



# The FAIRWEATHER

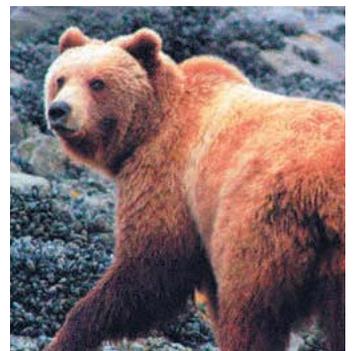
## VISITOR GUIDE



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### The Fairweather

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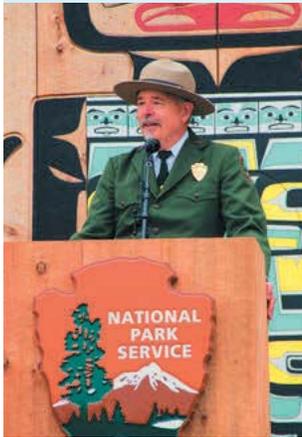
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# Welcome to Glacier Bay



Welcome to Glacier Bay National Park and Preserve. You have arrived at an auspicious time: the beginning of the National Park Service's second century. Parks are not just created by a few in the historic past and put in a glass case to be viewed. The concept of national parks endures because they are re-

defined, re-defended, and continue to have meaning to a changing population and world. Parks are for people: not just those here now, but also those not yet born. The importance of reconnection was a major theme of "Find Your Park" last year during the NPS centennial. For Glacier Bay, this understanding of reconnection and building relevancy was especially strong as we experienced the opening of the Tribal House last August and engaged with local communities and visitors about how to reimagine Glacier Bay's developed area.

The opening of the Xunaa Shuká Hít, or Huna Tribal House, was a joyous and powerful ceremony (page 8). The symbolic return of the Tlingit as well as the healing of strained relationships between the Tribe and the Park brought many intense emotions. For me, dancing with fellow employees into the Tribal House, met with gratitude and shared recognition of how we can work together, was the highlight of my career. The NPS and Tribe acknowledge their tremendous responsibility and opportunity to preserve culture and relevancy of the park for a new generation of tribal members and to help a new generation of visitors understand the values and traditions of the Tlingit and their connection to this land.

Also this year the Park began a dialogue about how to reimagine the front country of Glacier Bay (page 7). The facilities in Bartlett Cove were initially designed to briefly support travelers on their way to the tidewater glaciers. Now, in partnership with local communities and visitor service providers, we are exploring alternatives, one responsive to the changing needs of visitors for the front country to be a destination itself—a place that enhances the park experience and allows opportunities to hike and explore, to understand tribal connections, to learn about the role of science in establishing and enhancing the park, to reduce economic barriers to visitors, and to strengthen local economies in an appropriate way. It is an example of people working together to strengthen the relevance and protection of the park.

On your trip to Glacier Bay you will see an outstanding place, the Park Service's largest marine protected area, teeming with rich life. This land emerging from the ice has excited generations of scientists with its secrets (pages 14-19). The glacial environment reaches down to the sea and provides for a unique experience that those in the first steamships understood must be preserved. Glacier Bay is about change and connection, and now more than ever needs people like you to be inspired to maintain its relevancy and protect its treasures. Please join us in that endeavor.

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

Philip Hooge  
Superintendent



On August 25, 2016, the NPS centennial, Glacier Bay celebrated the opening of the Huna Tribal House.



Glacier Bay's tidewater glaciers are a highlight of Alaska's Inside Passage.



Bartlett Cove is the only developed area within Glacier Bay.

# Explore Bartlett Cove



## *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 min.- 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) roundtrip*

*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) roundtrip*

*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.

# 50 Years of the Glacier Bay Lodge



Designed by Seattle architect John Morse, the lodge blends rustic character with 1960's 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 projects to renovate the lodge. This summer guests will enjoy new furniture in rooms and the lobby. Park staff will be busy with a variety of interior and exterior improvements, ensuring another 50 years of welcoming visitors to their National Park.



# Planning for our Park



*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.

You are part of a long legacy of adventurers inspired by Glacier Bay. Every visitor has an important perspective on the management of this national park. We invite you to share your perspective with us as we update Glacier Bay National Park's management plans (see right).

Renewing the vision for the park's future by updating these plans will help align visitor activities with changing trends and enhance the visitor experience of Glacier Bay, while preserving the extraordinary natural and cultural heritage of this place.

Join the conversation and make your unique contribution to the planning process. There are multiple ways to participate and help the park:

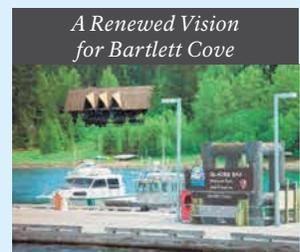
- ✓ **SUBSCRIBE** to our planning notification list by sending us your contact information:  
email: [glba\\_public\\_comments@nps.gov](mailto:glba_public_comments@nps.gov)  
mail: Glacier Bay National Park and Preserve  
P.O. Box 140, Gustavus AK 99826
- ✓ **TRACK** park planning progress online and give input during formal National Environmental Policy Act public comment periods:  
<https://parkplanning.nps.gov/glba>
- ✓ **LEARN MORE** on our planning website:  
<https://www.nps.gov/glba/getinvolved/planning.htm>

## Frontcountry Management Plan

**WHEN:** Planning underway, 2016 - 2017.

**WHAT:** Update the 1997 Bartlett Cove Comprehensive Design Plan.

**WHERE:** "Frontcountry" includes non-wilderness where administrative facilities and visitor services are located in Bartlett Cove.

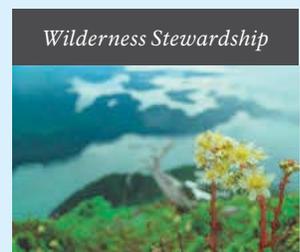


## Backcountry Management Plan

**WHEN:** T.B.A., anticipated to start in 2019.

**WHAT:** Update the 1989 Wilderness Visitor Use Management Plan.

**WHERE:** "Backcountry" includes marine and terrestrial wilderness, and non-wilderness park waters in Glacier Bay and the Outer Coast.



# Returning to Homeland



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

On a cool, foggy morning in late August 2016, three traditional carved spruce canoes skimmed smoothly across the waters of Bartlett Cove. Twenty pullers spent hundreds of hours carving and painting paddles, practicing canoe maneuvers, and journeying some 40 miles to herald in the Huna Tlingit return to homeland. The canoe landing initiated a powerful day of ceremonies that blended Tlingit traditions old and new.

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 National Park Service (NPS).

Time and new understandings have brought much healing. In recent years, the NPS and Hoonah Indian Association (HIA), the tribal government, have 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.



Elders in dugout canoes follow centuries old call-out tradition with shoreline greeters.



Hoonah youth celebrate the arrival of the canoes.

The most symbolic cooperative venture, Xunaa Shuká Hít (roughly translated as *Huna Ancestors' House*), now stands proudly on the shoreline of Bartlett Cove. Working closely with a team of clan leaders, craftsmen, planners, architects, and cultural resource specialists, the building reflects a traditional architectural style reminiscent of ancestral clan houses, but suitable for the needs of the community today. The focal point of the Tribal House is a large open gathering area with a central fire pit, but visitors' eyes will also be drawn to the elaborately carved and painted house front, four richly detailed massive cedar interior house posts and an interior panel—or house screen—which depicts the stories of the four primary Huna Tlingit clans. Soon, totem poles will flank the building. These precious cultural elements impart spiritual value to the Tribal House, but as importantly, their design and completion has expanded the circle of tribal members who share in cultural knowledge. The 2,500-square-foot structure will serve as a venue for tribal members to reconnect with their traditional homeland, life-ways, and ancestral knowledge; and a focal point for conveying the story of the Huna Tlingit to the visiting public.

To properly dedicate the house, traditional protocols were followed. The tree ceremony acknowledged the trees that provided the materials to build the house and canoes. A traditional naming ceremony breathed life into the house, and proclaimed to all that Xunaa Shuká Hít would serve as an anchor for past, present, and future generations. The celebration continued inside showcasing the four carved house posts, interior screen and a traditional marking of the house's four corners. As Hoonah students led songs, drumming, and dance, the entire building reverberated with excitement and energy celebrating a dream come true for many generations.

For their longstanding collaboration, the Park and HIA were presented with the NPS Director's Partnership Award. Superintendent Philip Hooge stated, "We stood together on each other's shoulders and we were able to reach high. That this symbol of diversity, inclusion and enhanced connections occurred on the 100th anniversary of the NPS is poignant as we step into the next century."

Images of the Huna Tribal House dedication and carving projects are available on the Glacier Bay National Park 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.



Elders gather with pride to celebrate and “bring joy back to the land of our ancestors.”



Tribal members dance and sing making the entire building reverberate with excitement.



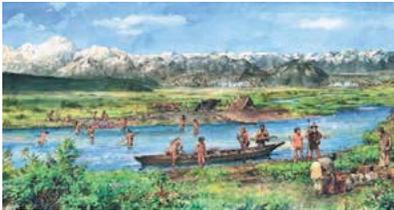
HIA cultural specialist leads a group to the long awaited Tribal House.



Youth drum and sing with exhilaration to past, present and future generations.

# 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.



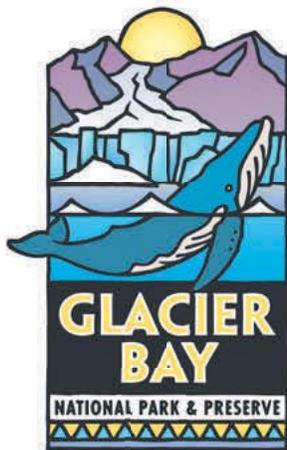
**1916** U.S. Congress passes the Organic Act, creating the National Park Service.

**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.

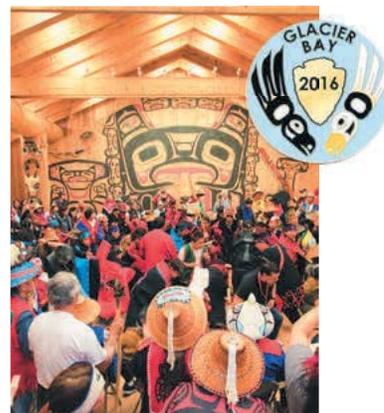


1950

**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 encompassing 3.3 million acres.



**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



**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 (Alaska), Kluane National Park Reserve (Canada) and Tatshenshini-Alsek Provincial Park (Canada), as a 24-million-acre World Heritage Site, one of the world’s largest internationally protected areas.

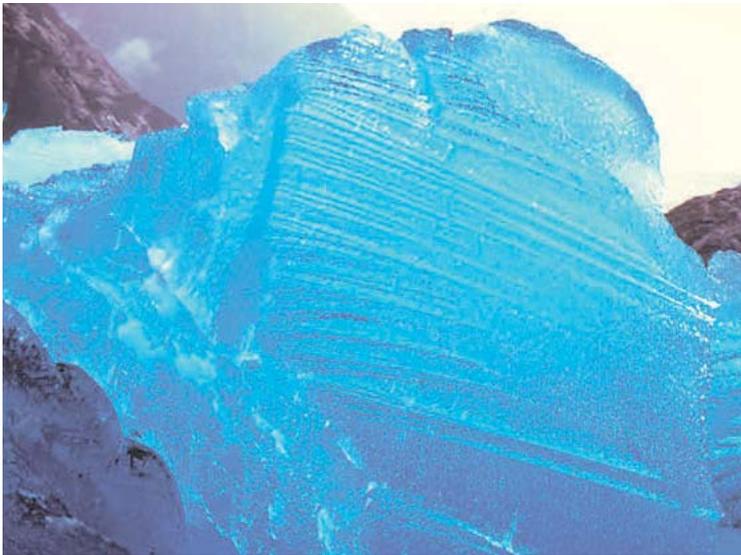


**1995** The National Park Service and Hoonah Indian Association sign a Memorandum of Understanding to establish a working partnership.

# Glaciers

*“The Master Builder chose for a tool, not the thunder and lightning to rend and split asunder, not the stormy torrent nor the eroding rain, but the tender snowflake, noiselessly falling through unnumbered generations.”*

— John Muir



## Blue Ice, White Ice

*If you’ve ever played with a prism in the sunlight, you know that natural light is made up of all the colors of the rainbow.*

Each color of light has a specific wavelength and certain amount of energy. Colors such as red and yellow have long wavelengths and consequently low energy. But blue, with its short wavelengths, has high energy.

Glacier ice is made up of large, tightly packed ice crystals. When sunlight hits glacier ice, the ice acts like a prism and separates the light according to its wavelength. Low energy colors like red and yellow are absorbed by the ice. Blue has enough energy to reflect out to our eyes.

If the surface of the glacier ice becomes weathered or if the ice contains many air bubbles, the blue light becomes diffused. Then the ice appears white.

## Rivers of Ice

A glacier is born high in the mountains, where the only precipitation that falls is snow, and the snow that falls does not melt. A slight depression on the mountainside catches this snow. Year after year, the snowflakes pile up. Soon the sheer weight of this vast accumulation presses down on itself. The snow compresses. The flakes change shape and fuse into ice. Eventually, the weight of the ice is too much for the depression to hold against gravity and the ice begins to flow downhill seeking equilibrium. Now that it’s moving, it’s a glacier.

Like a river, the glacier flows down the mountain choosing the path of least resistance. As it moves, it incorporates rocks into its lower layers. These acquired rocks grind away at the bedrock. In time, the glacial ice will carve deep valleys in the mountainside.

When the ice reaches lower, warmer elevations, it begins to melt. Eventually the loss through melting is greater than the supply of ice flowing down the mountain. The glacier ceases to make further progress, though the body of ice is still moving down the mountain. At this point, the glacier is like a one-way conveyor belt moving ice out of the mountains into the valleys.

Glaciologists have identified different types of glaciers based on their characteristics. For example, a glacier that remains confined within valley walls is a valley glacier. If it flows out of the valley and spreads out, it’s a piedmont glacier. If it simply drops out of the valley, it’s a hanging glacier. But the type of glacier most folks in Glacier Bay are interested in is the type that ends in the sea: the tidewater glacier.

Compared to glacial ice, seawater is warm and highly erosive. Waves and tides work away at the unstable glacier face, causing huge chunks to calve or break off into the ocean.

Barring significant climate changes, each glacier is in a constant state of renewal. New snow will continue to fall in the mountain basin to replace the snow that has compacted into ice and begun to flow downhill. The length of time it takes for a snowflake that falls in the mountains to emerge at the end, or terminus, of a glacier varies, depending on the speed at which the glacier is flowing. The ice visible at the face of the park’s glaciers is about 200 years old.

# 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 of discovery. 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 enjoy on your visit?



Reid Glacier



Lamplugh Glacier



Margerie Glacier



Johns Hopkins Glacier

<i>Glacier</i>	<i>Height</i> Above and Below Waterline	<i>Width</i>	<i>Length</i>	<i>Flow Rate</i> (in feet)	<i>Status</i>
Grand Pacific	60-180 feet above 0-60 feet below	2 miles	34.5 miles	1-4 feet / day 350-1,200 feet / year	Slowly Receding/ Thinning
Johns Hopkins	250 feet above 200 feet below	1 mile	12.5 miles	10-15 feet / day 4,000 feet / year	Advancing/ Thickening
Lamplugh	150-180 feet above 10-40 feet below	.75 miles	16 miles	2-3 feet / day 1,200 feet / year	Stable to Receding/ Thinning
Margerie	250 feet above 50-100 feet below	1 mile	21 miles	6-8 feet / day 2,000 feet / year	Stable
McBride	200-250 feet above est. 300 feet below	.5 miles	12 miles	15-20 feet / day 5,000-7,000 feet / year*	Rapidly Receding
Muir	30 feet above 0 feet below	.5 miles	12.5 miles	.5 feet / day 150 feet / year*	Slowly Receding/ Thinning
Reid	>20-130 feet above 0-10 feet below	.75 miles	9.5 miles	1-3 feet / day 800 feet / year*	Slowly Receding/ Thinning
Riggs	20-90 feet above 0 feet below	.75 miles	14.5 miles	1-2 feet / day 600 feet / year*	Slowly Receding/ Thinning

\* Estimated figures provided by Dr. Dan Lawson of the CRREL.

# 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 founding legislation of Glacier Bay National Park states research as a reason for national preservation. From whales to plankton and glaciers to gulls, research is a common occurrence in the protected laboratory of Glacier Bay. This research 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



Researchers prepare hydrophones (underwater microphones) for use in Glacier Bay.

## Research Highlights

How are Glacier Bay's humpback whales related? Do wolves and bears eat the same food? How do we know that Glacier Bay's land is rising? To investigate the breadth of research in Glacier Bay, explore our collection of Research Highlights. Ask for Research Highlights at the Glacier Bay Visitor Center and the Visitor Information Station, or browse the research section of Glacier Bay's website. There is much to learn!

Also, for recent science news, visit the Currents Ocean Science Hub at: <http://www.nps.gov/glba/blogs/Currents.htm>.

## Learning by Listening

We come to Glacier Bay to see amazing sights, yet the sounds make it come alive.

Sounds are a rich source of scientific knowledge. Recently biologists used underwater microphones (pictured above) to explore how harbor seals and humpback whales communicate: how often and how loudly do they vocalize? Does their calling behavior change in the presence of vessel noise? Over two years, a team from the National Park Service, Oregon State, and Syracuse Universities recorded over 8,000 hours of underwater sound in Glacier Bay. Their study, funded by the National Park Foundation, will help assess the extent to which engine noise from vessels impacts whale and seal communication.

By studying the voices of Glacier Bay, we can protect natural soundscapes for the animals that live here, as well as the people who visit. While you are in Glacier Bay, take time to listen as intently as you look.

You can also listen to the Voices of Glacier Bay in our natural sound library, which holds over 600 recordings of 90 species of birds and 14 mammals, as well as thundering glaciers, bubbling icebergs, and buzzing bugs.

To learn more, visit <http://www.nps.gov/glba/naturescience/soundscape.htm>.



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 see amazing scenery, dramatic glaciers, and spectacular wildlife. Yet a century ago one man saw something else of great value here: incredible opportunities for science.

William Skinner Cooper (1884-1978), a botanist at the University of Minnesota, 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 just a century.

In Glacier Bay, 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. One more visit in 1921 convinced Cooper that Glacier Bay should be preserved for its potential to make major contributions to science.

As a prominent member of the Ecological Society of America, Cooper led a committee of colleagues in a vigorous campaign to lobby President Calvin Coolidge for protection of the Glacier Bay area. In 1925 Glacier Bay National Monument was established. One of the monument’s fundamental mandates was to preserve the opportunity to conduct scientific studies, making Glacier Bay a true “park for science.”

Cooper returned to his beloved Glacier Bay several more times over the course of 50 years to document the successional development in the vegetation plots he established on his first visit. Scientists still study these plots today, making Cooper’s plots the oldest continuously researched post-glacial areas in the world.

Glacier Bay is preserved as public land for many reasons: protection of wildlife habitat, scenery, value to the world, and enjoyment by present and future generations. However, the original vision of Glacier Bay’s preservation started from a scientist. Glacier Bay still inspires new discoveries today.



From rock to rainforest—in less than 75 years! These images were taken at the same location, studying change in Cooper’s original plot.



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 Alaska's National Parks, visit [www.nps.gov/akso/nature/climate](http://www.nps.gov/akso/nature/climate).



Researchers collect ocean water from the depths of Glacier Bay to document changing conditions for marine life. Glacier Bay's "sea butterflies" are especially vulnerable to ocean acidification.

## Changing Seas

Visitors to Glacier Bay journey on ocean waters, often with the hope of glimpsing magnificent marine life such as humpback whales. These animals depend on the healthy marine environment protected by Glacier Bay National Park. However, Glacier Bay's waters, like oceans everywhere, are vulnerable to change. Glacier Bay waters are especially sensitive to ocean acidification, a change of ocean chemistry with long-lasting impacts.

Ocean acidification is the increase in acidity (decrease in pH) of the ocean caused by the absorption of carbon dioxide from the atmosphere. Oceans have always absorbed carbon dioxide from the air, but today's increasing carbon dioxide from burning of fossil fuels is resulting in higher levels of dissolved carbon dioxide and increasing acidity in seawater. As a result, many crabs, shrimp, clams, and other marine life have trouble building and maintaining their shells. The increased acidity causes the protective shells of these animals to become thinner and more brittle, which makes it hard for them to grow and survive. The smallest of such shell-bearing marine life include zooplankton, the microscopic animals that are a foundation for the entire marine food web. Marine scientists predict fundamental changes in the entire marine ecosystem as ocean acidification shakes the foundation of the food web.

A recent research project in Glacier Bay discovered that Glacier Bay's ocean waters are becoming more acidic. While ocean water is generally resistant to acidification, this resistance is diminished when fresh water dilutes ocean water. Glacier Bay has abundant fresh water entering the ocean from melting glaciers, thawing snow, and plentiful rainfall. This dilution effect is strongest during the summer months due to higher glacial meltwater runoff. Summer is also the time of greatest ocean productivity, so there is an increased impact on marine life.

A new study in Glacier Bay led by University of Alaska seeks to understand the effects of ocean acidification on shell-bearing zooplankton, including pteropods. Pteropods are free-swimming snails called "sea butterflies," which are an important food source for juvenile salmon. Researchers will continue to investigate oceans to increase the understanding of and ability to respond to environmental change. While the National Park Service cannot directly control the acidification of Glacier Bay's ocean water, the park strives to reduce other influences on the marine environment so that Glacier Bay can remain one of the healthiest marine areas in the world.



A community of lichens on weathered wood.

## Glacier Bay – A Hotspot for Lichen Diversity

If you look around carefully, you will notice that virtually every surface in Glacier Bay is home to lichens of varying sizes, shapes, and colors. From small cup lichens to leaf-like pelt and lung lichens, lichens thrive throughout Glacier Bay National Park.

Recent research has identified Glacier Bay as a global hotspot of lichen diversity. An inventory in 2011-2012 resulted in the collection of over 4,700 specimens representing 878 lichen species, more than any other U.S. park and the third highest number ever recorded world-wide in an inventory for areas of comparable size. Many of those species were new discoveries for Alaska and North America, with 77 species and one genus new to science.

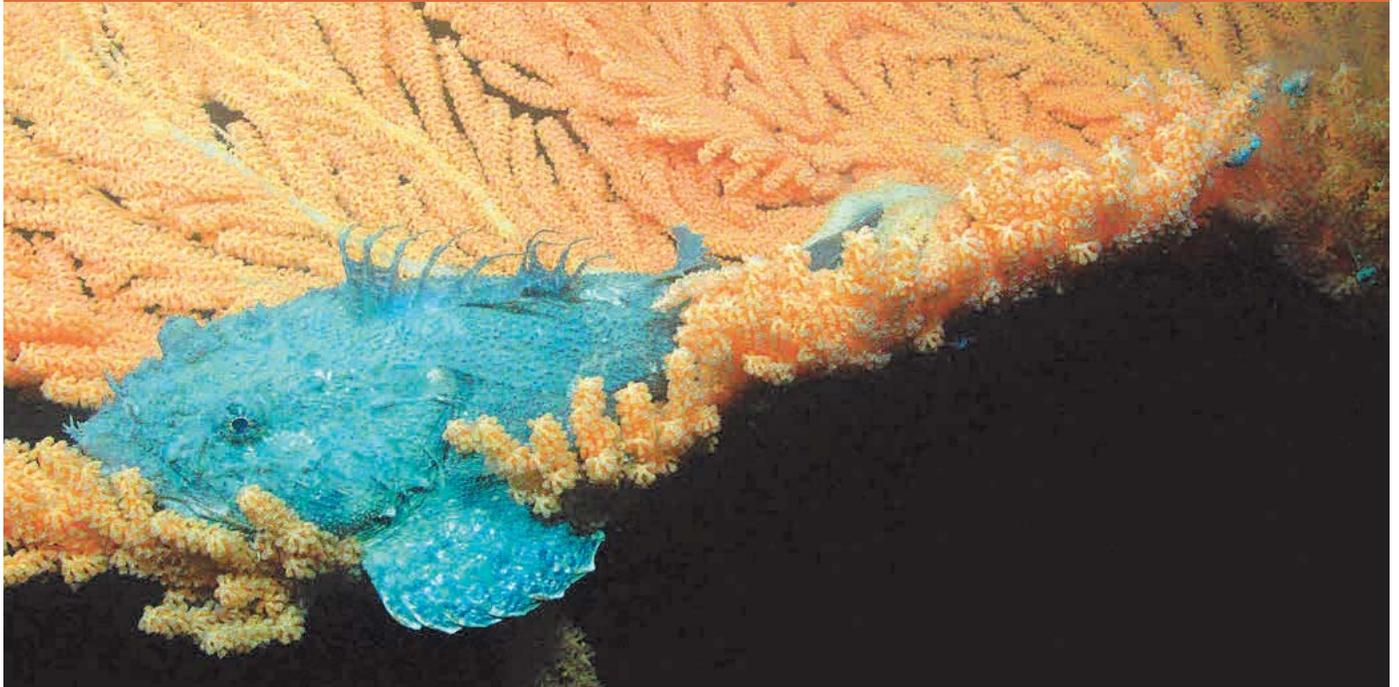
These results emphasize the diversity of habitats and environmental conditions across the park. Lichens have colonized many microhabitats that differ from one another not only structurally, but also in relative age, because glacial retreat throughout much of the park has left behind a landscape “chronosequence” of surfaces of different ages.

The findings are especially significant because vast areas of the park, including many habitat types, remain

un-surveyed. Researchers described their survey as “a mere scratch on the surface of what’s probably out there.” Continued analyses of the collected lichens will likely reveal insights into lichen dispersal in a recently de-glaciated ecosystem, species colonization, and more. This exciting research has brought increased attention to the staggering array of lichens easily observable throughout Glacier Bay.



This gray-white lichen with small warts, *Coccotrema minutum*, appears throughout Glacier Bay, even on the outside of the Glacier Bay Lodge, leading some to call it Glacier Bay’s mascot lichen.



The branches of a large red tree coral provide a resting place for a sculpin.

## Discovering Coral Forests in Glacier Bay

Though the cold waters of Glacier Bay seem inhospitable, scientists recently discovered that Glacier Bay is home to a greater diversity of life than previously known. During a 2016 expedition, using scuba divers and an unmanned Remotely Operated Vehicle (ROV), scientists confirmed that several species of “cold water corals” grow abundantly in Glacier Bay. Although they look like plants, corals are actually colonies of tiny animals called polyps. Divers observed corals at depths as shallow as 30 feet and the ROV collected images, video, and even samples of multi-colored corals growing at the greatest depths of Glacier Bay, over 1,200 feet deep!

While most people associate corals with warm tropical waters, corals also thrive in cold glacial fjords, although they have different adaptations for survival. Warm water corals depend on a symbiotic relationship with algae that photosynthesize food from sunlight. In contrast, cold water corals do not need sunlight for their food. In the dark water, cold water corals capture their own food, feeding directly on the plentiful plankton carried on ocean currents. Glacier Bay’s deep nutrient-rich water serves as excellent habitat for cold water corals.

Deep water marine environments are one of the least studied areas of Glacier Bay National Park. During the recent expedition, scientists found groves of large red

tree corals, up to 10 feet in diameter, attached to rocky seafloor habitats. The coral groves provide important shelter, feeding, and resting habitat for many other animals, including fish and invertebrates such as rockfish, cod, sculpin, crabs, sea stars, sea urchins, and shrimp. The cold water corals found in the deep waters of the bay are surprisingly more abundant and healthier than expected. Scientists also saw a rare glimpse of underwater ecological succession: as glaciers retreat, corals move into newly created marine environments. By providing basic scientific information on the distribution and diversity of seafloor habitats and communities, including cold water corals, this research will help park managers better protect these unique and potentially fragile ecosystems.



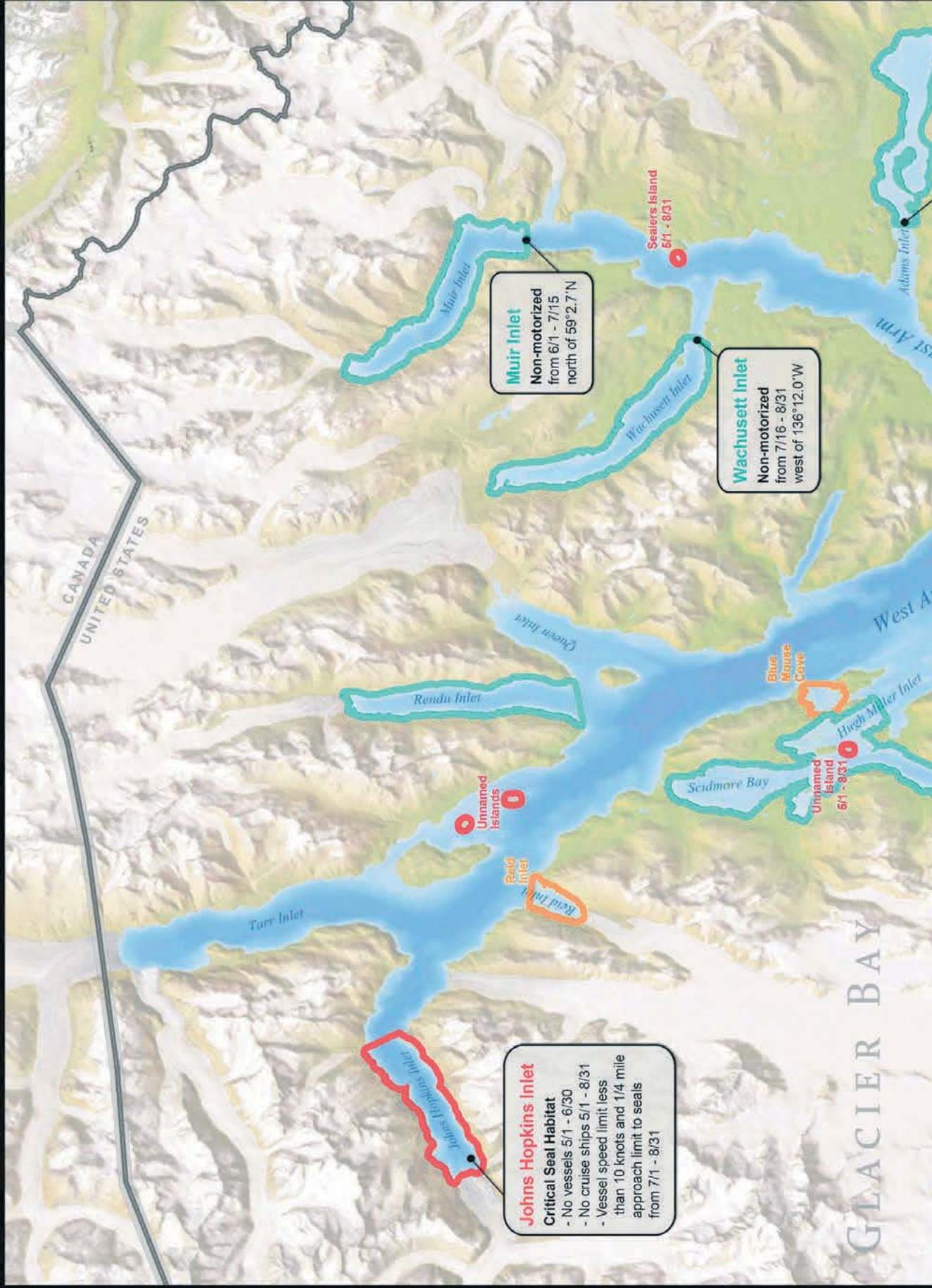
A scuba researcher investigates a red tree coral in Glacier Bay’s rich, cold waters.

# 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

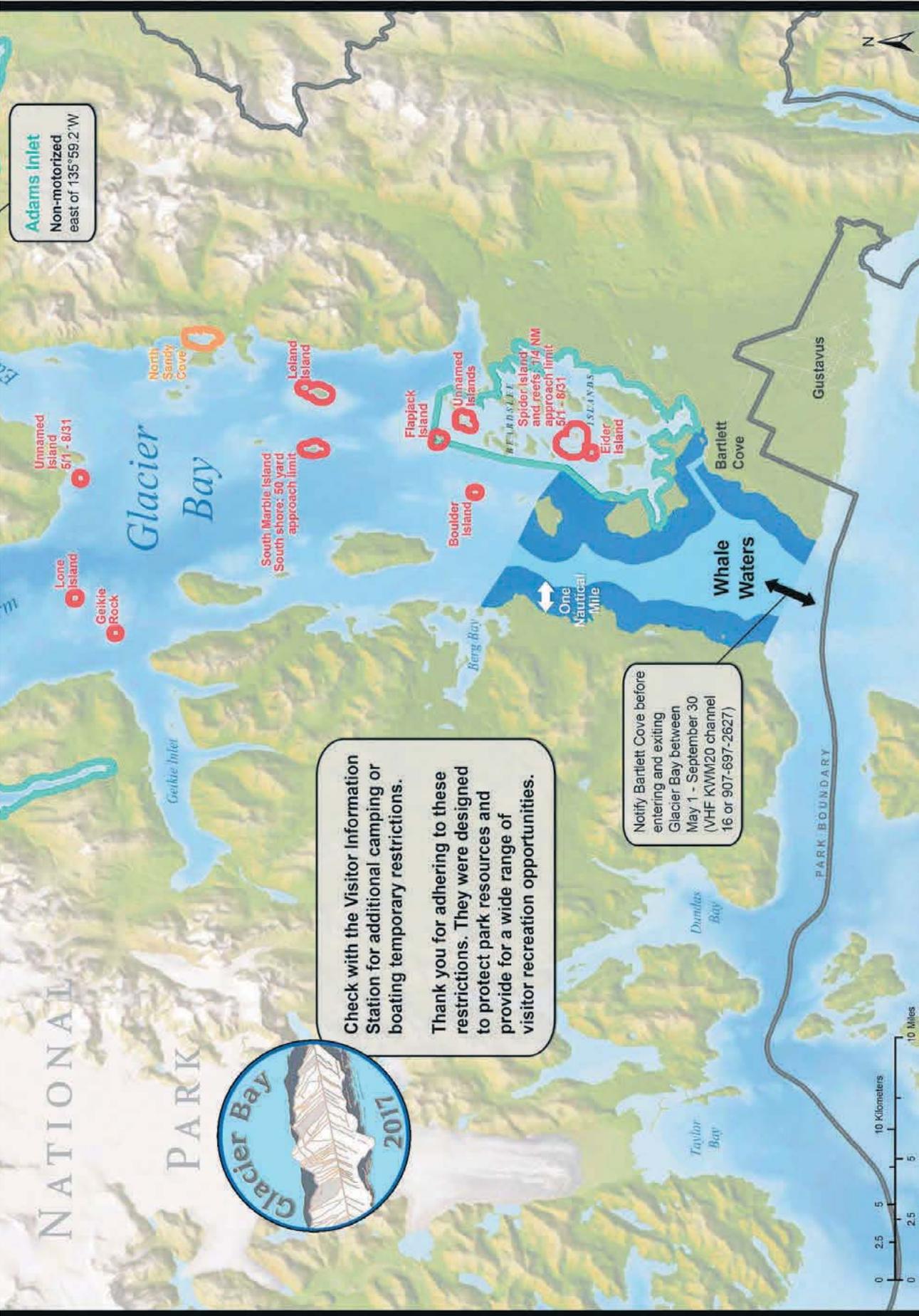
# NATIONAL PARK



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 provide for a wide range of visitor recreation opportunities.

Notify Bartlett Cove before entering and exiting Glacier Bay between May 1 - September 30 (VHF KWN120 channel 16 or 907-697-2627)



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

Unnamed Island 5/1 - 8/31

Lone Island  
Geikie Rock

North Sandy Cove

South Marble Island  
South shore: 90 yard approach limit

Leland Island

Flapjack Island

Unnamed Islands

Boulder Island

Spider Island and reefs: 7/4 NM approach limit  
5/1 - 8/31

Eider Island

Bartlett Cove

Gustavus

Berg Bay

One Nautical Mile

Whale Waters

PARK BOUNDARY

Taylor Bay

Dundas Bay

Geikie Inlet



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 and Camping Guide



## 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 recycling help make it possible to reach the park's record of over 70 percent of waste generated in day-to-day operations to be recycled or reused.

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](http://www.nps.gov/glba). 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.



**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.



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.

## 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.*

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.



# Camping



## Take Care of Your Park

By practicing “Leave No Trace,” 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

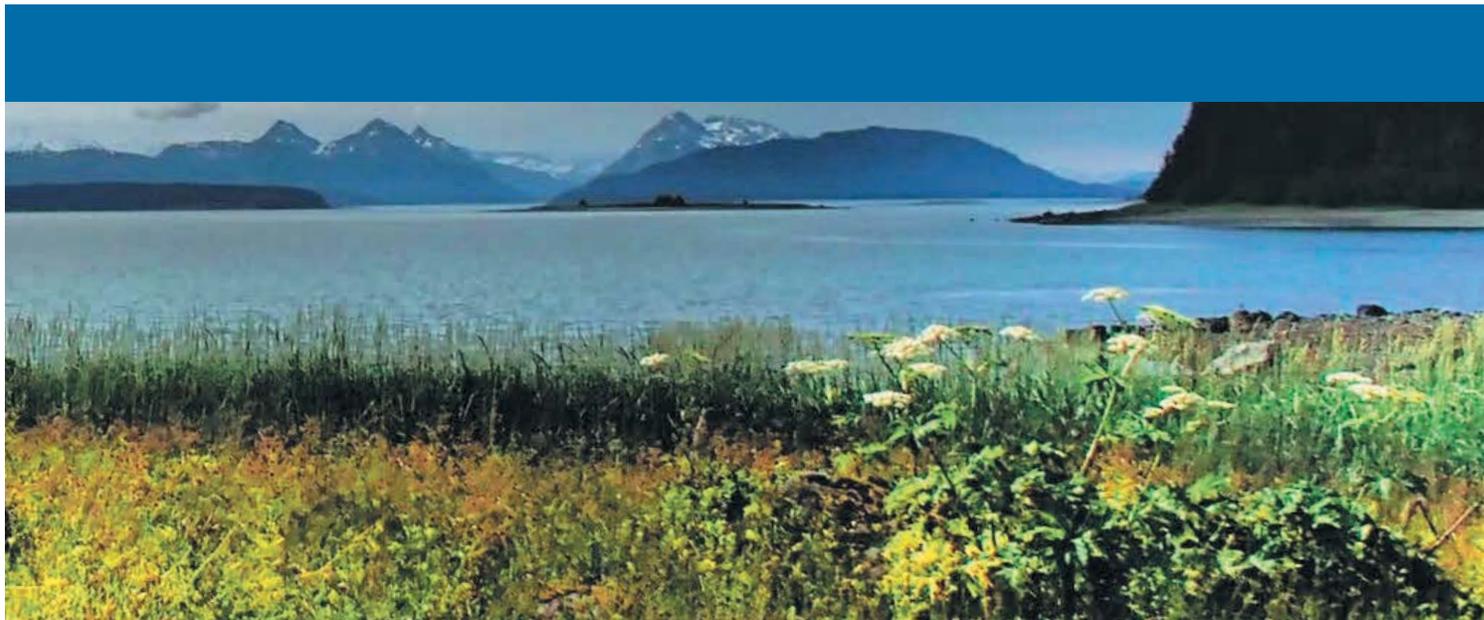
- Avoid camping near other parties.
- Keep your camp and activities as inconspicuous as possible.
- Groups larger than 12 are not allowed.

### 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.



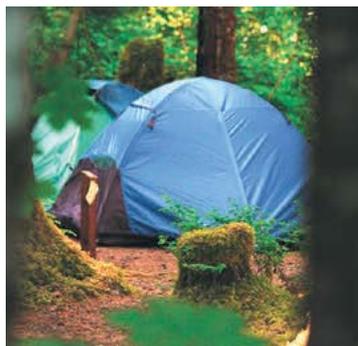
## In the Backcountry

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.



## 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](http://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 907-697-2454 or [www.gustavusak.com](http://www.gustavusak.com)

# Wildlife



## 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.



### 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.

### 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.



### 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.



### 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 weight 125 to more than 300 pounds. Though they are often black, they may be brown, blonde, or even blue-gray.



### 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.

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 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.



## 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, 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.



## 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.

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

## 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"> <li>• Stand your ground and talk calmly to the bear.</li> <li>• Attempt to move away slowly.</li> </ul>
Begins to follow you	<ul style="list-style-type: none"> <li>• Stand your ground.</li> </ul>
Charges	<ul style="list-style-type: none"> <li>• Use pepper spray.</li> </ul>
Is a brown bear and makes contact	<ul style="list-style-type: none"> <li>• Play dead—lie flat, face down on the ground, and lace your fingers behind your head. Do not move.</li> </ul>
Is a black bear and makes contact	<ul style="list-style-type: none"> <li>• Fight back vigorously.</li> <li>• This is likely a predatory attack.</li> </ul>

# Whales



National Marine Fisheries Service, permit no. 945-1776-0

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 an unforgettable experience for many visitors. These giants of Glacier Bay's waters are 40-50 feet (12-16 m) long and weigh over 35 tons (32,000 kg). Most Glacier Bay whales migrate to Hawaii each winter to mate and give birth, a 2,500-mile (4,000 km) journey that takes about a month. During the winter, they do not eat. During the summer, whales gorge themselves on high-calorie small schooling fish such as capelin. Bountiful Glacier Bay draws the whales back every year.

Glacier Bay's whale monitoring program began in 1985. Today it is one of the longest running whale studies in the world. Since the 1970s, biologists have identified 761 individual humpback whales in Glacier Bay and Icy Strait. In 2015, 181 unique whales were documented, including some with sighting histories spanning 44 years! Recent genetic studies found that 74% of the humpback whales in Glacier Bay and Icy Strait are descended from whales that were here in the 1970s and early 1980s.

Commercial whaling for humpbacks in Alaska ceased in the 1960s, when international concern

led to their protection. The southeastern Alaska population has been increasing and humpback whales that migrate to Hawaii are no longer listed as endangered. While humpback whale population recovery is a conservation success story, it creates more opportunities for collisions with vessels. All types and sizes of vessels, from kayaks to cruise ships, have accidentally hit whales in Alaska. Colliding with a whale, especially in a fast-moving, small vessel, is dangerous and scary. For your own safety and to protect these magnificent creatures, proceed cautiously and reduce your speed in areas where whales may be present.



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

# Whale Watching

To minimize disturbance to endangered 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 1/4 nautical mile of a humpback whale.
- Pursue a humpback whale within 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)*

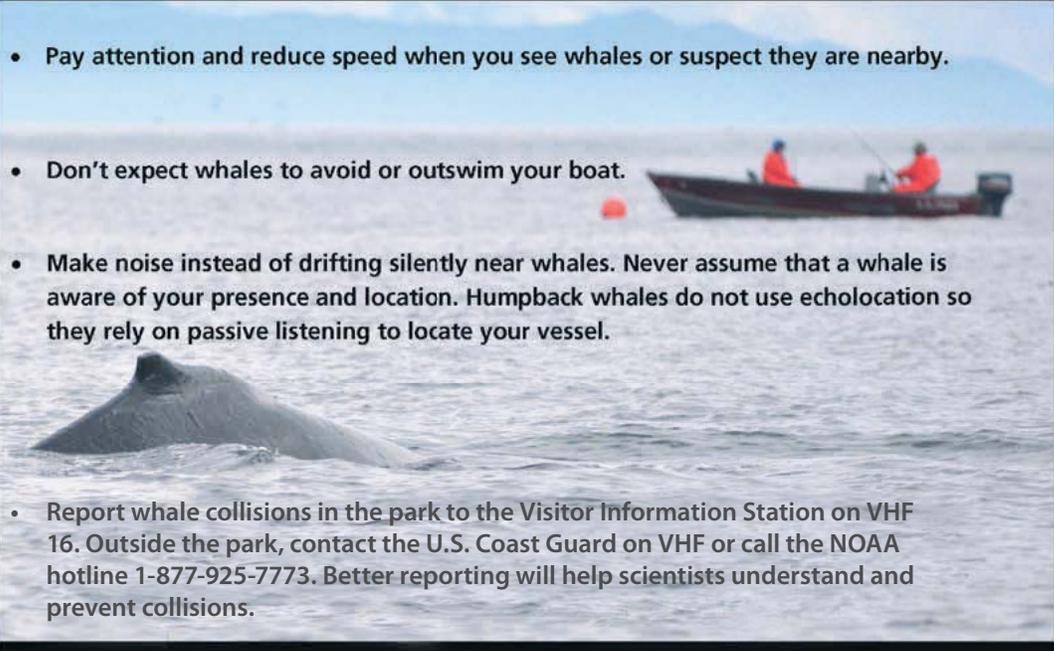
All vessels must operate within speed restrictions. Check at the VIS for current status. Motorized vessels over 18 feet in length must:

- 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 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 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 great distance.

In Johns Hopkins Inlet you must stay at least 1/4 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 1/4 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.



# For Teachers



## 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 badge!

Distance learning programs are offered between November and February. A videoconferencing system (such as Polycom, LifeSize, or Tanberg) or possibly a videoconferencing app is required to conduct a virtual visit. Programs are free and registration starts on

October 1 each year. To register for a program, email the Glacier Bay Education Team at [glba\\_education@nps.gov](mailto:glba_education@nps.gov). You can also visit the Center for Interactive Learning and Collaboration (CILC) website at [www.cilc.org](http://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](http://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.

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



# 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.

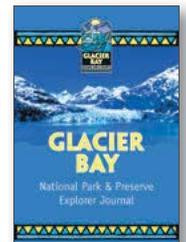
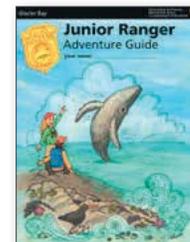
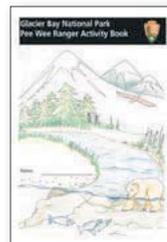
 If you are on a tour boat, meet with the ranger on board.



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

[www.everykidinapark.gov](http://www.everykidinapark.gov)

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

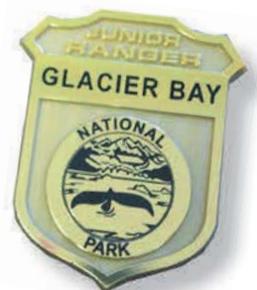


For children between the ages of 2 - 6, we have the *PeeWee Ranger Adventure Guide*.

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.



# Learn More

## Park Partners

As the official nonprofit education partner of Glacier Bay National Park and Preserve, Alaska Geographic connects people to Alaska's magnificent wildlands through experiential education, award-winning books and maps, and by directly supporting the state's parks, forests, and refuges. Over the past 50 years, Alaska Geographic has donated more than \$20 million to help fund educational and interpretive programs throughout Alaska's public lands.

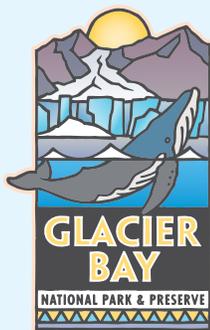
Alaska Geographic operates bookstores across the state, including several locations in Glacier Bay: the park visitor center in Bartlett Cove, and on board the dozens of cruise ships that visit the area each year. Your purchases at these locations directly support Glacier Bay National Park and Preserve—a portion of every sale helps fund the park's educational and interpretive programs.

To find out more, become a member, stop by any Alaska Geographic bookstore, browse our selection of Alaska books, maps, and films, or visit our website.



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907-274-8440 or toll-free at 866-AK-PARKS  
akgeo.org



Discover Alaska Collector Series  
Pins, patches, hats, and other products featuring  
this unique Glacier Bay design. Exclusively from  
Alaska Geographic.

## To Learn More

Visit the Alaska Geographic bookstore at the park visitor center 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 *Alaska National Park Series*

Author Kim Heacox takes you into a world of blue ice, temperate rainforests, misty mountains, and coastal wildlife. You will meet the bold explorers who trekked its glaciers and waterways, the scientists who study its vast landscape, and the Huna Tlingit who have lived here 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. \$9.95



### 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.

PC or Mac compatible

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](http://www.nps.gov/glba)  
[glba\\_administration@nps.gov](mailto:glba_administration@nps.gov)



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