



The FAIRWEATHER

VISITOR GUIDE



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The Fairweather

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Welcome to Glacier Bay



Welcome to Glacier Bay National Park. A World Heritage Site. An immense landscape released from ice only a few centuries—or only a few years—ago, filled with the story of returning life. In 1879, guided by the Tlingit, John Muir came here by canoe to witness this landscape and advance the study of glaciers.

He returned, followed by countless others inspired, like Muir, by both knowledge and beauty. As Muir said, “Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul.”

Parks are places of inspiration, recreation, science, and discovery. They are also places of healing. This power to heal both mind and body is exemplified in the 33 recuperation camps set up in National Parks during World War II, and in the recent National ParkRx initiative. Here at Glacier Bay, the Hoonah Indian Association and the National Park Service (NPS) will raise a Healing Pole in Bartlett Cove this summer that commemorates the process of healing decades of strife. Next year, there will be a ceremony based on Tlingit traditions used to bring peace during times of conflict.

Today we have a close strong working relationship with the Tribe (pages 8–9), with the Gustavus community, and with the cruise ship industry. Yet only a couple of decades ago relationships were very different. For the Tribe, issues such as access, subsistence, cultural heritage, and spiritual

connections created conflict with the federal government. For the local community, the closure of commercial fishing and the use of Bartlett Cove were very contentious. For the cruise ship industry, the struggle to balance visitor numbers, visitor experience, and resource protection was fought all the way to Congress and the Supreme Court.

While much work remains, the power of parks to heal, to bring people together, and to resolve conflict is evident in Glacier Bay. Many projects, including Xunaa Shuká Hít and the Healing Pole, bind the Park and the Tribe. The Gustavus community and the park have moved beyond old conflicts and are inextricably linked to provide sustainable tourism that reflects community and park values. These links can be seen in the Frontcountry Plan (page 7), efforts with local schools, and optimizing the benefits of renewable hydropower. The cruise ship industry recognizes Glacier Bay as unique, and the park recognizes that the industry is essential in bringing the public to their national park.

With much media and public discourse focused on conflict, division, and anger, I encourage you to recognize that in Glacier Bay you are in a place of healing. The beauty, wildness, and immensity of this special place bring people together, calm our souls, and allow us to understand the depth of connections between individuals and between people and nature. Please join us in celebrating the power of Glacier Bay to “heal and give strength to body and soul.”

A handwritten signature in black ink that reads "Philip Hooge".

Philip Hooge
Superintendent



Tlingit craftsmen at work on the healing totem.

Explore Bartlett Cove



Standing next to the humpback whale skeleton lets you experience the true size of a whale.

If you just have a few hours...

Stop by the Visitor Center: On the second floor of the Glacier Bay Lodge is the National Park Service information desk, auditorium, exhibits and public reading area. Open daily, with educational materials from Alaska Geographic for purchase.

Catch a film: The National Park Service shows several different films daily in the auditorium.

Walk the Forest Trail: Go on your own or with a ranger. Daily ranger-led walks meet in the lodge. See trail details, page 5.

Go for a beach walk: See trail details, page 5.

Take in an evening program: Join a ranger in the auditorium for a presentation about the park.

Visit the Whale Exhibit: See one of the largest humpback whale skeletons on display in the world. Located near the Visitor Information Station.

View the Tribal House: Walk along the Tlingit Trail to the new Tribal House. See page 8.

If you have a half day...

Hike to the Bartlett River: See trail details, page 5.

Rent a bike: Start at the Glacier Bay Lodge and pedal towards Gustavus.

Explore the intertidal zone at low tide: See map, page 5.

If you have a full day...

Hike to Bartlett Lake: See trail details, page 5.

Go for a paddle: There are several options for kayaking around Bartlett Cove. Take a guided kayak trip, or rent your own from Glacier Bay Sea Kayaks.

Become a Junior Ranger: Kids can visit the ranger at the NPS information desk to pick up their free Junior Ranger Activity Book. See page 38.

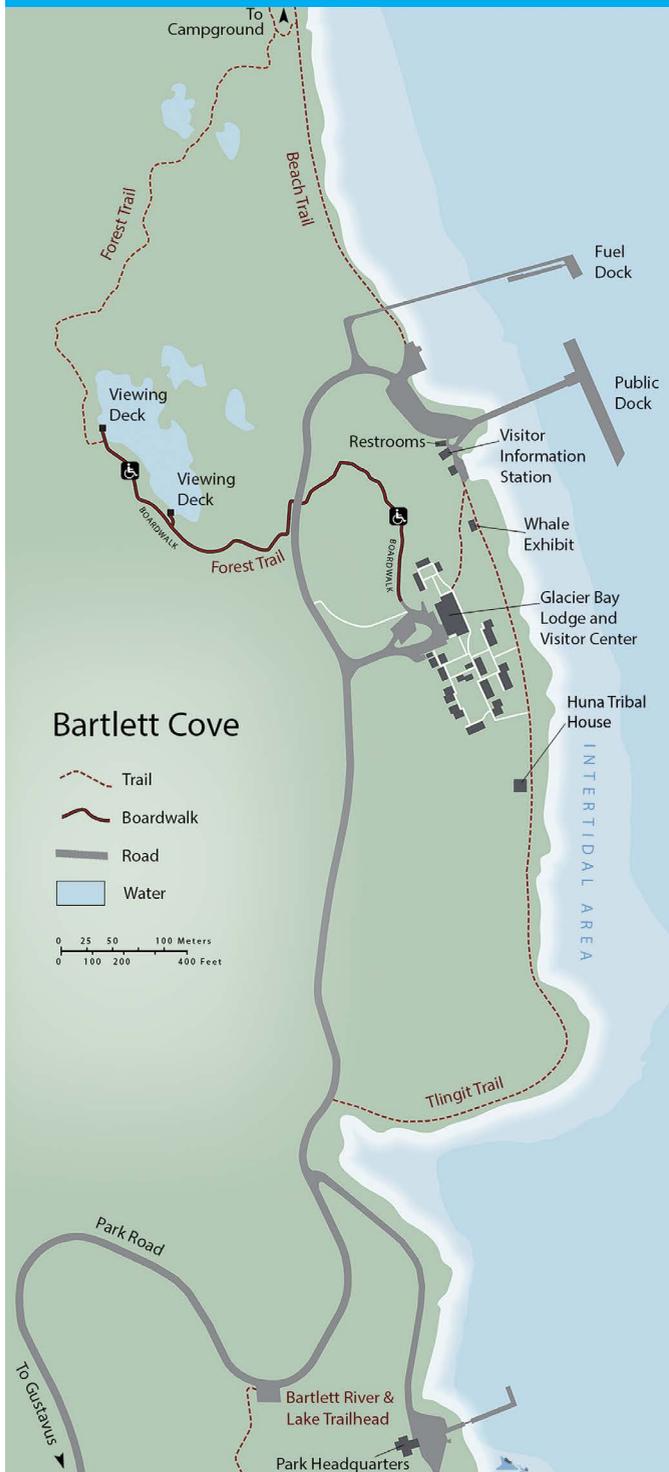
Explore Glacier Bay on the Dayboat: Spend the day exploring Glacier Bay to observe wildlife and tidewater glaciers. Stop by the lodge for reservations.



Get the Latest Schedule of Events

Please see the National Park Service Visitor Center information desk in the Glacier Bay Lodge, the bulletin board in front of the lodge, or the Visitor Information Station (VIS) near the public dock for updates, desk hours, and evening program topics.

Trails



Bartlett Cove is the only developed area within the wilds of Glacier Bay. The forests and shorelines offer great opportunities for hiking and exploring. Several relatively easy trails begin here. Spend some time, stretch your legs, and discover the wonders of Glacier Bay.

Forest Trail

Distance: 0.7 miles (1.1 km) one way

Time: 30 minutes–1.5 hours

This leisurely stroll meanders through a lush forest that grows atop a glacial moraine. A wheelchair accessible boardwalk takes you part of the way, leading to two viewing decks that overlook a serene pond. Return along the shore for an easy one-mile loop. Rangers lead a guided walk along this trail every afternoon. Check the posted activity schedule for times.

Tlingit Trail

Distance: 0.5 mile (800 m) one way

Time: 30 minutes–1 hour

Enjoy this easy stroll along a forested shoreline. See a traditional Tlingit canoe, gaze at a complete whale skeleton, learn about common native plants, and experience Tlingit culture and art at the Huna Tribal House.

Bartlett River Trail

Distance: 4 miles (6.4 km) round trip

Time: 4–5 hours

Explore a dense spruce-hemlock rainforest. The trail through the forest ends at an estuary near the mouth of the river. Each summer, spawning salmon attract otters, eagles, seals, and bears. Anglers enjoy fishing there too.

Bartlett Lake Trail

Distance: 8 miles (16 km) round trip

Time: 7–8 hours

About $\frac{3}{4}$ of a mile down the Bartlett River Trail you'll find the lake trail, a branch trail that climbs the moraine. This primitive trail is a rugged day-hike, with rewards of solitude and a tranquil lake. Bring water, food, and rain gear.

Explore the Shore

Distance: varies

The shoreline beyond the docks continues for many miles past the campground. You may observe land and marine wildlife. Look for birds, listen for whales, and watch for sea otters feeding near shore. Let the magic of Glacier Bay draw you in for an hour, or even a day. (Not a maintained trail.)



Glacier Bay Lodge



Dedicated on July 4, 1966, the lodge blends rustic character with 1960s modernism.

Alaska in the 1960s: statehood had just been achieved; the newly established Alaska Marine Highway ferry system carried thousands of curious visitors north from Seattle; the Alaska Highway beckoned visitors in cars. Tourists flocked to Alaska, but Glacier Bay National Monument proved difficult to visit with virtually no visitor accommodations. The lack of adequate visitor services was not isolated to Alaskan parks. Years of neglect during World War II combined with a substantial rise in visitation after the war meant that parks all over the country struggled to construct ways to welcome visitors eager to explore America's greatest treasures.

The National Park Service responded to this opportunity with a major initiative, Mission 66, celebrating the 50th anniversary of the National Park Service. This decade-long plan built lodges, created visitor centers, established trails, and paved roads so Americans could visit their parks in comfort. Congress appropriated almost \$1,000,000 to build the Glacier Bay Lodge and provide visitor services in the monument. The grand opening of the lodge in 1966 marked the conclusion of one of the final Mission 66 projects.

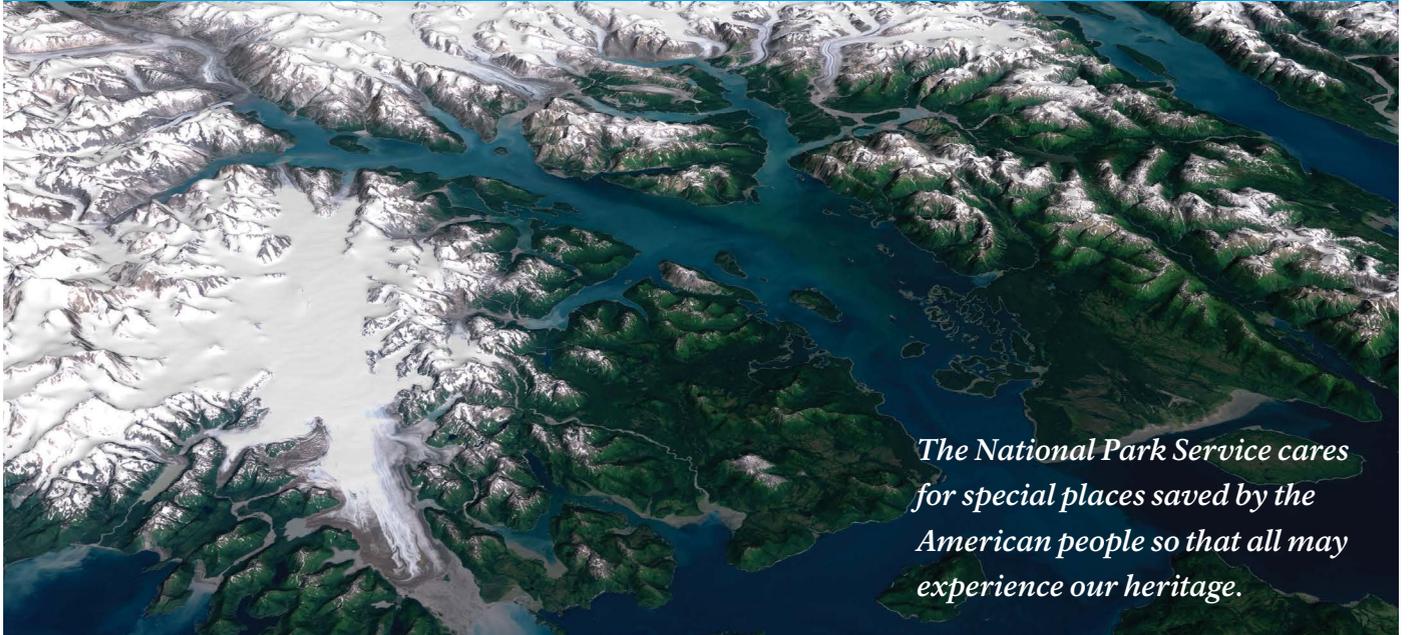
Glacier Bay Lodge was a jewel in the Mission 66 crown, reflecting the cultural and scenic heritage of Glacier Bay through modern architecture. In the main lodge, the exposed carved wooden beams evoked traditional Tlingit clan houses. Before the second story was added, light filtered through the tall windows like light

through the trees in the forest. Uncovered walkways immersed guests in the rainforest as they walked to their cabins. Chapters of the American Institute of Architects bestowed several awards on the lodge.

Today, the Glacier Bay Lodge, like all Mission 66 projects, serves as an enduring reminder of the efforts of the National Park Service to welcome, accommodate, and serve generations of visitors. Over the next few years, Glacier Bay is embarking on an ambitious series of upgrades to the lodge. Park staff will be busy with a variety of interior and exterior improvements, ensuring that the lodge continues to welcome visitors to their national park.



The lodge has welcomed visitors to Glacier Bay for over 50 years.



The National Park Service cares for special places saved by the American people so that all may experience our heritage.

Glacier Bay by satellite, from NASA's Earth Observatory.

Your opinion counts

You are a part of a long legacy of adventurers inspired by Glacier Bay! Keep connected and involved even from afar. The National Park Service (NPS) relies on your feedback to help guide stewardship of America's great natural and cultural resources.

The NPS is currently working to update some of Glacier Bay National Park's management plans. This planning effort will strengthen the park service mission to provide for visitor enjoyment while also preserving the park's extraordinary natural and cultural heritage for future generations.

After your visit, we hope you will check back with us periodically to follow our progress and offer your unique perspective. There are multiple ways you can be involved (see right).

It's time for an update

As Glacier Bay National Park approaches its centennial in 2025, the NPS is working to update both the park's Frontcountry and Backcountry Management Plans. Visit the websites below or contact us (see right) to learn more about our process and progress.

Follow Bartlett Cove facilities & visitor services planning:
[go.nps.gov/BartlettCove](https://www.nps.gov/BartlettCove)
Frontcountry Management Plan website

Follow Glacier Bay wilderness experience planning:
[go.nps.gov/GBwild](https://www.nps.gov/GBwild)
Backcountry Management Plan website

Stay Tuned!

You don't need to live close by to be connected and stay involved. You can follow progress and offer feedback to inform park planning in the following ways:

✓ **SUBSCRIBE** to our planning notification list by sending us your contact information:

glba_public_comments@nps.gov
Glacier Bay National Park & Preserve
P.O. Box 140, Gustavus AK 99826

✓ **FOLLOW** the park's social media for press releases and planning announcements (public meetings, review drafts, comment periods).

✓ **VISIT US ONLINE** to learn more about park management:
www.nps.gov/glba/learn

Visit the NPS online portal for real time public notices and comment opportunities: Planning, Environment, and Public Comment (**PEPC**)

  <https://parkplanning.nps.gov/glba>

Returning to Homeland



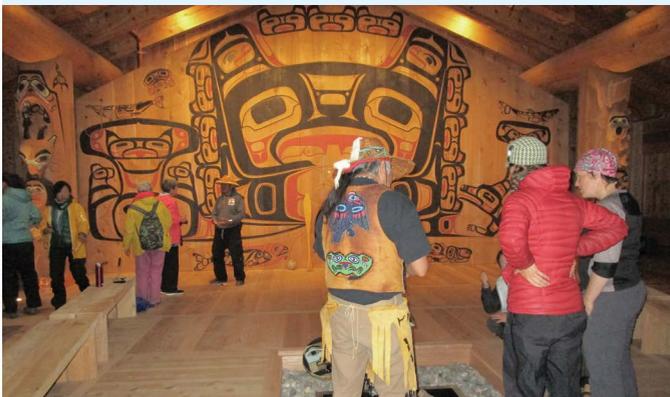
Xunaa Shuká Hit stands proudly on the shores of Bartlett Cove.

“Welcome, everyone. Welcome to perhaps the warmest and driest place in Southeast Alaska today,” Sonya Gray, NPS Cultural Interpreter says as she ushers a group of visitors out of the rain and into the Huna Tribal House. All summer long, visitors gather around the Tribal House’s central fire pit as they listen to traditional stories and songs, learn the history of Raven and Eagle clans, and explore the intricately carved and painted building. Cultural interpreters working for the National Park Service (NPS) and the Hoonah Indian Association (HIA), the tribal government, share deeply of their traditions, history, enduring connection to Glacier Bay homeland, and the collaborative efforts that led to the completion of this magnificent building.

For countless generations, the Huna Tlingit sustained themselves on the abundant resources found throughout Glacier Bay prior to the Little Ice

Age. Although villages inside the bay were overrun by glacial advances in the 1700s, the Huna Tlingit re-established fish camps and seasonal villages soon after glacial retreat. Establishment of Glacier Bay National Monument in 1925 (and later National Park) and implementation of laws and park regulations led to a period of alienation and strained relationships between tribal people and the NPS. Time and new understandings have brought much healing. In recent years, the NPS and HIA worked cooperatively to reinvigorate traditional activities, develop cultural programs for youth and adults, amend regulations to allow for a broader range of traditional harvests in park boundaries, and preserve oral histories.

The most symbolic cooperative venture—Xunaa Shuká Hit (roughly translated as Huna Ancestors’ House)—now stands proudly on the shoreline of Bartlett Cove. Dedicated in August 2016 and opened



HIA carvers share the cultural values within each hand-carved and painted element.



The Tribal House and NPS cultural interpreter joyfully welcome summer visitors.



Tribal members dance and sing, making the entire building reverberate.

to the public in summer 2017, it now draws thousands of visitors from around the world.

A team of clan leaders, craftsmen, planners, architects, and cultural resource specialists designed Xunaa Shuká Hít to reflect a traditional architectural style reminiscent of ancestral clan houses with modern touches suitable for the needs of the community today. Inside the Tribal House are four richly detailed massive cedar interior house posts and an interior house screen which depicts the stories of the four primary Huna Tlingit clans and their tie to Glacier Bay homeland. These cultural elements impart spiritual value to the Tribal House, and, as importantly, their design and completion



Traditional songs inspire the strength and stamina to carry each totem.



Hoonah youth celebrate at the dedication of Xunaa Shuká Hít.



HIA cultural interpreter leads a group to the long-awaited Tribal House.

has expanded the circle of tribal members who hold traditional skills and share in cultural knowledge.

The 2,500 square foot Tribal House is not only a place for visitors to learn about Tlingit traditions, but is also a venue for tribal members to reconnect with their traditional homeland, life-ways, and ancestral knowledge. Within months of its dedication, the Tribal House inspired native high school students to spend their winter school break at the Tribal House learning traditional crafts from elders and culture bearers. Months later, hundreds of tribal members gathered to raise two totem poles – Eagle and Raven – that grace the sides of Xunaa Shuká Hít. These poles will be joined by a third totem – a Healing Pole—in summer 2018. This last pole, collaboratively designed by NPS and HIA personnel, reveals the story of the journey through a painful past to a healthier, more meaningful partnership. Xunaa Shuká Hít will continue to be a place of learning, growth, inspiration, and healing for generations to come.

Images of the Huna Tribal House dedication and carving projects are available on the Glacier Bay National Park and Preserve website and Facebook page. To learn more about special events and opportunities to experience the Tribal House, check the posted activity schedules in Bartlett Cove or ask a ranger.

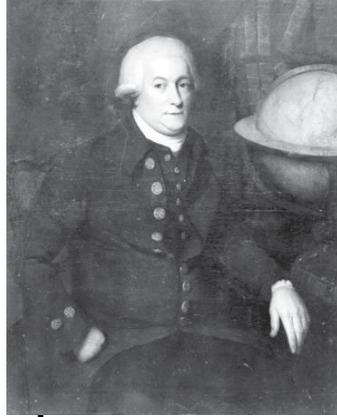
Timeline of Glacier Bay

Since time immemorial, Tlingit people live in the area that is now Glacier Bay. Advancing glaciers in the 1700s during the Little Ice Age force the Tlingit out of their homeland. After the Little Ice Age, the glacier melts back and the ocean fills the valley quickly, creating Glacier Bay.



1750

1794 Captain George Vancouver of the H.M.S. *Discovery* and Lt. Joseph Whidbey describe Glacier Bay as “a compact sheet of ice as far as the eye could distinguish.” The “bay” is a mere five-mile indentation in the coastline.



1800

1883 James Carroll and other commercial steamship captains make Muir Glacier a popular tourist destination.



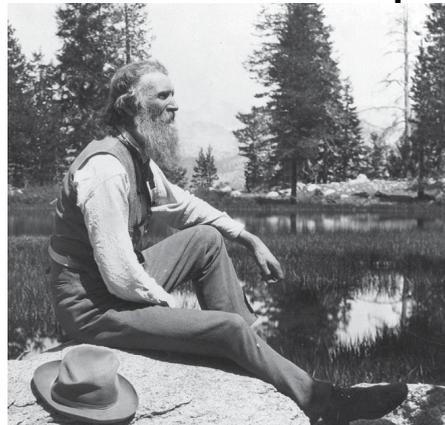
1850

1900



1770s–1790s

European explorers arrive. Excursions led by Captains Malaspina, La Perouse, Cook, Vancouver, and many others provide the first western descriptions of the area and its people. Cartographers create the first maps of the area and non-Native names are given to landforms.



1879 John Muir, guided by Tlingit men, paddles into Glacier Bay. They find the glacial ice has retreated 40 miles since 1794. Muir returns four times over the next 15 years. He constructs a cabin, makes extensive observations of glaciers, and explains interglacial tree stumps. The eloquent writings of enthusiasts like Muir and Eliza Scidmore begin attracting new visitors to the bay.

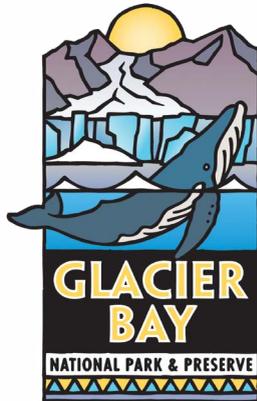


1916 U.S. Congress passes the Organic Act, creating the National Park Service.

1925 William S. Cooper, an ecologist studying plant succession in Glacier Bay, and the Ecological Society of America convince President Coolidge to establish Glacier Bay National Monument.

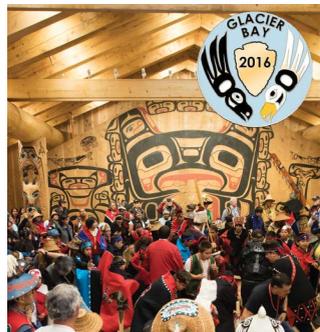


1980 Congress, under the leadership of President Jimmy Carter, signs the Alaska National Interest Lands Conservation Act into law. Glacier Bay becomes a national park and preserve encompassing 3.3 million acres.



1950

2016 The National Park Service celebrates its centennial: 100 years of “America’s Best Idea.” Glacier Bay celebrates with the opening of the Huna Tribal House, a collaborative project with the Hoonah Indian Association. The building serves as a cultural anchor and a place of learning.



2000

2017 Glacier Bay welcomes over 500,000 visitors annually.



1966 Glacier Bay Lodge opens as part of the “Mission 66” initiative that brought facility improvements to national parks nationwide during the 50th anniversary of the National Park Service.



1992 UNESCO designates Glacier Bay, along with Wrangell-St. Elias National Park and Preserve (Alaska), Kluane National Park Reserve (Canada) and Tatshenshini-Alseck Provincial Park (Canada), as a 24-million-acre World Heritage Site, one of the world’s largest internationally protected areas.



1995 The National Park Service and Hoonah Indian Association sign a Memorandum of Understanding to establish a working partnership.

Glaciers



Tall Fairweather Mountains standing at the edge of the Pacific Ocean create a perfect environment for glaciers.

Rivers of Ice

Tall, coastal mountains and an abundance of snow make Glacier Bay a comfortable home for hundreds of glaciers. Storms off of the Pacific Ocean collide with the towering Fairweather Mountains releasing incredible amounts of precipitation. The rain at sea level is typically snow in higher elevations. High in the mountains, more snow falls each year than melts. This massive amount of snow compacts, forming ice. With the influence of gravity, the ice slides down the mountainside. A glacier is born. Basically, a glacier is ice in motion.

As a glacier flows down the mountainside, it reaches lower warmer elevations. When a glacier gets more rain than snow, ice melts and the glacier diminishes in size, even as it continues its journey downslope. The balance between the amount of ice forming and ice melting determines whether a glacier advances (grows) or retreats (shrinks), though it always flows forward.

A few glaciers, called tidewater glaciers, reach all the way to the ocean, strong enough to survive with their ice touching warm ocean water. Tidewater glaciers have a naturally occurring cycle of advance and retreat that has shaped Glacier Bay for millennia. A few hundred

“Words and dry figures can give one little idea of the grandeur of this glacial torrent flowing steadily and solidly into the sea, and the beauty of the fantastic ice front, shimmering with all the prismatic hues, beyond imagery or description.”

-Eliza Scidmore, 1883

years ago, a glacier that sat mid-way down the bay for centuries advanced rapidly until it came to the waters of Icy Strait. The salty ocean water caused the glacial ice to melt and dramatically break away in a process called calving. Snowfall couldn't keep up with the amount of melting and the glacier retreated quickly. All of the glaciers visitors see in the park today are remnants of that once mighty glacier.

Glacier Bay's glaciers are among the healthiest in the world. Yet, like all glaciers, they are threatened by a rapidly warming planet. Their future is uncertain. However, the unique combination of mountains and snow creating Glacier Bay's glaciers ensures that this area will be home to glaciers for some years to come.

Glacier ID

At first glance, it may seem that all glaciers look alike. But as you spend time getting acquainted with the glaciers of Glacier Bay, you will soon realize that each one is unique.

Look all around for glaciers during your voyage. There are over 1,000 glaciers in Glacier Bay. Most are high in the mountains, though a few notable glaciers extend all the way to the sea. Which glaciers did you discover?



Reid Glacier

Length 9 miles • Width .75 miles

Reid Glacier sits at the back of a small inlet. Flowing from the Brady Icefield, Reid Glacier is draped beautifully over the low mountainside. It is small compared to other glaciers that reach sea level. Rapidly diminishing in size, Reid Glacier no longer produces icebergs.



Lamplugh Glacier

Length 16 miles • Width .75 miles

Pronounced “Lam-ploo,” this glacier is one of the bluest in Glacier Bay, flowing from the dense ice of the Brady Icefield. Calving occurs occasionally onto the sediment build-up visible in front of the glacier. Lamplugh is changing quickly, with massive rock slides from neighboring mountains impacting the look and structure of the glacier.



Margerie Glacier

Length 21 miles • Width 1 mile

Margerie Glacier looks like a picture postcard glacier: towering pinnacles of ice that regularly break off into the water. The edges of Margerie are dark and black lines intersect the white ice, evidence of rocks scraped off during the glacier’s journey downslope. Flowing directly out of the Fairweather Mountains, Margerie has been stable in the past. Recently the face of Margerie shows rapid change.



Grand Pacific Glacier

Length 34 miles • Width 2 miles

Grand Pacific Glacier is the primary glacier that carved Glacier Bay. Named by John Muir in 1879, Grand Pacific was much longer and more active then. Now covered almost entirely by rock, Grand Pacific looks more like land than ice. Yet small waterfalls and glimpses of glistening ice are clues that it is still a glacier.



Johns Hopkins Glacier

Length 12.5 miles • Width 1 mile

Johns Hopkins Glacier is visible from Jaw Point. Johns Hopkins is one of Glacier Bay’s most active glaciers as it tumbles down the steep mountainside. On clear days, towering mountain peaks ring Johns Hopkins Glacier, but on gray days, the contrast between the blue ice and the rocky black moraines makes the glacier glow.

Park Science

People from around the world explore and admire Glacier Bay, including researchers. The dramatic retreat of glaciers created a premiere scientific laboratory. Explorer John Muir initiated the park's remarkable legacy of scientific inquiry in the late 1800s. Botanist William Cooper secured protected status for Glacier Bay following his unprecedented research about how plant life follows glacial retreat. In fact, the initial proclamation protecting Glacier Bay National Park states research as a reason for national preservation. From whales and plankton to climate and otters, research is a common occurrence in the protected laboratory of Glacier Bay. This scientific study provides greater understanding and appreciation for the wilderness we explore. Learn more by reading the following pages, and make your own discoveries in Glacier Bay.

“The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.”

– Albert Einstein



Dr. Sandy Milner has studied streams created after glacier retreat for 40 years.

Meet a researcher *Sandy Milner, Pioneer of Glacier Bay Streams*

Dr. Alexander “Sandy” Milner has been researching Glacier Bay’s streams for 38 of the past 40 summers! His first visit was as an undergraduate student on an expedition from Chelsea College, UK in 1977. Here he found a natural living laboratory, a place to pioneer research

on how life establishes in new streams.

Today, Dr. Milner is regarded as the world expert on stream ecosystem development following glacial retreat. His work has revealed the patterns of stream succession as new watersheds form in this dynamic landscape. As streams age, the stream channels stabilize, water clarity improves, and water temperature

increases. Aquatic insect fauna become more diverse and abundant. Salmon colonize new spawning habitat.

Dr. Milner has shared his passion for learning and for Glacier Bay as a professor at the University of Alaska and the University of Birmingham (UK). He has supervised 12 graduate students (ten of them Ph.D.’s) and authored 26 scientific journal articles focused on stream development in Glacier Bay.

The transformation of streams continues to captivate Dr. Milner. When asked why he returns to Glacier Bay, he explained “I would never have thought when I sampled a cold Wolf Point Creek [Muir Inlet] with no vegetation on a barren landscape in the late 1970s as it emerged from the ice, that I would still be sampling the same stream 38 years later in a cottonwood forest with so much biodiversity and thousands of salmon spawning. The stream system is still dynamic and every year a new discovery is evident.”



Wolf Point Creek 40 years ago. The mouth of the stream emerged from under the retreating glacier in the mid 1940s.



The stream now supports pink salmon runs of more than 12,000 fish.



William S. Cooper recognized Glacier Bay as a living laboratory. He studied the process of pioneer plants colonizing land recently revealed by retreating glaciers.

A Vision of Preservation

People visit Glacier Bay to view amazing scenery, dramatic glaciers, and spectacular wildlife. Yet a century ago one man saw something else of great value here: incredible opportunities for science.

Botanist William Skinner Cooper (1884–1978) came to Glacier Bay in 1916 to study how plants colonize newly-exposed ground following glacial retreat. He recognized Glacier Bay as the best place on earth to witness the process of “plant succession,” a fascinating interplay of plants, nutrients, soil, and time. In this process, the bare ground emerging from beneath a glacier goes through various stages to become a rich, thick, mossy evergreen forest of towering spruces and hemlocks.

In Glacier Bay, Dr. Cooper saw a natural laboratory where scientific principles could be discovered as well as tested; a place where completely new scientific questions could be asked. As a prominent member of the Ecological Society of America, Dr. Cooper successfully led a committee of colleagues in a vigorous campaign to lobby President Calvin Coolidge for protection of the Glacier Bay area in 1925 as a national

monument. One of the monument’s fundamental mandates was to preserve the opportunity to conduct scientific studies, making Glacier Bay a true “park for science.”

Dr. Cooper returned to his beloved Glacier Bay many times to document the successional development in the study areas, or plots, he established on his first visit. Dr. Cooper’s students and other scientists continue his work on how ecosystems respond to glacial recession and, more broadly, global climate change. This ongoing research makes Glacier Bay the oldest continuously researched post-glacial landscape in the world.

Glacier Bay is preserved as public land for many reasons: protection of wildlife habitat, scenery, value to the world, enjoyment by present and future generations, and as a living laboratory. Glacier Bay still inspires new discoveries today.



Ecologist Brian Buma continues the legacy of research on Dr. Cooper’s original plots.



From rock to rainforest—in just 75 years! These images were taken at the same location, documenting landscape change.



Ninety-five percent of Alaska's glaciers are thinning, stagnating, or retreating.

The Ice Is Melting

The Earth's climate is changing—and fast! Climate change is real, and the world will be different because of it. Scientists who study the Earth's climate have documented warming temperatures in Alaska due to increased carbon dioxide levels. Warming temperatures lead to changes in fire cycles, tree growth, animal migrations, and rapidly melting glaciers. Of the more than 100,000 glaciers in the state, 95 percent are currently thinning, stagnating, or retreating, and more importantly, the rate of thinning is increasing. Glacier Bay's glaciers follow this trend. Recent research determined that there is 11 percent less glacial ice in Glacier Bay now than in 1950. However, heavy snowfall in the towering Fairweather Mountains means that Glacier Bay remains home to a few stable glaciers, a rarity in today's world.

Alaska and other polar regions experience the effects of climate change more strongly than other places. Decades of data from NASA's Goddard Institute for Space Studies show that Alaska and the polar regions have warmed more than twice as much as the rest of the earth. Climate change is a reality for Alaskans, threatening villages with coastal erosion, changing subsistence practices, and altering weather patterns. Ask park rangers about what changes they have noticed in Glacier Bay.

There is good news. We know much about climate change and it can be addressed. Humans are inventive, resourceful, and capable of overcoming great challenges. Although climate change is a global concern, we each hold a part of the answer to minimizing its impact.

Take a good look at the glaciers you see in Glacier Bay today. The next time you see these glaciers, they will be different. The Earth's climate is changing and Glacier Bay is warming. How will these changes affect you? One fact is certain: the choices we make today will make a difference in the future.



For more information about climate change in national parks, visit www.nps.gov/climatechange



A weather station high above the bay collects information that will contribute to understanding Glacier Bay's changing climate.

Tracking Ecosystem Change

Glacier Bay National Park and Preserve is a place of constant change. What you see today will be different tomorrow. Visitors experience a dynamic landscape and seascape that are continually adjusting, balancing the forces of nature. In many ways, intricately linked climate and ocean processes drive the park's changes. Some connections are quite clear—glaciers recede in a warming climate. Others are less obvious—ocean acidity impacts the food webs that many of the park's most iconic species, such as humpback whales and sea otters, depend on. Therefore, long-term records of climate and ocean conditions provide the necessary backdrop for understanding the changes occurring in Glacier Bay.

Just as a doctor assesses your health based on a medical history, Glacier Bay National Park and Preserve along with the NPS Southeast Alaska Network inventory and monitoring program are assessing Glacier Bay's health through long-term monitoring of selected climate and ocean "vital signs." To track climate health, a number of weather stations are being installed throughout the park. These automated stations monitor long-term trends in air and soil temperature, precipitation, solar radiation, and snow depth. To assess the health of Glacier Bay's marine waters, oceanographic monitoring was initiated in 1993, representing one of the longest-running oceanographic datasets in Alaska waters. Oceanographic conditions—including water

temperature, salinity, solar radiation, water clarity, dissolved oxygen concentration, and indicators of phytoplankton abundance—are monitored at fixed stations throughout the bay for determining long-term trends.

To take care of this special place, it is important to fully understand the health of its natural systems. As Glacier Bay continues to change, the long-term monitoring of its vital signs, both above and below the water, helps us to further understand the forces at work in order to protect the park well into the future.

More information and access to data and reports are found here: <https://science.nature.nps.gov/im/units/sean>.



Researchers collect ocean water from the depths of Glacier Bay to document changing conditions for marine life.



USFWS Permit #MA14762C-0

Sea otters are seen all over Glacier Bay, though 25 years ago they were a rare sighting.

New Tools for Monitoring Sea Otters

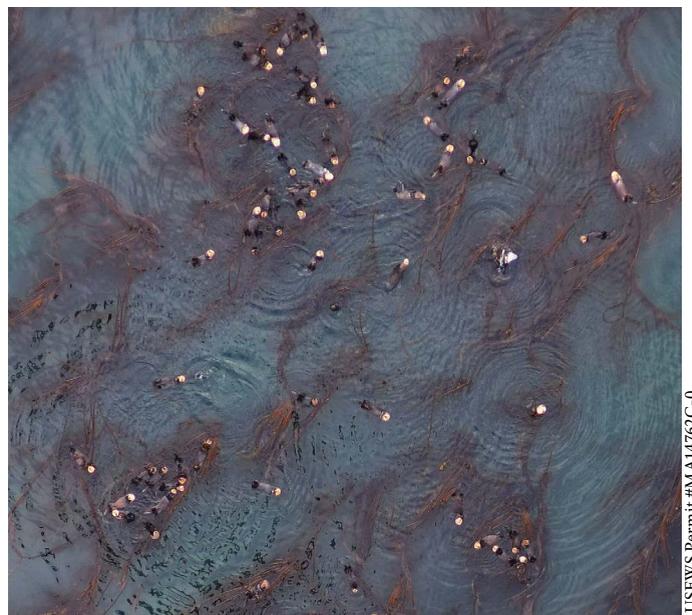
Many Glacier Bay visitors enjoy sightings of sea otters. Sea otters are fun to watch, but they also represent an incredible story of conservation, resilience, and change. New aerial photographic survey methods and analysis will help researchers better understand the park's dynamic sea otter population.

By the beginning of the twentieth century, sea otters were almost extirpated from much of their range, hunted heavily for their soft fur. In the 1960s, around 400 sea otters from the Aleutians were translocated to southeastern Alaska. In the protected waters of Glacier Bay National Park, the sea otter population has grown from a few individuals in the late 1980s to more than 5,000 animals in 2012. Sea otters are now one of the most abundant and widely distributed marine mammals in the bay.

Scientists consider sea otters a “keystone species” because they play an important role in structuring the nearshore ecosystem and food web. Sea otters forage on a variety of species including mussels, clams, crabs, fish, and sea urchins. Sea urchins eat kelp, suppressing the growth of kelp forests. When otters predate on urchins, kelp forests thrive, creating shelter for many other animals.

Due to sea otters' role as a keystone species, the NPS Inventory and Monitoring Program, Colorado State University, and USGS Alaska Science Center initiated a study to learn more. Their goal is to better understand where sea otters are in the bay, how many there are, what areas they use and how this changes

over time. In 2017, researchers conducted the first aerial photographic surveys of sea otters in Alaska using new methods. Researchers collected over 18,000 digital photos from three survey days in Glacier Bay. Back at the lab, scientists counted the number of sea otters in the photos. The combination of counts from aerial photographs with innovative statistical modeling techniques provides new tools to estimate the abundance and distribution of sea otters. These new tools offer valuable information as the story of sea otters continues.



USFWS Permit #MA14762C-0

An aerial image of sea otters in a bed of kelp. How many do you count?



View of uplifted marine terraces along Glacier Bay's Outer Coast where sediments containing pre Ice Age forests are preserved.

Ice Age History of Glacier Bay's Outer Coast

Could Glacier Bay hold a missing piece in the story of human migration to North America? Dr. Dan Mann, a scientist from the University of Alaska, is searching the park's wild Outer Coast for clues.

Glacier Bay is famous for providing insights into nature's recovery after glaciers retreat. Many of these changes occurred in less than 300 years—the blink of an eye in geologic terms. Yet the park contains older records of change, some of which may help settle the debate about when people first reached the Americas.

Forty thousand years ago, a forest like the one found today grew along the Outer Coast, a rugged wilderness between the Gulf of Alaska and the Fairweather Range. Shortly thereafter, glaciers advanced, destroying everything in their paths. However, isolated upland areas were beyond the glaciers' reaches, where soil and vegetation remained.

Dr. Mann's search for these areas containing ancient soils, buried forests, and uplifted beach deposits starts in the office. He uses aerial photos to identify locations likely to have escaped glacial destruction. The challenge is actually getting there. The team lands in a float plane and treks through dense vegetation and across glacial lakes. They search for plant remains to use for radiocarbon dating. Preserved pollen samples determine ancient vegetation. Ripple forms preserved in buried sand indicate glacier flow. Field work is often

interrupted by storms, bears, and, sometimes, getting lost in the woods.

So far, results indicate that glaciers retreated abruptly 16,000 years ago, and by 14,600 years ago the Outer Coast was ice-free. This date is important because the earliest archaeological remains in Oregon and Chile date to shortly thereafter. This study demonstrates the feasibility of the First Americans traveling south along this ice-free coast. The search continues for the elusive missing piece, an actual archaeological site proving people were present along the coast at that time. Until that discovery, researchers will continue their work along the Outer Coast to decipher Glacier Bay's—and humanity's—history.



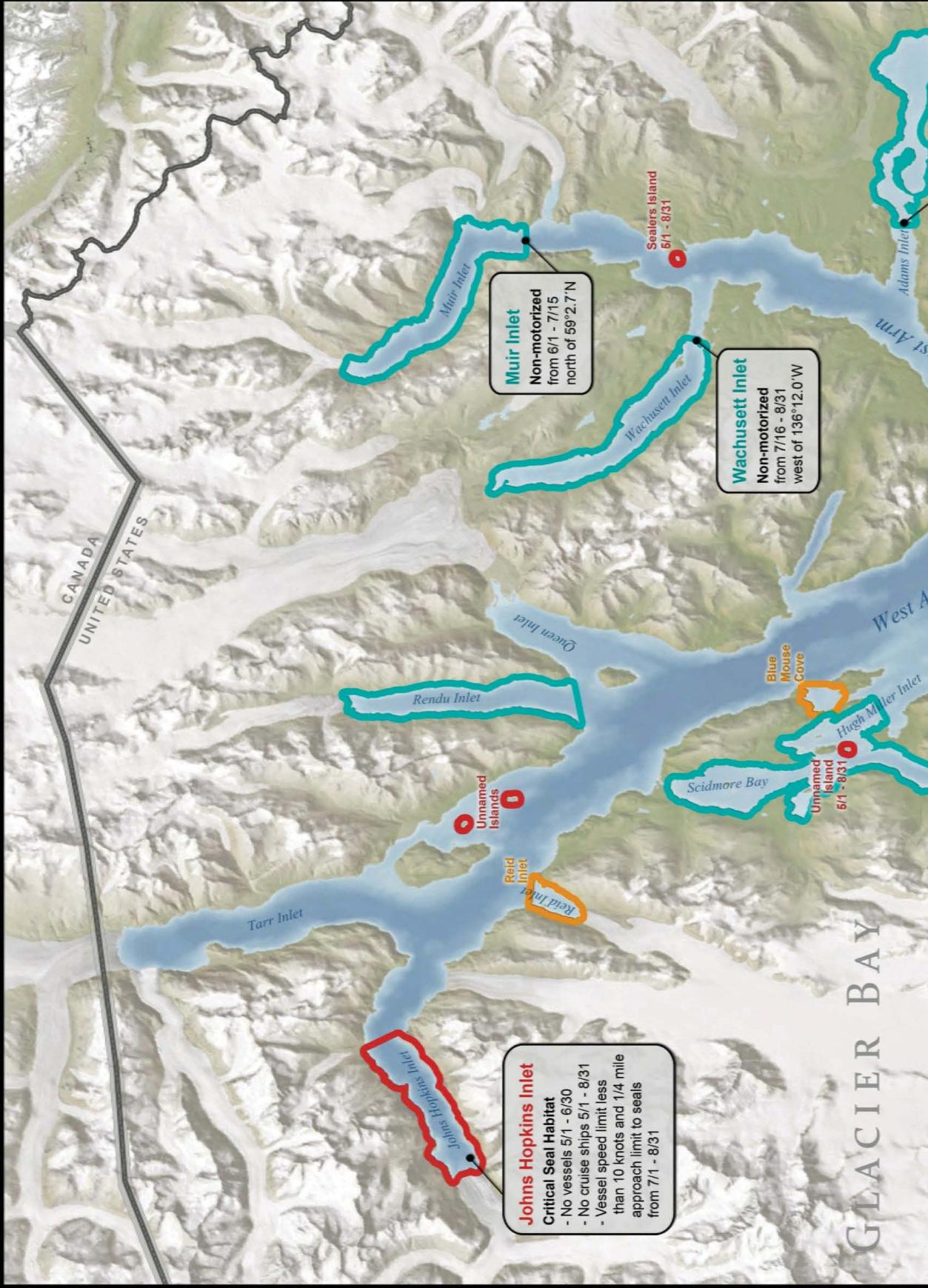
Researcher digs in the rain to sample the remains of a 40,000-year-old forest bed that may hold ancient clues to human history.

Guide to Park Waters

For Boaters, Kayakers, and Campers



Glacier Bay National Park & Preserve
National Park Service
U.S. Department of the Interior



GLACIER BAY

NATIONAL PARK



Adams Inlet
Non-motorized
east of 135°59.2'W

Check with the Visitor Information Station for additional camping or boating temporary restrictions.

Thank you for adhering to these restrictions. They were designed to protect park resources and to provide for a wide range of visitor recreation opportunities.

Notify Bartlett Cove before entering and exiting Glacier Bay between May 1 - September 30 (VHF KWM20 channel 16 or 907-697-2627)

Please contact the Visitor Information Station for additional information about boating permits, camping permits, or other questions concerning Glacier Bay.
(907) 697 - 2627
1 Park Road, PO Box 140
Gustavus, AK 99826
<http://www.nps.gov/glba>

Legend

- Critical Wildlife Areas**
Year-round closures, except as noted
Approach no closer than 100 yards
- Non Motorized Waters**
5/1 - 9/15, except as noted

- Whale Waters**
Vessel course and speed restrictions apply 5/15 - 9/30
Darker blue indicates one nautical mile from shoreline
- Noise Restricted Areas**
Generators prohibited 6/1 - 8/31 from 10pm to 6am



Boating



Amazing Adventures Await!

Glacier Bay provides amazing opportunities for wilderness discovery. Time spent exploring the backcountry creates memories of a lifetime. Wilderness is full of surprises, so planning ahead and preparing for your adventure helps ensure a fulfilling and safe trip. The following pages give a wealth of information about camping and boating in Glacier Bay.

If you plan to camp or boat during your visit, your first stop should be at the Visitor Information Station (VIS) near the public dock. During the summer, a free permit is required for all motorized boating and overnight camping. Orientations are required annually for all

campers and boat captains. These orientations will help you to make the most of your time in Glacier Bay, safely and with minimum impact to the park. Orientations cover current backcountry conditions, regulations, safety issues, resource situations, tides, and weather. Backcountry campers can check out bear-resistant food containers to use free of charge during their visit.

It is your responsibility to know and follow the regulations of Glacier Bay National Park and Preserve. We can help. If you have any questions, please contact the park or ask a park ranger at the VIS, the visitor center, or at park headquarters.

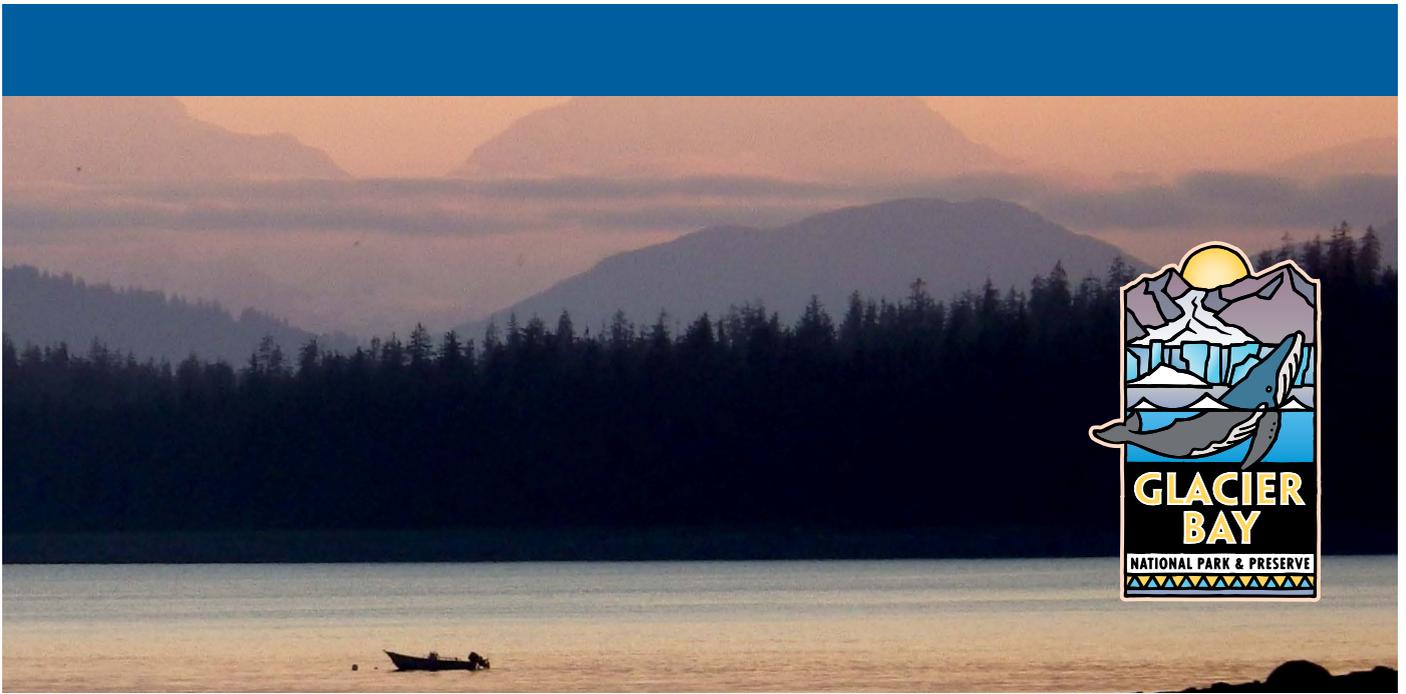
Help Keep Glacier Bay Clean

Glacier Bay is remarkably pristine and free of litter. You can help keep the park clean and efficient. Please separate your waste into the appropriate bins in the parking lot near the public dock. Your efforts to separate recyclable refuse make it possible to reach the 70 percent record that the park holds for recycling or reusing waste in its day-to-day operations.

Recycling is a serious endeavor in Glacier Bay. The park collaborates with the neighboring city of Gustavus to send shipments of aluminum, paper products, steel, tin, and most plastics to recycling

centers. Park staff do a final hand-sorting of trash to ensure that all recyclable items are in recycling shipments. Locally, food waste from the park and the lodge is composted into topsoil for use in the community.

With your help, Glacier Bay National Park and Preserve will continue to achieve one of the best recycling rates in the National Park Service. We can all work together to keep Glacier Bay's environment clean and healthy.



Park Regulations

The following is a partial listing of laws and regulations designed to help you have a safe, enjoyable visit while protecting park resources. For further information or questions on additional regulations, please ask a park ranger.

Feeding Wildlife is prohibited. All food, fish, garbage, and equipment used to cook or store food must be cached inside of a motor vehicle (not in open pickup), vessel (excluding kayaks), building, approved bear-resistant food containers, designated trash receptacle, or designated food cache.

Camping in Bartlett Cove is allowed only in the designated campground or one mile away from any road, building, or trail.

Firearms are prohibited in federal facilities. Special regulations apply when carrying firearms within Glacier Bay National Park and Preserve. Please contact the Visitor Information Station at Bartlett Cove at 907-697-2627 for further guidance.

Hunting is only permitted on the preserve lands in the Dry Bay area. All persons 16 years and older are required to hold a valid Alaska State Hunting License.

Harvesting the following for personal use and consumption is allowed: unoccupied seashells, edible berries and fruits, edible mushrooms, clams, and mollusks. State regulations apply.

NOTE: Eating clams and mussels from Glacier Bay is not recommended because of the presence of a naturally occurring neurotoxin that causes paralytic shellfish poisoning in humans and can lead to sudden death.

Pets are allowed on land in only a few select areas, may not be left unattended, and must be leashed at all times. Pets are not allowed on trails or in the backcountry. Pets are allowed on vessels on the water, on the Bartlett Cove public use dock, on the beach between the Bartlett Cove public use dock and the park headquarters dock, and within 100 feet of Bartlett Cove roads or parking areas unless otherwise posted. Clean up after pets.

Sport Fishing by all persons 16 years and older requires a valid Alaska State Fishing License, available during the summer months at Glacier Bay Lodge and some businesses in Gustavus. Consult Alaska State Fishing regulations when purchasing a license.

FOR YOUR SAFETY

You are in a remote, isolated area. The closest hospital or trauma facility is in Juneau, 30 minutes by air. Weather conditions can delay medical evacuations or other emergency transport, sometimes for days. Plan and prepare for your trips carefully! Even for short excursions, always let someone know where you are going and what time you plan to be back.

Boating

Essentials for Motorized Vessels

Permits

- Are required for private motor vessels from June 1 through August 31.
- Are free and valid for up to seven consecutive days.
- Must be confirmed 48 hours before scheduled entry date or permit will be cancelled.
- Are only valid for operation of one vessel at a time.

To confirm permits or to see if permits are available, call the Visitor Information Station “KWM20 Bartlett Cove” on marine band 16 or phone 907-697-2627. Permit applications are accepted 60 days before the intended entry date and are available at www.nps.gov/glba. From May 1 to September 30, all vessels must call in to KWM20 prior to entering and also when exiting the park.

Docks

Bartlett Cove Dock:

- Vessels may dock for a maximum of 3 hours in a 24-hour period. After that, anchor out beyond the white “no wake” buoys.
- Dinghies 10 feet or less may dock in the designated area for up to 24 hours.
- Do not leave vehicles or personal property unattended on docks.
- Use only slips designated for your use. See dock bulletin board.
- Potable water is available on the dock.

Fuel Dock:

- For hours, call Glacier Bay Lodge on marine band 16 or phone 907-697-4000.
- Fuel is available during the Glacier Bay Lodge operating season.
- Access to shore via the fuel dock is not permitted.
- Do not leave vessels unattended at the fuel dock.

Anchorage

- Boat operators should carefully consult their charts when choosing an anchorage.
- Anchor in water deep enough to remain afloat at low tide.
- Safety depends on ice, wind, and tide conditions.
- Please do not raft or anchor next to the South Sandy Cove Ranger Raft.
- Boats at North Sandy Cove, Reid Inlet, and Blue Mouse Cove may not run generators or any other non-propulsive engines between 10 p.m. and 6 a.m. except when using a windlass.



Be Careful on the Water

Closures: Areas designated as Critical Wildlife Areas are off limits to entry and landings for all or part of the year. In summer, some areas are off limits to motorized vessels—including sailing vessels with auxiliary motorized propulsion, even if not in use. Know and obey all closures. See Guide to Park Waters, pages 20–21.

Cruise Ships: No more than two cruise ships are permitted in the park per day. These large vessels cannot turn quickly and may take miles to stop. Do not approach them when they are stationary in front of the glaciers. Do not get in their path and do not assume they see you. Watch for large wakes from ships. These waves can reach the beach over 10 minutes after the ship has passed.

Currents & Winds: The forces of tides, currents, and wind can combine in certain places to create dangerous conditions. Areas that may require extra caution include Sitakaday Narrows, Beardslee Entrance, McBride Entrance, Berg Bay, and the north shore of Adams Inlet. Plan crossings of wide channels carefully. Be prepared to change your route or wait for dangerous conditions to subside.

Ice: Glaciers can calve from above and below the waterline. Underwater tongues of ice can break off and shoot to the surface. Approaching tidewater glaciers closer than ¼ mile is not recommended.



Kayaking is a great way to explore Glacier Bay!

Tides: Secure boats, kayaks, and gear well above the high tide line. Beware of extreme high tides. Some waterways are tide dependent and may only be passable at high tide.

Landslides: Many of Glacier Bay’s steep mountainsides are unstable. Landslides may occur at any time, potentially resulting in large waves in narrow inlets and along shorelines.

Weather: Mid-May through September, weather forecasts and satellite images are posted daily at the Visitor Information Station bulletin board. Rangers broadcast the marine forecast and other important notices over marine band 9 at approximately 8:45 a.m. and 5:45 p.m. daily.

Maps and Charts

Topographic Maps:

Trails Illustrated Map by National Geographic 1:250,000

USGS Quadrangles 1:63,360

Nautical Charts:

17300 Stephens Passage to Cross Sound

17318 Glacier Bay

17302 Icy Strait and Cross Sound

17301 Cape Spencer to Icy Point

16762 Lituya Bay

Emergency

In an emergency, call by phone (907-697-2651) or by radio on marine band 16 (state “Mayday, Mayday, Mayday”).

NOTE: Radio coverage in the bay is spotty, and cell phone coverage is nonexistent. If needed, hail another boat nearby to relay messages.

If you have no radio, wave a large brightly colored item toward a passing boat. Tie this item to a stick, oar, or kayak paddle for greater visibility.

Weather & Tides

Glacier-Making Weather

Glacier Bay has a maritime climate, heavily influenced by ocean currents. The result is mild winter temperatures and cool summer temperatures near sea level. Summer visitors can expect highs between 50° and 60° degrees Fahrenheit (10–15 degrees Celsius). Winter temperatures rarely drop into the single digits, with average nighttime lows in the mid 20s and highs in the upper 30s.



Be prepared for wet and cold weather in Glacier Bay!

Bartlett Cove receives about 70–75 inches of precipitation annually. You may find yourself thinking it's all coming down during your visit. April, May, and June are usually the driest months of the year, while September and October tend to be the wettest. All this moisture helps to create the lush temperate rainforests of the lower bay.

Keep in mind, these are weather conditions at sea level. Up in the mountains, conditions are more severe with colder temperatures and more precipitation that takes the form of snow. It's all that snow falling year after year that goes into creating the magnificent glaciers we love to see.

What to Wear?

The weather in Glacier Bay can change quickly over the course of the day, especially if you are traveling into the bay. Dressing appropriately will enhance your trip by allowing you to stay out in the elements and make the most of wildlife and glacier viewing. Wool and synthetic clothing such as fleece will keep you warm even if the clothes are damp. Always have raingear with you. Remember, it's usually cooler on the water and near glaciers. Bring extra layers for warmth.

When you have clothes to keep you comfortable, you can appreciate the wonders of Glacier Bay no matter the weather!

Hypothermia—Killer Cold

In the backcountry, good rain gear is a must. Staying dry will help you stay warm as wet clothing can wick away body heat and lead to hypothermia—the lowering of the body's core temperature. Hypothermia can kill. Prevention and early recognition are vital to safe camping. A victim of hypothermia may not realize his or her condition, and will often deny being cold or needing help.

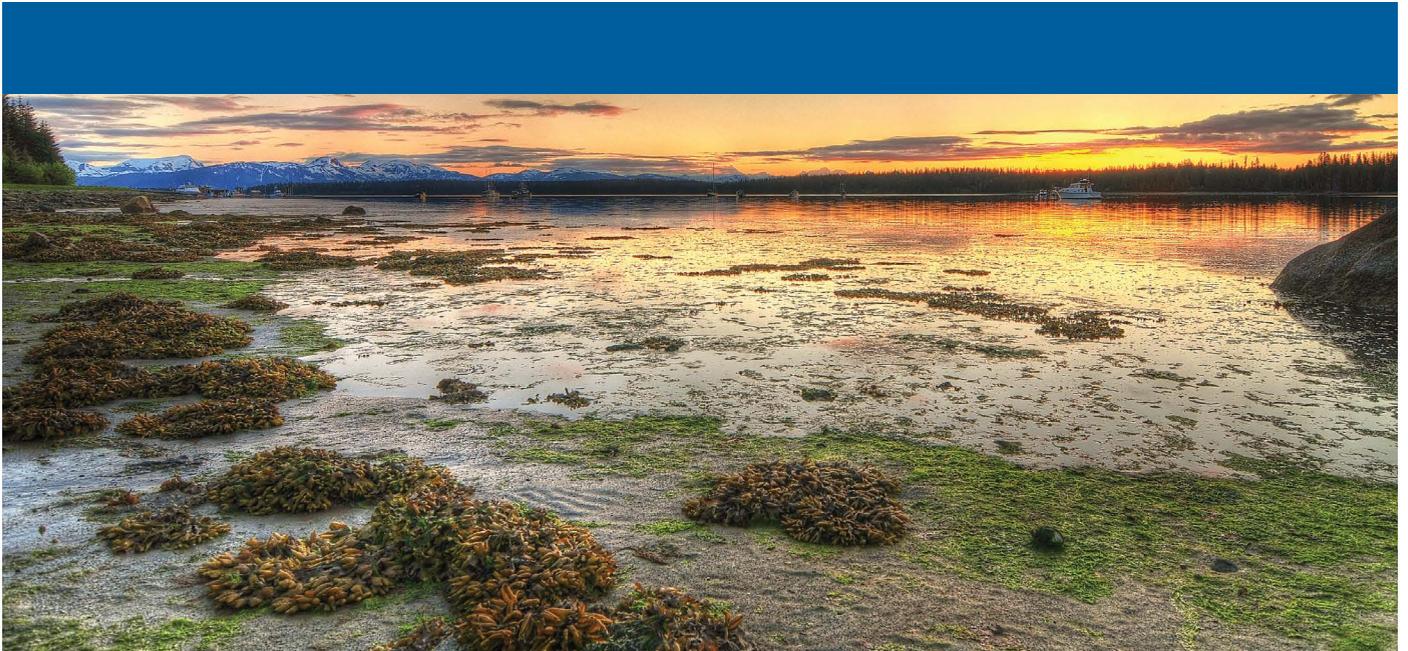
Early Symptoms: Violent shivering, changes in mood or consciousness, irritability, cool, pale skin, slow or weak pulse, slow, shallow breathing.

Advanced Symptoms: Absence of shivering, unconsciousness.

Treatment: Prevent further heat loss. Provide shelter from cold, rain, wet ground, and wind. Replace wet clothing with dry synthetic clothing. Techniques to stay warm include:

- Wrap patient in space blanket, sleeping bag, or ground cloth.
- Wrap warm water bottles in cloth and place in the sleeping bag with patient.
- Provide close contact with another warm person.
- Build a fire.
- Feed patient sugars, carbohydrates, or sweet warm drinks.
- Keep patient awake.

DO NOT: Give alcohol, rub or massage the affected area, or expose to excessive heat.



Twice a day, an amazing world is exposed by the changing tides. The intertidal zone is full of life uniquely adapted to this area between high and low tide.

Tides

The tidal fluctuations in Glacier Bay can be as high as 25 feet. This means that one moment you may be standing on the beach looking at mud flats stretching out for 100 yards and hours later the water is lapping at your toes. Or worse: one minute you've pulled your kayak up on shore so you can enjoy lunch, but you wake up 30 minutes later from your post-lunch nap to see your kayak floating away.

You hardly need to spend more than six hours in Bartlett Cove to realize that there is something interesting going on with the tides.

Tides result from the gravitational pull between the sun and the moon, and their relationship to the Earth. As these three celestial bodies are constantly in motion, the amount of gravitational pull varies, and the tide levels change. Because it's closer, the moon has the strongest influence on the tides. Its gravitational attraction causes the water surrounding the Earth to bulge. It bulges on the side closest to the moon due to gravitational pull. The bulge on the opposite side of the Earth is due to centrifugal force.

There are usually two high and two low tides daily on the West Coast. The times for highs and lows shift about 50 minutes later on subsequent days. This means if high tide is at 9:00 a.m. one day, it will be high at about 9:50

a.m. the next day, around 10:40 a.m. the next, and so on. Local conditions, such as topography, also influence the tides and the currents they generate. The entrance to Glacier Bay is narrow, yet a great deal of water must rush through that opening twice daily, creating currents in Sitakaday Narrows as strong as seven knots.

To see this incredible force in action, walk down to the water's edge about three hours after high or low tide. Fix your gaze on a shell or a piece of seaweed and watch how its proximity to the water's edge changes in just minutes. Be sure to keep that in mind when you decide to enjoy an after-lunch nap on your next paddling adventure.



This huge iceberg was stranded on the beach by the outgoing tide.

Camping



Take Care of Your Park

By practicing Leave No Trace Principles we help to ensure that future generations can enjoy Glacier Bay in the same condition as it is today.

Plan Ahead and Prepare

- Have the appropriate charts, maps, and navigation tools.
- Allow time for a thorough camper orientation prior to obtaining your permit.
- Be familiar with park regulations and unique concerns for the area.
- Prepare for extreme weather, hazards, and emergencies.

Travel and Camp on Durable Surfaces

- Do not camp within 100 feet of a stream or lake.
- Leave your campsite as natural as you found it.
- A good campsite is FOUND and not MADE.

Dispose of Waste Properly

- Pack it in—pack it out.
- Keep all trash in a bear canister.
- Deposit human waste either in a hole dug at least six inches deep in a location at least 100 feet from any freshwater source or in the intertidal zone (below high tide line), allowing the tide to remove the human waste.
- Toilet paper must be burned or carried out.

Leave What You Find

- Unoccupied shells and berries or plants may be collected for personal use or consumption.
- Collection of rocks, flowers, or artifacts is not allowed.
- For lasting memories, take pictures or make sketches.

Minimize Your Campfire

- Avoid the need for a campfire. Use a cook stove.
- Campfires are permitted below the high tide line. Break up any campfire rings before leaving the site.
- Burn only dead and downed wood. Do not burn interglacial wood, which comes from the exposed remnants of ancient forests found on certain beaches within the bay. Ask a ranger for details.

Be Considerate of Others

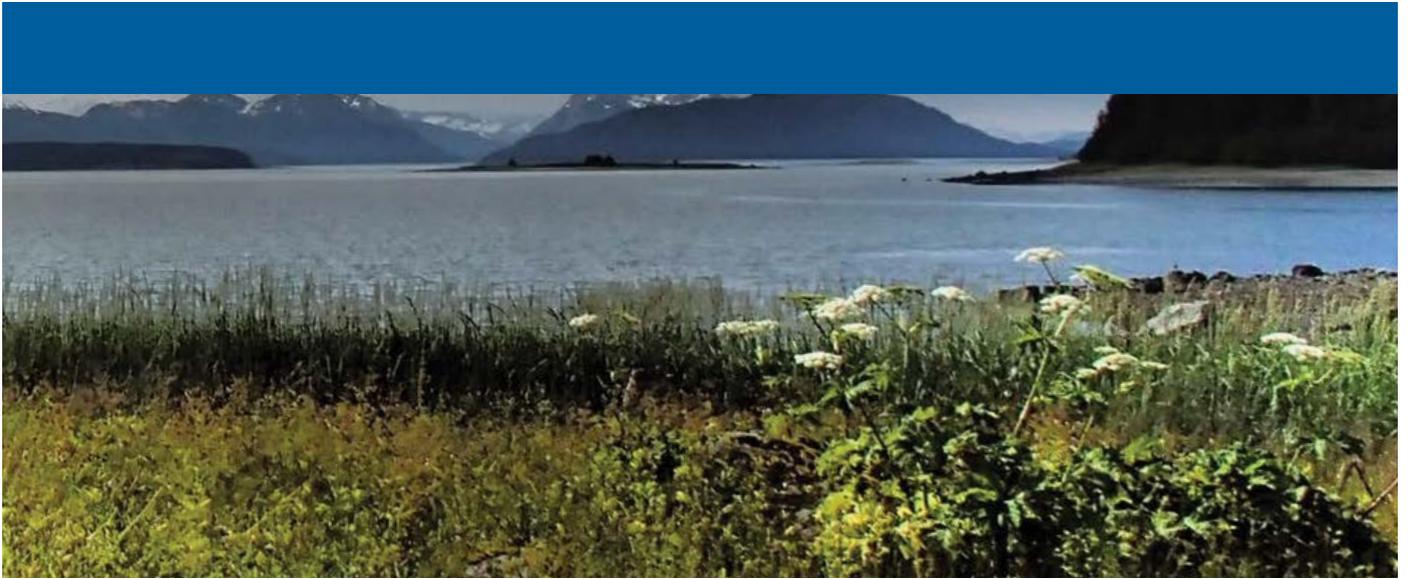
- Avoid camping near other parties.
- Keep your camp and activities as inconspicuous as possible.
- Groups larger than 12 are not allowed.

Respect Wildlife

- Choose a campsite that shows few signs of wildlife.
- Watch carefully for and avoid ground nesting birds.
- Cook and eat in the intertidal zone at least 100 yards from your campsite.
- Never leave food unattended.
- Store all food and scented items in a bear canister in brush or behind rocks at least 100 yards from camp, not in your boat or kayak.

✓ Check In

If you fail to check in at the Visitor Information Station as scheduled, rangers will begin a search the day after your scheduled return, starting with the areas indicated on your permit.



In the Backcountry

A free permit is required between May 1 and September 30. Certain parts of the bay are closed to campers, either permanently or temporarily, due to animal activity or resource protection. Ask a ranger at your camper orientation about any current advisories.

Bartlett Cove Campground

A free, walk-in tent campground is located at Bartlett Cove. You must register for a site at the Visitor Information Station (VIS). Wheelbarrows are available to help haul gear between the VIS, dock, and campground. Drinking water is available near the VIS.

Please observe the following:

- Store all food, trash, and scented items in the caches provided in the campground.
- Cook, prepare, and eat food only in the intertidal zone next to the campground. Never eat or cook in the campground or warming shelter.
- Dispose of trash and recyclables in appropriate bins near the VIS.
- Fires are permitted only in the designated campground beach fire ring.



Tent sites in the walk-in campground are located in the temperate rainforest.

Arriving on the Ferry?

Since 2011, the Alaska Marine Highway ferry system has provided regular service from Juneau.

Although this new option affords both visitors and residents many new opportunities to travel with a personal vehicle, you may not find all the services and amenities one might expect in other road-linked Alaska communities. If arriving with a vehicle be aware that:

- Glacier Bay National Park is essentially roadless. Bartlett Cove is accessible by vehicle from Gustavus, but all other areas may only be reached on foot, by boat, or by small aircraft.
- National Park facilities in Bartlett Cove were not designed to accommodate visitors with private vehicles, and parking may be limited.
- There is one primitive campground in the park. It is accessible on foot only.
- There are no RV facilities (sites/dump station/hookups/etc.) or vehicle camping areas within the park. Camping is not permitted in parking areas or along the park road.
- For the latest updates on park facilities call 907-697-2230 or visit www.nps.gov/glba
- There are various lodging and other services available in Gustavus. For more specific information please contact the Gustavus Visitors Association at 907-500-5143 or www.gustavusak.com.

Wildlife

When the ice retreated in Glacier Bay, it left behind a scoured landscape of rocks and a deep valley filled with ocean water. In time, plants returned to the seemingly sterile land. Eventually, animals returned to the land and waters. Today, a wide diversity of life calls Glacier Bay home. As you explore Glacier Bay, keep your eye out for some of these more frequently seen members of the community. As you admire Glacier Bay's wildlife, be respectful of the animals' home.

By Land



Moose

Alces alces

The largest member of the deer family is a recent newcomer to Glacier Bay. The first moose was spotted here in the late 1960s.

Despite their tremendous size (bulls can weigh 1,600 pounds and cows 1,300 pounds), they can appear and disappear in thick brush with surprising stealth. Moose are usually solitary, except for cows with calves and during the fall rutting season. Their diet includes willow leaves, grasses, herbs, and aquatic vegetation. Only bulls grow antlers.



Mountain Goat

Oreamnos americanus

Mountain goats have thick white coats of hollow hairs that help to keep them warm in extreme weather. Goats may have been among the first land animals to

recolonize Glacier Bay after the ice retreated, coming over the mountains from Lynn Canal to the east. They are at home on the steep rocky cliffs in the mid-to-upper bay.



Black Bear

Ursus americanus

Black bears inhabit the forests of the lower bay and Bartlett Cove and can often be seen grazing in the beach meadows. They have a straight facial profile

and prominent ears. Black bears lack the distinctive shoulder hump of brown bears. Black bears stand about three feet high at the shoulder and weigh 125 to more than 300 pounds. Though they are often black, they may be brown, blonde, or even blue-gray.



Porcupine

Erethizon dorsatum

You may find this prickly member of the community high up in a cottonwood tree nibbling tasty tender leaves. Except for their footpads and nose,

porcupines are completely covered with yellowish fur and quills, which are actually modified hairs tipped with barbs. A threatened porcupine will turn its back-end toward the source of trouble to present an intimidating display of quills that firmly suggests the would-be predator reconsider its dinner plans.



Red Squirrel

Tamiasciurus hudsonicus

If you see a little red flash zipping up a tree trunk or leaping nimbly among the branches, chances are it is a red squirrel. These agile rodents spend their summer

preparing for winter by collecting and storing green spruce cones in their middens, mounds of cones at the base of a tree. A red squirrel can harvest 12,000 to 16,000 spruce cones a year.



Brown Bear

Ursus arctos

Though present throughout the park, brown bears are most often seen on the beaches or sparsely vegetated hillsides of the upper bay. Brown

bears, also called grizzlies, have a prominent shoulder hump and a curved, "dish-shaped" facial profile. When on all four legs, brown bears stand about three and a half feet tall, but can tower more than nine feet when standing upright. They weigh an average of 500–1,000 pounds and range in color from honey blonde to dark brown and black.



By Sea



Humpback Whale

Megaptera novaeangliae

Of all the whale species, humpbacks are the favorite of whale watchers, as they exhibit a variety of displays such as breaching (leaping out of the water) or slapping

the ocean surface with their pectoral flippers or their tails. Humpback whales are most easily spotted by their blow. This distinctive mist occurs when whales exhale warm air into colder air. Though they are extremely large animals, most observers of this whale see only the dorsal fin when they come to the surface to breathe air.



Harbor Seal

Phoca vitulina richardsi

Harbor seals have a dappled gray coat that can be highly variable between individuals. A thick layer of fat allows them to keep warm in otherwise chilling

conditions. On ice floes, they resemble plump sausages that move around by scooting on their ample bellies. In the water, they display admirable grace as they hunt for fish.



Steller Sea Lion

Eumetopias jubatus

Like all members of the eared seal family *Otariidae*, Steller sea lions can support themselves on their flippers while ashore, and their rear flippers pivot,

allowing them to get around with surprising speed. Mature males can weigh almost 2,000 pounds, though females average only 600 pounds. Though the number of sea lions is growing in Glacier Bay, the population in Western Alaska has decreased by 80 percent since the late-1970s leading to that portion of the population's current listing as endangered.



Orca

Orcinus orca

Often called a killer whale, orcas are the largest member of the dolphin family. With striking black and white coloration, killer whales are easy to identify from other

cetaceans. Male killer whales can attain lengths of 32 feet and weigh up to 9 tons. Females are much smaller, reaching 23 feet and weighing about 4 tons. Males have a tall, straight triangle dorsal fin, while female dorsal fins are curved and shorter. Orcas may be observed throughout Glacier Bay, alone and in small pods.



Sea Otter

Enhydra lutris

The Glacier Bay sea otter population has rebounded from zero to almost 9,000 in the last 20 years. Sea otters perform many of their daily tasks such as eating, bathing,

and sleeping while floating on their backs. Lacking a thick layer of blubber, otters instead have the densest fur of any mammal with up to one million hairs per square inch.



Harbor Porpoise

Phocoena phocoena

At five feet long and about 120 pounds, harbor porpoise are the smallest cetaceans in Alaska waters. Often seen in groups of two to ten throughout the bay, they

announce themselves by offering a brief glimpse of their small triangular dorsal fin cutting slowly through the water's surface when they come up to catch a breath. Harbor porpoise are generally dark gray with a slightly pointed face. They do not ride bow waves, like their relative the Dall's porpoise.

Bears

Be Bear Savvy

While walking, hiking or camping in Glacier Bay, you may encounter a bear. The vast majority of these encounters do not result in human injury or property damage. You can help prevent injury to yourself or to the bear by taking a few basic precautions.

- Be alert.
- If you carry bear spray, know how to use it.
- Be aware of what goes on around your campsite.
- Make noise, especially in wind or near rushing water.
- Choose routes that offer good visibility.
- Travel in groups of two or more.
- Keep your personal items and food within reach.
- Do not pursue or approach bears for photographs.
- Avoid streams with spawning fish.



Fishing the Bartlett River

- Harvested fish must be kept within 6 feet of person.
- All harvested fish must be packed out whole, except for gills and entrails which should be disposed of in the deepest and fastest current of the stream.
- If a bear approaches while you have fish on the line, cut the line.
- Never yield your catch or other food items to a bear or other wildlife.



Mother bears are protective of their cubs.

Be a Smart Camper

Both campers and bears frequent the beaches of Glacier Bay. Bears only have six to eight months to acquire the calories and fat reserves needed for the entire year, and the shoreline is essential for food and travel. The following guidelines will minimize your disruption of bears and help keep them wild.

Cooking and storing food

- Cook and eat in the intertidal zone at least 100 yards from your tent and food storage area.
- Wash cooking gear in marine waters.
- Be prepared to quickly stow all food should a bear suddenly approach.
- Keep all food, trash, and other scented items in a bear-resistant food container (BRFC).
- At night, store BRFCs and clean cooking gear in brush or behind rocks away from animal trails, 100 yards from camp, and not in your boat.

Choosing a campsite

- Avoid areas with bear sign, including an abundance of scat, animal trails, and chewed or clawed trees.
- Avoid active salmon streams.
- Store your kayak and pitch your tent clear of the beach.
- Select a site that would allow bears room to pass at high tide.
- Maintain a clear view of your gear and surrounding terrain.

Control your gear

- Keep gear together. The more spread out your gear is, the more difficult it is to defend.
- To minimize potential bear damage to gear, consider breaking down your campsite daily.

When encountering humans, most bears will run away, approach curiously, appear to ignore the situation, or act defensively. By staying alert, calm, and tailoring your reaction to the bear's behavior and species, you increase the odds of a positive outcome for both you and the bear.



If You See a Bear

The Bear	What You Can Do
May or may not be aware of you	<p><i>What is your activity and degree of mobility?</i></p> <p><i>You are hiking or kayaking (mobile):</i></p> <ul style="list-style-type: none"> • Change your course to avoid bear. • Monitor bear's movement. • If bear is close, talk calmly to avoid surprising it. <p><i>You are camping or eating (not mobile):</i></p> <ul style="list-style-type: none"> • Keep all gear under direct control. • Group together without blocking bear's route. • Talk calmly to make bear aware of you. • Stand your ground.
Moves toward you	<ul style="list-style-type: none"> • Monitor bear's movement. • Stand your ground and talk calmly. • Allow bear to pass peacefully.
Becomes focused on you	<ul style="list-style-type: none"> • Stay together and stand your ground. • Be assertive and elevate your defense: clap your hands, wave your arms, use noisemakers such as air horns, or bang pots together.
Charges	<ul style="list-style-type: none"> • Continue to stand your ground and look big. • Use bear spray if you have it. • Few charges end in contact.
If a bear makes contact	<ul style="list-style-type: none"> • Fight back vigorously. • This is likely a predatory attack.
Enters your tent	<ul style="list-style-type: none"> • Fight back.

If You Surprise a Bear

The Bear	What You Can Do
May react defensively and may snort, huff, pop its jaw, or charge	<ul style="list-style-type: none"> • Stand your ground and talk calmly to the bear. • Attempt to move away slowly.
Begins to follow you	<ul style="list-style-type: none"> • Stand your ground.
Charges	<ul style="list-style-type: none"> • Use bear spray.
Is a brown bear and makes contact	<ul style="list-style-type: none"> • Play dead—lie flat, face down on the ground, and lace your fingers behind your head. Do not move.
Is a black bear and makes contact	<ul style="list-style-type: none"> • Fight back vigorously. • This is likely a predatory attack.

Whales



National Marine Fisheries Service, permit no. 945-1716-0

Biologists recognize individual whales by photographing the black and white patterns on tail flukes. These patterns remain the same throughout the whale's lifetime.

Glacier Bay Is Home for Humpback Whales

Seeing a humpback whale in Glacier Bay is a highlight for many visitors. Humpbacks are huge: 40–50 feet (12–16 m) long—the size of a school bus—and they weigh over 35 tons (32,000 kg). Most Southeast Alaska humpbacks migrate to Hawaii each winter to mate and give birth, a 2,500-mile (4,000 km) journey that takes about a month. Throughout the winter, humpbacks do not eat. During the summer, whales feed on high-calorie small schooling fish such as capelin and sand lance. Biologists have identified over 776 individual humpbacks in Glacier Bay and nearby Icy Strait since the 1970s, including some with sighting histories spanning 45 years.

Humpback whale populations worldwide increased steadily after commercial whaling ceased in the 1960s. Whales thrived, and as a result, NOAA removed the Hawaii-Alaska population of humpback whales from the Endangered Species List in 2016. However, Glacier Bay's whale monitoring research documented a decline in whale numbers starting in 2014. While variable, numbers have continued to drop. Some whales that had returned to the area for decades have either changed their summer migratory pattern or died. In recent years, very few calves were observed and more whales appeared to be

malnourished. Researchers suspect that changes in the quantity or quality of their food caused declines in the whales' reproduction and body condition. This food depletion may be a result of an increased warming trend in the Pacific Ocean or indicate that whales are facing increased competition for limited food resources. Hopefully the troubling decline in numbers will reverse. Glacier Bay's whale researchers will continue to monitor the population and share information to protect these magnificent creatures.

Read annual humpback whale population study reports at https://www.nps.gov/glba/learn/nature/whale_acoustic_reports.htm.



Biologists have monitored humpback whales in Glacier Bay for over 33 years.

Whale Watching

To minimize disturbance to humpback whales, Glacier Bay National Park and Preserve has developed some of the most protective boating rules visitors will find anywhere. Because the park's mission is to protect and preserve these magnificent creatures, we maintain strict operating and speed restrictions in critical whale habitat.

Rules for All National Park Waters

All vessels, including kayaks, must not:

- Operate within $\frac{1}{4}$ nautical mile of a humpback whale.
- Pursue a humpback whale within $\frac{1}{2}$ nautical mile by altering course or speed in a manner that results in decreasing the distance between the whale and the vessel.

Whale Waters

These are special areas in Glacier Bay that require additional speed and operating restrictions. These critical areas change depending on current whale activity in the bay. See Guide to Park Waters on page 20 for areas and dates that regulations are in effect and check at the VIS for additional temporary restrictions before setting out.

Rules for Lower Glacier Bay Whale Waters (May 15–Sept 30)

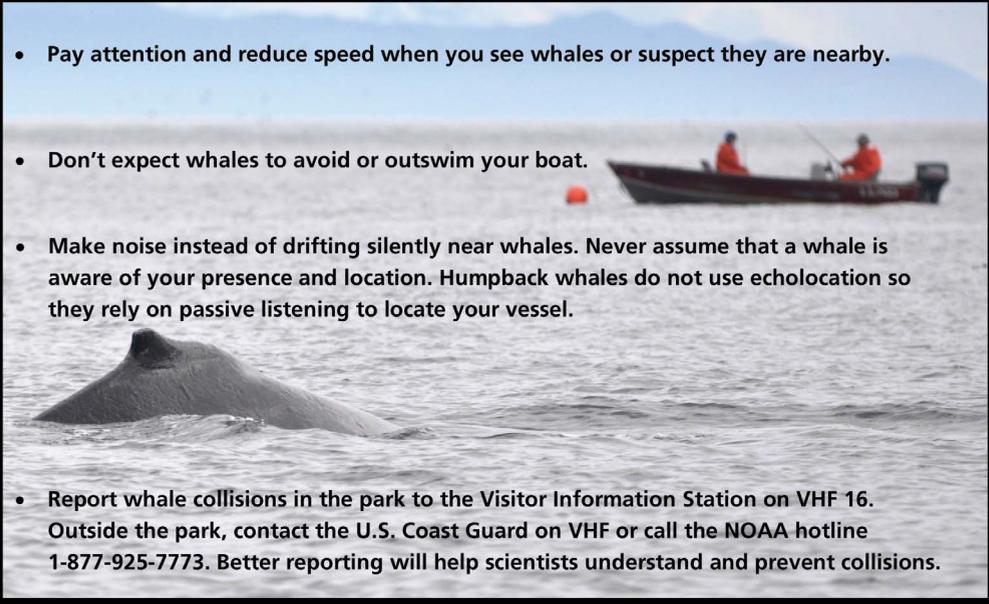
All vessels must operate within speed restrictions. Check at the VIS for current status. Motorized vessels over 18 feet in length must:

- Maintain a distance of at least one mile from shore. In narrower areas, navigate a mid-channel course (unless fishing or operating solely under sail).
- Approach or land on shore perpendicularly, taking the most direct line to shore.
- Watch for additional whale waters designations in other areas. Check at the VIS for current whale waters boundaries and regulations.

What do you do if a whale suddenly appears in front of you?

If your vessel is accidentally positioned within a $\frac{1}{4}$ nautical mile of a humpback whale, immediately slow your vessel to ten knots or less. Don't shift into reverse unless impact is likely. Then, carefully direct or maintain your course away from the whale until at least $\frac{1}{4}$ nautical mile separation exists.

Boating Safely Around Whales

- 
- Pay attention and reduce speed when you see whales or suspect they are nearby.
 - Don't expect whales to avoid or outswim your boat.
 - Make noise instead of drifting silently near whales. Never assume that a whale is aware of your presence and location. Humpback whales do not use echolocation so they rely on passive listening to locate your vessel.
 - Report whale collisions in the park to the Visitor Information Station on VHF 16. Outside the park, contact the U.S. Coast Guard on VHF or call the NOAA hotline 1-877-925-7773. Better reporting will help scientists understand and prevent collisions.

Protect Wildlife

Life's No Picnic

You are picnicking on an idyllic beach when a boat roars up out of nowhere. It stops just offshore from you. Its wake washes the beach, taking away your lunch. People on the boat laugh and talk loudly. Camera flashes explode. You drop your food and dash off into the bushes, anything to get away.

You have just experienced what happens to wildlife when thoughtlessly approached by humans. The effects can be devastating. Steller sea lions tumble over one another as they stampede into the water, female harbor seals lose their newborn pups among the ice floes when they become separated. Breeding birds flushed from nests leave eggs vulnerable to cooler temperatures and predators.

To reduce disturbance to wildlife and protect sensitive areas, the park has regulations that define the minimum distances you must keep from animals in Glacier Bay. Be aware of closures (see map on pages 20–21). In all situations, be aware and respectful. Remember that even if you maintain a legal distance, if an animal changes its behavior due to your presence, you are too close.

As you admire Glacier Bay's wildlife, keep in mind that every day they struggle to find what they need to eat, reproduce, protect their young, and prepare for winter as they avoid becoming food for others. Indeed, life is no picnic for the wildlife of Glacier Bay.

Harbor Seals

Harbor seal numbers have declined in Glacier Bay over the past 20 years. Help protect seals by travelling slowly and watching for them in the water and on icebergs. Seals can be disturbed by boats even at a great distance. In Johns Hopkins Inlet you must stay at least ¼ mile away from seals on ice.

Steller Sea Lions

Although numbers have increased here over the past 20 years, some in Glacier Bay are from the endangered Western stock. Stay at least 100 yards away from sea lions on land, and keep your distance from those in the water, too.

Nesting Birds

Many birds nest on the ground and are extremely vulnerable to disturbance! If a bird dive-bombs or makes repeated alarm calls, you are close to a nest. Watch your step to avoid crushing eggs or chicks, and move away to avoid disturbing the parents guarding the nest. You must stay at least 100 yards away from nesting seabird colonies, and several islands are closed to foot traffic (see map on pages 20–21).

Humpback Whales

Whales can be startled by boats, even bumping or capsizing them. For your safety and to avoid disturbance, regulations require that you stay at least ¼ mile away from whales. Whales can move surprisingly fast, so if one surfaces near you, it is recommended to make some noise by knocking on your boat.

Black and Brown Bears

All of Glacier Bay is bear country! Bears may appear anywhere at any time. Enjoy bear viewing from a safe and respectful distance. Even in your kayak, don't approach swimming bears or bears on shore.



Black oystercatchers nest on rocky beaches. Keep your distance!

For Teachers



Using technology, Ranger Emma brings Glacier Bay to a classroom in Arizona.

Take Your Class on a Trip to Glacier Bay!

Last year, hundreds of students and teachers visited Glacier Bay National Park in the heart of winter without ever leaving their schools. Kindergartners spotted bears and sea otters, fourth graders catalogued humpback whale behaviors, and high school students explored the wide range of careers with the National Park Service. These students all visited Glacier Bay virtually, using videoconferencing equipment to connect Glacier Bay rangers to classrooms across the country.

Glacier Bay offers a variety of interactive, curriculum-based distance learning programs. Programs cover a variety of Glacier Bay topics and are grade appropriate. All programs encourage students to ask questions and interact with a park ranger. Sometimes students even earn a Junior Ranger sticker!

Distance learning programs are offered in the winter months. Programs are free and registration starts on October 1 each year. To register for a program, email the Glacier Bay Education Team at gba_education@nps.gov. You can also visit the Center for Interactive

Learning and Collaboration (CILC) website at www.cilc.org. Search for programs offered by Glacier Bay and click “Request this Program Now.” Additionally, teachers may register for programs by phone at 907-697-2573. For a list of programs and ranger contact information, visit www.nps.gov/glba and look at the “For Teachers” section and then click the “Distance Learning” tab. We look forward to connecting to your class.



For Kids



Ask a ranger about family-friendly guided ranger programs and activities in Bartlett Cove and check the schedule for our summer youth activities.

Kids Love Glacier Bay!

Are you ready to begin your Junior Ranger adventure? If you are between the ages of two and 200, you may want to become a Junior Ranger during your visit. There are two ways to pick up your Junior Ranger Activity Booklet.

 If you came by plane or boat to Bartlett Cove, stop by the Visitor Center on the second floor of the Glacier Bay Lodge.

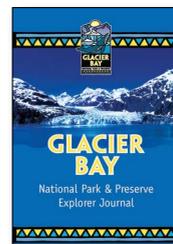
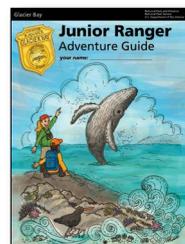
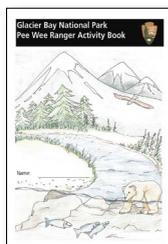
 If you are on a tour boat, meet with the ranger on board.



www.everykidinapark.gov

The National Park Service extends a special invitation to 4th graders to visit a National Park. Thank you for visiting Glacier Bay!

Glacier Bay offers three different booklets, depending on your age.



For children between the ages of 2–6, we have the *PeeWee Ranger Adventure Guide*.

For children between the ages of 6–12, pick up the *Junior Ranger Adventure Guide*.

For people between the ages of 13–adult, pick up the *Explorer Journal*.

When you have completed the activities, bring your booklet to a ranger, and you will be awarded a special badge that makes you a Glacier Bay National Park Junior Ranger.

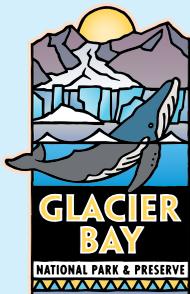


Stay Connected

As the official nonprofit education partner of Glacier Bay National Park and Preserve, Alaska Geographic connects people with Alaska's magnificent wildlands through youth leadership programs, experiential education, volunteer stewardship programs; award-winning books, and through direct financial aid to Alaska's parks, forests, and refuges.

Alaska Geographic operates bookstores across the state, including several locations in Glacier Bay National Park and Preserve at the park Visitor Center and Information Station in Bartlett Cove and on board the dozens of cruise ships that visit the park each year. A portion of every purchase made at an Alaska Geographic store stays in this park to fund educational and interpretive programs and projects. Since 1959, Alaska Geographic has donated more than \$20 million to Alaska's public lands.

Please consider supporting Alaska's public lands by becoming a member of Alaska Geographic. To learn more about our work and the benefits of membership, or to browse our selection of Alaska books, maps, and films, visit one of our stores or point your web browser to akgeo.org



Pins, patches, hats, and other products featuring this unique Glacier Bay design are available exclusively from Alaska Geographic.

To Learn More

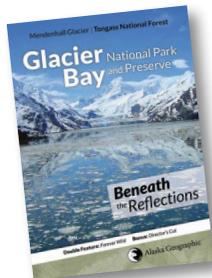
Visit the Alaska Geographic bookstore at the park Visitor Center and Information Station in Bartlett Cove to find the best books, maps, films, and gifts related to the natural and cultural history of Glacier Bay National Park and Preserve.



Glacier Bay National Park and Preserve

Meet the bold explorers who trekked glacier and waterways, scientists who study the best landscapes, and the Huna Tlingit who have lived in Glacier Bay since time began.

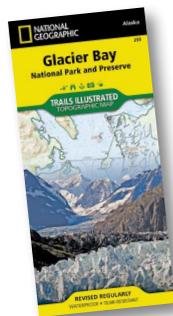
Item #12806, 60 pages **\$14.95**



Beneath the Reflections DVD

Travel into the dark underwater world of Glacier Bay where perpetual snowfall and swirling currents shape the abounding patterns of life. Then, explore the natural and cultural history of the bay in the bonus feature, *Forever Wild*.

Item #480006, 45 min. **\$5.00**



Glacier Bay Topographical Map Scale: 1:94,000

This sturdy waterproof and tear-resistant topo map is an excellent planning resource for hiking, camping, fishing, or hunting. The map denotes elevations, hiking trails, campgrounds, cabins, and provides a synopsis of public land protocols and restrictions.

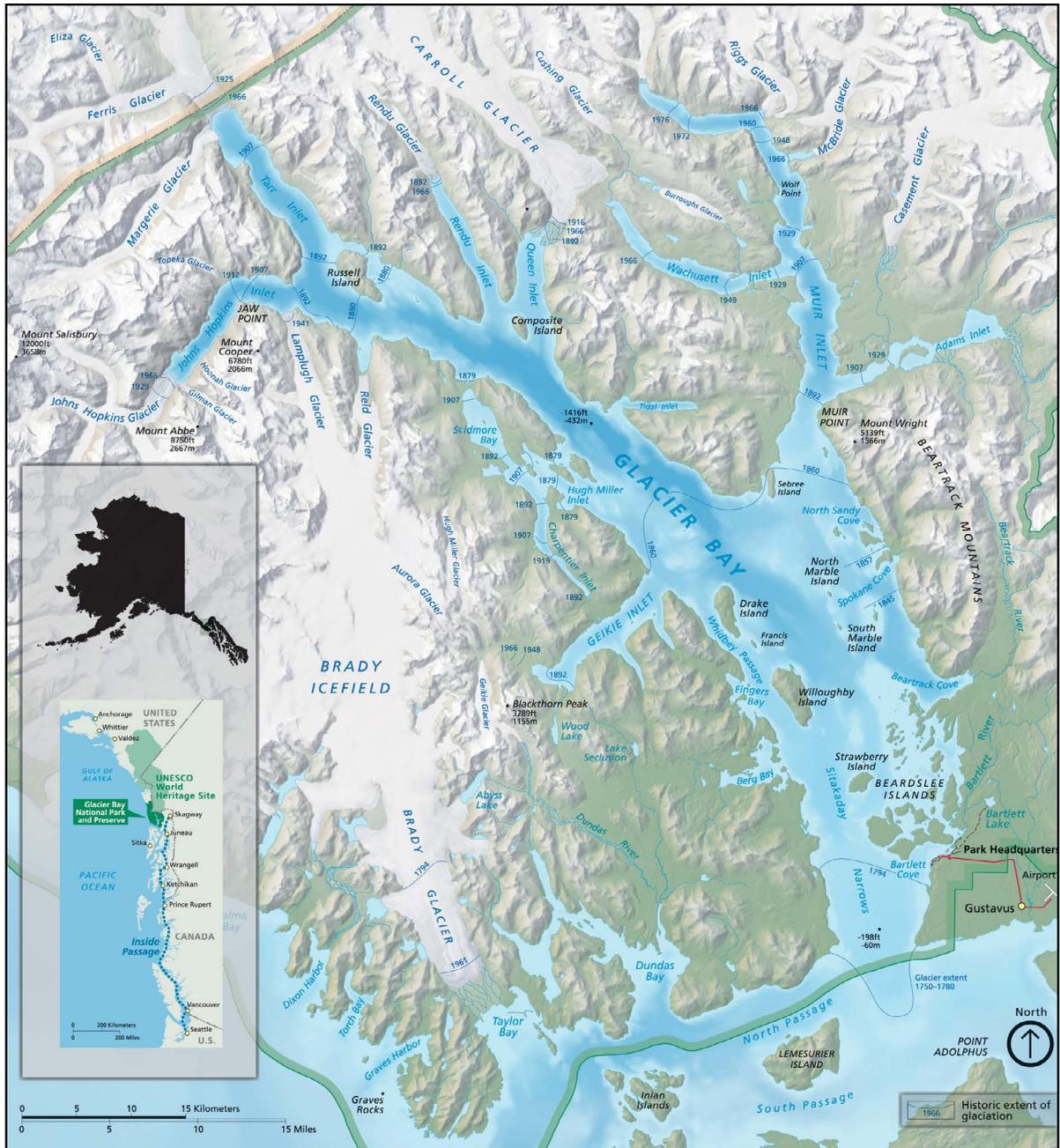
Item #35073001 **\$12.95**



Glacier Bay Flash Drive Over 300 photos

Create your own wildlife, glacier, and wilderness scrapbook by downloading exquisite, high resolution photos taken throughout the park. Informative captions accompany each photo.

Item #30221 **\$30.00**



For More Information

Glacier Bay National Park & Preserve
 P.O. Box 140
 Gustavus, AK 99826
 907-697-2230
www.nps.gov/glba
glba_administration@nps.gov



 Follow us on Facebook:
[facebook.com/GlacierBayNationalPark](https://www.facebook.com/GlacierBayNationalPark)

Emergency and Medical Assistance

Emergency Inside the Park

907-697-2651
 Radio on marine band 16.
 There is no cell service in Glacier Bay.
 Local-use phone available at Visitor Information Station.

Emergency Outside the Park

Gustavus Emergency Response
 Dial 911

Other Medical Assistance

Gustavus Community Clinic
 42 Dolly Varden Lane, Gustavus
 907-697-3008