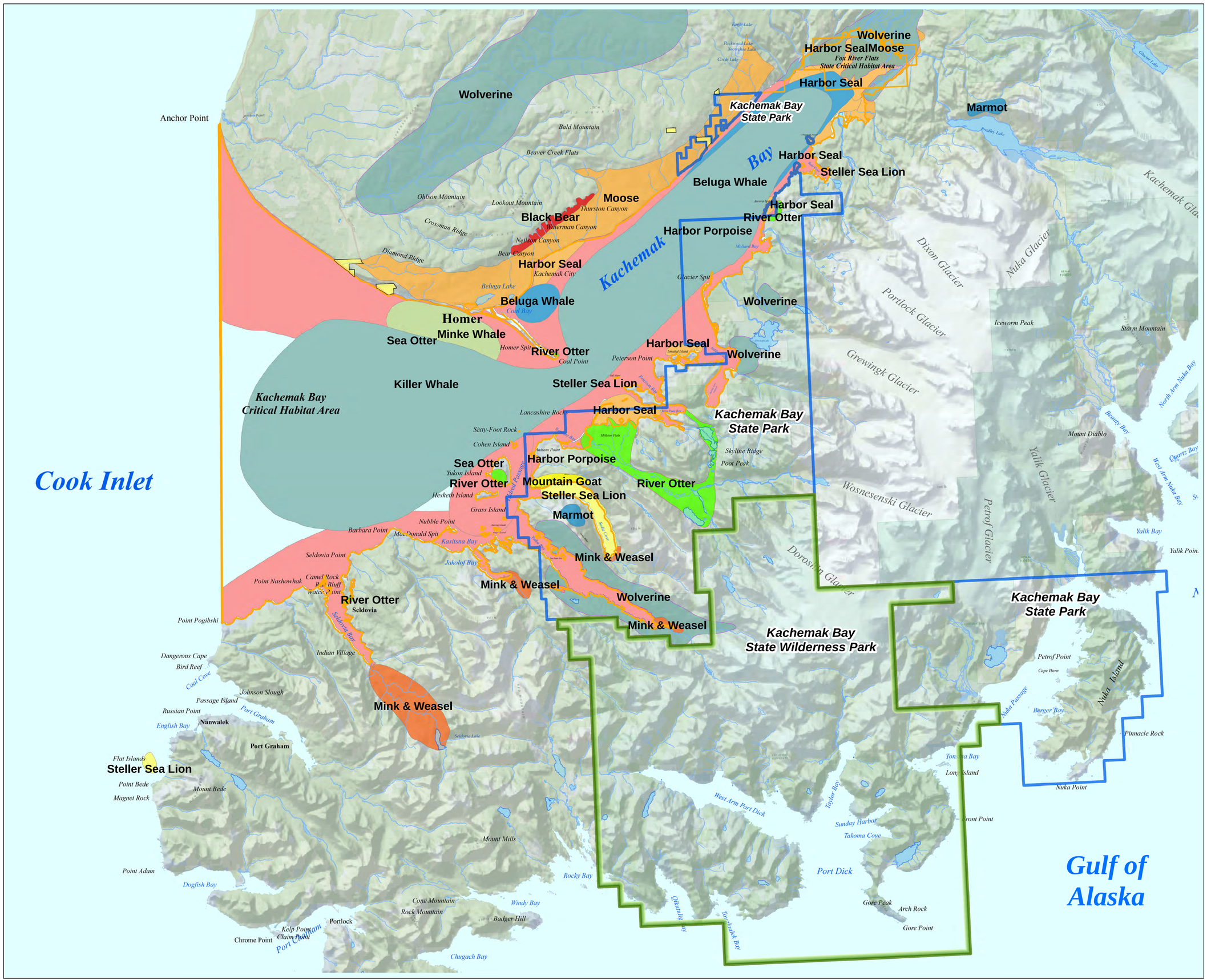
Alpine vegetation experiences severe growing conditions. Summers are extremely short, soils are fragile and shallow, and temperatures only reach the lower end of the growing range. Despite challenging growing conditions, beautiful alpine plants thrive in this zone. Alpine zones are easily disturbed.

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 Animals

The marine habitat holds most of the fauna that the parks are best known for. (See Map 5 - Marine Mammals & Terrestrial Species on page 29 of this chapter). Sea otters, harbor seals, Dall's porpoises, and harbor porpoises are commonly seen in Kachemak Bay. Beluga whales and Steller sea lions occasionally enter the bay and are common outside the bay and in Cook Inlet. Humpback whales and orcas have become more prevalent in Kachemak Bay since about 2010.



Kachemak Bay State Park & State Wilderness Park

Map 5: Marine Mammals & Terrestrial Species

- State Park (AS 41.21.131)
- State Wilderness Park (AS 41.21.140)
- State Park Managed Areas
- State Critical Habitat Area
- Beluga Whale
- Harbor Porpoise
- Harbor Seal
- Minke Whale
- Sea Otter
- Steller Sea Lion
- Killer Whale
- Black Bear
- Marmot
- Mink - Weasel
- Moose
- Mountain Goat
- River Otter
- Wolverine

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RJK, DNR, DMLW, RADS
Projected Coordinate System: NAD 1983
UTM Zone 6 North

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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 fresh water streams on both sides of the Kenai Peninsula. A wide variety of other fish species live in the waters of the parks, contributing greatly to its biodiversity and bioproductivity. (see Map 6 - Fishfin Species on page 33 of this chapter.)

Shellfish are found in Kachemak Bay, with crab, shrimp and clams found throughout the area. Tanner crab are the most common crab, Dungeness and king crab are less common along with small pockets of pink and sidestripe shrimp. Razor, redneck/surf, soft-shelled, littleneck, butter, and gaper clams, as well as blue mussels and cockles, are found in the intertidal waters of Kachemak Bay along the beaches.

Terrestrial animals

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. Dall sheep are found in the rugged, relatively dry area of the parks on the north-west side of the Kenai Mountains.

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.)

Birds

Due to its high bio-productivity and wide range of habitats, the parks are among the most important marine bird habitats on the Kenai Peninsula and southcentral Alaska. More than 250 species of marine 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 in the parks. More than 60 species migrate through the parks. See Map 7 - General Bird Habitat on page 35 of this chapter.

Major categories of birds identified within and around the parks include waterfowl, shorebirds, gulls, seabirds, songbirds and raptors. (See Appendix D – Bird List.)

Invasive Species and Infestations

Spruce Bark Beetle

During the 1980s and 1990s, the spruce forests of Kachemak Bay's watershed experienced a large spruce bark beetle infestation – 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 spruce bark beetle was not new to the area – epidemic scale outbreaks are known to have occurred on the lower Kenai Peninsula as far back as the mid-1800s. However, the recent epidemic was the most significant terrestrial ecological disturbance to the area in recorded history.

Spruce Aphid

The spruce aphid, a nonnative insect originally from Europe, is tentatively identified to be damaging Sitka spruce stands in Halibut Cove. Aphid activity was initially reported in early June of 2015. The aphid also appears to be active in Homer, Icy Bay in Prince William Sound, and Kenai Fjords National Park.

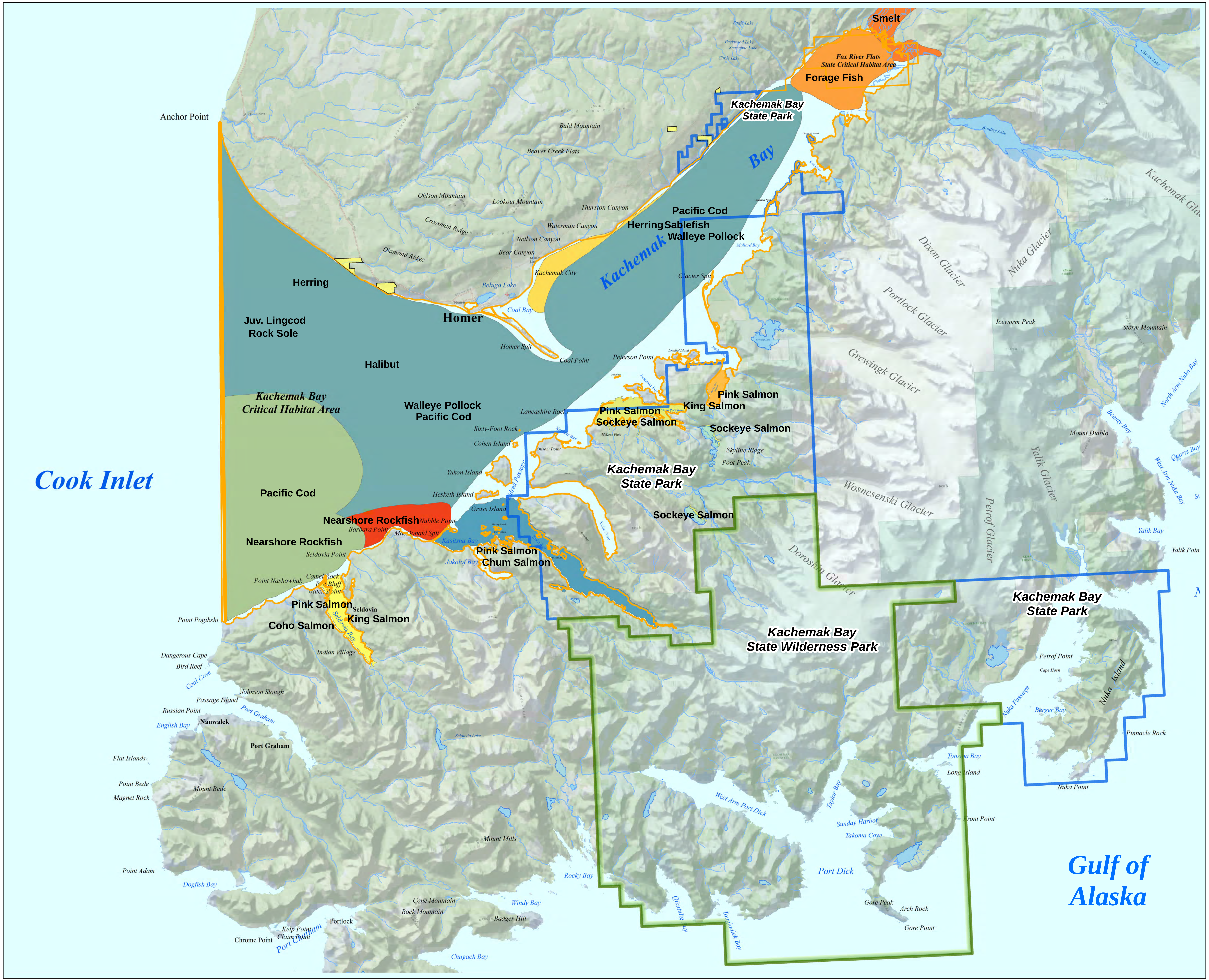
Based on experience with this aphid in Southeast Alaska, outbreaks commonly occur following mild, relatively warm winters. The aphids begin actively feeding and reproducing in early spring and are temperature sensitive. Infested trees usually recover if subsequent winters' temperatures turn cold enough (-14F) to reduce aphid populations.

Individual needles initially show yellow mottled blotches where aphids are feeding. Eventually, needles turn reddish-brown and drop prematurely leaving infested parts of the tree without foliage. Spruce aphids have the greatest impact on trees along the coast and rarely move further into the forest.

Natural Hazards

Avalanches

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 with the majority occurring on slopes of 38% or 39%.



ALASKA STATE PARKS

Kachemak Bay State Park & State Wilderness Park

Map 6: Finfish Species

- State Park (AS 41.21.131)
- State Wilderness Park (AS 41.21.140)
- State Park Managed Areas
- State Critical Habitat Area
- Chum Salmon
- Coho Salmon
- Forage Fish
- Halibut
- Herring
- Juv. Lingcod
- King Salmon
- Nearshore Rockfish
- Pacific Cod
- Pink Salmon
- Rock Sole
- Sablefish
- Smelt
- Sockeye Salmon
- Walleye Pollock

Created: September, 2018
RJK, DNR, DMLW, RADS
Projected Coordinate System: NAD 1983
UTM Zone 6 North

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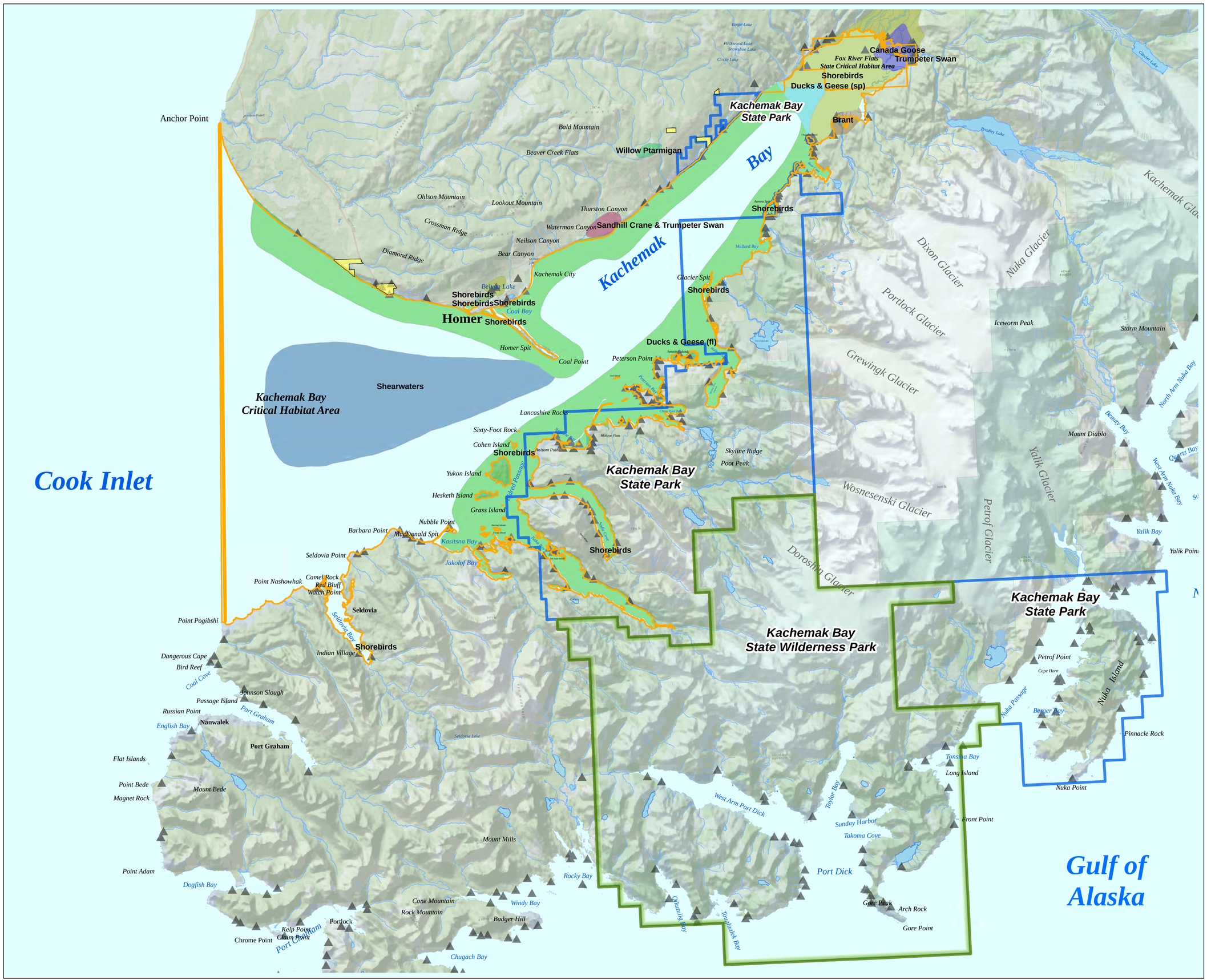

Kachemak Bay State Park & State Wilderness Park

Map 7: General Bird Habitat

- State Park (AS 41.21.131)
- State Wilderness Park (AS 41.21.140)
- State Park Managed Areas
- State Critical Habitat Area
- Brant
- Canada Goose
- Ducks & Geese (fl)
- Ducks & Geese (sp)
- Sandhill Crane & Trumpeter Swan
- Shearwaters
- Shorebirds
- Trumpeter Swan
- Willow Ptarmigan
- eagle

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RJK, DNR, DMLW, RADS
Projected Coordinate System: NAD 1983
UTM Zone 6 North

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Earthquakes

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. In 2017, more than 777 earthquakes with a magnitude of greater than 2.5 occurred within 300 miles of the parks. Nine events had a magnitude greater than 5, and four of these were within 100 miles of the parks.

Tsunamis may be generated when earthquakes occur under water. 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.

Steep and Unstable Terrain

The rugged topography of the parks is a significant draw for visitors. These same features also pose a risk to hunters, hikers, mountain climbers and other backcountry travelers. Small land/rock slides have occurred on the buttresses above Grewingk Lake – there is potential for a large event that could trigger a tsunami-like surface wave on the lake.

Hazard Trees/Windfall/Vegetative Change

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. Not only do staff or volunteers need to clear downed or hazard trees, but as the forest canopy opens, devil's club, blueberries, and currants become the dominant species. 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 1,000+ square mile Harding Icefield) cover much of the peninsula, with extensive lowland forests, meadows and river systems rimming the mountainous spine. 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.

Most of the Kenai Peninsula's land mass falls within large conservation areas managed by the Federal Government (see Map 2-General Land Ownership, pg. 9). 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 major communities of the Kenai Peninsula are situated along the peninsula's rivers and coastline. 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 region are recreation; tourism; commercial fishing; and oil and gas exploration and production.

The land "across the bay" was actually settled by Europeans before Homer was. Early settlers were found in Bear Cove and Halibut Cove, and Seldovia was the first major town. KBSP and KBSWP are named for Kachemak Bay, a relatively shallow 39-mile-long nutrient-rich arm of Cook Inlet. The waters and tidelands of Kachemak Bay, a "nursery" for many Alaska marine species, were legislatively designated a State Critical Habitat Area in 1974.

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 Creek 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.

Surface Estate

The surface estate is essentially the visible land in addition to common materials such as sand and gravel within the near-surface. 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.

Subsurface Estate

The subsurface estate includes the lands below the surface and the leasable minerals[1] and locatable minerals[2]. The state owns the subsurface estate where the surface estate is also owned within park units. Because the lands and waters were withdrawn from the public domain as a special purpose site they cannot be leased for private or commercial development of the subsurface resources.

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 all Dena'ina speak Athabascan, four distinct dialect areas exist:

1. Upper Inlet (Turnagain Arm northward to Denali; west to Rainy Pass and Tyonek; and eastward to Chickaloon),

[1] Leasable minerals include deposits of coal, sulfur phosphates, oil shale, sodium potassium, oil, and gas. Leasable minerals do not include locatable minerals.
[2] Locatable minerals include both metallic (gold, silver, lead, etc.) and non-metallic (feldspar, asbestos, mica, etc.) minerals. Locatable minerals do not include leasable minerals.

2. Inland (Nondalton, Lime Village, and Lake Clark),
3. Iliamna (Pedro Bay, Newhalen, and westward to Augustine Island in Kamishak Bay),
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.

On the northern shore of Kachemak Bay is the Cottonwood and Eastland Creeks area, annexed to the state park in 1989 for scenic and recreational values. This area also 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 Alutiit 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.

Cultural Resources

Cultural resources in Alaska are deposits, structures, ruins, sites, buildings, graves, artifacts, fossils, or other objects over 50 years old. They are important evidence of earlier human occupation and if lost are irreplaceable. Cultural sites are studied by evaluating the three-dimensional spatial arrangement of artifacts, features, and specimens within the site. The placement of objects relative to each other tells a story of how people lived. If an object is moved, its context is destroyed. It is therefore unlawful to disturb cultural resources on either state or federal lands.

Intense investigations in the early 1930s (by Frederica de Laguna, the pioneer archaeologist in Southcentral Alaska, and by other archaeologists) documented many significant sites in Kachemak Bay containing middens, artifacts (such as tools), and fire hearths.

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. Although not in the parks, 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 farm 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 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 and his wife, Josephine, resided on Nuka Island from the 1920s to the early 1960s, and operated a fox farm there. 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.