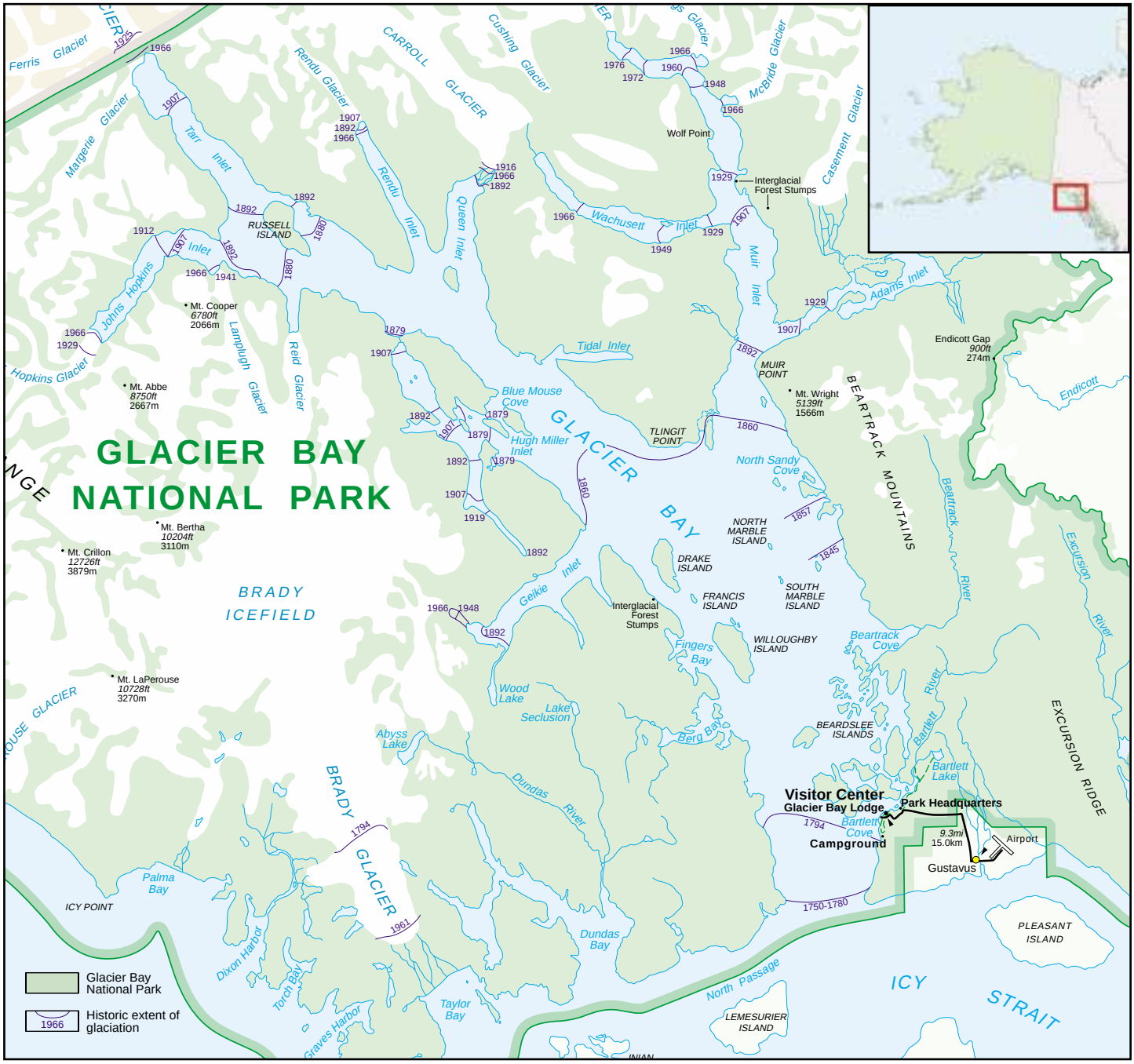


NPS Map

# Emergency and Medical Assistance

## Emergency Inside the Park:

**National Park Service Bartlett Cove**
**697-2229 (summers only 8 a.m.-6 p.m.)**
**697-2651 (24-hour)**

## Emergency Outside the Park:

**Gustavus Emergency Response**
**Dial 911**

## Other Medical Assistance:

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

You are in an isolated area. The closest hospital/trauma facility is in Juneau 30 minutes by air. Weather conditions may delay medical evacuations or other emergency transport, sometimes for days. To help ensure you have a safe visit, use caution.

- Respect boundaries, especially around construction zones.
- Watch for traffic on docks, roadways and in parking lots.
- Report any hazardous situations to the Visitor Information Station.
- Even for short excursions, always let someone know where you are going and what time you plan to be back, then stick to your plan.

Glacier Bay National Park and Preserve Summer 2003

# The FAIRWEATHER

## VISITOR GUIDE







ALASKA NATURAL HISTORY ASSOCIATION

*Sharing Alaska's Natural and Cultural Heritage*

Photo by Tom Bean

# Welcome

*to Glacier Bay National Park and Preserve,*

one of America's premier natural wilderness areas administered by the Department of the Interior, National Park Service. This park is one of 16 national parks in Alaska and over 380 nationwide.

In 1925, President Calvin Coolidge used powers granted him in the Antiquities Act to set aside Glacier Bay National Monument to protect the scenic beauty, glaciers, geologic landforms and diversity of life that is so abundant here; provide for scientific research; allow you, the park visitor, to experience and learn about these very special resources.

Through an act of Congress in 1980, it became a national park. Preserve lands were added. Today's national park and preserve totals almost 3.3 million acres. In addition to its abundant wildlife, glaciers and unsurpassed scenery, Glacier Bay is acknowledged as having a world-class marine ecosystem. The park has received international recognition as both a World Heritage Site and Biosphere Reserve.

This guide offers many ideas for exploring this park. We welcome your questions and comments, and solicit your interest and help in caring for this magnificent resource. It is, after all, your national park. Have a wonderful visit!

Tomie Patrick Lee

**Tomie Patrick Lee**
Superintendent

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

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The FAIRWEATHER

**Project Produced and Designed by:**

ALASKA NATURAL HISTORY ASSOCIATION

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Printed on recycled paper

Photo by Chad Soiseth

# Exploring Bartlett Cove

## *If you just have a few hours...*

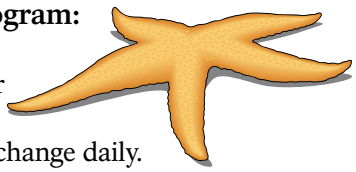
**Visit the National Park Service Visitor Center:** On the second floor of the Glacier Bay Lodge, you will find the NPS Information Desk and a variety of exhibits that explore the wonders of Glacier Bay. The Information Desk is open daily from 12 p.m. to 8:45 p.m During that time books and educational materials from the Alaska Natural History Association are available for purchase.

**Catch a Film:** The National Park Service shows several different films at 2, 5, and 7 p.m. daily in the auditorium, located next to the exhibits on the second floor of the Glacier Bay Lodge. Film lengths vary from 15 to 26 minutes.

**Walk the Forest Loop Trail:** Go on your own or with a ranger. Daily ranger-led walks meet in the lodge lobby and depart at 2:30 p.m. for this 1.5-hour walk. (See trail details, page 6.)

**Go for a Beach Walk:** (See trail details, page 6.)

**Take in an Evening Program:** Join a ranger in the auditorium at 9 p.m. for a slide presentation about the park. Topics change daily.



See the Information Desk or the bulletin board in front of the lodge for updates, film titles and evening program topics.

## *If you have half a day...*

**Join a Ranger for a Hike:** (June through August) Ranger-led hikes depart from the lodge lobby at 9 a.m. daily. Destinations vary. Ask a ranger for details. Come prepared with sturdy boots, water, a snack and raingear, if necessary.

**Hike to the Bartlett River.**
(See trail details, page 6.)

## *If you have a full day:*

**Cruise the Bay:** This all-day boat trip up to the glaciers should not be missed! See the lodge front desk for details and to purchase your ticket. Binoculars, extra film and warm clothing are highly recommended.

**Hike to Bartlett Lake.**
(See trail details, page 6.)

**Go for a Paddle:** There are several options for kayaking around Bartlett Cove. Take a guided kayak trip with Alaska Discovery (advanced reservations appreciated), or rent a kayak from Glacier Bay Sea Kayaks and paddle your own. Experience Glacier Bay up close. You never know what you might see!

**Become a Junior Ranger:** Kids can visit the ranger at the NPS Information Desk to pick up their free Junior Ranger Adventure Book. Complete the steps and earn a nifty badge. The world can always use another Junior Ranger! (See page 29 for details.)

# 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°-to-60° F (10°-15° C). 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 upbay. Dressing appropriately will enhance your trip by allowing you to stay out in the elements and make the most of wildlife and glacier viewing. Remember: it's usually cooler on the water and near glaciers.

### Suggested Gear:

- Waterproof jacket and pants
- Thick insulating fleece or wool layer
- Turtleneck or T-shirt
- Polypropylene underwear tops and bottoms
- Sturdy footwear and warm socks

### Other Essentials Include:

- Warm hat that covers your ears
- Gloves
- Scarf or neck gaiter for your throat
- Sunglasses and sunscreen

Campers should discuss special clothing needs for backcountry travel during the camper orientation.

# *Reduce, Reuse, Recycle*

Inevitably, conducting business in this modern world requires using resources. Operating a national park is no different. Through creative planning and cooperative efforts, however, park staff is seeking ways to reduce the impacts that come with operations.

Park managers are working closely with the Gustavus Community Landfill to come up with a holistic waste management plan for the area to recycle, share resources and avoid duplicating efforts. To facilitate the process, park offices and housing areas are provided with separate receptacles for papers, plastics, metals, glass, compostables and non-recyclables. Receptacles for campers, boaters and other park users are located near the Visitor Information Station. This initial separation helps make it possible for over 50% of waste generated in day-to-day park operations to go on to another life:Aluminum, paper, steel and plastics are shipped to recycling centers. Foam packing peanuts are redistributed to local businesses. Food waste from the park and the lodge as well as wood chips, and brush from downed trees and clearing are donated to the landfill to be composted into topsoil for the community. Over 95% of disposed glass is pulverized into small non-sharp particles that have been used to stabilize roadbed substrates in some areas.

### *How can you help?*

Take the time to separate your waste into the appropriate bins near the Visitor Information Station.

***Thank you!***

Photo by John Sheerson

# 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.

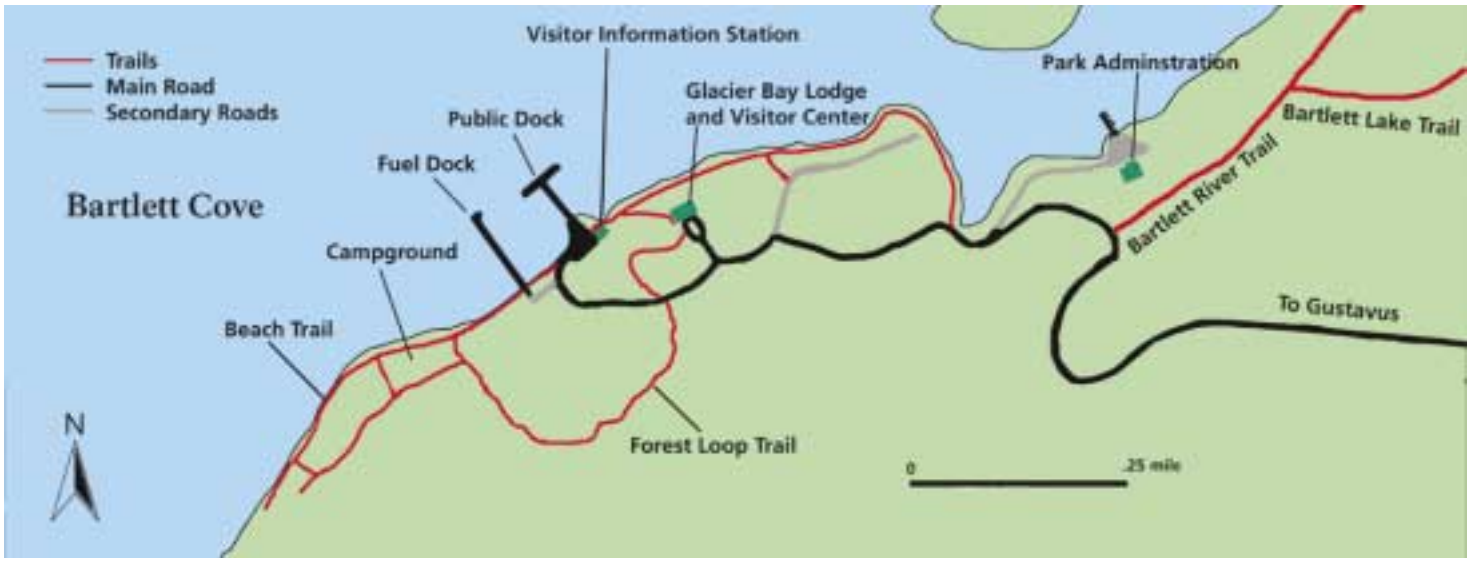
Tides result from the gravitational pull between the sun and the moon, and their relationship to the earth. As these three celestial bodies are constantly in motion, the amount of gravitational pull varies and the tide levels change. Because it's closer, the moon has the strongest influence on the tides. 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.

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

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 consequent 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 an hour 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.




NPS Map

# These Boots Were Made for Walking

You've probably done a fair bit of traveling to get here and may have a hankering to stretch your legs. There are three maintained trails near the Glacier Bay Lodge. All offer relatively easy walking.

## Forest Loop Trail

*Distance: 1 mile loop*
*Time: 30 min.-1.5 hours*

Takes you through both the temperate rainforest and the beach environments of Bartlett Cove. Begin your walk either in front of the lodge (just off the parking lot) or south of the boat ramp between the docks. The trail surface varies between dirt, gravel and boardwalk. Two benches and viewing platforms along the way beg you to pause and take in the sights and sounds of the spruce/hemlock forest. Rangers lead guided walks along this trail every afternoon at 2:30 p.m. Meet near the lodge front desk.

## Beach Walk

The long stretch of shoreline south of the docks allows for a pleasant stroll. Low tide reveals a myriad of intertidal life. (Please walk carefully!) It's a terrific place to see land, shore and sea birds. Free tide tables are available at the NPS Information Desk in the lodge and at the Visitor Information Station near the public-use dock.

## Bartlett River Trail

*Distance: 4 miles roundtrip*
*Time: 4-5 hours*

Meanders along an intertidal lagoon and through the spruce/hemlock forest before emerging and ending at the Bartlett River estuary. Watch for coyotes, moose, bear and river otter along the beach. Ducks, geese and other water birds concentrate in the intertidal area during migrations and molting. Salmon run up the river in the latter part of the summer, which attracts hungry harbor seals.

## Bartlett Lake Trail

*Distance: 8 miles roundtrip*
*Time: 7-8 hours*

Begin walking on the Bartlett River Trail. About 3/4 of a mile down the trail at a signpost, the lake trail will branch off and begin to climb the moraine. This trail is less maintained so use caution to not lose the route. The chatter of red squirrels will accompany you as you wind your way over and around moss-covered boulders and lichen-covered trees before reaching the shores of Bartlett Lake. During this full-day journey, you may be richly rewarded in solitude and perhaps even the call of loons. Bring water, lunch and raingear.

CAUTION

# Baneberry: Deadly Temptations

Photo by Gary Stolz

Glacier Bay has a myriad of tasty berries that ripen over the summer. But there is one berry you do not want to eat.

Baneberry *(Acraea rubra)*, a member of the buttercup family, is aptly named. "Bane" is derived from an Anglo-Saxon word meaning "murderous." All parts of the plant are toxic. It is common around Bartlett Cove on the edges of forests, along stream banks and roadsides.

The stalk grows from two to four feet high. Its thin, heavily veined leaves have deeply toothed edges. In the spring, it produces a cluster of small white flowers above the leaves. In July and August, hard shiny berries appear. These can be either candy-apple red (most common) or white.

Mature berries have a dark spot, which has earned them the nickname of "dolls eyes." But there is nothing playful about this plant. Ingesting one berry can cause numbness in the mouth and tongue. The poison in three berries is enough to kill a child. Six berries will effectively shut down the respiratory system in adults.

The best rule to follow if you are sampling wild plants: if you aren't sure what it is it, don't eat it.

## *A Slip of the Foot*

Due to the amount of moisture here in Glacier Bay, walking can be tricky. Wet decks, wooden walkways, logs, rocks, and tree roots can be very slippery and create tripping hazards. Muddy pathways can be slick. To minimize risk, wear sturdy shoes with good traction and use handrails wherever available. Watch where you are stepping and take your time!

## Moose Musts

If you encounter a moose, use caution:

- Increase the distance between you and the moose.
- Get behind a tree.
- Change your route.

To avoid close encounters make noise while you hike.

Photo by Rosemarie Salazar

No matter where you walk, always let someone know where you are going and what time you expect to be back.

# Bears

NPS Photo

Glacier Bay National Park is home to brown/grizzly bears *(Ursus arctos)* and black bears *(Ursus americanus)*. Black bears are found primarily in the forested regions of the lower bay, including Bartlett Cove, while brown bears live mainly in the open, recently deglaciated regions of the upper bay.

## Which is Which?

Telling the difference between the two species can be tricky. Simply looking at color doesn't help. Black bears can be black, brown, blonde, even blue-gray, as is the case of the rare race found in Southeast Alaska called the "glacier bear." Brown bears can be any shade from honey-blonde to black. The following key physical characteristics can help clarify which type of bear you've spotted:

### Black Bears:

- Straight facial profile
- Lack of a shoulder hump
- Prominent ears
- Short, curved claws
- 3 feet at the shoulder
- 125 to over 300 pounds

### Brown Bears

- "Dish-shaped" facial profile
- Prominent shoulder hump
- Long, straight claws
- 3.5 feet at the shoulder
- Up to 9 feet when standing on hind legs
- Average 500 to 1000 pounds

## Be Bear Savvy

- Travel in groups of 2 or more.
- Make noise, especially when in wind or near rushing water.
- Avoid spawning streams and berry patches.
- Choose routes and cook in areas that offer good visibility.
- Pay attention to wind direction, which can blow your scent ahead notifying bears you're near.

## Be a Smart Camper

- Stop to cook your meal, then move to find a campsite.
- Only take out foods needed for the current meal. Leave the rest in the bear resistant food container (BRFC).
- Avoid smelly foods.
- Store food at least 100 yards downwind from camp.
- Don't camp on animal trails.
- Pull your kayak and pitch your tent clear of the beach, which can be a highway for bears.

## Close Encounters

When encountering humans, most bears will run away, approach curiously, act defensively or appear to ignore the situation. By remaining 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.

| The Bear: | What you can do: |
|---|---|
| May or may not be aware of your proximity and is going about its business.<br><br>Behaviors include:<br>• Not looking at you.<br>• Moving steadily along route. | What is your activity and degree of mobility?<br><br>You are hiking or kayaking:<br>• Back away.<br>• Stay alert to bear.<br>• Change your course to avoid bear.<br><br>You are camping or eating:<br>• Keep all gear under direct control.<br>• Stand your ground.<br>• Group together without blocking bear's route.<br>• Make bear aware of you by talking calmly. |
| Continues to move toward you but seems to be going about its business. | Monitor bear's movement:<br>• Stand your ground and talk calmly.<br>• Allow bear to pass peacefully. |
| Becomes focused on you and is acting defensively.<br><br>Behaviors include:<br>• Snorting or grunting.<br>• Jaw popping.<br>• Steps toward you. | Assure bear you are not a threat:<br>• Stay together and stand your ground.<br>• Be assertive. Elevate your defense.<br>• Get louder by using noisemakers, such as compressed airhorn, banging pots together, popping plastic bags. |
| Charges. | Continue to stand your ground. |

Few charges end in contact. But if the bear makes physical contact, act as follows according to species:

### Brown bear:

- Lie flat facedown on the ground and place your interlaced fingers behind your head.
- Do not move. A bear will often back off once it feels the threat has been eliminated. Any movement on your part could renew the attack.

**If the attack continues after you have assumed the defensive posture it is likely a predatory attack. Fight back vigorously.**

### Black Bear:

- **Fight back vigorously. This is likely a predatory attack.**

# Wildlife Viewing

When the ice retreated in Glacier Bay, it left behind a scoured landscape of rocks and mud. In time, plants returned to the seemingly sterile land. Eventually animals returned to the land and waters within the bay. Today a wide variety of creatures call Glacier Bay home for at least part of the year, and the number could grow as more creatures find their way to this evolving landscape. As you explore Bartlett Cove or as you cruise up the bay, keep your eye out for some of these more frequently seen members of the community.

## *By Land*

**Moose** (*Alces alces):* The largest member of the deer family is a recent newcomer to the bay. The first moose was spotted here in the late 1960s. Despite their tremendous size (bulls can weight 1600 lbs. and females 1300 lbs.), 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. Cows give birth in the spring to one or two small delicate reddish calves, though usually no more than one survives. A calf will stay with its mother for two years before the cow drives it off as she prepares to have more young. Their diet includes willow leaves, grasses, herbs and aquatic vegetation. Only bulls grow antlers.

**Mountain Goats** (*Oreamnos americanus):* Arguably the most dapper of Glacier Bay's mammals, mountain goats sport thick white coats of hollow hairs (that keep them warm in extreme weather), accented by black horns and hooves. 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. The special shape and design of their hooves allows them to leap nimbly from ledge to ledge in search of grasses, herbs and low-growing shrubs. Seen at a distance, they are often mistaken for Dall sheep, which are found in the Interior.

**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. This large rodent (second largest in North America behind the beaver) performs a broad repertoire of grunts, whimpers and screams. Listen for them in the evenings "talking" to no one in particular.



**And of course, Black Bears and Brown Bears.**

(See bear information, page 8)

## *By Sea*

**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 it to get around with surprising speed. In the water they become fluid, executing a seemingly endless series of underwater flips, turns and rolls. Mature males can weigh almost 2,000 pounds, but females average only 600 pounds. During mating season, large bulls compete at established rookery sites on Glacier Bay's outer coast to collect harems of females. Unsuccessful and immature males often congregate at haul-out areas like South Marble Island. Though the number of sea lions is growing in the bay, the population in Western Alaska has decreased by 80% since the late-1970s leading to that portion of the population's current listing as threatened.

Photo by Jim Luthy

**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. Unlike the sea lion, harbor seals have no external earflap and when out of the water, cannot support themselves on their flippers. 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. About 1,700 seals converge on Johns Hopkins Inlet each summer for pupping and mating. On-going research in the park indicates that the population in the inlet has declined 50% in the past decade.

**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 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 wakes, like their relative the Dall's porpoise, which are larger (6.4 feet/300 pounds) and resemble small orca in their black and white coloration. Though Dall's porpoise can be seen in the bay, they are more often near the entrance and in Icy Strait.

Photo by Bruce Paige

**Sea Otter** (*Enhydra lutris):* Sea otters perform many of their daily tasks floating on their backs. In this prone position, their bellies make perfect tables on which to spread their latest picnic, such as a clam that they will crack open on a carefully selected rock. After the meal, it's bath time. Lacking a thick layer of blubber, otters instead have the densest fur of any mammal with up to one million hairs per square-inch. To maintain its insulation qualities, the fur must be kept meticulously clean. Its skin fits loosely making it possible for the otter to pull fur from all parts of its body to its mouth for cleaning. Females also do this for their young.

Photo by Alex Andrews

# A Tough Question

When you visit a national park, what you don't see can be just as important to your experience as what you do.

The overwhelming majority of visitors to Glacier Bay come in boats — both large and small. If you travel up the bay, you will see other boats throughout the day. But you will not see a large flotilla of vessels, each vying for a place before a calving glacier. The tough question is this: how many boats can be in the park at any one time before the park experience is diminished, the wilderness character is compromised, and the wildlife is affected?

The National Park Service is in the process of preparing an environmental impact statement (EIS) that will look at vessel numbers and potential impacts. Results from the EIS will help to determine the number of vessels — cruise ships, tour boats, charter boats, and private boats — that will be granted permits to enter the bay on a daily and seasonal basis.

Glacier Bay National Park and Preserve began a vessel management system in the late 1970s, when concerns arose that marine traffic might be adversely affecting endangered humpback whales that feed in the bay during the summer months. Park managers now recognize that vessels may directly or indirectly affect a large variety of marine and coastal wildlife, along with air and water quality and the character of wilderness recreation in the park.

Through the EIS process, the National Park Service is seeking to develop policies that anticipate and mitigate the potential effects of boat traffic. The process is scheduled for completion by January 1, 2004.

# Planning for Wildness

*I only went out for a walk, and finally concluded to stay out till sundown, for going out, I found, was really going in. —John Muir*

Photo by Greg Streveler

Photo by Dave Nemeth

Just what do people expect when they go into the wilds of Glacier Bay? Everyone's answer could be different, but key is that the possibility to find wildness continues to exist. And that takes planning.

The National Park Service is revising the existing backcountry management plan for Glacier Bay. The plan addresses how to protect this expanse of designated wilderness and preserve its naturalness, while guiding where and how to provide access, research and use.

Over the past winter, the park service gathered public input in a series of meetings and will continue to meet with communities during development of the plan and accompanying environmental impact statement. A public review draft of the plan is scheduled to be released by fall 2004.

For more information on these and other park issues, please visit our website at www.nps.gov/glba.

# Boater/Camper Essentials

## Welcome to Glacier Bay

If you intend to camp or boat during your visit, your first stop should be at the Visitor Information Station (VIS). During the summer, a free permit is required for all boating and overnight camping. Orientations, provided with the permit, are required annually for all campers and skippers. They cover the following:

- **Rules and Regulations**
- **Safety Issues**
- **Resource Concerns**

Backcountry campers can also check out bear-resistant food containers (BRFC) to use free of charge during their visit.

We want you to make the most of your visit. And we want to make sure you do it safely and with minimum impact, so others who follow will be able to enjoy the wildness this land can offer. It is your responsibility to know and obey the rules and regulations of Glacier Bay National Park and Preserve. If you have any questions, please ask a ranger.

## Bartlett Cove Area Services

Available mid-May to early September

| | Public Dock | Fuel Dock | VIS | GB Lodge | NPS VC |
|---|---|---|---|---|---|
| Courtesy Skiff for boat/dock shuttles | ✔ | | | | |
| Escape Ladder | ✔ | ✔ | | | |
| Fire Extinguisher | ✔ | ✔ | ✔ | ✔ | ✔ |
| Fuel | | ✔ | | | |
| Laundry | | | | ✔ | |
| Maps/Park Information | | | ✔ | | ✔ |
| Nautical Charts | | | ✔ | | ✔ |
| Park Bulletin Board | ✔ | | ✔ | | |
| Pay Phone | | | ✔ | ✔ | |
| Pump-out Station | | ✔ | | | |
| Ranger Programs | | | | | ✔ |
| Restaurant | | | | ✔ | |
| Restroom | | | ✔ | ✔ | |
| Showers | | | | ✔ | |
| Trash Receptacles | | | ✔ | | |
| Water | ✔ | | ✔ | | |

# Boating Information

## *Permits*

- Are required for private motor vessels from June 1 through August 31.
- Are free and good for 7 consecutive days.
- Must be confirmed 48 hours before scheduled entry date or permit will be cancelled.

To confirm permits or to see if permits are available, call the VIS "KWM20 Bartlett Cove" on marine band 16 or phone 907-697-2627. Permit applications are available on our website and are accepted 60 days before the intended entry date.

## *Docks*

**Bartlett Cove Dock:** Please observe the following:

- Vessels may dock for a maximum of 3 hours in a 24-hour period. After that, anchor out beyond the white "no anchor" buoy line.
- Dinghies may dock in the designated area for no more than 12 hours in a 24-hour period. (See dock bulletin board.)
- Do not leave vehicles or equipment unattended on docks.
- Use only slips designated for your use. (See dock bulletin board.)

**Fuel Dock:**

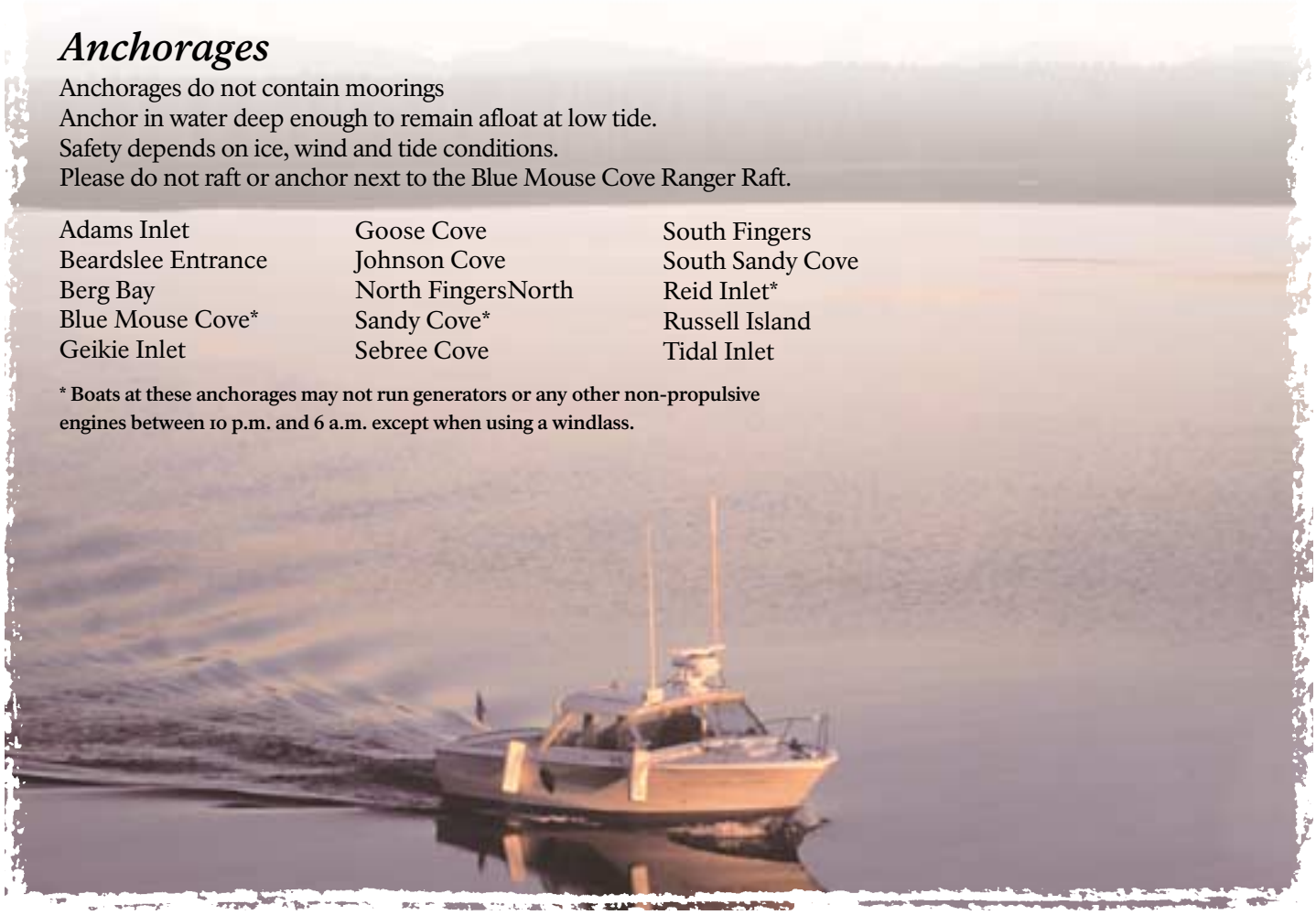
- Do not leave vessels unattended at the Fuel Dock.
- For hours, call Glacier Bay Lodge on marine band 7A or phone 907-697-2225.

## *Anchorages*

Anchorages do not contain moorings
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 Blue Mouse Cove Ranger Raft.

| | | |
|---|---|---|
| Adams Inlet | Goose Cove | South Fingers |
| Beardslee Entrance | Johnson Cove | South Sandy Cove |
| Berg Bay | North FingersNorth | Reid Inlet* |
| Blue Mouse Cove* | Sandy Cove* | Russell Island |
| Geikie Inlet | Sebree Cove | Tidal Inlet |

*** Boats at these anchorages may not run generators or any other non-propulsive engines between 10 p.m. and 6 a.m. except when using a windlass.**



## *Hazards*


Photo by Fawn Bauer

**Closures:** Due to animal activity or resource protection, certain areas are off limits to entry and/or 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 Boating Guide, page 16.)

**Cruise Ships:** No more than 2 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, the waves of which can reach the beach over 10 minutes after the ship has passed.

**Currents & Winds:** Currents of 6 to 8 knots are not uncommon. Traveling with the tides, rather than against them, can help you ride or paddle easier and quicker.

**Caution:** The forces of tides, currents and wind can combine in certain places to create dangerous conditions. Use caution in Sitakaday Narrows, Beardslee Entrance, McBride Entrance and the north shore of Adams Inlet. Plan crossings of wide channels carefully. Better to change your route or wait for conditions to subside than to risk flipping your boat.

**Ice:** Glaciers can calve from above and below the waterline. Underwater tongues of ice can break off and shoot to the surface. We do not recommend approaching tidewater glaciers closer than 1/4 mile.

**Tides:** Secure boats and gear well above high tide line.

**Weather:** Mid-May through September, weather forecasts and satellite images are posted daily at the VIS bulletin board. Rangers broadcast the marine forecast and other important notices over marine band 16 at approximately 8:45 a.m. and 5:45 p.m. daily.

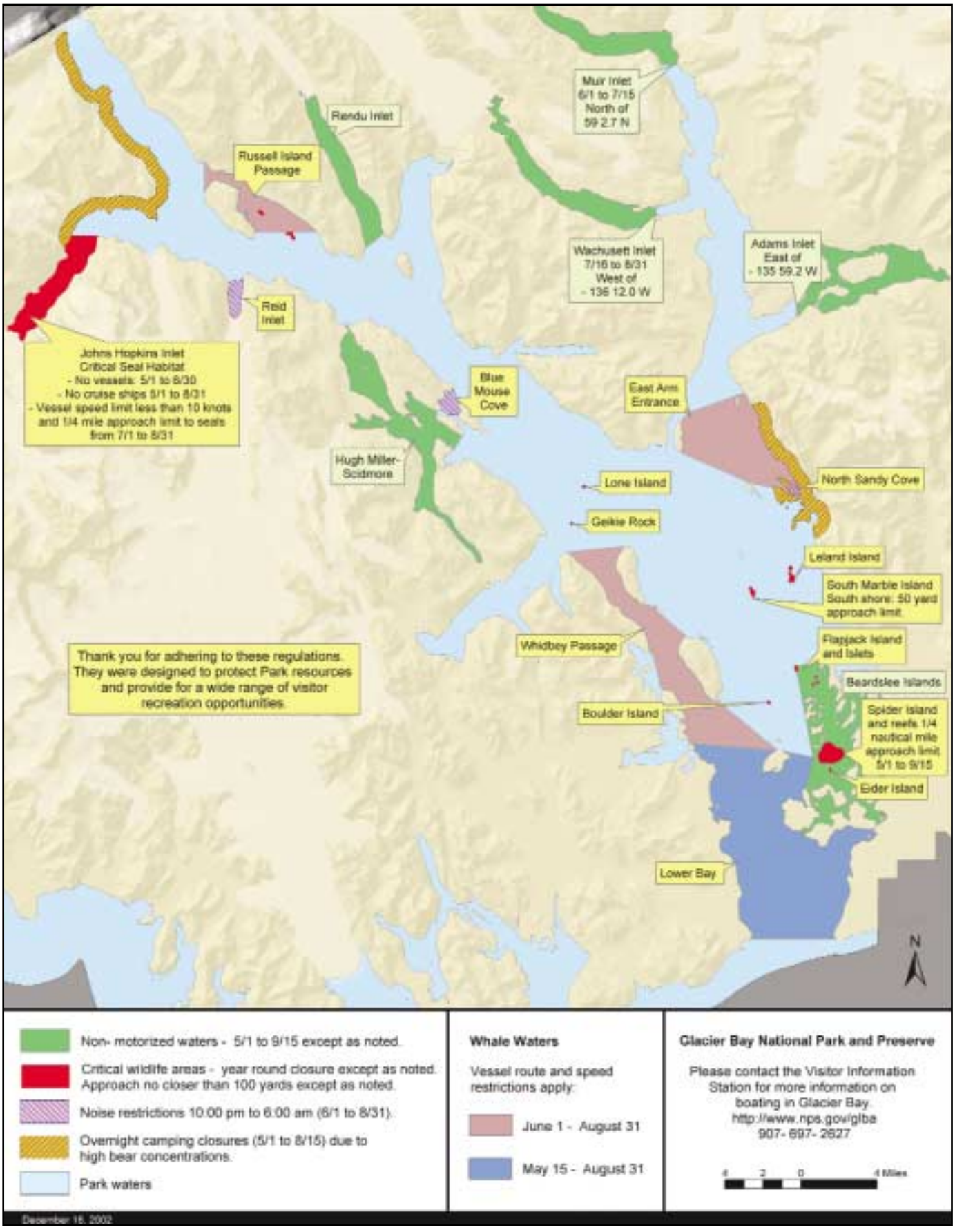
## *Maps & Charts*

**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

**To order maps and charts, contact:**
Alaska Natural History Association
P.O. Box 140
Gustavus, AK 99826
907-697-2635
Karen_Platt@partner.nps.gov.

# Boating Guide for Glacier Bay National Park and Preserve



# Whale Watching in Whale Waters

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 of Glacier Bay

All vessels, including kayaks, must **NOT**:

- Operate within a 1/4 nautical mile of a humpback whale.
- Pursue a humpback whale by altering course or speed in a manner that results in retaining a vessel at a distance less than a 1/2 nautical mile from a humpback whale.

*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.*

## What Are 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 the map on the left for areas and dates that regulations are in effect and check at the VIS for additional temporary restrictions before setting out.

## Rules For Whale Waters

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.
- Operate within speed restrictions. Check at the VIS for current status.

# Camping Information

Photo by Rosemarie Salazar

## In Bartlett Cove:

A free walk-in tent campground is located at Bartlett Cove. You must register for a site at the VIS. Wheelbarrows are available to help haul gear between the VIS, dock and campground. 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.
- Dispose of trash at the VIS.
- Fires are permitted only in the designated campground beach fire ring.

## In the Backcountry:

### Closure Areas

- Certain parts of the bay are closed to campers either permanently or temporarily due to animal activity and/or resource protection. Ask VIS rangers for closure updates. You are responsible for knowing and obeying these closures. (See Boating Guide, page 16.)

### Campsite Selection

- Choose a site that shows few signs of wildlife usage.
- Avoid camping near other parties.
- Do not camp within 100 feet of a stream or lake.
- Pitch your tent on durable surfaces, like sand.
- Try to keep your camp and activities as inconspicuous as possible.
- Leave your campsite as you found it.

### Food Storage

- Cook and eat in the intertidal zone.
- Do not use your bear-resistant food container (BRFC) as a cooking platform.
- Store all food, trash, and scented items in a BRFC at least 100 yards downwind from your camp.
- In forested areas, use of a BRFC is still recommended. You may, however, hang your food. Food must hang at least 10 feet from the ground, 4 feet horizontally from the tree trunk and at least 4 feet down from the supporting branch.

### Water
- All water should be boiled, filtered or treated before consumption.
- Do not use soap directly in fresh water. Carry the water 100 feet away from the source.

### Waste Disposal
- Within 100 feet of shoreline, deposit human waste in saltwater or the intertidal zone.
- Beyond 100 feet of shoreline, deposit human waste in a shallow pit at least 100 feet from any surface freshwater sources.
- Burn or pack out toilet paper.
- Pack out all trash.

### Campfires
- Campers are encouraged to use camping stoves.
- Campfires are permitted below the high tide line or more than 1/4 mile from marine shorelines.
- Burn only down and dead timber. DO NOT burn interglacial wood, which comes from the exposed remnants of ancient forests found on certain beaches around the bay. Ask a ranger for details.

### Hypthermia
- Cold can kill. Know the signs of and treatment for hypothermia.

### Check In
- If you fail to return as scheduled or do not turn in your BRFC, rangers will begin to search for you starting with the areas indicated on your permit. Please check in at the VIS when you return.

# Park Regulations

**Bears** live here. Know how to behave around them. Consult one of the following for guidelines: Pages 8-9 of the Fairweather visitor guide; Bear Facts, a brochure available at the VIS; or a park ranger.

**Feeding** wildlife is prohibited. All food, fish, garbage and equipment used to cook or store food must be cached in a sealed motor vehicle, vessel (excluding kayaks), building, BRFC, designated trash receptacle, or designated food cache.

**Firearms** are prohibited in the park. Firearms can be turned into the VIS for security. Aboard motorized vessels and in vehicles firearms must be unloaded, cased or stored in a manner that will prevent their ready use.

**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 consumption or use is allowed: Unoccupied seashells; All 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 occuring neurotoxin that causes paralytic shellfish poisoning in humans and can lead to sudden death.

**Pets** are allowed in the developed areas of Bartlett Cove and must be on a leash at all times. However, pets are **NOT** permitted on the Forest Loop or Bartlett River trails. No pets are allowed ashore in the backcountry.

**Recycling** receptacles are available near the VIS. We encourage all campers and boaters to separate waste.

**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.

## Emergency

Call rangers "KWM20 Bartlett Cove" on marine band 16. **Note:** radio coverage in the bay is spotty and cell phone coverage is non-existent.

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.

Report all emergencies to the Visitor Information Station or to the Blue Mouse Cove Ranger Station.

# Glacier Bay as Homeland

Imagine that you can hold Glacier Bay in the palm of your hand. It is smooth and round, about the size of a large egg. It is heavy, precious. Slowly you begin to peel back its layers, its meanings. The first layer, world heritage site, comes off. Next, you peel away the layer for the biosphere reserve. You are now looking at the layer for the national park and preserve. Gently you peel that away. Naked and vulnerable, wilderness trembles in your palm. As you marvel at the beauty, the fragility, something catches your eye. You realize that by holding the land up to the light just so, you can see another image distinct yet intangible as the morning mists. This new image reveals the essence of life for a group of people, the Hoonah Tlingit.

To the Hoonah Tlingit, Glacier Bay is not only the place where they once lived, hunted, fished, collected eggs and berries. It is the center from which they gain their identity as people — their spiritual homeland.

The modern village of Hoonah is in Port Frederick on Icy Strait. Traditionally, four Hoonah Tlingit clans occupied territories in and around Glacier Bay. Advancing glacial ice pushed them out of the bay about 800 years ago. The changing social and economic landscape at the beginning of the 20th Century prevented their return. When Glacier Bay became a national monument in 1925, its borders encompassed much of the traditional Hoonah Tlingit homeland. New federal laws severely curtailed Native activities within the monument boundaries. So began a painful period of Hoonah Tlingit and National Park Service relations.

But time has brought some healing. In recent years, the National Park Service has maintained an open dialogue with the Hoonah Tlingit and has actively encouraged them to return to the park to carry out traditional activities that are compatible with current regulations, such as berry picking. The park has sponsored boat trips for Hoonah school children and elders to come into the bay so the youths may learn traditional ways of knowing in the very place that figures so prominently in their spiritual lives. Scientific studies are also underway to determine if it is possible to allow the Hoonah Tlingit to resume harvesting gull eggs, seals and mountain goats within the park without adversely impacting populations.

You will find the Hoonah Tlingit presence in and around Bartlett Cove. The sea otter hunting canoe on display next to the Visitor Information Station was carved in the park in 1987 by a team of Native carvers under the direction of Elder George Dalton, Sr. Sharp eyes will notice the two Tlingit trail markers carved into living spruce trees near Glacier Bay Lodge; one on the trail leading down to the dock from the lodge and the other along the Forest Loop Trail. Depicting an octopus and an eagle respectively, these carvings are modern renditions of markings originally used to show clan ownership over trade routes. Today, they serve as reminders of ancient ties to the land.

Ultimately, we will all carry within us slightly different versions of the essence that is Glacier Bay. We may guard it carefully. And from time to time, we can take it out to hold in our palm, to admire and share with others. Carefully peeling back the layers of our experience, we will rediscover the wonders we found to be sacred. And if we hold it up to the light just right, it might reveal something more.

*"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

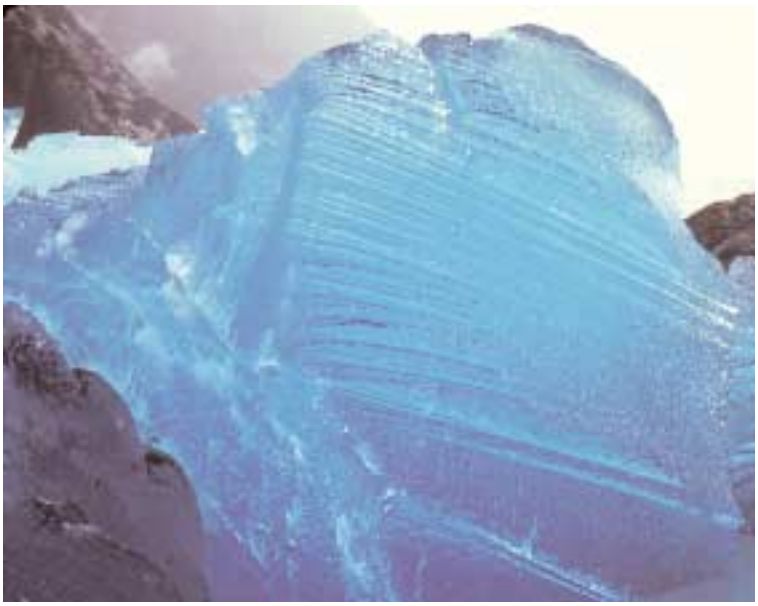


Photo by Ellie Sharman

# 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 and absorbed. 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, a 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. Scientists estimate ice you see at the face of parks glaciers to be around 200 years old.

Photo by Bruce Paige

# Glaciers: They are a-changin'

It has been said that you cannot step twice into the same river. In a sense, the same holds true for rivers of ice that we call "glaciers." A glacier is always growing, melting, moving or calving somewhere. You don't need to linger long at the face of a tidewater glacier to get a sense of the drama. Calving occurs year-round. The glacier face you see today could change significantly by tomorrow, let alone 20 years from now.

Researchers are interested in these glacial dynamics and their causes. Scientists at the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) continue to conduct long-term glaciological research on present and past glacial activity in the region. Another team continues to conduct photographic surveys of the ice margins to document the long-term changes in the bay's glaciers — a study that began in 1927.

Changes in glaciers and ice fields could reveal changes in weather patterns and climates on a local, regional and perhaps even global scale.

*Dr. Dan Lawson and Dr. Lewis Hunter of the CRREL provided the glacier dimensions below.*

| *Glacier* | *Height* Above and Below Waterline | *Width* | *Length* | *Movement* (in Feet) | *Status* |
|---|---|---|---|---|---|
| **Grand Pacific** | 60-180 feet above<br>0-60 feet below | 2 miles | 35 miles | Western edge: 4 feet / day<br>1500 feet / year<br>Eastern edge: 150-180 feet / year | Receding |
| **Johns Hopkins** | 250 feet above<br>200 feet below | 1 mile | 12 miles | 8 feet / day<br>3000 feet / year | Advancing |
| **Lamplugh** | 150-160 feet above<br>10-40 feet below | .75 miles | 16 miles | 900-1000 feet / year* | Receding |
| **Margerie** | 250 feet above<br>100 feet below | 1 mile | 21 miles | 6 feet / day<br>2000 feet / year | Stable |
| **McBride** | 200 feet above<br>270 feet below | .5 miles | 14 miles | 3000 feet / year* | Receding |
| **Muir** | 150 feet above | .5 miles | 13 miles | .5 feet / day<br>150 feet / year | Receding |
| **Reid** | 150 feet above<br>10-30 feet below | .75 miles | 10 miles | 15 feet / day* | Receding |
| **Riggs** | 40-90 feet above | .75 miles | 15 miles | 100-400 feet/ year* | Receding |

*Estimated figures

# Science in the Park

## Forage Fish

Glacier Bay is home to a variety of marine mammals and seabirds, most of which are attracted by the abundant food resources available here. While many of these species are heavily dependent on certain species of fish, until recently little has been known about the distribution and abundance of these "small schooling fish" in Glacier Bay.

Though individually small, these forage fish are quite numerous, often swimming in large schools. They are a vital link in the marine food web because they transfer energy between primary and secondary producers, such as plankton, to top predators such as puffins and whales. Some of the common forage fish species are Pacific sand lance, capelin, juvenile Pacific herring, juvenile walleye pollock, smelts, and juvenile salmonids.The small schooling fish study was established to provide baseline information on the distribution of forage fish species, and to identify critical forage fish habitat in Glacier Bay. For example, several key Alaska forage fishes (capelin, herring, and sand lance) may spawn in the intertidal zone close to shore. These areas may be critical to the survival of these species, but are highly vulnerable to shoreline disturbance or pollution.

Park managers will be able to use results from this study to better ensure that identified critical habitats are safe from human damage.

**Principal Investigator: Dr. John Piatt**

## Sea Otters in Glacier Bay

Sea otters, once nearly eliminated by fur hunters, have made a spectacular comeback throughout the North Pacific following reintroductions about 30 years ago. But until recently, otters had not recolonized Icy Strait or found their way into Glacier Bay. Now that is changing, and with that change comes an opportunity for scientists to study the effects of the otter's return on the ecosystem.

Since 1995 when the first five otters were counted in Glacier Bay, the population has grown to an estimated 1,266. Because sea otters consume large quantities of clams, mussels, crabs, sea urchins and other invertebrates, this increase in otter numbers can cause long-term changes in the ecosystem. Since sea otters were not seen here before 1995, Glacier Bay provides the perfect opportunity to study an area before and after recolonization and learn exactly how these changes occur.

The current study is divided into three parts. First, aerial surveys are flown yearly to determine the otter's population and distribution in Glacier Bay. Second, researchers watch foraging otters through telescopes from land at several sites to determine exactly what otters are eating and where. Third, divers from USGS and NPS monitor the size and numbers of prey and non-prey species that otters are expected to affect. Data collected will allow researchers to compare species' abundance and size over the coming years and decades.

As the recolonization of the bay by sea otters continues, it is likely that dramatic changes will occur in the composition, abundance and size of many species in the marine ecosystem. This study will help managers differentiate between naturally occurring changes and those caused by human activity.

**Principle Investigators:**
**Jim Bodkin, USGS**
**Mike Donnellan, NPS**

# Underwater Acoustic Monitoring

The songs of whales and other marine mammals have been researched and recorded around the world, but until recently little has been known about the underwater soundscape at Glacier Bay. Now, with the aid of an underwater listening device, park scientists can listen in on humpback whale songs and other undersea sounds while working at their desks.

In May 2000, park staff and U.S. Navy acousticians installed the device — called a hydrophone — near the entrance to Glacier Bay. The hydrophone transmits underwater sounds through a cable to a computer workstation at park headquarters in Bartlett Cove. For park staff this has provided an exciting new opportunity to experience firsthand the underwater sounds of the lower bay. It may also prove to be of great benefit to the marine mammals that inhabit that environment.

Humpback whales feed continuously during summers in Glacier Bay. Research shows that whales may move away from preferred feeding areas when disturbed by vessel sounds. Gathering underwater sound data will allow park managers to evaluate its vessel management policies. For example, acoustic data will tell them whether the lower bay is quieter on average when there is a 10 knot speed limit in effect, compared to when the speed limit is 20 knots. Once researchers have collected data on the sound levels marine mammals are exposed to and how much variability in sound levels there is on a daily basis, the park will work with Navy acousticians to develop "noise goals." These noise goals will then help guide the park's vessel management practices.

**Principal Investigator:**
**Chris Gabriele**

# Sound Mapping

What do whales, bats and USGS scientists at Glacier Bay have in common? All three are using sound to explore their environment. For the past two years, geologists and biologists have been working together to map the underwater habitats of Glacier Bay. Sound is used in two ways. The first is called a "side-scan sonar," which paints a picture of the bottom by sending out sound and timing the return echoes. The second device, called a "sub-bottom profiler," sends out much louder sounds that can actually penetrate the sea floor and return information on the type of bottom and the depth of sediments. Why do scientists and many marine species use sound to understand their environment? Light and radio waves do not penetrate water very well but sound travels long distances underwater with little change.

Once a grainy picture of the bottom is produced using sound, scientists need to visit the sea floor in person to see what the different objects in the images actually are. This process is called "ground-truthing." Video cameras can be used, but by themselves they only return limited information. Performing ground-truthing in Glacier Bay is difficult because of the cold water and the long dive times at great depth. To overcome these challenges, divers at Glacier Bay use a new diving technology called "rebreathers," which recycle the air after it is breathed. The divers record the different rocks, sediments, plants and animals that they see on the bottom; they also film these observations for later analysis. The divers themselves carry two sound emitting devices. One allows the boat on the surface to know the divers' exact location, and the other allows the divers to transfer their observations to the boat.

Mapping the underwater habitats of Glacier Bay will greatly aid in understanding the distribution, abundance, and living requirements of many marine species of special concern to the park. Although ground-truthing has just begun, scientists have already discovered physical features that are important to various species, including pits used by groups of molting male dungeness crabs. Geological discoveries are also being made. For instance, much of the floor of the bay has deep and extensive "furrows." These trenches were probably caused by huge icebergs that plowed through rocks and boulders on the bottom during the period of greatest glacial retreat, in the 1700s and 1800s.

**Principal Investigator: Philip N. Hooge, Ph.D.**

For more information on these and other research projects going on in the park, visit:

**www.absc.usgs.gov/glba/glba_prog.htm**
**www.nps.gov/glba/learn/preserve/projects/index.htm**

# Ultimate Beach Walk

As you glide over the water have you considered what it might be like to walk along Glacier Bay's wild shores? Glacier Bay's coastwalkers do just that—and get paid.

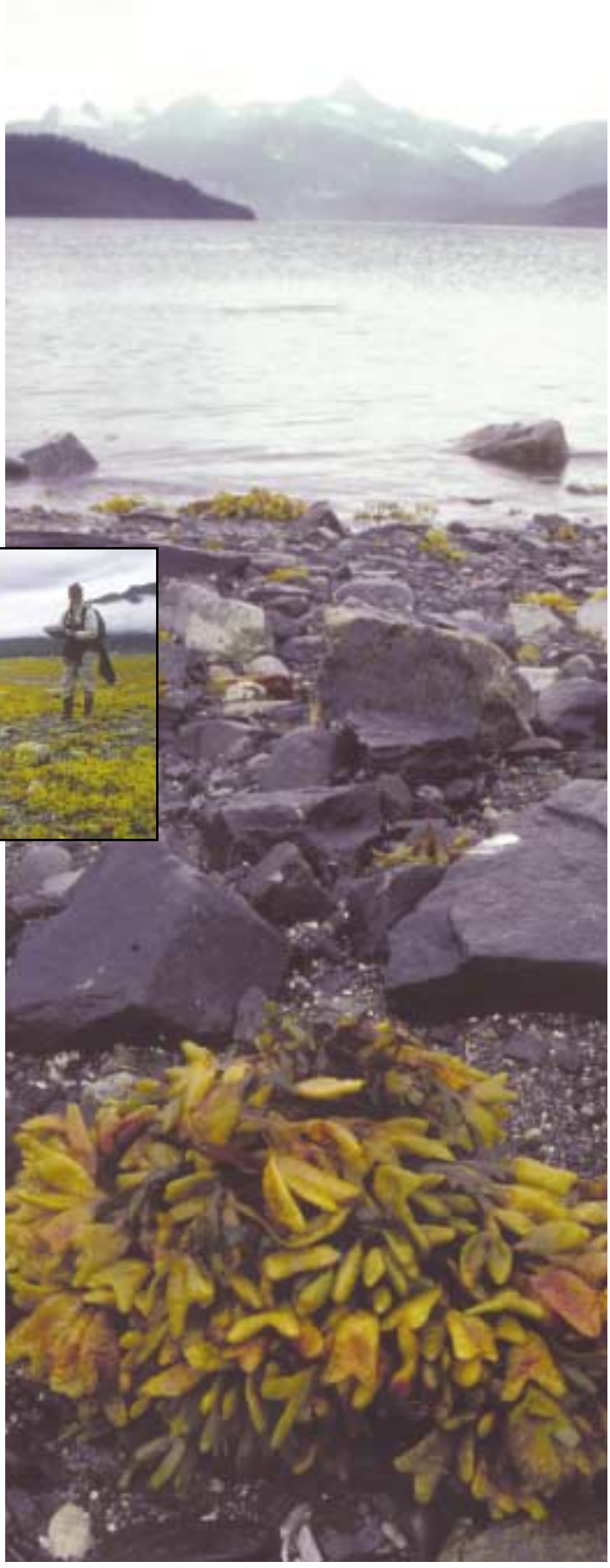
For the past six years researchers, called "coastwalkers," have been walking the shores of Glacier Bay paying careful attention to what they find along the way. This coastal mapping effort is part of a larger National Park Service Alaska Coastal Resources Inventory and Mapping Program, the goal of which is to provide a baseline inventory of physical and biological shoreline resources.

Following a two-part protocol, coastwalkers begin the inventory phase by classifying a section of beach by substrate size (boulders, sand, bedrock, etc.). Workers then search for marine animals and seaweeds present and determine the depth or tidal height at which these organisms live. They also photograph the beach and record special features, such as seabird colonies and seal haulouts. The mapping portion of the protocol entails turning detailed aerial photographs into computerized maps by connecting rocks or trees visible from the air to physical features on land using global positioning system technology. All of this information is then combined into a user-friendly database that allows one to "walk the coast" on a computer.

The Coastal Resources Inventory and Mapping Program was developed in part as a response to the 1989 Exxon Valdez oil spill in Alaska's Prince William Sound. The spill taught an important lesson: determining whether an "injured" ecosystem is "repaired" is nearly impossible without information on the status of the ecosystem before the injury. Such baseline information helps managers prepare for such "unscheduled events" and determine the cumulative effects of other natural and human-caused changes in the park.

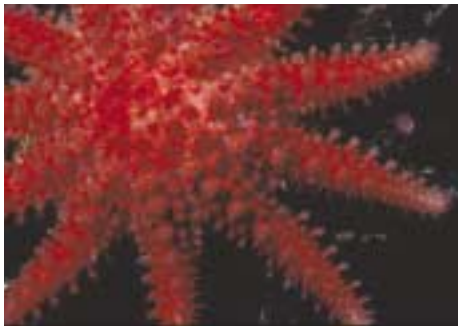
Since the program's inception, coastwalkers have walked, slipped and slogged over 880 miles of coast, including all of Glacier Bay proper, Dundas and Lituya Bays. After 2003, they will hang up their boots and take to the air using aerial photography to map the park's outer coast.

**Principal Investigator: Lewis Sharman**



# Underwater Dreamin'

You are wearing five layers of your warmest clothes under your drysuit, which is a complete bodysuit with booties made of tough waterproof material sealed at the wrists and neck. You struggle donning the 80 pounds of gear that you must carry, including air tank, weights, hood, gloves, fins and mask before—splash—you are over the side of the boat into 41-degree water.



The cold makes your head ache, but the sensation fades. Kicking into the depths, you recall that Glacier Bay is a recently deglaciated fjord, with complex oceanographic processes that significantly influence the world beneath the surface. In some areas silt from glacial runoff obscures visibility and blankets the bottom so it resembles a desert punctuated with the occasional bright sea star or nudibranch. In other areas the water is clearer, allowing 20 feet of visibility on a good day.

You and your buddy reach bottom at 30 feet, but the landscape continues to slope down into inky blackness. Without advanced technology, humans cannot safely go deeper than about 130 feet. With depths of over 1400 feet, most of the bay remains largely unexplored. Your buddy sets to work recording the marine life or mapping the physical features present. You stay close, but take in the sights of one of the richest fjord ecosystems in the world. Strong currents, nutrients, clear water and the sun have allowed for an explosion of marine life. Sinuous bull kelp waltzes with the blades of dragon kelp in the canopy of this underwater forest, which is important habitat for myriad creatures. Small crabs, snails and colonial animals called bryozoans, cling to the kelp. An occasional fish swims through the labyrinth. Sea urchins, with their sharp spikes, carpet the bottom and merit that you pay close attention to hand placement.

Suddenly, a curious thousand-pound Steller sea lion appears. It circles then charges directly at you, only to stop a foot from your bulging eyes to blow bubbles in your face. Bored, it turns and glides away. A tiny jellyfish floats by. Delicate, ethereal, it is a burst of orange in this wondrous, yet mysterious world.

All too soon, you will need to return to the surface. As you breathe freely you will wonder: was that a dream? No, just another day at the office for the research divers of Glacier Bay.

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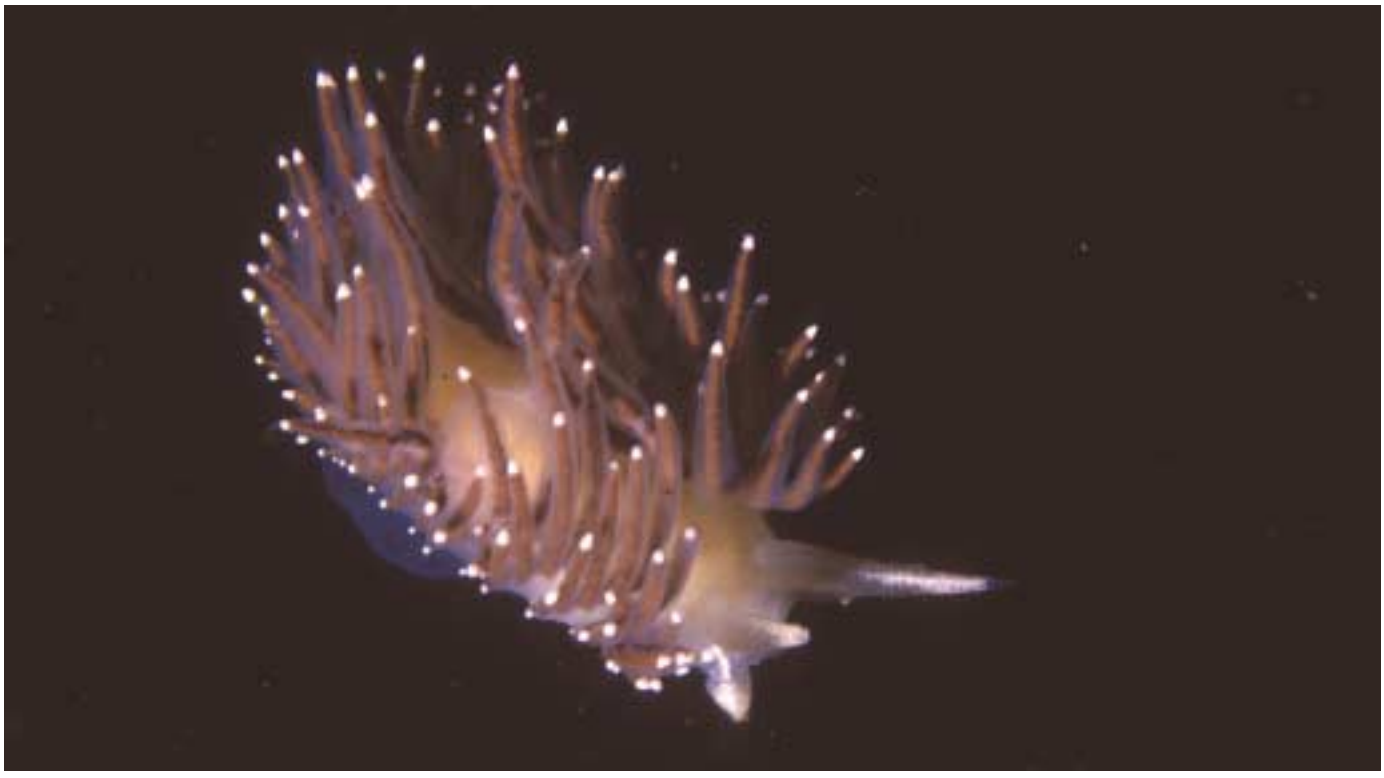
*Discover sea stars (top), nudibranchs (below) and more in the new award-winning underwater film* Glacier Bay: Beneath the Reflections *showing daily at the Visitor Center.*



# Park Partners

Alaska is a naturally beautiful place. This beauty emerges from Alaska's extensive public lands—approximately 80% of the state. Increased visitation to public lands results in an increased need for visitor services. Unfortunately, shrinking government budgets make it harder and harder to offer services to the many visitors and neighbors of public lands in Alaska. Nonprofit organizations, such as the Alaska Natural History Association, help fill these gaps and provide either direct services or vital support for ongoing educational experiences that people enjoy in our public places. The Association shares the natural and cultural history of Alaska's amazing lands by:

- **ENHANCING visitor experiences through information, exhibits and displays.**
- **PUBLISHING books and other educational materials, including this *Fairweather Visitor Guide*.**
- **EARNING vital financial support for educational and scientific programs.**
- **OPERATING over 50 bookstores in public land visitor centers throughout Alaska.**

Support these educational efforts by becoming a member. To purchase materials visit one of the Association bookstores at the visitor centers.

**Alaska Natural History Association**
750 West Second Avenue, Suite 100
Anchorage, AK 99501
Toll-free 866-AK PARKS
907-274-8440
www.alaskanha.org

## PREPARING FOR YOUR TRIP

To find these publications and more including field guides, nature writings, topographical maps and nautical charts, DVD's and children's books Visit the Association Bookstore in the Visitor Center or order directly from the Glacier Bay branch by calling (907) 697-2635 or e-mail: karen_platt@partner.nps.gov.

Revenues from these items help fund educational materials and programs inGlacier Bay?.

**Glacier Bay**
**Trails Illustrated Topo Map**
by National Geographic
Waterproof
$10.00

**Glacier Bay**
**Official National Park Handbook**
History, science, wildlife, Native culture and trip details.
$10.00

**Glacier Bay National Park Alaska**
by Mark Kelley & Sherry Simpson
Color photographs and essays tell fascinating story of the park, its wildlife and plants. Includes a checklist.
$20.00

**Grand Glaciers of Alaska's Inside Passage**
This video captures the essence of Glacier Bay's beauty and natural drama. Filled with stunning landscapes, amazing wildlife and thunderous calving glaciers.
$19.95 37 min.

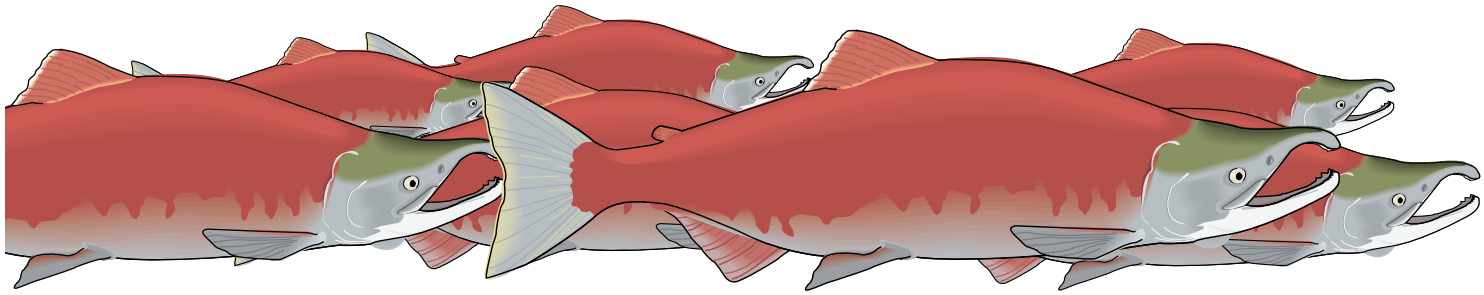

**Blue Ice in Motion**
**The Story of Alaska's Glaciers**
by Sally D. Wiley
Why is ice blue? Why do glaciers move? Learn these answers and many cool facts.
$8.00

**Also available on-line at www.alaskanha.org**

# Become a Junior Ranger

If you are between the ages of 6 and 12, you may want to become a Junior Ranger during your park visit. Stop by the Visitors Center on the second floor of the lodge to pick up a Junior Ranger Adventure Book. When you have finished the activities, bring your booklet to a ranger and you will be awarded a special badge that makes you a Glacier Bay National Park & Preserve Junior Ranger!

Here are a few activities to get you started. If you need help with any of these activities, please ask a ranger. Good luck and have fun!



## Who am I?

- I begin and end my life in a river, but spend the majority of my time in the ocean.
- I eat small fish and bugs.
- Some of my nicknames include: humpy, red, silver, king, and dog.

**1)** Who am I? _____

- I drink both the nectar of flowers and blood.
- I like stagnant pools of water best.
- There are more of me in the arctic than anywhere else in the world.
- When I bite you, my saliva makes you itch.

**2)** Who am I? _____

- I am a small member of the gull family.
- My wing tips look like they are dipped in black ink.
- I like to fish near where glaciers calve and meltwater streams meet the sea.
- In Glacier Bay, I nest in large colonies on cliffs near the Margerie Glacier.

**3)** Who am I? _____

## Glacier Bay Word Scramble

All of the things below can be found in Glacier Bay. How many can you find? The words may be horizontal, vertical, diagonal or backward. Good luck!

MOOSE SPRUCE GLACIER

BEAR HUMPBACK EAGLE

SEAL HALIBUT

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| K | C | A | B | P | M | U | H |
| S | E | A | L | R | O | T | O |
| A | P | R | A | A | O | L | S |
| T | O | R | C | T | S | R | T |
| B | E | A | U | I | E | A | R |
| H | G | L | A | C | I | E | R |
| A | E | L | G | A | E | B | I |
| T | U | B | I | L | A | H | N |

Answers:Who am I?

1. Salmon 2. Mosquito 3. Kittiwake

# A Brief Timeline of Glacier Bay

## *Human History and Events*

**Prehistoric to present:** Tlingit Indians and their ancestors had both permanent and seasonal settlements in much of what is now Glacier Bay National Park and Preserve. Several hundred years ago at the end of the Little Ice Age, advancing glaciers forced the Tlingit people to abandon their villages and move to Hoonah, across Icy Strait from Glacier Bay.

Today, many Hoonah Tlinglits still regard Glacier Bay as their ancestral home, and feel a special connection to it. (See page 21.)

Photo by Rosemarie Salazar

**1778** Captain James Cook of the H.M.S. Resolution names Mt. Fairweather. His crew includes George Vancouver and William Bligh.

1750 1800 1850

**1750** The Little Ice Age is ending and the glaciers begin to retreat.

**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 5-mile indentation in the coastline.

Courtesy of the Dave Bohn Collection

Courtesy of the Dave Bohn Collection

**1879** Guided by Tlingit Indians from Fort Wrangell, John Muir enters the bay in a dugout canoe accompanied by a Presbyterian missionary named S. Hall Young. Glacial ice has retreated into the bay 40 miles since 1794.

**1880** Guided by a Tlingit Indian named Tyeen, John Muir and Young return to visit Taylor Bay, Dundas Bay and what will become known as Muir Glacier. Stickeen, a small dog, is part of the expedition.

**1883** Captain James Carroll aboard the mail steamer *Idaho*, names an inlet and glacier in honor of John Muir.

**1884** Captain Carroll pilots the side-wheel steamer *Ancon* to Muir Glacier, which will become a popular tourist destination until the 1899 earthquake.

**1890** Muir makes his third visit to Glacier Bay, this time constructing a cabin at the base of Mt. Wright. He makes extensive observations of glaciers and explains the interglacial tree stumps.

**1899** On September 10 a tremendous earthquake centered in Yakutat Bay causes rapid and extensive calving in Glacier Bay, leaving the waters ice-choked and impassable to ships.

## 1900

**1916** William S. Cooper, ecologist from the University of Minnesota, arrives in Glacier Bay to begin a study of plant succession. He returns five more times between 1921 and 1966.

**1922** Cooper suggests national monument status for Glacier Bay to the Ecological Society of America.

**1925** President Coolidge establishes Glacier Bay National Monument on February 26.

**1939** A presidential proclamation by Franklin Roosevelt doubles the size of Glacier Bay National Monument.

**1953** Canadian Pacific Steamship Company brings the first modern cruise ships into the area.

## 1950

**1966** Glacier Bay Lodge opens.

**1980** The Alaska National Interest Lands Conservation Act is signed into law. Glacier Bay becomes a national park. Preserve lands are added. The new park and preserve total almost 3.3 million acres.

**1986** Glacier Bay National Park and Preserve, along with Admiralty Island National Monument, is designated an International Biosphere Reserve.

**1992** Glacier Bay National Park and Preserve — together with Wrangell/St. Elias National Park (Alaska), Kluane National Park Reserve (Canada) and Tatshenshini-Alsek Provincial Park (Canada) — becomes part of a 24-million-acre World Heritage Site, the largest internationally protected area in the world.

**1995** The National Park Service and Hoonah Tlingits sign a Memorandum of Understanding, establishing a working relationship.

**1998-1999** Congress passes legislation regarding the management of commercial fishing activities in Glacier Bay National Park.

**2001** About 359,000 people visited Glacier Bay National Park and Preserve.

## 2000

Photo by Dave Mills