



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

August 17, 2015

Philip N. Hooge, Superintendent
Glacier Bay National Park and Preserve
PO Box 140
Gustavus, AK 99826

Re: Glacier Bay Climate Stations, NMFS #AKR-2015-9477

Dear Dr. Hooge:

The National Marine Fisheries Service (NMFS) has completed informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) regarding the proposed installation of climate research stations in Glacier Bay, Alaska. The National Park Service (NPS) proposes to install and maintain 8 of these climate research stations in Glacier Bay.

Consultation History

NMFS received your September 15, 2014 request for early consultation and concurred that formal consultation was unnecessary. NMFS received your email notice that the Environmental Assessment was published on May 12, 2015. On August 12, 2015, NMFS received a request for written concurrence that the proposed action may affect, but is not likely to adversely affect, the endangered humpback whale (*Megaptera novaengliae*), the endangered western Distinct Population Segment (DPS) of the Steller sea lion (*Eumetopias jubatus*), or Steller sea lion critical habitat. Your staff answered subsequent questions from NMFS via email and telephone conversations. Based on our analysis of the information you provided to us and additional literature cited below, NMFS concurs with your determination. A complete administrative record of this consultation is on file in this office.

Description of the Proposed Action and Action Area

The NPS plans to install and maintain 8 remote automated weather stations (RAWS) at new locations and 2 data-logging thermistors on existing structures (Figure 1). All work will be done on land and the footprint of each station is approximately 4' by 4' (NPS 2015). Interactions with marine mammals could result from transit to and from the stations. NPS anticipates one or two trips to each site, most likely on a single day for each site, to install new structures and augment existing structures from June through August, as well as annual and other necessary maintenance trips to each station. Planned maintenance activities would be confined to a single day at each site and would primarily occur from June through August. The Dry Bay location will be accessed via land motor vehicle from a trail. No effects to marine mammals are anticipated at this site. Deception Hills, Brady Icefield, Beartrack, and Idaho Ridge stations will be accessed via helicopter.



Queen Inlet, Lone Island, and Nunatak Upper and Lower will be accessed via a 20-foot skiff. NPS specified that installation and planned maintenance of the Lone Island station would not occur from May 1 through September 30 to protect colonies of nesting seabirds. NPS will likely charter a vessel from Bartlett Cove to install and maintain the station at Lituya Bay (pers. comm. Allison Banks, 8/11/15). Short duration, low intensity, infrequent noise disturbance could occur via skiff, charter vessel, and helicopter during transit to/from the stations.

The action area is defined in the ESA regulations (50 CFR 402.02) as the area within which all direct and indirect effects of the project will occur. The action area is distinct from and larger than the project footprint because some elements of the project may affect listed species some distance from the project footprint. The action area, therefore, extends out to a point where no measurable effects from the project are expected to occur.

NMFS defines the action area as:

1. The installation sites (4' by 4' approximate footprint).
2. Transit routes to/from the stations - Approximate routes are depicted in Figure 1 for marine vessel travel. NPS stated that helicopter transit routes will minimize sound exposure using the shortest routes possible. Exact routes of all transit are unknown at this time.
3. The area within which project-related in-water noise levels are ≥ 120 dB re $1\mu\text{Pa}_{\text{rms}}$ (i.e., the point where no measurable effect from the project would occur). Since 1997 NMFS has used generic sound exposure thresholds to determine whether an activity produces underwater sounds that might result in impacts to marine mammals (70 FR 1871). NMFS is currently developing comprehensive guidance on sound levels likely to cause injury and behavioral disruption to marine mammals. However, until such guidance is available, NMFS uses the following conservative thresholds of underwater sound pressure levels¹, expressed in root mean square² (rms), from broadband sounds that cause behavioral disturbance, and referred to as Level B harassment under section 3(18)(A)(ii) of the Marine Mammal Protection Act (MMPA): continuous sound (such as vessel noise) is 120 dB re $1\mu\text{Pa}_{\text{rms}}$.
4. The area within which project-related in-air noise levels are as described below. NMFS Level B harassment thresholds for in-air acoustic impacts to marine mammals are set at the following levels (primarily determined by altitude).
 - i. (re: 20 μPa) RL > 90 dB RMS for harbor seals
 - ii. (re: 20 μPa) RL > 100 dB RMS for all other pinniped species

¹ Sound pressure is the sound force per unit micropascals (μPa), where 1 pascal (Pa) is the pressure resulting from a force of one newton exerted over an area of one square meter. Sound pressure level is expressed as the ratio of a measured sound pressure and a reference level. The commonly used reference pressure level in acoustics is 1 μPa , and the units for underwater sound pressure levels are decibels (dB) re 1 μPa .

² Root mean square (rms) is the square root of the arithmetic average of the squared instantaneous pressure values.

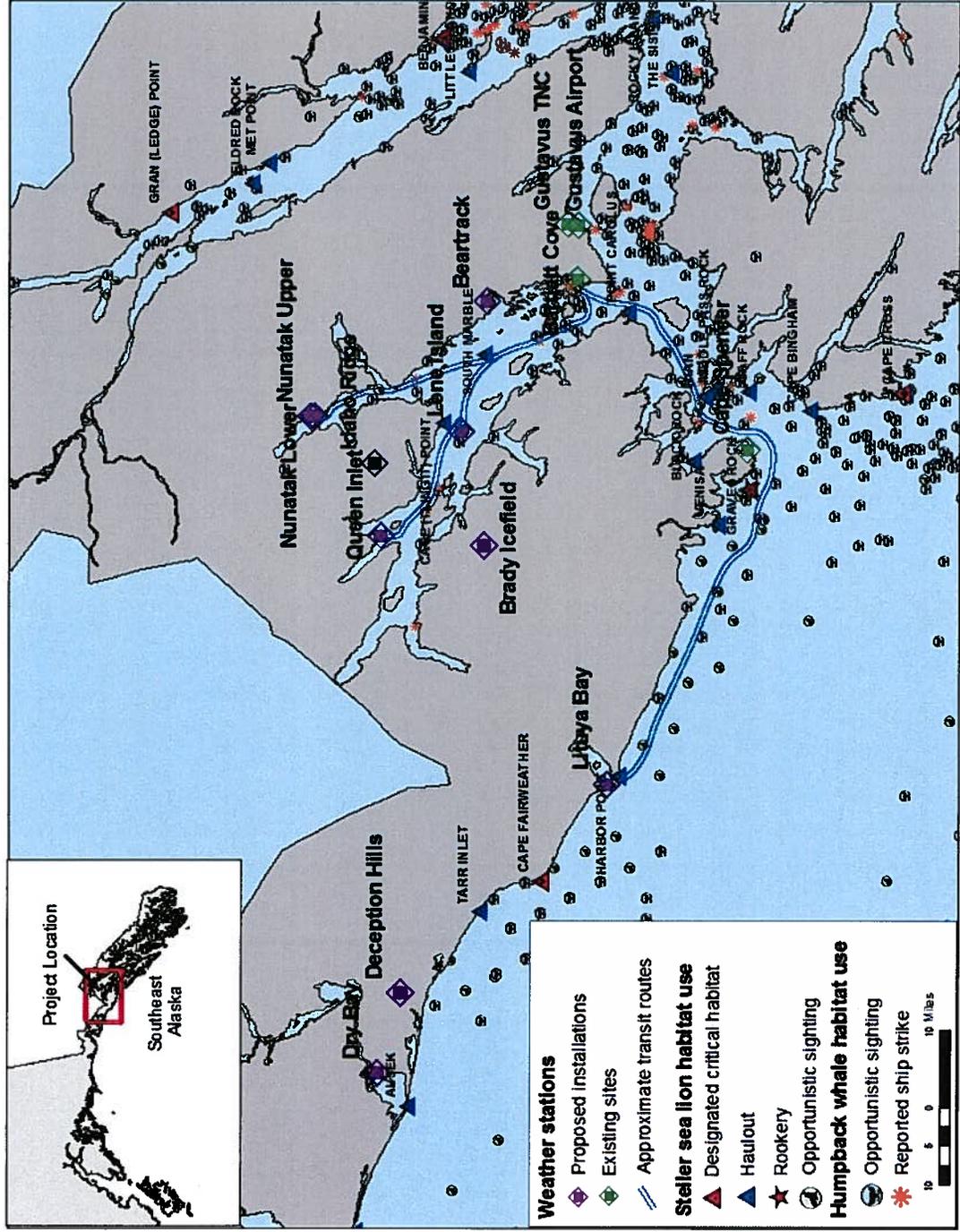


Figure 1. Action area for installation and maintenance of climate stations in Glacier Bay National Park.

Mitigation Measures

The NPS informed NMFS via email dated August 12, 2015, that the project would incorporate the following mitigation measures to avoid impacts to Steller sea lions and their critical habitat and humpback whales.

- (a) All marine vessels shall reduce speed to a maximum of 5 knots when within 900 ft (300 yards /274 m) of whales. Those vessels capable of steering around such groups should do so. Vessels may not be operated in such a way as to separate members of a group of whales from other members of the group; a group is defined as being three or more whales observed within a 500 meter area and displaying behaviors of directed or coordinated activity (e.g., group feeding);
- (b) NPS marine vessels will (based on NMFS' humpback whale approach regulation July 2001)
 - a. Not approach within 100 yards of a humpback whale.
 - b. Not place a vessel in the path of a humpback whale causing it to surface within 100 yards of the vessel
 - c. Operate vessel at a slow, safe speed when near humpback whales
- (c) NPS marine vessels will stay 100 yards away from all marine mammals.
- (d) NPS marine vessels will avoid multiple changes in direction and speed when within 900 ft (300 yards /274 m) of whales;
- (e) When weather conditions require, such as when visibility drops, NPS marine vessels must reduce speed and change direction, as necessary (and as operationally practicable), to avoid the likelihood of injury to whales;
- (f) NPS vessel operators and charter vessel operators will check waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged;
- (g) Planned Lone Island installation and maintenance will not occur from May 1 through September 30 of any year.
- (h) NPS will avoid transiting through the critical habitat 0.9-km (0.6-mi) buffer at Graves Rock, assuming marine vessel transit to Lituya Bay would pass this point.
- (i) NPS helicopter transit will not occur within 1,000 ft of marine mammals or below 2,000-2,5000 ft minimum altitude (except during takeoffs, landings, or in emergency situations) while over land or sea
- (j) In the event that the proposed action causes the take of a marine mammal that results in a serious injury or mortality (e.g. ship-strike, stranding, and/or entanglement), or an oiled marine mammal is spotted, the permittees shall report the incident immediately to NMFS AKR, Protected Resources Division at 907-586-7638 and/or by email to Jon.Kurland@noaa.gov, Kristin.Mabry@noaa.gov, and the Alaska Regional Stranding Coordinator at 907-586-7248 (Aleria.Jensen@noaa.gov).

Listed Species and Critical Habitat

Western DPS Steller Sea Lions

The Steller sea lion was listed as a threatened species under the ESA on November 26, 1990 (55 FR 49204). In 1997, NMFS reclassified Steller sea lions as two DPSs based on genetic studies and other information (62 FR 24345); at that time the eastern DPS was listed as threatened and

the western DPS was listed as endangered. On November 4, 2013, the eastern DPS was removed from the endangered species list (78 FR 66139). Information on Steller sea lion biology and habitat (including critical habitat) is available at:
<http://alaskafisheries.noaa.gov/protectedresources/stellers/default.htm>

Steller sea lions have been opportunistically observed in the action area (Figure 1). Womble et al (2005) studied the seasonal ecology of Steller sea lions in Southeast Alaska by relating the distribution of sea lions to spring herring and eulachon aggregations. Their results suggest that seasonally aggregated high-energy prey species, such as eulachon and herring in late spring and salmon in summer, influence the seasonal distribution of Steller sea lions in some areas of Southeast Alaska. The action area contains anadromous streams (salmon are known Steller sea lion prey species), as well as herring and eulachon spawning areas.

Fritz et al (2013) estimated an average annual breeding season movement of western DPS Steller sea lions to southeast Alaska of 917 animals.

Steller Sea Lion Critical Habitat

NMFS designated critical habitat for Steller sea lions on August 27, 1993 (58 FR 45269). In Alaska, designated critical habitat includes: 1) a 37-km (23-mi) seaward buffer around all major haulouts and rookeries west of 144° W longitude; 2) 0.9-km (0.6-mi) terrestrial, air, and aquatic zones around major haulouts and rookeries east of 144° W longitude, and 3) three special aquatic foraging areas: the Shelikof Strait, Bogoslof, and Seguam Pass areas. The action area includes one designated critical habitat Steller sea lion haulout, Graves Rock (which also functions as a rookery), and twelve other haulouts that are used at least seasonally, but not currently designated as critical habitat.

Humpback Whales

The humpback whale was listed as endangered under the Endangered Species Conservation Act (ESCA) on December 2, 1970 (35 FR 18319). Congress replaced the ESCA with the ESA in 1973, and humpback whales continued to be listed as endangered. NMFS recently conducted a global status review and proposed changing the status of humpback whales under the ESA. Under this proposal, the Western North Pacific DPS (which includes whales found in the Aleutian Islands and Bering Sea) would be listed as threatened and the Hawaii DPS (which includes whales found in southeast Alaska) and Mexico DPS (which includes whales found in the northern and western Gulf of Alaska, Aleutian Islands, and Bering Sea) would not be listed (80 FR 22304; April 21, 2015). Final action on the proposal is not expected until after this project occurs. Information on humpback whale biology and habitat is available at:
<http://www.fisheries.noaa.gov/pr/species/mammals/whales/humpback-whale.html>
http://www.nmfs.noaa.gov/pr/sars/2013/ak2013_humpback-wnp.pdf

Figure 1 shows opportunistic sightings and reported ship strikes of humpback whales in the action area. Whales in Glacier Bay and Icy Strait typically feed alone or in pairs, primarily on small schooling fishes such as capelin (*Mallotus villosus*), juvenile walleye pollock (*Theragra chalcogramma*), sand lance (*Ammodytes hexapterus*) and Pacific herring (*Clupea pallasii*) (Wing and Krieger 1983). Notable exceptions are the large, stable “core group” that commonly feeds at Point Adolphus in Icy Strait, and less consistent large aggregations of whales that gather to feed

at various locations in Glacier Bay and Icy Strait (NPS unpublished data). Whale numbers typically rise in mid-June, peak in July and August, are somewhat lower in April, May and September and are lowest from October through March (NPS website <http://www.nps.gov/glba/learn/nature/whales.htm>).

Effects of the Action

For purposes of the ESA, “effects of the action” means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is “not likely to adversely affect” listed species or critical habitat is that all of the effects of the action are expected to be insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and are those that one would not be able to meaningfully measure, detect, or evaluate, and should never reach the scale where take occurs. Discountable effects are those that are extremely unlikely to occur. Beneficial effects are contemporaneous positive effects without any adverse effects to the species.

The potential effects of the proposed action on listed species and critical habitat include acoustic disturbance (noise) and potential for vessel strike.

Acoustic Disturbance

The action will include a small number of boat and helicopter trips to install and maintain the sites. These stressors will create short duration, low intensity, infrequent noise that could disturb Steller sea lions and humpback whales.

Helicopter Noise

Deception Hills, Brady Icefield, Beartrack, and Idaho Ridge stations will be accessed via helicopter. Although the exact type of helicopter that will be used is unknown, NMFS expects effects to marine mammals will be small based on available information from other studies. Aircraft flyovers are not heard underwater for very long, and depend greatly on water depth and altitude of flight. Greene and Moore (1995) explained helicopters commonly used in offshore oil and gas activities are capable of producing tones mostly in the 68 to 102 Hz range and at noise levels up to 151 dB re 1 μ Pa-m at the source. For a helicopter operating at an altitude of 1,000 ft (305 m), there were no measured sound levels at a water depth of 121 ft (37 m) (Greene 1985). Since the minimum altitude in this action is further away from the water (higher up), NMFS would expect the effects to diminish in waters less deep and to have insignificant effects on humpback whales and sea lions in the water.

The US Army Corps of Engineers (2011) recorded a maximum in-air sound exposure level of 98 dB at a lateral distance of 0 feet and an altitude of 100 feet at the Coronado Naval Base and concluded that marine mammals such as the California sea lion would not be impacted and the noise would not appreciably change the existing noise contours from a proposed action including overflights.

The four stations that will be accessed via helicopter are all remote sites at altitude on land. NMFS expects that the helicopter landing and take-off events would create insignificant noise, if any, at sea-level.

Considering that the mitigation measures would require aircraft not to operate within 1,000 ft of marine mammals or below 2,000-2,500 ft altitude, received noise levels for sea lions that may be hauled out and for animals below the surface will be substantially limited. NMFS would not expect marine mammals to be adversely affected by the noise or presence of aircraft.

NMFS concludes that the effects of disturbance from helicopter transit on humpback whales and Steller sea lions would be extremely small, and are therefore insignificant.

Marine Vessel Noise

Queen Inlet, Lone Island, and Nunatak Upper and Lower will be accessed via a 20' skiff. NPS also specified that installation and maintenance of the Lone Island station would not occur from May 1 through September 30 to protect colonies of nesting seabirds. This Lone Island "quiet period" would also limit vessel traffic during the months when humpback whales have been observed with the highest frequency in the bay.

NPS will likely charter a vessel from Bartlett Cove to install and maintain the station at Lituya Bay (pers. comm. Allison Banks, 8/11/15). NPS has not yet contracted a vessel, so exact vessel size is unknown, but will likely be around 30' or larger.

Aerts et al (2008) report effective source levels of bow/stern aspects of vessels 9.8 meters (32 feet) in length on a slow run and a fast run between 129.2 and 145.3 dB re 1 μ Pa@1m. Rapid attenuation of this sound source is expected due to reduced low frequency propagation in shallow water (Forest Service 2015). NMFS does not anticipate that marine mammals will be exposed to noise associated with vessel transit due to the transitory short-term presence of a single vessel. If animals are exposed they may exhibit slight deflection from the noise source, engage in low-level avoidance behavior, short-term vigilance behavior, or short-term masking behavior, but these behaviors are not likely to result in adverse consequences for the animals. Humpback whale reactions to approaching boats are variable, ranging from approach to avoidance (Payne 1978, Salden 1993). Whales have been known to tolerate slow-moving vessels within several hundred meters, especially when the vessel is not directed toward the animal and when there are no sudden changes in direction or engine speed (Wartzok et al. 1989, Richardson et al. 1995, aHeide-Jorgensen et al. 2003). In addition, vessel noise does not seem to strongly affect pinnipeds that are in the water (Richardson et al. 1995a).

NMFS concludes that the effects of disturbance from marine vessel transit using skiffs and slightly larger contracted vessels on humpback whales and Steller sea lions would be extremely small, and are therefore insignificant.

Vessel Strike

Reported vessel strikes of humpback whales in the action area are depicted in Figure 1. Vessel strikes of Central North Pacific population of humpback whales are documented at an annual

average rate of 6.49 humpbacks (Allen and Angliss 2014) with most of the vessel collisions reported from Southeast Alaska.

The addition of a small number of vessels associated with the proposed action would have an abbreviated, transitory presence within the action area, and NMFS expects that effects to marine mammals from vessel strikes will be minimized in this action due to the mitigation measures described above. Because of the small number of additional vessels and the speed restrictions, timing restrictions, and approach restrictions included in the mitigation measures, NMFS considers the danger of vessel strike due to this action to be discountable.

Steller Sea Lion Critical Habitat

NMFS identified physical and biological features essential for conservation of Steller sea lions in the final rule to designate critical habitat (58 FR 45269; August 27, 1993). Construction of the proposed project could impact Steller sea lion critical habitat by causing disturbance at a designated haulout, Graves Rock, which currently functions as a rookery. We evaluate effects to each of the essential features below.

1. Alaska rookeries, haulouts, and associated areas identified at 50 CFR §226.202(a), including terrestrial zones that extend 3,000 feet landward, air zones that extend 3,000 feet above the terrestrial zone, aquatic zones that extend 3,000 feet seaward from each major rookery and major haulout east of 144° W. longitude, and aquatic zones that extend 20 nm seaward from each major rookery and major haulout west of 144° W. longitude.

Passage around Cape Spencer to Lituya Bay may include transiting near Graves Rock, although the exact transit route is unknown. NMFS anticipates the 3,000 feet buffer will be preserved if transit around Graves Rock is necessary, and therefore concludes that any effects on this habitat area would be extremely unlikely to occur, and are therefore discountable.

2. Three special aquatic foraging areas: the Shelikof Strait area, the Bogoslof area, and the Seguam Pass area, as specified at 50 CFR §226.202(c).

These foraging areas are outside the action area, so NMFS concludes that the effects to these areas would be extremely unlikely to occur, and are therefore discountable.

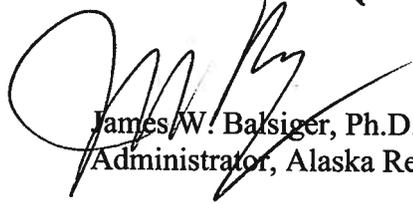
Conclusion

Based on this analysis, NMFS concurs with your determination that the proposed action may affect, but is not likely to adversely affect, humpback whales, western DPS Steller sea lions, or Steller sea lion critical habitat.

Reinitiation of consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and if (1) take of listed species occurs, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter, or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

Please direct any questions regarding this letter to Kristin.Mabry@noaa.gov or (907) 586-7490.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Balsiger', written over the typed name.

James W. Balsiger, Ph.D.
Administrator, Alaska Region

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