

Letter of Authorization

The 30th Space Wing, U.S. Air Force (USAF), is hereby authorized to take marine mammals incidental to those activities at Vandenberg Air Force Base (VAFB), California, in accordance with 50 CFR 217, Subpart G--Taking Of Marine Mammals Incidental To Rocket and Missile Launches and Aircraft Operations at Vandenberg Air Force Base (VAFB), California subject to the provisions of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*; MMPA) and the following conditions:

1. This Letter of Authorization (LOA) is valid for five years from the date signed.
2. This Authorization is valid only for rocket, missile, and aircraft activities activities at VAFB, California.
3. General Conditions
 - (a) A copy of this LOA must be in the possession of the USAF, its designees, and personnel operating under the authority of this LOA.
 - (b) The species authorized for taking by incidental harassment are: Pacific harbor seals (*Phoca vitulina richardsi*); California sea lions (*Zalophus californianus*); northern elephant seals (*Mirounga angustirostris*); northern fur seals (*Callorhinus ursinus*); Guadalupe fur seals (*Arctocephalus philippii townsendi*); and Steller sea lions (*Eumetopias jubatus*).
 - (c) The taking, by Level B harassment only, is limited to the species listed in condition 3(b). See Table 1 (attached) for numbers of take authorized.
 - (d) The taking by injury (Level A harassment), serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this LOA.
4. The following activities are authorized to take, by incidental harassment only, the species of marine mammals identified in condition 3(b) above and will take place at space launch complexes, launch facilities, and test pads on VAFB:
 - (a) Launching of no more than 15 missiles annually;
 - (b) Launching of no more than 110 rockets annually;
 - (c) Recoveries of no more than 12 Falcon 9 rockets annually;

- (d) Unmanned aerial systems (UAS) operations.
5. Mitigation Measures. Unless constrained by human safety or national security the holder of this Authorization is required to implement the following mitigation measures:
- (a) Rocket launches must be scheduled to avoid launches which are predicted to produce a sonic boom on the Northern Channel Islands during the harbor seal pupping season of March through June, whenever possible.
 - (b) Aircraft and helicopter flight paths must maintain a minimum distance of 1,000 ft (305 m) from recognized pinniped haulouts and rookeries whenever possible, except for one area near the VAFB harbor over which aircraft may be flown to within 500 ft of a haulout, and except in emergencies or for real-time security incidents.
 - (c) For UAS, except during take-off and landing, the following minimum altitudes must be maintained over all known marine mammal haulouts when marine mammals are present: Class 0-2 UAS must maintain a minimum altitude of 300 feet; Class 3 UAS must maintain a minimum altitude of 500 feet; Class 4 or 5 UAS must not be flown below 1,000 feet.
 - (d) If any incident of injury or mortality of a marine mammal discovered during post-launch surveys or indications of affects to the distribution, size, or productivity of the affected pinniped populations as a result of the authorized activities are thought to have occurred, launch procedures and monitoring methods must be reviewed, in cooperation with NMFS, If necessary, appropriate changes must be made through modification to this Authorization prior to conducting the next launch of the same vehicle.
6. Monitoring. The holder of this Authorization is required to conduct marine mammal monitoring and to conduct acoustic monitoring as described below:
- (a) The USAF must either use video recording, or, must designate a qualified on-site individual approved in advance by NMFS, with demonstrated proficiency in the identification of all age and sex classes of both common and uncommon pinniped species found at VAFB and the Northern Channel Islands and knowledge of approved count methodology and experience in observing pinniped behavior, to monitor and document pinniped activity as described in 6(b) through 6(k).
 - (b) For any launches of space launch vehicles or recoveries of the Falcon 9 First Stage occurring from January 1 through July 31, pinniped activity at VAFB must be monitored in the vicinity of the haulout nearest the launch platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to the launch and/or recovery.

- (c) For any launches of new space launch vehicles that have not been monitored during at least three previous launches occurring from August 1 through December 31, pinniped activity at VAFB must be monitored in the vicinity of the haulout nearest the launch or landing platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to launching.
- (d) For any launches of existing space launch vehicles that are expected to result in a louder launch noise or sonic boom than previous launches of the same vehicle type occurring from August 1 through December 31, pinniped activity at VAFB must be monitored in the vicinity of the haulout nearest the launch or landing platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to launching.
- (e) For any launches of new types of missiles occurring from August 1 through December 31, pinniped activity at VAFB must be monitored in the vicinity of the haulout nearest the launch or landing platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to launching.
- (f) For any recoveries of the Falcon 9 First Stage occurring from August 1 through December 31 that are predicted to result in a sonic boom of 1.0 pounds per square foot (psf) or above at VAFB, pinniped activity at VAFB must be monitored in the vicinity of the haulout nearest the launch or landing platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to launching.
- (g) For any launches or Falcon 9 First Stage recoveries occurring from January 1 through July 31, follow-up surveys must be conducted within two weeks of the launch.
- (h) For any launches or Falcon 9 First Stage recoveries, if it is determined by modeling that a sonic boom of greater than 2.0 psf is predicted to impact one of the Northern Channel Islands between March 1 and July 31, greater than 3.0 psf between August 1 and September 30, and greater than 4.0 psf between October 1 and February 28, pinniped activity at the Northern Channel Islands must be monitored. Monitoring must be conducted at the haulout site closest to the predicted sonic boom impact area, or, in the absence of pinnipeds at that location, at another nearby haulout.

- (i) Marine mammal monitoring must include multiple surveys each day that record the species, number of animals, general behavior, presence of pups, age class, gender and reaction to launch noise, sonic booms or other natural or human caused disturbances, in addition to environmental conditions such as tide, wind speed, air temperature, and swell.
- (j) Marine mammal monitoring of activities that occur during darkness at VAFB must include night video monitoring, when feasible.
- (k) For any launches or Falcon 9 First Stage recoveries for which marine mammal monitoring is required, acoustic measurements must also be made.

7. Reporting. The holder of this Authorization is required to:

- (a) Submit a report to the Office of Protected Resources, NMFS, and West Coast Regional Administrator, NMFS, within 90 days after each monitored rocket launch, missile launch or rocket recovery. This report must contain the following information:
 - i. Date(s) and time(s) of the launch,
 - ii. Design of the monitoring program, and
 - iii. Results of the monitoring program, including, but not necessarily limited to:
 - A. Numbers of pinnipeds present on the haulout prior to commencement of the launch.
 - B. Numbers of pinnipeds that may have been harassed, as noted by the number of pinnipeds estimated to have moved greater than two times the animal's body length, or, if the animal was already moving and changed direction and/or speed, or, if the animal flushed from land into the water in response to launch noise or sonic boom.
 - C. For any marine mammals that entered the water, the length of time those animals remained off the haulout.
 - D. Description of observed behavioral modifications by pinnipeds that were likely the result of launch noise or the sonic boom.
 - E. Results of acoustic monitoring, including the intensity of any sonic boom (psf) and sound levels in SELs, SPL_{peak} and SPL_{rms} .
- (b) Submit a draft annual report to the Permits and Conservation Division, Office of Protected Resources, NMFS at 1315 East-West Highway, Silver Spring, MD

20910 and the Assistant Regional Administrator, West Coast Region, NMFS. This report must contain detailed information on the following:

- i. Date(s) and time(s) of each missile and rocket launch and/or recovery.
 - ii. Design of the monitoring program;
 - iii. Results of the monitoring programs described under conditions 7(a)iii including the following:
 - A. Dates and times of all monitoring activities;
 - B. Details of all marine mammal sightings, including the number of pinnipeds, by species and haulout location, that remained ashore and/or fled from the beach in response to authorized activities;
 - C. The number of marine mammals, by species, returned to the haulout subsequent to the disruption (including estimates of the time it took for pinnipeds to return to haulouts), and estimates of the amount and nature of all instances of harassment; and
 - D. Information on the weather, including tidal state and horizontal visibility.
 - E. Date(s) and location(s) of any research activities related to monitoring the effects of launch noise and sonic booms on marine mammal populations; and
 - F. A summary of observed effects of UAS operations on marine mammals at VAFB.
- (c) Submit a final annual report, within 60 days of receipt of any recommendations made by NMFS following review of the draft annual report by the Permits and Conservation Division, Office of Protected Resources, NMFS.
- (d) Submit a draft comprehensive report to the Permits and Conservation Division, Office of Protected Resources, NMFS at 1315 East-West Highway, Silver Spring, MD 20910 and the Assistant Regional Administrator, West Coast Region, NMFS, at least 180 days prior to the expiration of the current regulations. This report must:
- i. Summarize the activities undertaken and the results reported in all previous reports;
 - ii. Assess the impacts at each of the major rookeries;
 - iii. Assess the cumulative impacts on pinnipeds and other marine mammals from VAFB activities; and

- iv. State the date(s), location(s), and findings of any research activities related to monitoring the effects of launch noise and sonic booms on marine mammal populations.
- (e) Submit a final comprehensive report, within 60 days of receipt of any recommendations made by NMFS following review of the draft comprehensive report by the Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Administrator, NMFS.
- (f) Reporting of injured or dead marine mammals:
 - i. In the event that the specified activity clearly causes the take of a marine mammal in a manner not authorized by this LOA, such as serious injury or mortality, the USAF shall immediately cease the specified activities and immediately report the incident to the NMFS Office of Protected Resources ((301) 427-8401) and the NMFS West Coast regional stranding coordinator ((562) 980-3230). The report must include the following information:
 - A. Time, date, and location (latitude/longitude) of the incident;
 - B. Description of the incident;
 - C. Status of all sound source use in the 24 hours preceding the incident;
 - D. Environmental conditions (*e.g.*, wind speed and direction, cloud cover, and visibility);
 - E. Description of all marine mammal observations in the 24 hours preceding the incident;
 - F. Species identification or description of the animal(s) involved;
 - G. Fate of the animal(s); and
 - H. Photographs or video footage of the animal(s).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with the USAF to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The USAF may not resume their activities until notified by NMFS.

- ii. In the event that the USAF discovers an injured or dead marine mammal, and determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.*, in less than a moderate state of decomposition), the USAF shall immediately report the incident to the NMFS Office of Protected Resources ((301) 427-8401) and the NMFS West Coast regional stranding coordinator ((562) 980-3230). The report must include the same information identified in condition 7(f)(i) of this LOA. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with the USAF to determine whether additional mitigation measures or modifications to the activities are appropriate.

iii. In the event that the USAF discovers an injured or dead marine mammal, and determines that the injury or death is not associated with or related to the specified activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the USAF shall report the incident to the NMFS Office of Protected Resources ((301) 427-8401) and the NMFS West Coast regional stranding coordinator ((562) 980-3230), within 24 hours of the discovery. The USAF shall provide photographs, video footage or other documentation of the sighting to NMFS.

8. This Authorization may be modified, suspended or withdrawn if the USAF fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.



Donna S. Wieting, Director
Office of Protected Resources

APR 10 2019

Date

Table 1. Numbers of takes authorized annually.

Species (stock)	2019	2020	2021	2022	2023	2024
Harbor seal	19,524	22,733	27,652	35,466	43,489	16,742
California sea lion	28,187	36,019	51,307	63,805	83,385	21,756
Northern elephant seal	4,170	5,283	7,434	9,253	12,036	5,481
Steller Sea Lion	134	168	221	302	387	105
Northern fur seal	1,190	1,530	2,210	2,721	3,571	26
Guadalupe fur seal	46	59	85	104	137	36