DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 217

[Docket No. 180816767–9270–02]

RIN 0648–BI44

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to U.S. Air Force Launches and Operations at Vandenberg Air Force Base, California

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule; issuance of Letters of Authorization (LOA).

SUMMARY: NMFS, upon request of the U.S. Air Force (USAF), hereby issues regulations to govern the unintentional taking of marine mammals incidental to launching space launch vehicles, intercontinental ballistic and small missiles, and aircraft operations at Vandenberg Air Force Base (VAFB), over the course of five years. These regulations, which allow for the issuance of Letters of Authorization (LOA) for the incidental take of marine mammals during the described activities and specified timeframes, prescribe the permissible methods of taking and other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, as well as requirements pertaining to the monitoring and reporting of such taking. In accordance with the Marine Mammal Protection Act (MMPA), as amended, and implementing regulations, notification is hereby additionally given that a five-year LOA has been issued to USAF to take marine mammals incidental to rocket and missile launch and recovery activities and aircraft operations.

DATES: Effective from April 10, 2019, until April 10, 2024.

FOR FURTHER INFORMATION CONTACT: Jordan Carduner, Office of Protected Resources, NMFS; phone: (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Availability

A copy of the USAF's application and any supporting documents, as well as a list of the references cited in this document, may be obtained online at: *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act.* In case of problems accessing these documents, please call the contact listed above (see **FOR FURTHER INFORMATION CONTACT**).

Purpose and Need for Regulatory Action

These regulations establish a framework under the authority of the MMPA (16 U.S.C. 1361 *et seq.*) to allow for the authorization of take of marine mammals incidental to rocket and missile launch activities and aircraft operations at VAFB.

We received an application from the USAF requesting five-year regulations and authorization to take marine mammals. Take is expected to occur by Level B harassment incidental to launch noise and sonic booms. Please see ''Background'' below for definitions of harassment.

Legal Authority for the Action

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1371(a)(5)(A)) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region for up to five years if, after notice and public comment, the agency makes certain findings and issues regulations that set forth permissible methods of taking pursuant to that activity and other means of effecting the ''least practicable adverse impact'' on the affected species or stocks and their habitat (see the discussion below in the *Mitigation* section), as well as monitoring and reporting requirements. Section 101(a)(5)(A) of the MMPA and the implementing regulations at 50 CFR part 216, subpart I provide the legal basis for issuing this rule containing five-year regulations, and for any subsequent LOAs. As directed by this legal authority, the regulations contain mitigation, monitoring, and reporting requirements.

Summary of Major Provisions Within the Rule

Following is a summary of the major provisions of the regulations regarding USAF rocket and missile launch activities and aircraft operations. These measures include:

- Required acoustic monitoring to measure the sound levels associated with the planned activities.
- Required biological monitoring to record the presence of marine mammals during the planned activities and to document responses to the planned activities.
- Mitigation measures to minimize harassment of the most sensitive marine mammal species.

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has defined ''negligible impact'' in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

The MMPA states that the term ''take'' means to harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill any marine mammal.

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) 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 (Level B harassment).

Summary of Request

On August 10, 2018, NMFS received an application from the USAF, 30th Space Wing, requesting authorization for the take of six species of pinnipeds incidental to rocket launch and recovery, missile launch, and aircraft operations from VAFB launch complexes. On September 13, 2018 (83 FR 46483), we published a notice of receipt of the USAF's application in the **Federal Register**, requesting comments

and information related to the request for thirty days. We received comments from the Marine Mammal Commission and from the general public. On December 4, 2018, NMFS received a supplement to the application from USAF that included a request to also include activities associated with the recovery of Space Exploration Technologies (SpaceX) Falcon 9 First Stage rockets. On January 24, 2019 (50 FR 217) NMFS published a notice of proposed rule in the **Federal Register**, with a thirty day comment period, requesting public comments and information related to the request. We received comments from the Marine Mammal Commission and from the general public. Comments received in response to the September 13 notice of receipt and the January 24 proposed rule were considered in development of these final regulations to govern the authorization of take incidental to the activities encompassed in the final application. The comments are available online at: *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act.*

The take of marine mammals incidental to activities related to the launching of space launch vehicles and missiles, and aircraft operations at VAFB, have been previously authorized by NMFS via Letters of Authorization (LOA) issued under incidental take regulations, which were effective from March 26, 2014 through March 26, 2019 (79 FR 10016). We note that while the previous rule and LOA expired on March 26, 2019, no activities that are expected to result in the incidental take of marine mammals, including the launching of rockets and missiles from VAFB, are planned to occur from March 26, 2019 until these regulations are effective and a new LOA is issued.

To date, we have issued nine LOAs to USAF for these activities. Launches of SpaceX's Falcon 9 rocket were included in the previous five-year rule (79 FR 10016) and LOA issued to USAF for activities at VAFB. At the time those regulations and LOA were issued, the recovery of the Falcon 9 First Stage (including in-air boost-back and landing) was not yet part of SpaceX's action, therefore recovery of the Falcon 9 First Stage was not included in that rule and LOA. In 2016, when SpaceX began recovery operations involving the Falcon 9 First Stage, SpaceX requested authorization for the take of marine mammals incidental to those recovery activities. NMFS issued incidental harassment authorizations (IHA) pursuant to section 101(a)(5)(d) of the MMPA in 2016 (81 FR 34984) and 2017 (82 FR 60954) to SpaceX, which authorized the take of marine mammals incidental to Falcon 9 First Stage recovery activities. The USAF and SpaceX requested that Falcon 9 First Stage recovery activities as well as launches of the Falcon 9 First Stage be included in these regulations. NMFS has determined it is more efficient to include both Falcon 9 First Stage recovery activities and launches in the same regulations, and that this is allowable as Falcon 9 First Stage recovery activities fall within the scope of the action as all activities resulting in take of marine mammals originate at VAFB. Therefore, both recoveries and launches of the Falcon 9 First Stage have been included in these regulations.

Authorization

This action also serves as a notice of issuance of a five-year LOA issued to USAF authorizing the take of marine mammals, by Level B harassment, incidental to rocket launch and recovery activities, missile launch activities and aircraft operations. The level and type of take authorized by the LOA is outlined in this preamble to the final rule. Take by mortality, serious injury or Level A harassment is not anticipated or authorized.

Description of the Specified Activity

Overview

VAFB contains seven active missile launch facilities and six active space launch facilities and supports launch activities for the USAF, Department of Defense, National Aeronautics and Space Administration (NASA), and commercial entities. It is the primary west coast launch facility for placing commercial, government and military satellites into polar orbit on unmanned launch vehicles, and for the testing and evaluation of intercontinental ballistic missiles (ICBMs) and sub-orbital target and interceptor missiles. In addition to the launching of rockets, certain rocket components are returned to VAFB for reuse, using in-air ''boost-back'' maneuvers and landings at the base. In addition to space vehicle and missile launch activities at VAFB, occasional helicopter and aircraft operations occur at VAFB that involve search-and-rescue, delivery of space vehicle components, launch mission support, security reconnaissance, and training flights. The use of unmanned aerial systems (UAS, also known as ''drones'') also occurs at VAFB.

The USAF anticipates that no more than 110 rocket launches and 15 missile launches would occur in any year during the period of authorized activities (Table 1). This number of launches would represent an increase compared to historical launch activity at VAFB, but the USAF anticipates an increase in the number of launches in the near future and has based their estimate of planned rocket launches on this anticipated increase.

There are six species of marine mammals that may be affected by the USAF's planned activities: California sea lion, Steller sea lion, northern fur seal, Guadalupe fur seal, northern elephant seal, and harbor seal. Hauled out pinnipeds may be disturbed by launch noises and/or sonic booms (overpressure of high-energy impulsive sound) from launch vehicles. Aircraft that are noisy and/or flying at low altitudes can also have the potential to disturb hauled out pinnipeds. Pinniped responses to these stimuli have been monitored at VAFB for the past 25 years.

Dates and Duration

The activities planned by USAF would occur for five years, from April, 2019 through April, 2024. Activities would occur year-round throughout the period of validity for the rule.

Specified Geographical Region

All launches and aircraft activities would occur at VAFB. The areas potentially affected by noise from these activities includes VAFB and the Northern Channel Islands (NCI). VAFB occupies approximately 99,100 acres of land and approximately 42 miles of coastline in central Santa Barbara County, California and is divided by the Santa Ynez River and State Highway 246 into two distinct parts: North Base and South Base. The NCI are considered part of the project area for the purposes of this rule, as rocket launches and landings at VAFB may result in sonic booms that impact the NCI. The NCI are four islands (San Miguel, Santa Rosa, Santa Cruz, and Anacapa) located approximately 31 mi (50 km) south of Point Conception, which is located on the mainland approximately 4 mi (6.5 km) south of the southern border of VAFB. The closest part of the NCI (Harris Point on San Miguel Island) is located more than 30 nautical miles south-southeast of the nearest launch facility.

Rocket and missile launches occur from several locations on VAFB, on both North Base and South Base. Please refer to Figure 2 and Figure 3 in the USAF's application for a depiction of launch locations on VAFB. Rocket landings by SpaceX would occur at the landing area referred to as Space Launch Complex (SLC) 4W, located on South Base of

VAFB, approximately 0.5 miles (mi) (0.8 kilometers (km)) inland from the Pacific Ocean. Although SLC–4W is the preferred landing location for the Falcon 9 First Stage, SpaceX has identified two contingency landing locations should it not be feasible to land the First Stage at SLC–4W. The first contingency landing location is on a barge located at least 27 nautical miles (nm) (50 km) offshore of VAFB. The second contingency landing location is on a barge within the Iridium Landing Area, an approximately 12,800 square mile (mi^2) (33,153 square kilometers (km^2)) area located approximately 122 nm (225 km) southwest of San Nicolas Island (SNI) and 133 nm (245 km) southwest of San Clemente Island. As any landings of the Falcon 9 First Stage at either contingency landing location would occur on barges operated by SpaceX, no search operation would be required following a landing at either of the contingency landing locations.

Detailed Description of Activities

As described above, the USAF requested incidental take regulations for its operations at VAFB, which include rocket and missile launches, rocket recovery activities, and aircraft operations. VAFB is headquarters to the 30th Space Wing, the Air Force Space Command unit that operates VAFB and the Western Range. VAFB operates as a missile test base and aerospace center, supporting west coast space launch activities for the USAF, Department of Defense, NASA, and commercial contractors. VAFB is the main west coast launch facility for placing commercial, government, and military satellites into polar orbit on expendable (unmanned) launch vehicles, and for testing and evaluation of intercontinental ballistic missiles (ICBM) and sub-orbital target and interceptor missiles. In addition to space vehicle and missile launch activities at VAFB, aircraft operations are undertaken for purposes such as search-and-rescue, delivery of space vehicle components, launch mission support, security reconnaissance, and training flights. From VAFB, space vehicles are launched into polar orbits on azimuths from 147 to 201 degrees, with sub-orbital flights to 281 degrees. Missile launches are directed west toward Kwajalein Atoll in the Pacific. This over-water sector, from 147 to 281 degrees, comprises the Western Range. Part of the Western Range encompasses the NCI.

Rocket Launch Activities

There are currently six active facilities at VAFB used to launch satellites into polar orbit. One existing launch facility (TP–01), on north VAFB, has not been used in several years but is being reactivated. These facilities support launch programs for the Atlas V, Delta II, Delta IV, Falcon 9 and Minotaur rockets. Various booster and fuel packages can be configured to accommodate payloads of different sizes and weights.

Table 1 shows estimates of the numbers and sizes of rocket launches from VAFB during calendar years 2019 through 2024. The numbers of anticipated launches shown in Table 1 are higher than the historical number of launches that have occurred from VAFB, and are considered conservative estimates; the actual number of launches that occurs in these years may be lower. However, the USAF anticipates an increase in the number of launches by non-commercial entities from VAFB over the next 5 years, and the numbers shown in Table 1 are based on this expectation. A large percentage of this anticipated increase will be comprised of smaller launch payloads and rockets than previously utilized at VAFB.

TABLE 1—PREDICTED MAXIMUM NUMBER OF ROCKET LAUNCHES IN CALENDAR YEARS 2019 THROUGH 2024 FROM VAFB

	2019	2020	2021	2022	2023	2024 *
Small rockets	5	10	25	40	50	60
Medium rockets	10	15	20	20	30	30
Large rockets	5	5	10	15	20	20
Total launches	20	30	45	75	100	110

* This rule is valid for only approximately 3 months in 2024 therefore not all launches in 2024 are covered under the rule.

Rocket launches from VAFB have the potential to result in the harassment of pinnipeds that are hauled out of the water as a result of exposure to sound from launch noise (on VAFB) or as a result of exposure to sound from sonic booms. Based on several years of monitoring data, harassment of marine mammals is unlikely to occur when the intensity of a sonic boom is below 1.0 pounds per square foot (psf) (see further discussion in the Estimated Take section below). The likelihood of a sonic boom with a measured psf above 1.0 impacting marine mammals on the NCI is dependent on the size of the rocket (*i.e.,* larger rockets are more likely to result in a sonic boom on the NCI than smaller rockets). The USAF estimated 33 percent of large rockets, 25 percent of medium sized rockets, and 10 percent of small sized rockets would result in sonic booms on the NCI (USAF, 2018).

Table 2 shows types of rockets that are anticipated for launch from VAFB over the next 5 years and the nearest locations of pinniped haulouts to the launch locations for those rockets. Other small rockets may also be launched from VAFB over the next 5 years but the exact specifications and launch locations for those rockets are unknown at this time.

TABLE 2—ROCKET TYPES LAUNCHED FROM VAFB AND NEAREST LOCATIONS OF PINNIPED HAULOUTS TO LAUNCH LOCATIONS

Rocket	Launch facility	Nearest pinniped haulout	Distance to haulout (km)
Current launch programs:			
Atlas V	SLC–3E	North Rocky Point	9.9
Delta II [1]	SLC–2W	Purisima Point	2.3

TABLE 2—ROCKET TYPES LAUNCHED FROM VAFB AND NEAREST LOCATIONS OF PINNIPED HAULOUTS TO LAUNCH LOCATIONS—Continued

Rocket	Launch facility	Nearest pinniped haulout	Distance to haulout (km)
Delta IV	SLC–6	North Rocky Point	2.3
Falcon 9	SLC–4E	North Rocky Point	8.2
Minotaur	SLC–8	North Rocky Point	1.6
Minotaur/Taurus	LF–576E	North Spur Road	0.8
Future launch programs: [2]			
Vector	SLC–8	North Rocky Point	1.6
Firefly	SLC–2	Purisima Point	2.3
New Glenn	TBD	TBD	TBD
Vulcan	SLC–3E	North Rocky Point	9.9
TBD	TP–01	Purisima Point	7.6

[1] The final launch of the Delta II rocket occurred in September 2018. However a new corporate entity has proposed to reutilize SLC–2W.
[2] All future launch program specifications should be considered notional and subject to change.

As described above, launch facilities at VAFB support launch programs for rockets including the Atlas V, Delta II, Delta IV, Falcon 9, Minotaur, and Taurus rockets. A detailed description of these vehicle types was provided in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and thus are not repeated here. No changes have been made to the space vehicle types described therein.

SpaceX Falcon 9 First Stage Recovery Activities

The Falcon 9 is a two-stage rocket designed and manufactured by SpaceX for transport of satellites into orbit. The First Stage of the Falcon 9 is designed to be reusable, while the second stage is not reusable. The action includes up to twelve Falcon 9 First Stage recoveries per year. The Falcon 9 First Stage is recovered via an in-air boost-back maneuver and landings at VAFB or at a contingency landing location offshore. During the First Stage's descent, a sonic boom would be generated when the First Stage reaches a rate of travel that exceeds the speed of sound. Sonic booms would occur in proximity to the landing area with the highest sound levels generated from sonic booms generally focused in the direction of the landing area, and may be heard during or briefly after the boost-back and landing, depending on the location of the receiver. The boost-back and landing of the Falcon 9 First Stage may also result in a sonic boom impacting the NCI or VAFB (USAF, 2018). A detailed description of the Falcon 9 First Stage and the related boost-back and landing procedure was provided in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and thus is not repeated here. No changes have been made to the Falcon 9 First Stage or its boost-back and landing procedure described therein. These sonic booms may result in the take of marine mammals. This is discussed further in the *Estimated Take* section below. The Falcon 9 First Stage is the only rocket type that may be recovered via boost-back and landing as part of the planned activities.

Missile Launch Activities

A variety of small missiles are launched from various facilities on north VAFB, including Minuteman III, an ICBM which is launched from underground silos. In addition, several types of interceptor and target vehicles are launched for the Missile Defense Agency (MDA). The MDA develops various systems and elements, including the Ballistic Missile Defense System (BMDS). USAF anticipates no more than 15 missile launches would occur in any year between 2019 through 2024. Take of marine mammals at VAFB from rocket launches may occur as a result of the USAF's activities. The trajectories of all missile launches are nearly due westward; thus, they do not cause sonic boom impacts on the NCI. Therefore take of marine mammals on the NCI from missile launches is not an expected outcome of the specified activities. A detailed description of missile launch activities was provided in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and is not repeated here. No changes have been made to missile launch activities described therein.

Aircraft Operations

The VAFB airfield, located on north VAFB, supports various aircraft operations. Aircraft operations include tower operations, such as take-offs and landings (training operations), and range operations such as overflights and flight tests. Over the past five years, an average of slightly more than 600 flights has occurred each year. Fixed-wing aircraft use VAFB for various purposes, including delivering rocket or missile components, high-altitude launches of space vehicles, and emergency landings. Helicopter operations also occur at VAFB, but the number of helicopter operations at VAFB has decreased considerably since 2008 when the deactivation of the VAFB helicopter squadron occurred. Take of hauled out pinnipeds from fixed-wing and helicopter operations are not anticipated as flight paths are required to avoid haulouts when possible and pinnipeds that haulout at VAFB are acclimatized to aircraft and helicopter overflights. A detailed description of fixed-wing and helicopter activities was provided in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and is not repeated here. No changes have been made to fixed-wing and helicopter activities described therein.

UAS operations at VAFB represent a relatively new activity but may increase over the next five years. UAS operations may include either rotary or fixed wing aircraft. These are typically divided into as many as six classes which graduate in size from class 0 (which are often smaller than 5 inches in diameter and always weigh less than one pound) to Class 5 (which can be as large as a small piloted aircraft) (Table 4). UAS classes 0, 1, 2 and 3 can be used in almost any location, while classes 4 and 5 typically require a runway and, for that reason, would only be operated from the VAFB airfield.

TABLE 4—CLASSES OF UNMANNED AERIAL SYSTEMS

Class	Weight (pounds)	Minimum dimension	Maximum dimension	Typical operating altitude (feet)	Typical airspeed (knots)
0	<1	"large insect"	50 cm	any	any.
1	1–20	>50 cm	2 meters	<1,200	<100.
2	21–55	>2 m	10 meters	<3,500	<250.
3	<1,320	>10 meters	n/a	<18,000	<250.
4	>1,320	>10 meters	n/a	<18,000	Any.
5	>1,320	>10 meters	n/a	<18,000	Any.

Because UAS overflights represent a new activity at VAFB, UAS flight paths may be lower, and pinnipeds are not acclimatized to stimuli associated with UAS. Take of hauled out pinnipeds may occur as a result of visual or auditory stimuli from UAS in limited instances where the aircraft operate at low altitudes near pinniped haulouts. While harassment of hauled out pinnipeds from Class 0, 1 or 2 UAS is unlikely to occur at altitudes of 200 feet and above (Erbe *et al.,* 2017; Pomeroy *et al.,* 2015; Sweeney *et al.,* 2016; Sweeney and Gelatt, 2017), information on pinniped responses to larger UASs is not widely available. However, based on the specifications of Class 3, 4 and 5 UASs (Table 4), the likelihood of harassment resulting from overflights by UASs of that size would likely depend on several factors including noise signature and means of propulsion (*i.e.,* rocket propelled or engine propelled). Except for take-off and landing actions, a minimum altitude of 300 feet will be maintained for Class 0–2 UAS over all known marine mammal haulouts when marine mammals are present. Class 3 UAS will maintain a minimum altitude of 500 feet, except at take-off and landing. No Class 4 or 5 UAS will be flown below 1,000 feet over haulouts. The USAF anticipates that take of marine mammals from UAS operations would be minimal. However, to be conservative, the USAF has requested authorization for incidental take as a result of UAS operations.

Comments and Responses

We published a Notice of Proposed Rulemaking in the **Federal Register** on January 24, 2019 (84 FR 341). During the 30-day comment period, we received a comment letter from the Marine Mammal Commission (Commission) and comments from the general public. The comments and our responses are described below. For full detail of the comments and recommendations, please see the comment letters, which are available online at: *www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-military-readiness-activities.*

Comment: The Commission recommended that NMFS require the USAF to use time-lapse cameras and video-recording devices that have night-vision capabilities to document responses of pinnipeds to nighttime launches and recoveries.

Response: The USAF uses marine mammal observers on the NCI to observe and document pinniped responses to the USAF's activities. On VAFB, observers are not able to be physically present to document pinniped responses during launch activities due to safety concerns. NMFS has included a monitoring requirement that the USAF use camera and video recorders with night-vision capabilities on VAFB to observe and document pinniped responses when feasible. However, there are numerous practicability concerns that preclude NMFS from requiring USAF to use this particular type of equipment in all circumstances. These practicability concerns include: The distance from observation point to pinniped haulout locations on VAFB often exceeds 100 m, rendering video and still cameras not useful; infrared cameras are not viable at distances greater than approximately 10 m; and pinnipeds will often move from one portion of the beach to another after the camera has been set up, rendering the camera or video useless in recording pinniped behavior. In addition, there are numerous weather-related factors that can render video and still cameras useless, such as condensation inside the camera housing or precipitation outside the camera housing, fog and rain which can obscure the imagery, and wind which can knock over tripods. Finally, we are reluctant to include a monitoring requirement that may have the unintended result of requiring marine mammal observers to approach pinnipeds close enough to set up a camera such that the observation itself results in marine mammal harassment.

Comment: A member of the public expressed concern that the USAF's activity could disrupt breeding, promote abandonment of pups, cause exhaustion from abandoning haulouts, and possibly cause hearing loss amongst seals, and commented that the potential effects on Guadalupe fur seals warrant an environmental assessment (EA).

Response: As described in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019), over 20 years of monitoring data support our determination that no disruption of breeding, pupping, abandonment of haulouts, or hearing loss among any species is expected. We do not expect, nor do we authorize, Level A harassment, serious injury or mortality as a result of the USAF's activities. Regarding the level of NEPA analysis warranted for our action, NMFS' action is limited to the authorization of take incidental to the USAF's activities. We have determined that this action is consistent with categories of activities identified in Categorical Exclusion B4 of the Companion Manual for NAO 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the action qualifies to be categorically excluded from further NEPA review.

Comment: A member of the general public commented that measures such as studying migration routes and adjusting scheduling for low-population seasons, or relocating VAFB operations further inland, should be taken before considering the take of marine mammals.

Response: As described in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and below, the USAF's activities occur year-round, but we have included mitigation measures to avoid potential impacts, when feasible, during times when pups are more likely to be present (see the Mitigation section, below). NMFS does not have jurisdiction over the location of launch or landing facilities at VAFB.

Comment: A member of the general public commented that VAFB and the surrounding areas, which provides

unoccupied and largely undisturbed habitat for pinnipeds, could become unsuitable to threatened and endangered marine mammals because of significant interference from sonic booms and other disturbances from the activities of VAFB and recommended that NMFS should prepare an EA or EIS.

Response: As described in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and below, over 20 years of monitoring data support our determination that marine mammal habitat is not expected to be negatively impacted by the USAF's activities. The USAF has reported increasing numbers of several species on VAFB, including California sea lions and northern elephant seals which began pupping on VAFB for the first time in 2017. The fact that pinniped numbers are increasing on VAFB indicates that these species are not abandoning haulouts and rookeries and that haulout and rookery habitat is not becoming unsuitable for these species as a result of the USAF's activities, which have been ongoing for over 30 years. With regard to the request for an EA or EIS, as described in our response to the previous comment, NMFS' action is limited to the authorization of take incidental to the USAF's activities. We have determined that this action is consistent with categories of activities identified in Categorical Exclusion B4 of the Companion Manual for NAO 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion.

Comment: A member of the public commented that abundance of marine mammals in the area are already declining and this authorization would continue that trend.

Response: As described in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and below, the USAF has reported increasing numbers of several species on VAFB, including California sea lions and northern elephant seals which began pupping on VAFB for the first time in 2017. The authorization of incidental take to the USAF is not expected to result in Level A harassment, serious injury or mortality and no adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects) are anticipated for any marine mammal species as a result of the take authorized.

Comment: A member of the general public expressed concern about the impacts of military testing on animals and humans in general and expressed concern that not all concerned citizens are made aware of the availability of the Notice of Proposed Rule for public comment.

Response: This rule only applies to the USAF's planned activities at VAFB and not other military testing activities. As described in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and below, the authorization of incidental take to the USAF is not expected to result in Level A harassment, serious injury, or mortality and no adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects) are anticipated for any marine mammal species as a result of the take authorized. NMFS has no jurisdiction on potential human health effects from military testing. We notified the public of the availability of our Notice of Proposed Rulemaking as required by law via the NMFS website (*www.fisheries.noaa.gov*), via the **Federal Register** (84 FR 341; January 24, 2019) and online at *www.regulations.gov.*

Description of Marine Mammals in the Area of Specified Activities

There are six marine mammal species with expected occurrence in the project area (including at VAFB, on the NCI, and in the waters surrounding VAFB and the NCI) that are expected to be affected by the specified activities. These are listed in Table 5. This section provides summary information regarding local occurrence of these species. We have reviewed USAF's species descriptions, including life history information, for accuracy and completeness and refer the reader to Section 3 of the USAF's application, as well as to NMFS' Stock Assessment Reports (SAR; *https://www.fisheries.noaa.gov/topic/population-assessments#marine-mammals*), rather than reprinting all of the information here. Additional general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species*). Information describing two designated unusual mortality events for California sea lions and Guadalupe fur seals has been added to this section since the proposed rule was published. However, as described in the Negligible Impact Analysis and Determination section below, the information does not change our analysis or final determinations.

There are an additional 28 species of cetaceans with expected or possible occurrence in the project area. However, we have determined that the only potential stressors associated with the specified activities that could result in take of marine mammals (*i.e.,* launch noise, sonic booms and aircraft operations) only have the potential to result in harassment of marine mammals that are hauled out of the water. Therefore, we have concluded that the likelihood of the planned activities resulting in the harassment of any cetacean to be so low as to be discountable. As we have concluded that the likelihood of any cetacean being taken incidentally as a result of USAF's planned activities to be so low as to be discountable, cetaceans are not considered further in this rule.

Table 5 lists all species with expected potential for occurrence in the vicinity of the project during the project timeframe that are likely to be affected by the specified activities, and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2018). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Pacific and Alaska SARs (*e.g.,* Carretta *et al.,* 2018; Muto *et al.,* 2018). All values presented in Table 5 are the most recent available at the time of publication and are available in the 2017 SARs (Carretta *et al.,* 2018; Muto *et al.,* 2018) and draft 2018 SARs (available online at: *https://www.fisheries.noaa.gov/topic/population-assessments#marine-mammals*).

TABLE 5—MARINE MAMMAL SPECIES POTENTIALLY PRESENT IN THE PROJECT AREA THAT MAY BE AFFECTED BY THE USAF'S ACTIVITIES

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Order Carnivora—Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions):						
California sea lion	*Zalophus californianus*	U.S	- ; N	257,606 (n/a, 233,515, 2014)	14,011	≥197
Northern fur seal	*Callorhinus ursinus*	California	- ; N	14,050 (n/a, 7,524, 2013)	451	≥0.8
Steller sea lion	*Eumetopias jubatus*	Eastern U.S	- ; N	41,638 (n/a, 41,638, 2015)	2,498	108
Guadalupe fur seal	*Arctocephalus philippii townsendi.*	Mexico	T/D ; Y	20,000 (n/a, 15,830, 2010)	542	≥3.2
Family Phocidae (earless seals):						
Pacific harbor seal	*Phoca vitulina richardii*	California	- ; N	30,968 (n/a, 27,348, 2012)	1,641	30
Northern elephant seal	*Mirounga angustirostris*	California breeding	- ; N	179,000 (n/a, 81,368, 2010)	4,882	4

[1] Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[2] NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/topic/population-assessments#marine-mammals.* CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

[3] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range.

All species that could potentially occur in the project area and that may be affected by the planned activities are included in Table 5. All six species (with six managed stocks) temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur.

Beginning in January 2013, elevated strandings of California sea lion pups were observed in southern California, with live sea lion strandings nearly three times higher than the historical average. Findings to date indicate that a likely contributor to the large number of stranded, malnourished pups was a change in the availability of sea lion prey for nursing mothers, especially sardines. The Working Group on Marine Mammal Unusual Mortality Events determined that the ongoing stranding event meets the criteria for an Unusual Mortality Event (UME) and declared California sea lion strandings from 2013 through 2017 to be one continuous UME. The causes and mechanisms of this event remain under investigation. For more information on the UME, see: *https://www.fisheries.noaa.gov/national/marine-life-distress/2013-2017-california-sea-lion-unusual-mortality-event-california.*

Increased strandings of Guadalupe fur seals started occurring along the entire coast of California in early 2015. This event was declared a marine mammal UME. Strandings in 2015 were eight times higher than the historical average, peaking from April through June of that year, and have since declined but continue at a rate that is above average. Most stranded individuals have been weaned pups and juveniles (1–2 years old). For more information on this ongoing UME, see: *https://www.fisheries.noaa.gov/national/marine-life-distress/2015-2018-guadalupe-fur-seal-unusual-mortality-event-california.*

Additional detail regarding the affected species and stocks, including local occurrence data, was provided in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019) and is not repeated here.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. The functional groups and the associated frequencies are indicated below (note that these frequency ranges correspond to the range for the composite group, with the entire range not necessarily reflecting the capabilities of every species within that group):

- Pinnipeds in water; Phocidae (true seals): Generalized hearing is estimated to occur between approximately 50 Hz to 86 kHz; and
- Pinnipeds in water; Otariidae (eared seals): Generalized hearing is estimated to occur between 60 Hz and 39 kHz.

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.,* 2006; Kastelein *et al.,* 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Six species of marine mammal (four otariid and two phocid species) have the reasonable potential to co-occur with the planned activities. Please refer to Table 5.

TABLE 3—RELEVANT MARINE MAMMAL FUNCTIONAL HEARING GROUPS AND THEIR GENERALIZED HEARING RANGES

Hearing group	Generalized hearing range *
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz.
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz.

* Represents the generalized hearing range for the entire group as a composite (*i.e.,* all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.,* 2007) and PW pinniped (approximation).

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

We provided discussion of the potential effects of the specified activity on marine mammals and their habitat in our Notice of Proposed Rulemaking (84 FR 341; January 24, 2019). Therefore, we do not reprint the information here but refer the reader to that document. That document included a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat, as well as general background information on sound. The *Estimated Take* section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The *Negligible Impact Analysis and Determination* section considers the content of this section and the material it references, the *Estimated Take* section, and the *Mitigation* section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this rule, which will inform both NMFS' consideration of ''small numbers'' and the negligible impact determination. We note that the take numbers have been revised slightly since the proposed rule, as indicated within Table 11 and described immediately above it. These changes do not represent significant increases and have not resulted in any changes to our findings with respect to negligible impacts or small numbers.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines ''harassment'' as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) 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 (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to sounds associated with the planned activities. Based on the nature of the activity, Level A harassment, serious injury, and mortality are neither anticipated nor authorized. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) Acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note that while these basic factors can contribute to an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment). Thresholds have also been developed identifying the received level of in-air sound above which exposed pinnipeds would likely be behaviorally harassed.

Level B Harassment for non-explosive sources—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.,* frequency, predictability, duty cycle), the environment (*e.g.,* bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. For in-air sounds, NMFS predicts that harbor seals exposed above received levels of 90 dB re 20 μPa (rms) will be behaviorally harassed, and other pinnipeds will be harassed when exposed above 100 dB re 20 μPa (rms) (Table 6).

TABLE 6—NMFS CRITERIA FOR PINNIPED HARASSMENT FROM EXPOSURE TO AIRBORNE SOUND

Species	Level B harassment threshold
Harbor seals	90 dB re 20 μPa.
All other pinniped species	100 dB re 20 μPa.

In the absence of site-specific data, NMFS typically relies on the acoustic criteria shown in Table 6 to estimate take as a result of exposure to airborne sound. However, in this case, more than 20 years of monitoring data exists on pinniped responses to the stimuli associated with the planned activities in the particular geographic area of the

planned activities. Therefore, we consider these data to be the best available information in regard to estimating take of pinnipeds to stimuli associated with the planned activities. These data suggest that pinniped responses to the stimuli associated with the planned activities are dependent on species and intensity of the stimuli.

The data recorded by USAF at VAFB and the NCI over the past 25 years has shown that pinniped reactions to sonic booms and launch noise vary depending on the species, the intensity of the stimulus, and the location (*i.e.,* on VAFB or the NCI). At the NCI, harbor seals have tended to react more strongly to sonic booms than most other species, with California sea lions also appearing to be somewhat more sensitive to sonic booms than some other pinniped species (Table 7). Northern fur seals generally show little or no reaction, and northern elephant seals generally exhibit No reaction at all, except perhaps a heads-up response or some stirring, especially if sea lions in the same area mingled with the elephant seals react strongly to the boom (Table 7). No data is available on Steller sea lion or Guadalupe fur seal responses to sonic booms.

There is less data available on pinniped responses at VAFB during launches, due to limitations on real-time monitoring associated with human safety concerns, but the available data indicates that all harbor seals and California sea lions have tended to flush to the water at VAFB during launches while 10 percent or less of northern elephant seals have flushed to the water during launch. Monitoring data also show that reactions to sonic booms tend to be insignificant below 1.0 psf and that, even above 1.0 psf, only a portion of the animals present have reacted to the sonic boom depending on the species. Lower energy sonic booms (<1.0 psf) have typically resulted in little to no behavioral responses among pinnipeds at VAFB, including head raising and briefly alerting but returning to normal behavior shortly after the stimulus (Table 7). More powerful sonic booms have sometimes resulted in some species of pinnipeds flushing from haulouts.

TABLE 7—OBSERVED PINNIPED RESPONSES TO SONIC BOOMS AT SAN MIGUEL ISLAND, BASED ON USAF LAUNCH MONITORING REPORTS

Launch event	Sonic boom level (psf)	Monitoring location	Species observed and responses
Athena II (April 27, 1999)	1.0	Adams Cove	California sea lion: 866 alerted; 232 (27%) flushed into water. Northern elephant seal: Alerted but did not flush. Northern fur seal: Alerted but did not flush.
Athena II (September 24, 1999).	0.95	Point Bennett	California sea lion: 12 of 600 (2%) flushed into water. Northern elephant seal: Alerted but did not flush. Northern fur seal: Alerted but did not flush.
Delta II 20 (November 20, 2000).	0.4	Point Bennett	California sea lion: 60 pups flushed into water; No reaction from focal group. Northern elephant seal: No reaction.
Atlas II (September 8, 2001)	0.75	Cardwell Point	California sea lion (Group 1): No reaction (1,200 animals). California sea lion (Group 2): No reaction (247 animals). Northern elephant seal: No reaction. Harbor seal: 2 of 4 flushed into water.
Delta II (February 11, 2002)	0.64	Point Bennett	California sea lions and northern fur seals: No reaction among 485 animals in 3 groups. Northern elephant seal: No reaction among 424 animals in 2 groups.
Atlas II (December 2, 2003)	0.88	Point Bennett	California sea lion: Approximately 40% alerted; several flushed to water (number unknown—night launch). Northern elephant seal: No reaction.
Delta II (July 15, 2004)	1.34	Adams Cove	California sea lion: 10% alerted (number unknown—night launch).
Atlas V (March 13, 2008)	1.24	Cardwell Point	Northern elephant seal: No reaction (109 pups).
Delta II (May 5, 2009)	0.76	West of Judith Rock	California sea lion: No reaction (784 animals).
Atlas V (April 14, 2011)	1.01	Cuyler Harbor	Northern elephant seal: No reaction (445 animals).
Atlas V (September 13, 2012)	2.10	Cardwell Point	California sea lion: No reaction (460 animals). Northern elephant seal: No reaction (68 animals). Harbor seal: 20 of 36 (56%) flushed into water.
Atlas V (April 3, 2014)	0.74	Cardwell Point	Harbor seal: 1 of ~25 flushed into water; no reaction from others.
Atlas V (December 12, 2014)	1.18	Point Bennett	Calif. sea lion: 5 of ~225 alerted; none flushed.
Atlas V (October 8, 2015)	1.96	East Adams Cove of Point Bennett.	Calif. sea lion: ~60% of CSL alerted and raised their heads. None flushed. Northern elephant seal: No visible response to sonic boom, none flushed. Northern fur seal: 60% alerted and raised their heads. None flushed.
Atlas V (March 1, 2017)	[a] ~0.8	Cuyler Harbor on San Miguel Island.	Northern elephant seal: 13 of 235 (6%) alerted; none flushed.

[a] Peak sonic boom at the monitoring site was ~2.2 psf, but was in infrasonic range—not audible to pinnipeds. Within the audible frequency spectrum, boom at monitoring site estimated at ~0.8 psf.

Ensonified Area

The USAF is not able to predict the exact areas that will be impacted by noise associated with the specified activities, including sonic booms, launch noise and UAS-related noise. Numerous launch locations are utilized on VAFB, each of which results in different parts of the base (and different haulouts) being ensonified by noise during a launch. In addition, rocket launches by private entities on VAFB are expected to increase over the next 5 years and the USAF is not able to predict the trajectories of these future rocket launch programs. Therefore, for the purposes of estimating take, we conservatively estimate that all haulouts on VAFB will be ensonified by launch noise during a rocket or missile launch.

On the NCI, sonic booms resulting from launches sometimes impact San Miguel Island (SMI) and occasionally Santa Rosa Island (SRI). Santa Cruz and Anacapa Islands are not expected to be impacted by sonic booms in excess of 1.0 psf (USAF, 2018), therefore only marine mammals on San Miguel and Santa Rosa Islands may potentially be taken by sonic booms. We estimate that, when a sonic boom impacts the NCI, 25 percent of pinniped haulouts on SMI and SRI will be ensonified by a sonic boom above 1.0 psf. We consider this to be a conservative assumption based on sonic boom models which show that areas predicted to be impacted by a sonic boom with peak overpressures of 1.0 psf and above are typically limited to limited areas of an island, and sonic boom model results tend to overestimate actual recorded sonic booms on the NCI (pers. comm. R. Evans, USAF, to J. Carduner, NMFS OPR).

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. Data collected from marine mammal surveys, including monthly marine mammal surveys conducted by the USAF at VAFB, as well as data collected by NMFS at NCI, represent the best available information on the occurrence of the six pinniped species expected to occur in the project area. Monthly marine mammal surveys at VAFB are conducted to document the abundance, distribution and status of pinnipeds at VAFB. When possible, these surveys are timed to coincide with the lowest afternoon tides of each month, when the greatest numbers of animals are usually hauled out. Data gathered during monthly surveys include: Species, number, general behavior, presence of pups, age class, gender, reactions to natural or human-caused disturbances, and environmental conditions. The quality and amount of information available on pinnipeds in the project area varies depending on species; some species are surveyed regularly at VAFB and the NCI (*e.g.,* California sea lion), while other species are surveyed less frequently (*e.g.,* northern fur seals and Guadalupe fur seals). However, the best available data was used to estimate take numbers. Take estimates for all species are shown in Table 13.

Harbor Seal—Pacific harbor seals are the most common marine mammal inhabiting VAFB, congregating on several rocky haulout sites along the VAFB coastline. They also haul out, breed, and pup on isolated beaches and in coves throughout the coasts of the NCI. Data from VAFB monthly surveys for the three most recent years for which data is available (2015, 2016 and 2017) shows the mean number of harbor seals recorded monthly on VAFB during those years was 255 (CEMML 2016, 2017, 2018). The USAF estimated the number of harbor seals that may be hauled out at VAFB during all months of the year from 2019–2024 to be 300. We think this is a reasonable estimate given the monthly survey data as described above and the fluctuations in harbor seal numbers observed on VAFB. Therefore, take of harbor seals at VAFB was estimated based on a conservative estimate of 300 harbor seals hauled out during any month on VAFB. Take of harbor seals at the NCI was estimated based on the mean count totals from survey data collected on SMI, SRI, and Richardson Rock (located 10 km northwest of SMI), from 2011 to 2015 by the NMFS SWFSC (Lowry et al., 2017).

California sea lion—California sea lions are common offshore of VAFB and haul out on rocks and beaches along the coastline of VAFB, where their numbers have been increasing in recent years, though pupping rarely occurs on the VAFB coastline. They haul out in large numbers on the NCI and rookeries exist on SMI. The data from monthly marine mammal surveys at VAFB from 2015, 2016 and 2017 shows a mean of 11 California sea lions recorded at VAFB (CEMML 2016, 2017, 2018). However, numbers of California sea lions appear to be increasing at VAFB, with a mean of 21 recorded during surveys in 2017, including 68 recorded in September 2017 (CEMML, 2018). The USAF estimated in their application that up to 125 California sea lions may be hauled out at VAFB during any month of the year. However, based on the monthly survey data, for the purposes of estimating take, we conservatively estimate that up to 75 California sea lions may be hauled out during any month of the year. Take of California sea lions at the NCI was estimated based on the mean monthly count totals from survey data collected on SMI, SRI, and Richardson Rock from 2011 to 2015 by the NMFS SWFSC (Lowry et al., 2017).

Steller Sea Lion—Steller sea lions occur in very small numbers at VAFB and on SMI. They do not currently have rookeries at VAFB or the NCI. Data from monthly marine mammal surveys at VAFB from 2015, 2016 and 2017 show a mean of 2.4 Steller sea lions recorded at VAFB (CEMML 2016, 2017, 2018). The USAF estimated the number of Steller sea lions that may be hauled out at VAFB during all months of the year from 2019–2024 to be 3. We consider this a reasonable estimate based on monthly survey data. Steller sea lions haul out in very small numbers on SMI, and comprehensive survey data for Steller sea lions in the NCI is not available. Take of Steller sea lions on the NCI was estimated based on subject matter expert input indicating that a maximum of 4 Steller sea lions have been observed on SMI at any time (pers. comm., S. Melin, NMFS Marine Mammal Laboratory (MML), to J. Carduner, NMFS OPR).

Northern elephant seal—Northern elephant seals haul out sporadically on rocks and beaches along the coastline of VAFB and at Point Conception and have rookeries on SMI and SRI and at one location at VAFB. Data from monthly marine mammal surveys at VAFB from 2015, 2016 and 2017 show a mean of 39.4 northern elephant seals recorded at VAFB (CEMML 2016, 2017, 2018). The USAF estimated the number of northern elephant seals that may be hauled out at VAFB during all months of the year from 2019–2024 to be 60. However, a mean of 76.3 northern elephant seals was recorded at VAFB in 2017 (CEMML, 2018), suggesting northern elephant seal numbers at VAFB may be increasing. For the purposes of estimating take on VAFB, we therefore conservatively estimate that the number of northern elephant seals that may be hauled out at VAFB during all months of the year from 2019–2024 to be 100. Take of northern elephant seals at the NCI was estimated based on the mean count totals from survey data collected on SMI, SRI, and Richardson Rock from 2011 to 2015 by the NMFS SWFSC (Lowry et al., 2017).

Northern fur seal—Northern fur seals have rookeries on SMI, the only island in the NCI on which they have been observed. No haulouts or rookeries exist for northern fur seals on the mainland coast, including VAFB, therefore no take

of northern fur seals is expected at VAFB. Comprehensive survey data for northern fur seals in the project area is not available. Estimated take of northern fur seals was therefore based on subject matter expert input which indicated that from June through August, the population at SMI is at its maximum, with an estimated 13,384 animals at SMI (Carretta et al., 2015), with approximately 7,000 present from September through November, and approximately 125 present from November through May (pers. comm., S. Melin, NMFS Marine Mammal Laboratory (MML) to J. Carduner, NMFS OPR).

Guadalupe fur seal—There are estimated to be approximately 20–25 individual Guadalupe fur seals that have fidelity to San Miguel Island (pers. comm. S. Melin, NMFS MML, to J. Carduner, NMFS OPR). No haulouts or rookeries exist for Guadalupe fur seals on the mainland coast, including VAFB, therefore no take of Guadalupe fur seals is expected at VAFB. Survey data on Guadalupe fur seals in the project area is not available. Estimated take of Guadalupe fur seals was based on the maximum number of Guadalupe fur seals observed at any time on SMI (13) (pers. comm., J. LaBonte, ManTech SRS Technologies Inc., to J. Carduner, NMFS, Feb. 29, 2016); it was therefore conservatively assumed that 13 Guadalupe fur seals may be hauled out the NCI at any given time.

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

NMFS currently uses a three-tiered scale to determine whether the response of a pinniped on land to stimuli rises to the level of behavioral harassment under the MMPA (Table 8). NMFS considers the behaviors that meet the definitions of both movements and flushes in Table 8 to qualify as behavioral harassment. Thus a pinniped on land is considered by NMFS to have been behaviorally harassed if it moves greater than two times its body length, or if the animal is already moving and changes direction and/or speed, or if the animal flushes from land into the water. Animals that become alert without such movements are not considered harassed. See Table 8 for a summary of the pinniped disturbance scale.

TABLE 8—LEVELS OF PINNIPED BEHAVIORAL DISTURBANCE ON LAND

Level	Type of response	Definition	Characterized as behavioral harassment by NMFS
1	Alert	Seal head orientation or brief movement in response to disturbance, which may include turning head towards the disturbance, craning head and neck while holding the body rigid in a u-shaped position, changing from a lying to a sitting position, or brief movement of less than twice the animal's body length.	No.
2	Movement	Movements in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degrees.	Yes.
3	Flush	All retreats (flushes) to the water	Yes.

Take estimates were calculated separately for each stock in each year the regulations are valid (from 2019–2024), on both VAFB and the NCI, based on the number of animals assumed hauled out at each location that are expected to be behaviorally harassed by the stimuli associated with the specified activities (*i.e.,* launch, sonic boom, or UAS). First, the number of hauled out animals per month was estimated at both VAFB and the NCI for each stock, based on survey data and subject matter expert input as described above. Then we estimated the number of hauled out animals per month that would be behaviorally harassed, by applying a correction factor to account for the likelihood that the animals would respond at a Level 2 or 3 response (Table 8). Those correction factors differ depending on the location (*i.e.,* VAFB or the NCI) and on the reactiveness of each species to the stimuli (Table 9), and are based on the best available information (in this case, several years of monitoring data on both VAFB and the NCI (Table 7)).

TABLE 9—PROPORTION OF EACH SPECIES ASSUMED TO BE HARASSED BY LAUNCH OR SONIC BOOM ON VAFB AND THE NCI

Species (stock)	Proportion of individuals assumed taken per sonic boom (NCI) (%)	Proportion of individuals assumed taken per launch (VAFB) (%)
Harbor seal (CA)	50	100
CA sea lion (U.S)	25	100
NES (CA breeding)	5	15
Steller Sea Lion (Eastern)	50	100
Northern fur seal (CA)	25	(n/a)
Guadalupe fur seal (Mexico)	50	(n/a)

At VAFB, we assume that all pinnipeds at all haulouts would be taken by Level B harassment by launch noise. This is a conservative assumption, as some haulouts are separated by several miles from launch locations, and presumably pinnipeds at haulouts further from the launch location would not react at the same rates as those located near the launch. For pinnipeds on the NCI, we conservatively assume that 25 percent of haulouts would be impacted by a sonic boom with a psf above 1.0, if such a sonic boom were to impact the NCI (not all launches result in sonic booms on the NCI). Thus, for pinnipeds on the NCI, an additional .25 correction factor was applied to the take estimate, to account for the fact that approximately 25 percent of haulouts on the NCI are expected to be impacted by a sonic boom with a psf above 1.0, if such a sonic boom were to impact the NCI. For launches on VAFB, we conservatively assume all pinnipeds will be exposed to launch noise. Take was calculated monthly, as abundance estimates for some species vary on VAFB and the NCI depending on season. The resulting numbers were then multiplied by the number of activities resulting in take (sonic booms or launches) estimated to occur in a month, and then summed to get total numbers of each stock estimated to be taken at each location per year.

Rocket launches from VAFB have the potential to result in the harassment of pinnipeds that are hauled out of the water as a result of exposure to sound from launch noise (on VAFB) or as a result of exposure to sound from sonic booms. Based on several years of monitoring data, harassment of marine mammals is unlikely to occur when the intensity of a sonic boom is below 1.0 psf (Table 7). The likelihood of a sonic boom with a measured psf above 1.0 impacting the NCI is dependent on the size of the rocket (*i.e.,* larger rockets are more likely to result in a sonic boom on the NCI than smaller rockets). The USAF estimated 33 percent of large rockets, 25 percent of medium sized rockets, and 10 percent of small sized rockets would result in sonic booms on the NCI (USAF, 2018).

The recovery of the Falcon 9 First Stage may also result in a sonic boom impacting the NCI or VAFB (USAF, 2018). However, not all Falcon 9 First Stage recoveries are expected to result in take of marine mammals. This is because some pinnipeds that respond to a launch of a Falcon 9 First Stage recovery by moving or flushing to the water (*i.e.,* being taken) would have also responded by moving or flushing to the water in reaction to the launch of the Falcon 9 rocket that would have occurred less than 10 minutes earlier (USAF, 2018). As we do not consider an individual marine mammal to be taken more than once within a 24 hour period, those animals would not be considered taken by the Falcon 9 recovery as they had already been taken by the launch less than 10 minutes earlier.

No takes of marine mammals from Falcon 9 First Stage recoveries are expected to occur at VAFB. For harbor seals, California sea lions and Steller sea lions at VAFB, we are assuming 100 percent of individuals hauled out will be harassed by the launch of the Falcon 9 rocket. Therefore, as we do not consider an individual marine mammal to be taken more than once within a 24 hour period, those animals would not be considered taken by the Falcon 9 recovery. For northern elephant seals, we do not expect any individuals will be harassed by a Falcon 9 First Stage recovery, beyond those that are harassed by the launch of the Falcon 9 less than 10 minutes earlier, given their documented lack of responsiveness (Table 7). Northern fur seals and Guadalupe fur seals are not expected to occur on VAFB.

On the NCI, Falcon 9 First Stage recoveries may result in takes of marine mammals above and beyond the takes that occur as a result of launches of the Falcon 9 rocket. It is possible that a sonic boom resulting from a Falcon 9 First Stage recovery may impact a different area on the NCI than the sonic boom from the launch of the rocket. When this occurs, we would assume different animals on the NCI could be taken as a result of the Falcon 9 recovery than those that were taken in a different location as a result of the sonic boom from the launch. USAF estimates that up to 12 Falcon 9 First Stage recoveries would occur per year. We conservatively estimate 33 percent (or one third) of Falcon 9 First Stage recoveries would result in a sonic boom on the NCI, thereby resulting in up to 4 sonic booms per year on the NCI, per year. This is a conservative estimate as the Falcon 9 is a medium size rocket and USAF estimates only 25 percent of medium sized rockets would result in a sonic boom. In addition, as of March 2019, no Falcon 9 First Stage recoveries have resulted in a sonic boom with a psf above 1.0 impacting the NCI. We conservatively assume 50 percent of the sonic booms resulting from the Falcon 9 First Stage recoveries would impact a different location on the NCI than the sonic boom resulting from the launch of the Falcon 9. Therefore, we conservatively estimate that two sonic booms from Falcon 9 First Stage recoveries would result in take of entirely new animals (above and beyond the takes that occurred on launch) on the NCI per year.

The estimated numbers of sonic booms impacting the NCI per year that may result in marine mammal takes from rocket launches and Falcon 9 First Stage recoveries is shown in Table 10. These numbers are based on the expected number of rocket launches (Table 1), the percentages of large, medium, and small rocket launches that would result in sonic booms on the NCI (*i.e.,* 33 percent, 25 percent, and 10 percent, respectively) (USAF, 2018), and the expected number of sonic booms resulting from Falcon 9 First Stage recoveries as described above.

TABLE 10—ESTIMATED SONIC BOOMS IMPACTING THE NCI ABOVE 1.0 psf PER YEAR EXPECTED TO RESULT IN TAKE OF MARINE MAMMALS

Year	Estimated sonic booms per year resulting from launches expected to result in take *	Estimated sonic booms per year resulting from Falcon 9 recoveries expected to result in take	Total sonic booms per year expected to result in take on the NCI
2019	5	2	7
2020	*7	2	9
2021	11	2	13
2022	14	2	16
2023	19	2	21

TABLE 10—ESTIMATED SONIC BOOMS IMPACTING THE NCI ABOVE 1.0 psf PER YEAR EXPECTED TO RESULT IN TAKE OF MARINE MAMMALS—Continued

Year	Estimated sonic booms per year resulting from launches expected to result in take *	Estimated sonic booms per year resulting from Falcon 9 recoveries expected to result in take	Total sonic booms per year expected to result in take on the NCI
2024 **	20	2	22

* All numbers are calculated based on the number of each rocket size expected to be launched in that year (Table 1) and the percentages of each rocket size expected to result in a sonic boom impacting the NCI based on USAF estimates. The calculated number of sonic booms in 2020 is 6.4. However we rounded up to 7 to be conservative.

** Not all sonic booms impacting the NCI in 2024 would occur during the period of validity for this rule.

For pinnipeds on VAFB, the number of launches estimated per year (Table 1) was used to estimate take in each year (*e.g.,* in 2023, the USAF expects 100 rocket and 15 missile launches will occur, thus 115 launches was used to estimate takes on VAFB in 2023). For pinnipeds on the NCI, the number of sonic booms expected to result in take (Table 10) was used to estimate take in each year (*e.g.,* in 2023, 21 sonic booms resulting in marine mammal take are expected to impact the NCI. 21 sonic booms was thus used to estimate takes on the NCI in 2023). Note that this rule is only valid for less than four months in the year 2024; thus the highest number of launches and sonic booms anticipated to occur in any single year during the period of validity for the rule would be in 2023, despite the fact that more launches are anticipated to occur in calendar year 2024.

It is possible that take of marine mammals could occur as a result of UASs, depending on noise signature and means of propulsion of the UAS. Monitoring data on pinniped responses to UAS-related stimuli is not available. The USAF estimated that 3,000 instances of harbor seal harassment and 500 instances of California sea lion harassment would occur at VAFB over the 5 years that the regulations are valid. We therefore divided those numbers (3,000 instances of harbor seal harassment and 500 instances of California sea lion harassment) by 5 to estimate the numbers of take per year and we authorize the numbers shown in Table 11.

We note that some take numbers authorized are higher than those we proposed authorizing in the Notice of Proposed Rulemaking (84 FR 341; January 24, 2019). This revision resulted from comments received from the Marine Mammal Commission, after the proposed rule was published, which recommended that we account for the potential for additional sonic booms that may occur on the NCI as a result of Falcon 9 landings. We agreed with the Commission and have included those additional sonic booms, as well as the additional takes that may occur as a result of those additional sonic booms, in the final rule. The Commission also noted following the publishing of the proposed rule that additional marine mammals may be taken at Point Conception (on the mainland south of VAFB), above and beyond those we assumed may be taken at VAFB; we agreed with the Commission and have authorized additional takes that may occur at Point Conception. These revisions in take numbers do not represent significant increases and have not resulted in any changes to our findings with respect to negligible impacts or small numbers for any species or stocks of marine mammals.

The numbers of incidental take expected to occur on VAFB as a result of the specified activities is shown in Table 11. The numbers of incidental take expected to occur on the NCI as a result of the specified activities is shown in Table 12. The total numbers of incidental take expected to occur and authorized are shown in Table 13. The take estimates presented in Tables 11, 12 and 13 are based on the best available information on marine mammal populations in the project location and responses among marine mammals to the stimuli associated with the planned activities and are considered conservative.

TABLE 11—ESTIMATED NUMBERS OF MARINE MAMMALS TAKEN AT VAFB PER YEAR

Species (stock)	2019		2020		2021		2022		2023		2024*	
	VAFB	UAS	VAFB	UAS	VAFB	UAS	VAFB	UAS	VAFB	UAS	VAFB	UAS
Harbor seal (CA)	18,192	600	21,192	600	25,692	600	33,192	600	40,692	600	15,567	600
California sea lion (U.S.)	3,300	100	4,050	100	5,175	100	7,050	100	8,925	100	2,644	100
Northern elephant seal (CA breeding)	800	.....	950	.....	1,175	.....	1,550	.....	1,925	.....	534	.....
Steller Sea Lion (Eastern)	120	.....	150	.....	195	.....	270	.....	345	.....	94	.....
Northern fur seal (CA)	0	.....	0	.....	0	.....	0	.....	0	.....	.....	.....
Guadalupe fur seal (Mexico)	0	.....	0	.....	0	.....	0	.....	0	.....	.....	.....

* Based on launches and UAS operations occurring during the period of validity for the rule (less than four months in 2024).

TABLE 12—ESTIMATED NUMBERS OF MARINE MAMMALS TAKEN ON THE NCI PER YEAR

Species (stock)	2019	2020	2021	2022	2023	2024 *
Harbor seal (CA)	732	941	1,360	1,674	2,197	575

TABLE 12—ESTIMATED NUMBERS OF MARINE MAMMALS TAKEN ON THE NCI PER YEAR—Continued

Species (stock)	2019	2020	2021	2022	2023	2024 *
California sea lion (U.S)	24,787	31,869	46,032	56,655	74,360	19,012
Northern elephant seal (CA breeding)	3,370	4,333	6,259	7,703	10,111	4,947
Steller Sea Lion (Eastern)	14	18	26	32	42	11
Northern fur seal (CA)	1,190	1,530	2,210	2,721	3,571	26
Guadalupe fur seal (Mexico)	46	59	85	104	137	36

* Based on sonic booms occurring during the period of validity for the rule (less than four months in 2024).

TABLE 13—TOTAL ESTIMATED NUMBERS OF MARINE MAMMALS, AND PERCENTAGE OF MARINE MAMMAL POPULATIONS, POTENTIALLY TAKEN AS A RESULT OF THE PLANNED ACTIVITIES

Species (stock)	2019	2020	2021	2022	2023	2024 [1]	Highest total take in a single year	Stock abundance	Percentage of stock taken [2]
Harbor seal (CA)	19,524	22,733	27,652	35,466	43,489	16,742	43,489	30,968	[3] 7.1
California sea lion (U.S)	28,187	36,019	51,307	63,805	83,385	21,756	83,385	257,606	32.4
Northern elephant seal (CA breeding)	4,170	5,283	7,434	9,253	12,036	5,481	12,036	179,000	6.7
Steller Sea Lion (Eastern)	134	168	221	302	387	105	387	52,139	0.7
Northern fur seal (CA)	1,190	1,530	2,210	2,721	3,571	26	3,571	14,050	25.4
Guadalupe fur seal (Mexico)	46	59	85	104	137	36	137	20,000	0.7

[1] Take numbers shown reflect only the takes that would occur during the period of validity for the rule (January through March only in 2024).
[2] Numbers of take authorized vary by year, therefore estimates shown for percentages of stock taken are based on takes authorized in 2023 which represent the highest take numbers authorized in any single year.
[3] Take totals shown for harbor seals reflect the number of instances of harassment authorized. However, for purposes of determining the percent of stock taken, we use the number of individual animals estimated to be taken (2,188 per year). See further explanation in the section on ''small numbers'' below.

Mitigation

Under Section 101(a)(5)(A) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (''least practicable adverse impact''). NMFS does not have a regulatory definition for ''least practicable adverse impact.'' However, NMFS's implementing regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, implementation of the measure(s) is expected to reduce impacts to marine mammal species or stocks, their habitat, and their availability for subsistence uses. This analysis will consider such things as the nature of the potential adverse impact (such as likelihood, scope, and range), the likelihood that the measure will be effective if implemented, and the likelihood of successful implementation.

(2) The practicability of the measure for applicant implementation. Practicability of implementation may consider such things as cost, impact on operations, personnel safety, and practicality of implementation.

Launch Mitigation

For missile and rocket launches, unless constrained by other factors (including, but not limited to, human safety, national security concerns or launch trajectories), launches will be scheduled to avoid the harbor seal pupping season (*e.g.,* March through June) when feasible. The USAF will also avoid, whenever possible, launches which are predicted to produce a sonic boom on the NCI during the harbor seal pupping season (*e.g.,* March through June).

Aircraft Operation Mitigation

All aircraft and helicopter flight paths must maintain a minimum distance of 1,000 ft (305 m) from recognized seal haulouts and rookeries (*e.g.,* Point Sal, Purisima Point, Rocky Point), except in emergencies or for real-time security incidents (*i.e.,* search-and-rescue, fire-fighting) and except for one area near the VAFB harbor over which aircraft may be flown to within 500 ft of a haulout. Except for take-off and landing actions, a minimum altitude of 300 feet must be maintained for Class 0–2 UAS over all known marine mammal haulouts when marine mammals are present. Class 3 UAS must maintain a minimum altitude of 500 feet, except at take-off and landing. A minimum altitude of 1,000 feet must be maintained over haulouts for Class 4 or 5 UAS.

We have carefully evaluated the USAF's planned mitigation measures and considered a range of other measures in the context of ensuring that we prescribed the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Based on our evaluation of these measures, we have determined that these mitigation measures provide the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses.

Monitoring and Reporting

In order to issue an LOA for an activity, Section 101(a)(5)(A) of the

MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of the authorized taking. NMFS's MMPA implementing regulations further describe the information that an applicant should provide when requesting an authorization (50 CFR 216.104(a)(13)), including the means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and the level of taking or impacts on populations of marine mammals.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of significant interactions with marine mammal species in action area (*e.g.,* animals that came close to the vessel, contacted the gear, or are otherwise rare or displaying unusual behavior).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) Action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

The USAF proposed a suite of monitoring measures on both VAFB and the NCI to document impacts of the specified activities on marine mammals. These monitoring measures are described below.

Monitoring at VAFB

Monitoring requirements for launches and landings at VAFB are dependent on the season and on the type of rocket or missile being launched (or landed in the case of the Falcon 9) (Table 14). Acoustic and biological monitoring at VAFB are required for all rocket types during the harbor seal and elephant seal pupping seasons at VAFB (*e.g.,* January 1 through July 31) to ensure that responses of pups to the specified activities are monitored and recorded. Acoustic and biological monitoring at VAFB are also required for all launches of any space launch vehicle types that have not been previously monitored three times, for any space launch vehicle types that have been previously monitored but for which the launch is predicted to be louder than previous launches of that rocket type (based on modeling by USAF) and, for new types of missiles, regardless of the time of year. Falcon 9 First Stage recovery activities (*i.e.,* boost-back and landings) with sonic booms that have a predicted psf of >1.0 on VAFB (based on sonic boom modeling performed prior to launch) must be monitored (including biological and acoustic monitoring) at VAFB, at any time of year.

TABLE 14—MONITORING MEASURES AT VAFB

Dates	Monitoring requirement on VAFB
Year round	• Launches of new space launch vehicles that have not been monitored 3 previous times. • Launches of existing space launch vehicles that are expected to be louder than previous launches of the same vehicle type. • Launches of new types of missiles that have not been monitored 3 previous times. • Falcon 9 First Stage recoveries with a predicted psf of >1.0 on VAFB.
Jan 1–July 31	• Launches and recoveries of all space launch vehicles.

Marine mammal monitoring at VAFB must be conducted by at least one NMFS-approved marine mammal observer trained in marine mammal science. Authorized marine mammal observers must have demonstrated proficiency in the identification of all age and sex classes of both common and uncommon pinniped species found at VAFB and must be knowledgeable of approved count methodology and have experience in observing pinniped behavior, especially in response to human disturbances.

Monitoring at the haulout site closest to the facility where the space launch vehicle will be launched must begin at least 72 hours prior to the launch and must continue until at least 48 hours after the launch. Monitoring for each launch must include multiple surveys during each day of monitoring (typically between 4–6 surveys per day) that will record: Species, number, general behavior, presence of pups, age class, gender, and reaction to launch noise, or to natural or other human-caused disturbances. Environmental conditions will also be recorded, including: Visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

For launches that occur during the elephant seal and harbor seal pupping seasons (January 1 through July 31) a follow-up survey must be conducted within two weeks of the launch to monitor for any potential adverse impacts to pups. For launches that occur during daylight, time-lapse photo and/or video recordings will occur during launch, as marine mammal observers are not allowed to be present within the launch area or at haulouts on VAFB at the time of launch for safety reasons. The USAF will also use night video monitoring to record responses of pinnipeds to launches that occur in darkness, when feasible. Night video monitoring may not be practical depending on whether technology is available that can reliably and remotely record responses of pinnipeds at remote haulout locations.

In addition to monitoring pinniped responses to the planned activities on VAFB, the USAF will continue to conduct monthly marine mammal surveys on VAFB. Monthly surveys have been carried out at VAFB for several years and have provided valuable data on abundance, habitat use, and seasonality of pinnipeds on VAFB. The goals of the monthly surveys include assessing haulout patterns and relative abundance over time, resulting in improved understanding of pinniped population trends at VAFB and better enabling assessment of potential long-term impacts of USAF operations. When possible, these surveys will be timed to coincide with the lowest afternoon tides

of each month, when the greatest numbers of animals are typically hauled out. During the monthly surveys, a NMFS-approved observer will record: Species, number, general behavior, presence of pups, age class, gender, and any reactions to natural or human-caused disturbances. Environmental conditions will also be recorded, including: Visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

Monitoring at the NCI

As described previously, sonic booms are the only stimuli associated with the planned activities that have the potential to result in harassment of marine mammals on the NCI. As pinniped responses on the NCI are dependent on the species and on the intensity of the sonic boom (Table 7), requirements for monitoring on the NCI vary by season and depend on the expected sonic boom level and the pupping seasons of the species expected to be present. Sonic boom modeling will be performed prior to all rocket launches and Falcon 9 recoveries. Acoustic and biological monitoring must be conducted on the NCI if the sonic boom model indicates that pressures from a sonic boom are expected to reach or exceed the levels shown in Table 15. These dates have been determined based on seasons when pups may be present for the species that are most responsive to sonic booms on the NCI based on several years of monitoring data (*e.g.,* harbor seals and California sea lions) (Table 7).

TABLE 15—MONITORING REQUIREMENTS ON THE NORTHERN CHANNEL ISLANDS BY SEASON

Sonic boom level (modeled)	Dates
>2 psf	March 1—July 31.
>3 psf	August 1—September 30.
>4 psf	October 1—February 28.

Marine mammal monitoring and acoustic monitoring will be conducted at the closest significant haulout site to the modeled sonic boom impact area. The monitoring site will be selected based upon the model results, with emphasis placed on selecting a location where the maximum sound pressures are predicted and where pinnipeds are expected to be present that are considered most sensitive in terms of responses to sonic booms. Monitoring the responses of mother-pup pairs of any species will also be prioritized. Given the large numbers of pinnipeds found on some island beaches, smaller focal groups will be monitored. Estimates of the numbers of pinnipeds present on the entire beach will be made and their reactions to the launch noise will be documented. Specialized acoustic instruments will also be used to record sonic booms at the marine mammal monitoring location.

Monitoring must be conducted by at least one NMFS-approved marine mammal observer, trained in marine mammal science. Monitors must be deployed to the monitoring location before, during and after the launch, with monitoring commencing at least 72 hours prior to the launch, occurring during the launch and continuing until 48 hours after the launch (unless no sonic boom is detected by the monitors during the launch and/or by the acoustic recording equipment, at which time monitoring would be discontinued). If the launch occurs in darkness, night-vision equipment will be used, when feasible. The USAF will also conduct video monitoring, including the use of night video monitoring, when feasible (video monitoring is not always effective due to conditions such as fog, glare, and a lack of animals within view from a single observation point). During the pupping season of any species potentially affected by a sonic boom, a follow-up survey must occur within two weeks of the launch to assess any potential adverse effects on pups.

Monitoring for each launch must include multiple surveys each day that record, when possible: Species, number, general behavior, presence of pups, age class, gender, and reaction to sonic booms or natural or human-caused disturbances. Remarks will be recorded, such as the nature and cause of any natural or human-related disturbance, including response to the sonic boom. When flushing behavior is observed, the amount of time it takes for hauled out animals to return to the beach will be recorded, if length of recording allows. Number of marine mammals hauled out will be recorded immediately prior to the launch, when feasible. Environmental conditions will also be recorded, including: Visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

The USAF has complied with the monitoring requirements under the previous LOAs issued from 2013 through 2018.

Reporting

Reporting requirements include launch monitoring reports submitted after each launch and annual reports describing all activities conducted at VAFB that are covered under this rule during each year.

A launch monitoring report containing the following information must be submitted to NMFS within 90 days after each rocket launch: Species present, number(s), general behavior, presence of pups, age class, gender, numbers of pinnipeds present on the haulout prior to commencement of the launch, numbers of pinnipeds that responded at a level that would be considered harassment (based on the description of responses in Table 8), length of time(s) pinnipeds remained off the haulout (for pinnipeds that flushed), and any behavioral responses by pinnipeds that were likely in response to the specified activities, including in response to launch noise or sonic boom. Launch reports must also include date(s) and time(s) of each launch (and sonic boom, if applicable); date(s) and location(s) of marine mammal monitoring, and environmental conditions including: Visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction. If a dead or seriously injured pinniped is found during post-launch monitoring, the incident must be reported to the NMFS Office of Protected Resources and the NMFS West Coast Regional Office immediately. Results of acoustic monitoring, including the recorded sound levels associated with the launch and/or sonic boom (if applicable) will also be included in the report.

An annual report must be submitted to NMFS by March 1 of each year that summarizes the data reported in all launch reports for the previous calendar year (as described above) including a summary of documented numbers of instances of harassment incidental to the specified activities. Annual reports must also describe any documented takings incidental to the specified activities not included in the launch reports (*e.g.,* takes incidental to UAS operations).

A final comprehensive report must be submitted to NMFS no later than 180 days prior to expiration of these regulations. This report must summarize the findings made in all previous reports and assess both the impacts at each of the major rookeries and an assessment of any cumulative impacts on marine mammals from the specified activities.

The USAF has complied with the reporting requirements under the previous LOAs issued from 2013 through 2018.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.,* intensity, duration), the context of any responses (*e.g.,* critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 5, given that the anticipated effects of this activity on these different marine mammal species are expected to be similar. Activities associated with the planned activities, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from airborne sounds of rocket launches and sonic booms and from sounds or visual stimuli associated with aircraft. Based on the best available information, including monitoring reports from similar activities that have been authorized by NMFS, behavioral responses will likely be limited to reactions such as alerting to the noise, with some animals possibly moving toward or entering the water, depending on the species and the intensity of the sonic boom or launch noise. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated instances of Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in fitness to those individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment would be reduced to the level of least practicable adverse impact through use of mitigation measures described above.

Harbor seals, northern elephant seals, and California sea lions breed and pup on VAFB, while harbor seals, northern elephant seals, California sea lions and northern fur seals breed and pup on the Channel Islands. San Miguel Island represents the most important pinniped rookery in the lower 48 states, and as such, extensive research has been conducted there for over two decades, by the USAF as well as by NOAA and independent researchers. From this research, as well as stock assessment reports, it is clear that VAFB operations (including associated sonic booms) have not had any significant impacts on the numbers of animals observed at San Miguel Island rookeries and haulouts and that rocket launches have not resulted in pup abandonment or mortality, nor the abandonment of breeding and pupping habitat (SAIC 2012). Likewise, for the instances of pinnipeds being behaviorally disturbed by sonic booms from rocket launches at VAFB, no evidence has been presented of abnormal behavior, injuries or mortalities, in pup abandonment or mortality, nor the abandonment of breeding and pupping habitat as a result of launch-related activities (SAIC 2013, CEMML 2018). As an example, a total of eight Delta II and Taurus space vehicle launches occurred from north VAFB, near the Spur Road and Purisima Point haulout sites, from February, 2009 through February, 2014. Of these eight launches, three occurred during the harbor seal pupping season. The continued use by harbor seals of the Spur Road and Purisima Point haulout sites indicates that it is unlikely that these rocket launches (and associated sonic booms) resulted in long-term disturbances of pinnipeds using the haulout sites.

Post-launch monitoring generally reveals a return to normal behavioral patterns within minutes up to an hour or two of each launch, regardless of species. The number of California sea lions documented on VAFB via monthly marine mammal surveys increased substantially in 2017 compared to the numbers recorded in previous years, and northern elephant seal pupping was documented on VAFB for the first time in 2017, providing further evidence that the USAF's activities, which are ongoing, have not negatively impacted annual rates of recruitment or survival. In addition, the USAF will avoid launches, when feasible, during pupping seasons for the species that have been shown through monitoring to be the most sensitive to the stimuli associated with the USAF's activities. Based on the best available information, including over two decades' worth of survey data, we do not expect the authorized activities to result in impacts to breeding or pupping, or to negatively impact annual rates of recruitment or survival, for any marine mammal species.

As described above, California sea lions and Guadalupe fur seals are currently experiencing UMEs. The California sea lion UME event has ended but the UME has not been officially closed by NMFS. Strandings of Guadalupe fur seals associated with the Guadalupe fur seals UME have steadily declined since 2015, but the UME remains active. As described above, the USAF's activities are expected to result in Level B harassment only, in the form of pinnipeds moving or possibly flushing to the water; no serious injury or mortality is expected or authorized and no pup abandonment or impacts to pupping habitat are expected to result. Based on the best available information, we do not expect the authorized activities will result in any adverse effects to pinnipeds that may be impacted by these UMEs, nor do we expect the authorized activities to compound the impacts of these UMEs in any way.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No injury, serious injury, or mortality are anticipated or authorized;
- The anticipated incidences of Level B harassment are expected to consist of, at worst, temporary modifications in behavior (*i.e.,* short distance movements and occasional flushing into the water with return to haulouts within approximately 90 minutes), which are not expected to adversely affect the fitness of any individuals;
- The USAF's activities are expected to result in no pup abandonment or impacts to breeding and pupping, based on over 20 years of monitoring data;
- The USAF's activities are expected to result in no long-term changes in the

use by pinnipeds of rookeries and haulouts in the project area, based on over 20 years of monitoring data; and

• The presumed efficacy of planned mitigation measures—including the avoidance of launches, when feasible, during pupping seasons for the species most sensitive to the stimuli associated with the authorized activities—in reducing the effects of the specified activity to the level of least practicable adverse impact.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the USAF's activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

See Table 13 for information relating to this small numbers analysis (*i.e.,* numbers of take authorized on an annual basis). We authorize the incidental take of individuals from 6 marine mammal stocks. The amount of taking authorized on an annual basis is less than one-third of the most appropriate abundance estimate for five of these species or stocks; therefore, the numbers of take authorized would be considered small relative to those relevant stocks or populations.

The estimated number of instances of take for harbor seals exceeds the best available stock abundance. However, due to the nature of the specified activity—launch activities occurring at specific locations, rather than a mobile activity occurring throughout the stock range—the available information shows that only a portion of the stock would likely be impacted. It is important to note that the estimated number of expected takes represents instances of take and does not necessarily represent the number of individual animals expected to be taken, which is what is considered to make the small numbers determination. Multiple exposures to Level B harassment can accrue to the same individual animals over the course of an activity that occurs multiple times in the same area (such as the USAF's planned activities). This is especially likely in the case of species that have limited ranges and that have site fidelity to a location within the project area, as is the case with Pacific harbor seals.

Harbor seals are non-migratory, rarely traveling more than 50 km from their haulout sites. Thus, while the estimated number of annual instances of take may not be considered small relative to the estimated abundance of the California stock of Pacific harbor seals of 30,968 (Carretta *et al.* 2017), a substantially smaller number of individual harbor seals is expected to occur within the project area. We expect that, because of harbor seals' documented site fidelity to haulout locations at VAFB and the NCI, and because of their limited ranges, the same individual harbor seals are likely to be taken repeatedly over the course of the planned activities. Therefore, the number of instances of Level B harassment authorized for harbor seals per year over the 5-year period of validity of the regulations is expected to accrue to a much smaller number of individual harbor seals encompassing a small portion of the overall stock. Thus, while we authorize the instances of incidental take of harbor seals shown in Table 13, we believe that the number of individual harbor seals that will be incidentally taken by the USAF's activities will, in fact, be substantially lower than this number. We base the small numbers determination on the number of individuals taken versus the number of instances of take, as is appropriate when the information is available.

To estimate the number of individual harbor seals expected to be taken by Level B harassment by the USAF's activities, we estimated the maximum number of individual harbor seals that could potentially be taken per activity (*i.e.,* launch, landing, or aircraft activity), both on the NCI and at VAFB. As described above, due to harbor seals' limited ranges and site fidelity to haulout locations at VAFB and the NCI, we believe the maximum number of individual harbor seals that could be taken per activity (*i.e.,* launch, landing, or aircraft activity) represents a conservative estimate of the number of individual harbor seals that would be taken over the course of a year. On VAFB, monthly marine mammal surveys conducted by the USAF represent the best available information on harbor seal abundance. The maximum number of harbor seals documented during monthly marine mammal surveys at VAFB in the years 2015, 2016 and 2017 was 821 seals (in October, 2015). On the NCI, marine mammal surveys conducted from 2011–2015 (Lowry et al., 2017) represents the best available information on harbor seal abundance. The maximum number of seals documented in surveys from 2011 through 2015 (the most recent information available) was 1,367 seals (in July, 2015) (Lowry et al., 2017). Therefore, we conservatively estimate that the maximum number of harbor seals that could potentially be taken per activity (*i.e.,* lunch, landing, or aircraft activity) is 2,188 harbor seals, which represents the combined maximum number of seals expected to be present on the NCI and VAFB during any given activity. As we believe the same individuals are likely to be taken repeatedly over the duration of the planned activities, we use this estimate of 2,188 individual animals taken per activity (*i.e.,* launch, landing, or aircraft activity) for the purposes of estimating the percentage of the stock abundance likely to be taken (7.1 percent).

Based on the analysis contained herein of the USAF's activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Adaptive Management

The regulations governing the take of marine mammals incidental to the USAF's activities at VAFB contain an adaptive management component.

The reporting requirements associated with this rule are designed to provide NMFS with monitoring data from the previous year to allow consideration of whether any changes are appropriate. The use of adaptive management allows NMFS to consider new information from different sources to determine (with input from the USAF regarding practicability) on an annual or biennial basis if mitigation or monitoring

measures should be modified (including additions or deletions). Mitigation measures can be modified if new data suggests that such modifications would have a reasonable likelihood of reducing adverse effects to marine mammals and if the measures are practicable.

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring reports, as required by MMPA authorizations; (2) results from general marine mammal and sound research; and (3) any information which reveals that marine mammals may have been taken in a manner, extent, or number not authorized by these regulations or subsequent LOAs.

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of ITAs, NMFS consults internally, in this case with the NMFS West Coast Region Protected Resources Division Office, whenever we propose to authorize take for endangered or threatened species.

There is one marine mammal species (Guadalupe fur seal) listed under the ESA with confirmed occurrence in the area expected to be impacted by the USAF's activities. NMFS OPR requested initiation of section 7 consultation with the NMFS West Coast Region Office (WCRO) on the promulgation of five-year regulations and the subsequent issuance of LOAs to the USAF under section 101(a)(5)(A) of the MMPA. On February 15, 2019, WCRO issued a Letter of Concurrence concluding that OPR's action is not likely to adversely affect the Guadalupe fur seal.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must evaluate our proposed action (*i.e.,* the promulgation of regulations and subsequent issuance of incidental take authorization) and alternatives with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 of the Companion Manual for NAO 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the proposed action qualifies to be categorically excluded from further NEPA review.

Classification

Pursuant to the procedures established to implement Executive Order 12866, the Office of Management and Budget has determined that this rule is not significant.

Pursuant to section 605(b) of the Regulatory Flexibility Act (RFA), the Office of General Counsel for the U.S. Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration at the proposed rule stage that this action would not have a significant economic impact on a substantial number of small entities. The USAF is the sole entity that would be subject to the requirements in these regulations, and the USAF is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA (SpaceX activities are included in these regulations, however all SpaceX activities considered in these regulations originate at VAFB and the takes of marine mammals authorized via these regulations and the subsequent LOA are authorized solely to USAF for activities originating at VAFB). No comments were received regarding this certification. As a result, a regulatory flexibility analysis is not required and none has been prepared.

Notwithstanding any other provision of law, no person is required to respond to nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act (PRA) unless that collection of information displays a currently valid OMB control number. However, this rule does not contain a collection-of-information requirement subject to the provisions of the PRA because the applicant is a Federal agency.

Waiver of Delay in Effective Date

The Assistant Administrator for NMFS has determined that there is good cause under the Administrative Procedure Act (5 U.S.C. 553(d)(3)) to waive the 30-day delay in the effective date of this final rule. No individual or entity other than USAF and SpaceX is affected by the provisions of these regulations. USAF has informed NMFS that it requests that this final rule take effect as soon as is possible so as to avoid the potential for disruption in the USAF's planned activities, given that the previous regulations and LOA issued to USAF for activities at VAFB expired March 26, 2019. NMFS was unable to accommodate the 30-day delay of effectiveness period due to the need for additional time to address public comment and carry out required review, which was delayed by the lapse in federal appropriations in December 2018 and January 2019. The waiver of the 30-day delay of the effective date of the final rule will ensure that the MMPA final rule and LOA are finalized as soon as is possible to avoid the potential for disruption in the USAF's planned activities.

Any delay in finalizing the rule could result in either: (1) A suspension of USAF's planned rocket and missile launch activities, which would have potential implications for national security, or (2) USAF's non-compliance with the MMPA (should USAF conduct launch activities without a valid LOA), thereby resulting in the potential for unauthorized takes of marine mammals. This rule supports Department of Defense (DoD)/USAF functions, and harm to those functions will occur if publication of this proposed rule is delayed. The rule ensures the USAF is in compliance with the MMPA for functions designated as ''military readiness'' activities, which are defined as ''(A) all training and operations of the Armed Forces that relate to combat; and (B) the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use.'' Specifically, VAFB is a key location in the United States' Global Missile Defense program which has a crucial role in the potential interception of incoming ballistic missiles by supporting the development and testing activities of the Missile Defense Agency. In addition, rocket launches include National Reconnaissance Office and other agencies' payloads which directly support real-time military readiness for deployed combat personnel in all theaters. The activity covered by this rule also directly impacts the safety of human life and protection of property through impacts on national security, for which adequate testing and training, including these rocket and missile launches at VAFB, are necessary. Any delay in finalizing the rule would prevent or significantly damage the execution of these critical functions because the USAF could not conduct certain military readiness, support and monitoring activities in compliance

with the MMPA without the issuance of the rule. The MMPA rule covering these activities expired on March 26, 2019; a delay of 30 days prior to finalizing the rule would result in a further lapse in MMPA authorization for the critical activities described above. Moreover, USAF is ready to implement the rule immediately.

In addition, the LOA allows for authorization of incidental take of marine mammals that would otherwise be prohibited under the statute. Therefore the rule is also granting an exception to USAF and relieving restrictions under the MMPA. For these reasons, NMFS finds good cause to waive the 30-day delay in the effective date.

List of Subjects in 50 CFR Part 217

Exports, Fish, Imports, Marine mammals, Reporting and recordkeeping requirements, Transportation.

Dated: April 3, 2019.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For reasons set forth in the preamble, 50 CFR part 217 is amended as follows:

PART 217—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

■ 1. The authority citation for part 217 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.*

■ 2. Add subpart G to read as follows:

Subpart G—Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to U.S. Air Force Launches and Operations at Vandenberg Air Force Base, California

Sec.

Subpart G—Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to U.S. Air Force Launches and Operations at Vandenberg Air Force Base, California

§ 217.60 Specified activity and specified geographical region.

(a) Regulations in this subpart apply only to the 30th Space Wing, United States Air Force (USAF) and those persons it authorizes to conduct activities on its behalf for the taking of marine mammals that occurs in the areas outlined in paragraph (b) of this section and that occurs incidental to rocket and missile launches and aircraft operations.

(b) The taking of marine mammals by the USAF may be authorized in a Letter of Authorization (LOA) only if it occurs from activities originating at Vandenberg Air Force Base.

§ 217.61 Effective dates.

Regulations in this subpart are effective from April 10, 2019, until April 10, 2024.

§ 217.62 Permissible methods of taking.

(a) Under an LOA issued pursuant to §§ 216.106 and 217.60 of this chapter, the Holder of the LOA (herein after ''USAF'') may incidentally, but not intentionally, take marine mammals by Level B harassment, within the area described in § 217.60(b), provided the activity is in compliance with all terms, conditions, and requirements of the regulations in this subpart and the appropriate LOA.

§ 217.63 Prohibitions.

Notwithstanding takings contemplated in § 217.62(c) and authorized by an LOA issued under §§ 216.106 and 217.66 of this chapter, no person in connection with the activities described in § 217.60 may:

(a) Violate, or fail to comply with, the terms, conditions, and requirements of this subpart or an LOA issued under §§ 216.106 of this chapter and 217.66;

(b) Take any marine mammal not specified in such LOAs;

(c) Take any marine mammal specified in such LOAs in any manner other than as specified;

(d) Take a marine mammal specified in such LOAs if NMFS determines such taking results in more than a negligible impact on the species or stocks of such marine mammal; or

(e) Take a marine mammal specified in such LOAs if NMFS determines such taking results in an unmitigable adverse impact on the species or stock of such marine mammal for taking for subsistence uses.

§ 217.64 Mitigation requirements.

When conducting the activities identified in § 217.60(a), the mitigation measures contained in any Letter of Authorization issued under §§ 216.106 of this chapter and 217.66 must be implemented. These mitigation measures include (but are not limited to):

(a) For missile and rocket launches, the USAF must avoid, whenever possible, launches during the harbor seal pupping season of March through June, unless constrained by factors including, but not limited to, human safety, national security, or launch mission objectives.

(b) For rocket launches, the USAF must avoid, whenever possible, launches which are predicted to produce a sonic boom on the Northern Channel Islands from March through June.

(c) Aircraft and helicopter flight paths must maintain a minimum distance of 1,000 feet (ft) (305 meters (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, which may require approaching pinniped haulouts and rookeries closer than 1,000 ft (305 m).

(d) Except for during take-off and landing actions, the following minimum altitudes must be maintained over all known marine mammal haulouts when marine mammals are present: For Class 0–2 UAS, a minimum of 300 ft; for Class 3 UAS, a minimum of 500 ft; and for Class 4 or 5 UAS, a minimum of 1,000 ft.

(e) If post-launch surveys determine that an injurious or lethal take of a marine mammal has occurred, the launch procedure and the monitoring methods must be reviewed, in cooperation with the National Marine Fisheries Service (NMFS), and appropriate changes must be made through modification to a Letter of Authorization, prior to conducting the next launch under that Letter of Authorization.

§ 217.65 Requirements for monitoring and reporting.

(a) To conduct monitoring of rocket launch activities, 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 knowledge of approved count methodology and experience in observing pinniped behavior, as specified in the Letter of Authorization, to monitor and document pinniped activity as described below:

(1) 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;

(2) For any launches of new space launch vehicles that have not been monitored during at least 3 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;

(3) 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;

(4) 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;

(5) 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;

(6) For any launches or Falcon 9 First Stage recoveries occurring from January 1 through July 31, follow-up surveys must be conducted within 2 weeks of the launch;

(7) For any launches or Falcon 9 First Stage recoveries, pinniped activity at the Northern Channel Islands must be monitored, if it is determined by modeling that a sonic boom of greater than 2.0 psf is predicted to impact one of the 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. Monitoring will 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;

(8) For any launches or Falcon 9 First Stage recoveries for which marine mammal monitoring is required, acoustic measurements must be made; and

(9) 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 recording environmental conditions such as tide, wind speed, air temperature, and swell. Number of marine mammals hauled out must be recorded immediately prior to the launch, unless weather conditions prevent accurate recording or it is technologically infeasible. When flushing behavior is observed, the amount of time for animals to return to the haulout must be recorded.

(10) Marine mammal monitoring of activities that occur during darkness at VAFB must include night video monitoring, when feasible.

(b) The USAF must submit a report to the Administrator, West Coast Region, NMFS, and Office of Protected Resources, NMFS, within 90 days after each launch. This report must contain the following information:

(1) Date(s) and time(s) of the launch;

(2) Design of the monitoring program; and

(3) Results of the monitoring program, including, but not necessarily limited to:

(i) Numbers of pinnipeds present on the haulout prior to commencement of the launch;

(ii) Numbers of pinnipeds that may have been harassed as noted by the number of pinnipeds estimated to have moved in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degree, or, entered the water as a result of launch noise;

(iii) For any marine mammals that entered the water, the length of time they remained off the haulout;

(iv) Description of behavioral modifications by pinnipeds that were likely the result of launch noise or sonic boom; and

(v) Results of acoustic monitoring, including the intensity of any sonic boom (psf) and sound levels in SELs, SPL_{peak} and SPL_{rms}.

(c) If the authorized activity identified in § 217.60(a) is thought to have resulted in the mortality or injury of any marine mammals or in any take of marine mammals not authorized in LOAs, then the USAF must notify the Director, Office of Protected Resources, NMFS, and the stranding coordinator, West Coast Region, NMFS, within 48 hours of the discovery of the injured or dead marine mammal or of the take of marine mammals not authorized in an LOA.

(d) An annual report must be submitted on March 1 of each year to the Office of Protected Resources, NMFS.

(e) A final report must be submitted at least 180 days prior to expiration of these regulations to the Office of Protected Resources, NMFS. This report will:

(1) Summarize the activities undertaken and the results reported in all previous reports;

(2) Assess the impacts at each of the major rookeries;

(3) Assess the cumulative impacts on pinnipeds and other marine mammals from the activities specified in § 217.60(a); and

(4) State the date(s), location(s), and findings of any research activities related to monitoring the effects on launch noise, sonic booms, and harbor activities on marine mammal populations.

§ 217.66 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, the USAF must apply for and obtain an LOA.

(b) An LOA, unless suspended or revoked, may be effective for a period of time not to exceed the expiration date of these regulations.

(c) If an LOA expires prior to the expiration date of these regulations, the USAF may apply for and obtain a renewal of the LOA.

(d) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, the USAF must apply for and obtain a modification of the LOA as described in § 217.67.

(e) The LOA will set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact (*i.e.,*

mitigation) on the species, its habitat, and on the availability of the species for subsistence uses; and

(3) Requirements for monitoring and reporting.

(f) Issuance of the LOA shall be based on a determination that the level of taking will be consistent with the findings made for the total taking allowable under these regulations.

(g) Notice of issuance or denial of an LOA shall be published in the **Federal Register** within 30 days of a determination.

§ 217.67 Renewals and modifications of Letters of Authorization.

(a) An LOA issued under §§ 216.106 of this chapter and 217.66 for the activity identified in § 217.60(a) shall be renewed or modified upon request by the applicant, provided that:

(1) The specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for these regulations (excluding changes made pursuant to the adaptive management provision in § 217.67(c)(1)); and

(2) NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA under these regulations were implemented.

(b) For LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting (excluding changes made pursuant to the adaptive management provision in § 217.67(c)(1)) that do not change the findings made for the regulations or result in no more than a minor change in the total estimated number of takes (or distribution by species or years), NMFS may publish a notice of proposed LOA in the **Federal Register**, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) An LOA issued under §§ 216.106 of this chapter and 217.66 for the activity identified in § 217.60(a) may be modified by NMFS under the following circumstances:

(1) Adaptive Management—NMFS may modify (including augment) the existing mitigation, monitoring, or reporting measures (after consulting with the USAF regarding the practicability of the modifications) if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in the preamble for these regulations.

(i) Possible sources of data that could contribute to the decision to modify the mitigation, monitoring, or reporting measures in an LOA:

(A) Results from the USAF's monitoring from the previous year(s).

(B) Results from other marine mammal and/or sound research or studies.

(C) Any information that reveals marine mammals may have been taken in a manner, extent or number not authorized by these regulations or subsequent LOAs.

(ii) If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are substantial, NMFS will publish a notice of proposed LOA in the **Federal Register** and solicit public comment.

(2) Emergencies—If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 217.62(c), an LOA may be modified without prior notice or opportunity for public comment. Notice would be published in the **Federal Register** within 30 days of the action.

§§ 217.68–217.69 [Reserved]

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