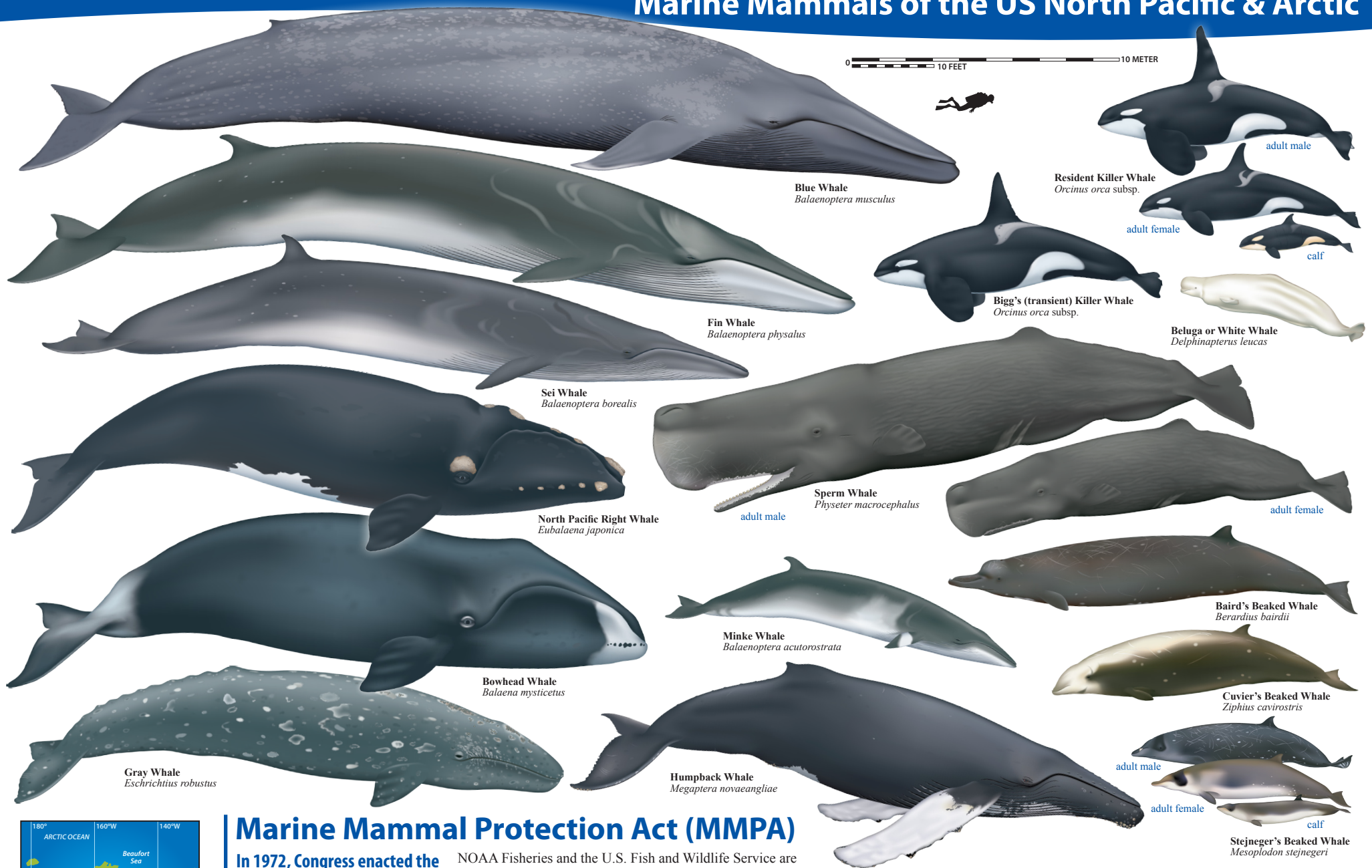


Marine Mammals of the US North Pacific & Arctic



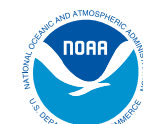
Marine Mammal Protection Act (MMPA)

In 1972, Congress enacted the MMPA, establishing a national policy to help prevent the extinction or depletion of marine mammal populations from human activities.

NOAA Fisheries and the U.S. Fish and Wildlife Service are the lead federal agencies for enforcing this law to protect marine mammals. The MMPA protects all whales, dolphins, seals, sea lions, porpoises, manatees, polar bears, otters, and walrus from human-induced harm. In the United States, NOAA Fisheries works with scientists, industry, and conservation groups to develop measures that help to protect marine mammals from entanglement, ship strike, and other activities that might cause these animals harm.

Design and illustrations: Uko Gorter (www.ukogorter.com)

**NOAA Fisheries
Alaska Region
907-586-7221
Fishes Science Center
206-526-4000**



NOAA
FISHERIES



TO REPORT STRANDED, ENTANGLED, INJURED, OR DEAD MARINE MAMMALS, CALL: NOAA FISHERIES 1-877-925-7773; ALASKA SEALIFE CENTER 1-888-774-7325 (SEAL); U.S. FISH AND WILDLIFE 1-800-362-5148

Marine Mammals of the US North Pacific & Arctic

You can help protect marine animals!

Admire from a distance

- Adhere to local guidelines or regulations for boating, fishing, and whale watching.
- Keep your distance! Remain at least 100 yards from marine mammals in the water and on land.
- Support companies that commit to using best practices and protecting the oceans.
- Marine mammals are wild animals - don't feed or touch them.
- National Wildlife Viewing Guidelines
www.nmfs.noaa.gov/pr/education/viewing.htm
- Whale SENSE program: www.whalesense.org

Report a crime

- It is illegal to harm, harass, or capture a marine mammal, to collect marine mammal parts, or to attempt to do any of these things - with limited exceptions.
- Report suspected violations to the NOAA Enforcement Hotline at 1-800-853-1964

Report strandings, entanglements, and ship strikes

- Keep your distance and never attempt to touch or interact with animals on the beach.
- Report sick or injured animals by calling a stranding hotline so trained staff can respond to the situation:
 - NOAA Fisheries 1-877-925-7773
 - Alaska SeaLife Center 1-888-774-7325 (SEAL)
 - U.S. Fish and Wildlife 1-800-362-5148

Be an ocean steward

- Recycle, reuse, dispose of garbage properly, and don't release balloons into the air. This will help prevent marine debris and keep the oceans clean and healthy.
- Cut all packing bands and netting that could entangle marine life.
- Report derelict fishing gear.
- Tell your families and friends what they can do to help protect marine mammals!

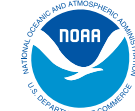
Learn more

www.alaskafisheries.noaa.gov
www.afsc.noaa.gov
www.alaskafisheries.noaa.gov/protectedresources/
www.nmfs.noaa.gov/pr/laws/mmpa
www.fws.gov/alaska/fisheries/mmm/strandings.htm



0 10 FEET 5 METER

Design and illustrations: Uko Gorter (www.ukogorter.com)



TO REPORT STRANDED, ENTANGLED, INJURED, OR DEAD MARINE MAMMALS, CALL: NOAA FISHERIES 1-877-925-7773; ALASKA SEALIFE CENTER 1-888-774-7325 (SEAL); U.S. FISH AND WILDLIFE 1-800-362-5148



Alaska Marine Mammal Viewing Guidelines and Regulations

Information on approach regulations, safe viewing practices, and more information on reducing disturbance while watching whales, sea lions, seals, dolphins, and porpoises from boats, planes, and helicopters.

Humpback Whale Approach Regulations

The [Alaska humpback whale approach regulation](#) has been in effect since July 2001 and requires that you:


- Not approach within 100 yards of a humpback whale.
- Not place your vessel in the path of oncoming humpback whales causing them to surface within 100 yards of your vessel.
- Not disrupt the normal behavior or prior activity of a whale, and
- Operate your vessel at a slow, safe speed when near a humpback whales



*Some exceptions apply. Report violations to NOAA Enforcement at (800) 853-1964.

Viewing Marine Mammals: Voluntary Codes of Conduct

Whale SENSE Alaska

[This voluntary education and recognition program](#)  has been in effect since 2015 for the Juneau area whale watch community. Developed in collaboration with the whale watching

industry, Whale SENSE recognizes whale watching companies committed to responsible practices. In Alaska, these practices include reduced speeds and time limits around whales.

Participating companies agree to:

- **Stick to the regional whale watching guidelines.**
- **Educate naturalists, captains, and passengers to have SENSE while watching whales.**
- **Notify appropriate networks of whales in distress.**
- **Set an example for other boaters.**
- **Encourage ocean stewardship.**

Upon successful completion of training and evaluation, Whale SENSE businesses receive materials identifying them as active Whale SENSE participants featuring the Whale SENSE logo and current calendar year. [Whale SENSE display rack cards](#) are also available from the Alaska Protected Resources Office: (907) 586-7235.

Guidelines for Viewing Harbor Seals in Alaska's Glacial Fjords

To avoid disturbance to harbor seals in sensitive glacial habitats, these [voluntary guidelines are recommended](#) for all vessel types in all glacial areas year-round, as practicable:

- Keep 500 yards (~1/4 mile) from all seals without compromising safe navigation
- Practice no wake, avoid abrupt changes in course or engine pitch, and avoid loud noises
- Avoid traveling through waters with greater than 50 percent ice cover
- When possible, target visits during early morning and evening hours when fewer seals are hauled out

At two specific sites where high vessel traffic coincides with large numbers of pups, additional seasonal and area recommendations are advised to provide additional protection while mothers are rearing pups. These particular voluntary actions apply to vessels in Disenchantment Bay (near Hubbard Glacier and Yakutat) and Tracy Arm (south of Juneau) from May 15–June 30.

General Marine Mammal Viewing Code of Conduct



- Remain at least 100 yards from marine mammals.
- Time spent observing individual(s) should be limited to 30 minutes.
- Whales should not be encircled or trapped between boats, or boats and shore.
- If approached by a whale, put the engine in neutral and allow the whale to pass.

Even if approached by a marine mammal

- Offering food, discarding fish or fish waste, or any other food item is prohibited.
 - [Take the Lead, Do Not Feed](#)
 - [Deterring Steller Sea Lions](#)
- Do not touch or swim with the animals. They can behave unpredictably and may also transmit disease.

How to Observe Marine Mammal Behaviors and Minimize Your Impact

While viewing marine mammals, your actions should not cause a change in the behavior of the animals. Individual animal's reactions will vary; carefully observe all animals in the vicinity. Assume that your action is a disturbance and cautiously leave the vicinity if you observe behaviors such as these:

Seals, Sea Lions, and Fur Seals

- Increased movements away from the disturbance; hurried entry into the water by many animals, or herd movement towards the water
- Increased vocalization, aggressive behavior by many animals towards the disturbance; several individuals raising their heads simultaneously.

Whales, Dolphins, and Porpoise

- Changes in swimming such as rapid changes in direction, speed; erratic swimming patterns. Escape tactics such as prolonged diving, underwater exhalation, underwater course changes, or rapid swimming at the surface. Female attempting to shield a calf with her body or by her movements.
- Surface displays such as tail slapping or lateral tail swishing at the surface.

Keep Your Distance

- Use extra caution when viewing seals and sea lions that are on land or ice, as harassment

may occur at distances greater than 100 yards.

- When encountering seals or sea lions hauled out on land or ice, avoid making the animal(s) aware of your presence: keep noise low, stay hidden and stay downwind.
- Pups are often left alone while the mother feeds. They are not abandoned and should not be disturbed.
- [Glacier Bay National Park and Preserve](#) has specific marine mammal regulations. Vessel entry permits are required - consult National Park Service officials.
- All major Steller sea lion haulouts and rookeries throughout Alaska are protected by regulation. Extra caution is needed in these areas to prevent



harassment of Steller sea lions in their critical habitat. Critical habitat includes the air, land and sea surrounding the site to 3,000 feet (0.9 km) in all directions. From Cape Suckling (144 degrees West) throughout western Alaska protection is increased. Critical habitat at sea increases to 20 nautical miles (37 km). For rookeries, no-entry zones exist to 3 nautical miles (5.5 km) at sea and 0.5 miles (0.8 km) on land, or within sight of a rookery, whichever is greater. At Marmot Island, the no-entry zone is increased to 1.5 miles (2.4 km) on land. Critical habitat regulations and maps of critical habitat are available through NOAA Fisheries.

- Regulations prohibit persons from entering northern fur seal rookeries on St. Paul and St. George Islands without special permission between June 1 and October 15.

Bring binoculars along on a viewing excursion to ensure a good view from the required viewing distance.

How to Conscientiously View Marine Mammals from a Boat

Read up on the [5 things you can do to reduce the risk of a whale strike](#) (PDF, 2 pages).

5 things
you can do
TO REDUCE THE RISK OF A



Whales may surface in unpredictable locations

- Breaching and flipper-slapping whales may endanger people or vessels.
- Feeding humpback whales often emit sub-surface bubbles before rising to feed at the surface. Stay clear of these light green bubble patches.
- Noise may help whales know your location and avoid whale and vessel collisions. For example, if your engine is not running, occasionally tap the side of the boat with a hard object.

If you need to move around a whale, do it from behind the whale.

- Vessels that wish to position themselves to allow whales to pass the vessel should do so in a manner that stays fully clear of whale's path.

Marine mammals are more likely to be disturbed when more than one boat is near them.

- Avoid approaching marine mammals when another vessel is near.
- Marine mammals should not be encircled or trapped between boats, or boats and shore.
- Always leave marine mammals an escape route.
- When several vessels are in an area, communication between vessel operators may reduce the potential for disturbance.



Read up on the 5 things you can do to reduce the risk of a whale strike (PDF, 2 pages).



Limit your time with any individual or group of marine mammals to 30 minutes.

- Your vessel may not be the only vessel in the day that approaches the same animal(s). Please be aware that cumulative impact may occur.

Vessels traveling in a predictable manner appear to be less disturbing to animals.

- Pursuit of marine mammals is prohibited by law.
- Never attempt to herd, chase, or separate groups of marine mammals or females from their young.
- Avoid excessive speed or sudden changes in speed or direction in the vicinity of whales.
- The departure from a viewing area has as much potential to disturb animals as the approach.

How to View Marine Mammals From an Airplane or

Helicopter

- Maintain a 1500-foot minimum altitude when viewing marine mammals from the air.
- Buzzing, hovering, landing, taking off, and taxiing near marine mammals on land or in the water is likely to harass the animals.



Federal Laws and Marine Mammal Viewing

The Marine Mammal Protection Act prohibits the **TAKE** of all marine mammal species in U.S. waters. Take means "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill," and [harassment](#) means "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to migration, breathing, nursing, breeding, feeding, sheltering." **TAKE** includes feeding or attempting to feed a marine mammal in the wild. Some exceptions are made for authorized scientific research and subsistence hunting by Alaska Natives.

The Endangered Species Act prohibits the **TAKE** of species listed as endangered or threatened. The definition of **TAKE** under the Endangered Species Act adds the terms harm, pursue, shoot, wound, trap and collect to the Marine Mammal Protection Act definition of **TAKE**.

Additional Information

NOAA Fisheries' Alaska Marine Mammal Viewing Guidelines and Regulations

[Guidelines and Regulations Booklet:](#)

Please

contact Aleria.Jensen@noaa.gov for a copy.



Contact Information

For more information or to report a marine mammal injury or abandonment, please contact:

NOAA Fisheries statewide 24-hr Stranding Hotline: (877) 925-7773 or (877) 9-AKR-PRD

NOAA Fisheries Protected Resources Division - Juneau Office

Protected Resources

P. O. Box 21668

Juneau, AK 99802

(907) 586-7235

NOAA Fisheries Protected Resources Division - Anchorage Office

222 West 7th Avenue, Ste. 43

Anchorage, AK 99513

(907) 271-5006

To report harassment, please contact:

NOAA Fisheries Office of Enforcement

P. O. Box 21668

Juneau, AK 99802

Enforcement Hotline: (800) 853-1964.

(907) 586-7225

For more information on sea otters, polar bears, and walruses contact:

[U.S. Fish and Wildlife Service](#)

Marine Mammals Management Office

1011 East Tudor Road

Anchorage, AK 99503

(907) 786-3311

[Learn more about the Alaska Protected Resources Division >](#)

Last updated by

[Alaska Regional Office](#)

on 04/28/2022

FEDERAL LAWS PROTECTING WILDLIFE

Marine Mammal Protection Act (MMPA)

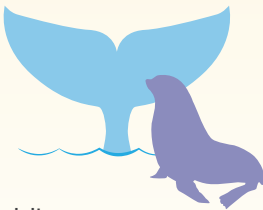
This law prohibits actions such as feeding, hunting, harassing, killing, capturing, injuring, disturbing or changing the behavior of a marine mammal.

- For more information please visit:
<http://www.nmfs.noaa.gov/pr/laws/mmpa>

Endangered Species Act (ESA)

The ESA protects all plant and animal species in danger of extinction. This law prohibits feeding, harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting an endangered species or attempting to engage in any such conduct.

- For more information please visit:
<https://alaskafisheries.noaa.gov/pr/species>



IT IS ILLEGAL TO HARASS, PURSUE, FEED, HUNT, CAPTURE OR KILL WILD WHALES, SEALS AND SEA LIONS IN THE UNITED STATES.

SOME EXCEPTIONS TO THIS EXIST FOR SCIENTIFIC RESEARCH AND FOR ALASKA NATIVE SUBSISTENCE HARVEST AND HANDICRAFT.

Please report violations to NOAA Fisheries Enforcement at: **(800) 853-1964**

Report stranded, entangled or injured marine mammals at: **(877) 925-7773**



NOAA FISHERIES
Alaska Region

Alaska Regional Office
<https://alaskafisheries.noaa.gov/>

How to Observe Marine Mammal Behaviors and Minimize Your Impact

- Act with caution! Your actions should not cause a change in the behavior of the animals.



Guidelines For Using Drones

- Take a precautionary approach and avoid flying drones in the vicinity of marine mammals. See:
<http://www.nmfs.noaa.gov/pr/uas.html>

How to View Marine Mammals From an Airplane or Helicopter

- Maintain a 1500-foot minimum altitude when viewing marine mammals from the air.
- Buzzing, hovering, landing, taking off, and taxiing near marine mammals on land or in the water is likely to harass the animals.



Stay High and Fly By!

Additional Guidelines For Responsible Whale-Watching



Look for the Whale SENSE logo to choose responsible operators, and adopt Whale SENSE principles when operating your own vessel near whales.

- Use reduced vessel speed as you approach and depart whales.
- Limit time spent with mom-calf pairs and cooperative feeding groups.

Each disturbance builds on the next. Whales need time and space to feed without disruption from vessels.

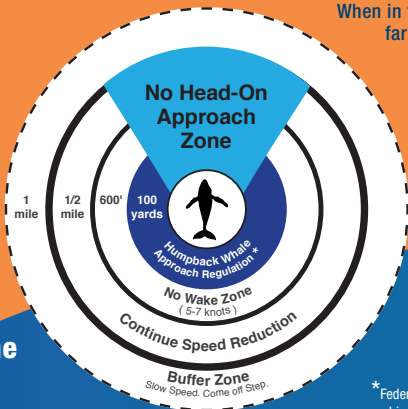
Please visit: <https://whalesense.org>

HUMPBACK WHALE APPROACH REGULATIONS

Alaska Humpback Whale Approach Regulations

Federal regulations require that you:

- Not approach within 100 yards of a humpback whale.
- Not place your vessel in the path of oncoming humpback whales causing them to surface within 100 yards of your vessel.
- Operate your vessel at a slow, safe speed when near a humpback whale.

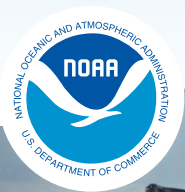


When in transit, stay as far as practicable from whales. When viewing whales, start slowing speed at 1 mile.

* Federal regulations prohibit approaching humpback whales in Alaska closer than 100 yards.



Marine Mammal Viewing Guidelines for Alaska



NOAA FISHERIES
Alaska Region



Alert!

Be cautious,
slowly back up



Disturbed

Back off
slowly



Too Late



Alert!

Be cautious,
slowly back up



Disturbed

Back off
slowly



Too Late

Seals and Sea Lions

Give animals space. Move away at the first sign of disturbance or agitation.

Seals and sea lions on land are easily disturbed and may change position, move away, flee, and trample or abandon pups. Animals may become stressed and repeated interruptions may be harmful to their health. It may not be possible to see these reactions; maintain your distance to make sure you are not disrupting their behavior.

Be considerate of mothers and pups.

Seals and sea lions come ashore to rest, regulate body temperature, and nurse their young. It is normal for mothers to leave pups behind while feeding offshore (up to 24 hours). Keep your distance so mom can return to care for her pup.

Keep pets away and on a leash.

Pets can disturb or harm wildlife, or may separate mothers from their pups. These are wild animals that can injure or spread disease to pets and humans.

For your safety and the health of the animals.

We recommend staying at least 100 yards away from all marine mammals on land and at sea. Observe carefully, as animals may be disturbed at even greater distances.

Harbor Seals in Glacial Fjords

Voluntary guidelines to avoid disturbance to harbor seals in sensitive glacial habitats (all vessel types, year-round, as practicable):

- Strive to maintain 500 yds (about 0.25 mi) from seals without compromising safe navigation. Make an approach plan to avoid surprising seals. Be equally cautious when departing the fjord as arriving.
- Minimize wake, avoid abrupt changes in course or engine pitch, and avoid loud noises near seals. Consider avoiding use of PA systems.
- Minimize travel through thick ice, which serves as nursery habitat. The absence of seals on the ice doesn't mean the area isn't being used.
- When possible, target visits during early morning and evening hours when fewer seals are hauled out.

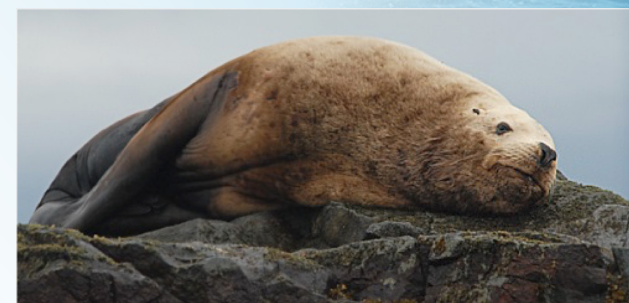
Area-specific protections: During pupping, from May 15-June 30, corridors for travel are recommended to minimize vessel overlap with seals in Disenchantment Bay (near Hubbard Glacier and Yakutat) and Tracy Arm (south of Juneau).

- See: <https://alaskafisheries.noaa.gov/sites/default/files/hs-approach-guidelines.pdf>

Steller Sea Lions

All major Steller sea lion haulouts and rookeries throughout Alaska are protected by regulation. Extra caution is needed in these areas to prevent harassment of Steller sea lions in their critical habitat. In Southeast Alaska, critical habitat includes the air, land and sea surrounding the site to 3,000 ft in all directions. In Western-Southcentral Alaska, critical habitat includes a 20 nautical mile buffer around all major haulouts and rookeries, as well as associated terrestrial, air and aquatic zones, and three large offshore foraging areas.

- For a list of these protected sites, see: <https://alaskafisheries.noaa.gov/pr/ssl-critical-habitat>



Northern Fur Seals

Regulations prohibit entry to northern fur seal rookeries on St. Paul and St. George Islands without special permission between June 1 and October 15.



TIPS FOR MAXIMIZING YOUR VIEWING EXPERIENCE



ENJOY FROM A SAFE DISTANCE



AVOID SURPRISING MARINE WILDLIFE



NEVER FEED OR ATTEMPT TO FEED MARINE WILDLIFE

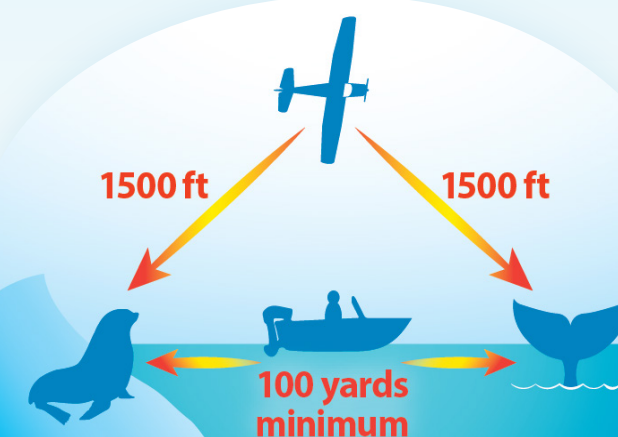


DISPOSE OF TRASH PROPERLY

Watch from a distance... for your safety and their protection

In Alaska, we're lucky to share our waters with whales, seals, and sea lions. With that privilege comes responsibility. Responsible wildlife viewing helps to ensure protection and long-term survival for marine mammals in the wild, as well as to keep you safe.

- For additional information please visit: <https://alaskafisheries.noaa.gov/pr/mmviewing-guide>



Message to vessel operators and visitors to tidewater glacier fjords

Increasing evidence suggests that existing marine mammal approach guidelines* are not adequately protecting harbor seals from disturbance in Alaska’s glacial fjords.

Research by federal and state biologists indicates that a **greater separation between vessels and seals is needed** in sensitive areas to conserve the value of these unique habitats where seals rest, give birth, nurse young, and molt.

This brochure is meant to inform vessel operators and the public about new approach guidelines for seals in glacial areas, the science of seals and disturbance that underpin these guidelines, and background on tidewater glacial sites as valuable habitats for seals.

These guidelines **are voluntary but strongly recommended** to help vessels comply with the Marine Mammal Protection Act.



“...efforts should be made to protect essential habitats, including the rookeries, mating grounds, and areas of similar significance for each species of marine mammal from the adverse effect of man’s actions.”

Marine Mammal Protection Act of 1972

*Vessel approach guidelines for viewing marine mammals in Alaska can be found at <https://alaskafisheries.noaa.gov/pr/mm-viewing-guide>.



Recommendations for Vessel Operators

Based on research by federal and state agencies, NOAA Fisheries recommends the following guidelines for **ALL VESSEL TYPES** and at **ALL GLACIAL AREAS***. It may not be practicable to follow every guideline on each visit, but vessel operators should exercise caution to minimize disturbance to seals.

Guidelines for All Glacial Areas* (year-round)

- 1

All vessels (kayaks to cruise ships) should strive to maintain 500 yds (about 0.25 mi) from seals without compromising safe navigation. Make an approach plan to avoid surprising seals. Be equally cautious to reduce disturbance when departing the fjord as arriving.
- 2

Minimize wake, avoid abrupt changes in course or engine pitch, and avoid loud noises (such as ice collisions) in the vicinity of seals. Consider avoiding use of PA systems on outer decks.
- 3

Try to avoid traveling through thick ice, which provides habitat for birthing and nursing of pups. The absence of seals on the ice doesn’t mean the area isn’t being used.
- 4

Time visits when feasible to minimize overlap with the peak numbers of seals hauled out midday. Research shows most seals are hauled out and vulnerable to disturbance between 9 am and 4 pm.
- * Except Glacier Bay National Park which maintains its own harbor seal protections



Legal Protections for Seals

An activity that disrupts normal seal behavior may constitute a “take” which is not allowed under the Marine Mammal Protection Act (MMPA). A take is defined in the MMPA as “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal,” and the term “harassment” includes any activity which “has the potential to disturb a marine mammal or marine mammal stock in the wild by **causing disruption of behavioral patterns**, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.” Thus, vessel activity that causes seals to flush from the ice into the water may constitute harassment.

To avoid takes, vessels should strive not to cause a change in the behavior of marine mammals. These guidelines are designed to reduce the potential for vessels engaged in glacier or wildlife viewing to inadvertently disturb harbor seals. NOAA is promoting voluntary guidelines to minimize disturbance to seals in sensitive glacial habitats. **Monitoring will determine if this voluntary approach is providing a sufficient level of protection for seals.**



Photos courtesy of D. E. Withrow and J. K. Jansen, NOAA



The National Marine Fisheries Service (NOAA Fisheries Service) is an agency within the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce

The mission of the NOAA Fisheries Service is to provide stewardship of the nation’s living marine resources through science-based conservation and management and promotion of healthy ecosystems

NOAA Fisheries Alaska Region, Protected Resources Division
P.O. Box 21668, 709 West 9th Street, Juneau, AK 99802
PH: (907) 586-7235 | Fax: (907) 586-7012



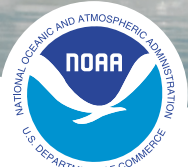
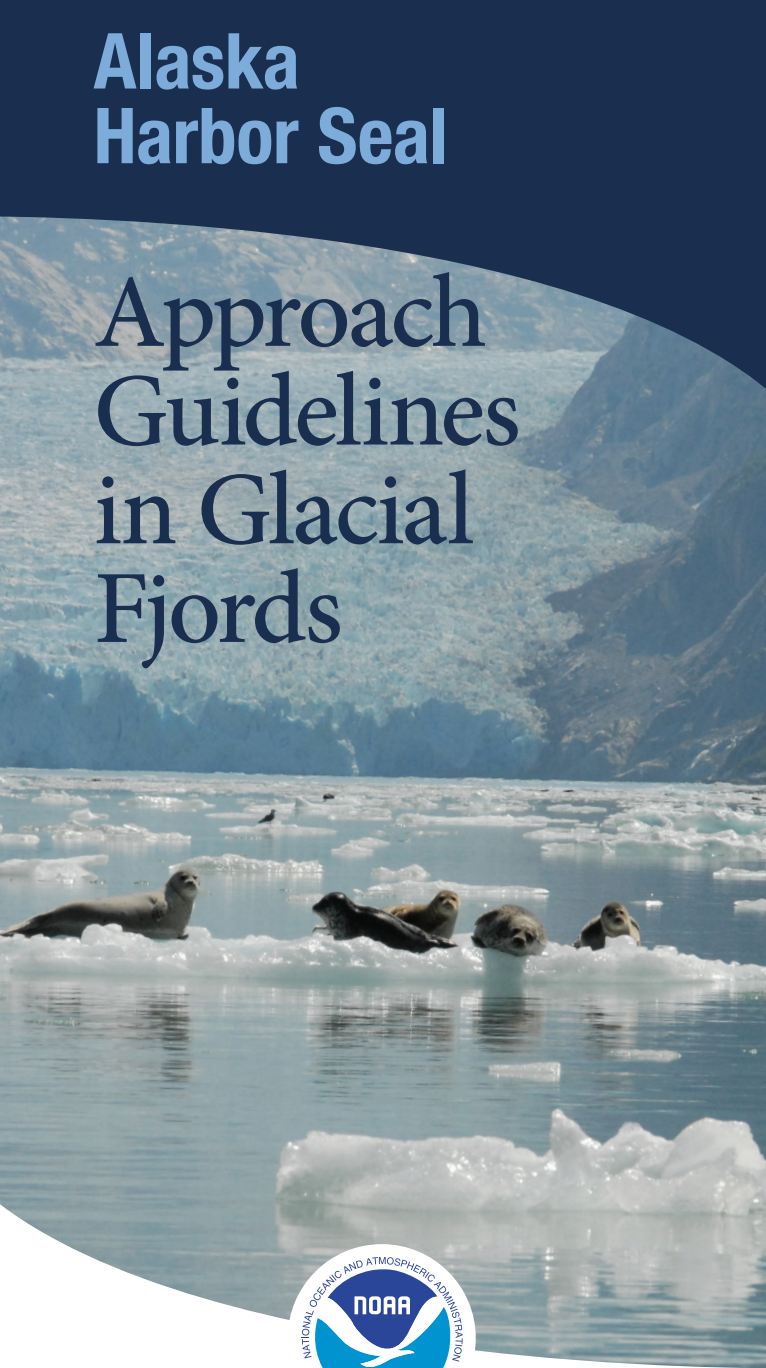
At **TWO SPECIFIC SITES**, due to high vessel traffic coinciding with large numbers of pups, **ADDITIONAL SEASONAL AND AREA RESTRICTIONS** are advised to provide further protection while mothers are rearing pups. General guidelines are always in effect at these sites as well.

Guidelines for Specific Areas (May 15 to June 30)

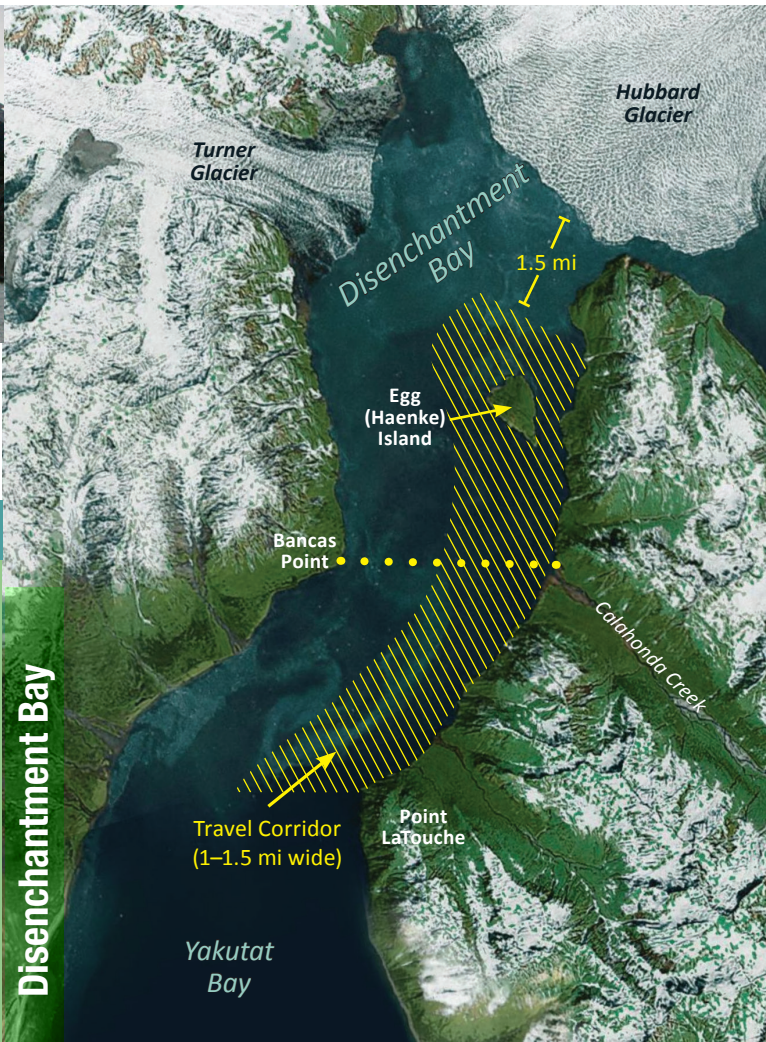
- 5

Tracy Arm Fjord
 - During seal pupping, vessels should try to restrict travel to the southwestern half of the arm within 580 yds (apx. 0.33 mi) of the shoreline, and greater than 1250 yds (apx. 0.75 mi) from the glacier, to avoid higher seal densities along the eastern side of the arm and closest to the glacier (see map).
 - When ice is thick, vessels should stop north of a line drawn east from Tern Point.
- 6

Disenchantment Bay
 - During seal pupping, vessels should try to restrict travel to the eastern half of the bay within 1 to 1.5 mi of the shoreline, and greater than 1.5 mi from Hubbard Glacier, to avoid higher seal densities along the western side of the bay and closest to the glacier (see map).
 - When ice is thick, vessels should stop south of a line between Bancas Point and Calahonda Creek.



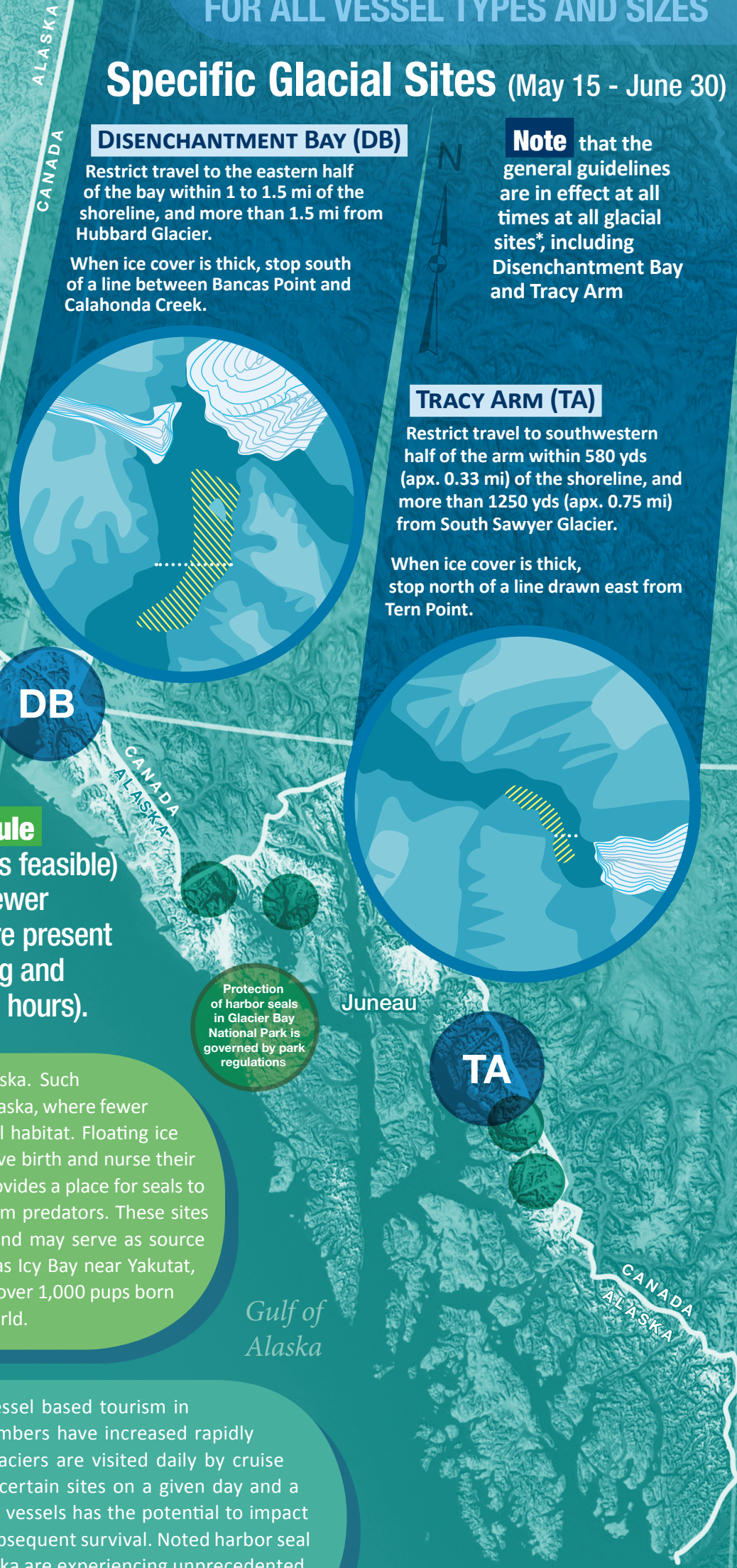
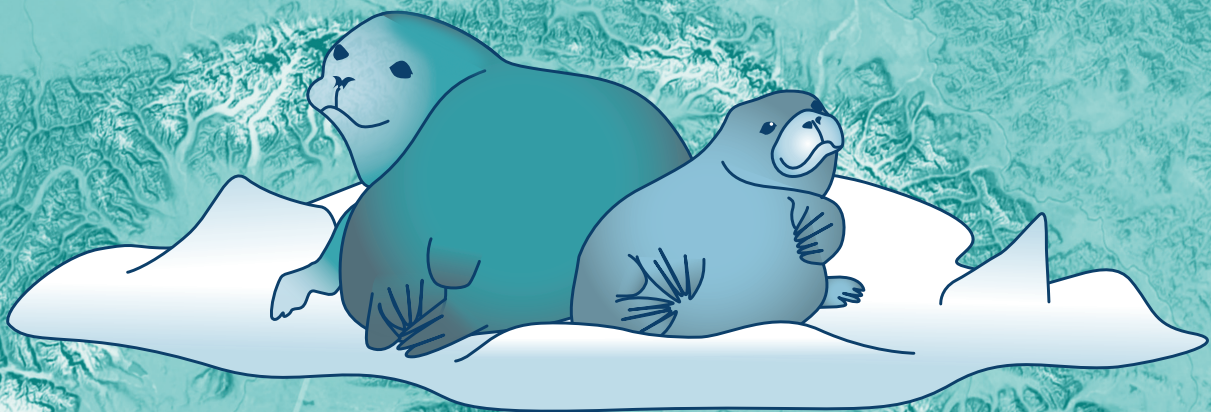
NOAA
FISHERIES



Protecting Alaska's Glacial Harbor Seals

Approach Guidelines For Tidewater Glacial Fjords

FOR ALL VESSEL TYPES AND SIZES



All Glacial Areas* (year-round; without compromising safe navigation; strive to follow each recommendation as practicable to reduce chance of disturbance)

Keep 500 yds (~ ¼ mile) from all seals. Be equally cautious departing a fjord as arriving.

Minimize wake, avoid abrupt changes in course or engine pitch, and avoid loud noises and voices.

Avoid thick ice cover where seals congregate. Even if seals are not visible they could still be using area.

Schedule visits (as feasible) when fewer seals are present (morning and evening hours).

Unique and Valuable

Tidewater glacier areas are essential habitats for harbor seals in Alaska. Such habitats are only available to seals in southcentral and southeast Alaska, where fewer than two dozen ice filled inlets provide this unique form of seal habitat. Floating ice calved from glaciers forms nursery areas where female seals give birth and nurse their young for about three weeks before they wean. The ice also provides a place for seals to rest at all tidal stages year round while offering protection from predators. These sites host a significant portion of Alaska's harbor seal population and may serve as source populations for surrounding areas. In some glacial areas, such as Icy Bay near Yakutat, counts of seals on the ice have been as high as 5,000 animals with over 1,000 pups born each year. This might be the largest aggregation of harbor seals in the world.

Rising CONCERNS

Human presence can diminish the value of this habitat for harbor seals. Vessel based tourism in Alaska began in the early 1900's with relatively few passengers but numbers have increased rapidly in recent decades to now over a million annually. Some tidewater glaciers are visited daily by cruise ships and smaller tour boats, which can result in multiple vessels at certain sites on a given day and a significant number of seals being disturbed. Chronic disturbance from vessels has the potential to impact seal populations by influencing successful weaning of pups and their subsequent survival. Noted harbor seal population declines have occurred at some glacial sites. Glaciers in Alaska are experiencing unprecedented rates of ice loss, and at some tidewater glaciers harbor seals are already coping with reduced ice cover which may make them more sensitive to other impacts.

THE SCIENCE TO Understand Disturbance

Studies across a range of habitats show that human disturbance can cause seals to abandon haul out areas temporarily or permanently, or shift their haul out timing. Studies in glacial fjords on vessel disturbance of seals have been underway for three decades, revealing consistent impacts. Research questions have focused on 1) seal behavior during close approaches, 2) disruption of mother pup nursing and bonding, 3) thermal stress, and 4) disruption of haul out patterns. Findings summarized below show that cumulative vessel disturbance may threaten reproduction and survival of harbor seals.

DISTANCE

- Seals can be disturbed at up to 500-1000 meters (or about 0.25 to 0.66 mi).
- Seals approached by vessels at 100 m (about 100 yds) can be 25 times more likely to flush from the ice than seals at 500 m; seals approached head-on are also more likely to flush from the ice.
- Smaller vessels often cause as much (or more) disturbance than larger vessels.

MOTHER PUP PAIRS

- Pregnant females and those with pups can be more sensitive to disturbance. Moms nurse for only about 3 weeks before pups become independent.
- Upon disturbance, mothers and newborns are more prone to becoming separated which can be damaging, or lethal, during a life stage when pups are nursing and rely on mom for sustenance and protection.

THERMAL STRESS

- When disturbed, seals often flush into the water. Vessel presence can cause seals to spend more time submerged in ice-chilled water.
- Pups that spend increased time in glacial water may have to trade energy for growth for energy to keep warm. This would likely reduce survival in young seals.

HAUL OUT TIMING

- Most seals tend to haul out during the middle of the day (about 9am to 4pm; the warmest hours) when most vessels visit glacial fjords.
- A single vessel entering the ice habitat during peak hours can flush more than 10% of the seals (and pups) present; disturbance is magnified when multiple vessels visit on a given day.

* Except Glacier Bay National Park which maintains its own harbor seal protections