

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE ISSUANCE OF AN INCIDENTAL HARASSMENT AUTHORIZATION
TO SPACE X TO TAKE MARINE MAMMALS INCIDENTAL TO
FALCON 9 FIRST STAGE ROCKET RECOVERY ACTIVITIES IN CALIFORNIA**

NATIONAL MARINE FISHERIES SERVICE

BACKGROUND

The National Oceanic Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) is proposing to issue an Incidental Harassment Authorization (IHA) to Space Exploration Technologies Corporation (SpaceX) pursuant to section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. §§ 1631 *et seq.*), and the regulations governing the taking and importing of marine mammals (50 Code of Federal Regulations (CFR) Part 216). This IHA will be valid from June 30, 2016, through June 29, 2017, and authorizes takes, by Level B harassment, of marine mammals incidental to Falcon 9 First Stage rocket recovery activities at Vandenberg Air Force Base in California (VAFB) and at a contingency landing location on a barge approximately 31 miles (50 km) offshore of VAFB.

NMFS proposed action is a direct outcome of the SpaceX request which involves in-air boost back maneuvers and landings of the First Stage of the Falcon 9 rocket. This type of activity has the potential to cause marine mammals near the project area to be behaviorally disturbed, and therefore qualifies for a permit from NMFS. NMFS criteria for an IHA requires that the taking of marine mammals authorized by an IHA will have a negligible impact on the species or stock(s), and, where relevant, will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses. In addition, the IHA must set forth, where applicable, the permissible methods of taking, other means of effecting the least practicable adverse impact on the species or stock and its habitat, and requirements pertaining to the monitoring and reporting of such takings.

The issuance of an IHA to SpaceX allows the taking of marine mammals, consistent with provisions under MMPA, and is considered a major federal action under the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*). This Finding of No Significant Impact (FONSI) evaluates the significance of the impacts of the selected alternative – Alternative 1 (Preferred Alternative) in the U.S. Air Force’s (USAF) Final Environmental Assessment (EA), and our adoption of the USAF’s Final EA, “*Boost-Back and Landing of the Falcon 9 First Stage at SLC-4 West Vandenberg Air Force Base, California and Offshore Landing Contingency Option.*” The preparation of this FONSI and adoption of the USAF’s Final EA were completed in accordance with NEPA and the Council on Environmental Quality (CEQ) regulations in 40 CFR §§ 1500-1508. Based on the USAF’s Final EA and SpaceX’s application, NMFS’s alternatives include:

- Alternative 1 (Preferred Alternative): Issue an IHA to SpaceX authorizing unintentional take of marine mammals incidental to Falcon 9 First Stage rocket recovery activities. The authorization includes the prescribed means of take and requires mitigation measures, monitoring and reporting.
- Alternative 2 (No Action Alternative): For NMFS, denial of an MMPA authorization constitutes the NMFS No Action Alternative, which is consistent with our statutory obligation under the MMPA to grant or deny permit applications and to prescribe mitigation,

monitoring and reporting with any authorizations. Under NMFS's No Action Alternative, there are two potential outcome scenarios. One is that the Falcon 9 First Stage rocket recovery activities occur in the absence of an MMPA authorization. In this case, (1) SpaceX would be in violation of the MMPA if takes occur and (2) mitigation, monitoring and reporting would not be prescribed by NMFS. Another outcome scenario is SpaceX could choose not to proceed with their proposed activities.

ANALYSIS

The CEQ regulations at 40 CFR §1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below this section is relevant to making a finding of no significant impact. We have considered each criterion individually, as well as in combination with the others. We analyzed the significance of this action based on CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in Fishery Management Plans (FMP)?

Response: We do not expect our proposed action of issuing an Authorization for the take of marine mammals incidental to the conduct of Falcon 9 First Stage rocket recovery activities or SpaceX's proposed activities would cause substantial damage to the ocean and coastal habitats and/or essential fish habitat because our Authorization is limited to the take of marine mammals incidental to rocket recovery activities and does not authorize the activity itself, thus it is limited to activities that do not have an effect on ocean and coastal habitats or essential fish habitat. Similarly, the mitigation and monitoring measures required by the Authorization for SpaceX's proposed activities are limited to actions that minimize take of marine mammals and improve monitoring of marine mammals, and do not alter any aspect of the activity itself.

2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: We do not expect our proposed action of issuing an Authorization for the take of marine mammals incidental to the conduct of rocket recovery activities to have a substantial impact on biodiversity or ecosystem function within the affected environment. The taking, by harassment, of marine mammals would result in temporary disturbance to pinnipeds that are hauled out near the landing location, but the effects would be short-term and localized.

3) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

Response: We do not expect our proposed action (i.e., issuing an Authorization to SpaceX) to have a substantial adverse impact on public health or safety as the taking, by harassment, of marine mammals would pose no risk to humans.

4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: We have determined that our proposed issuance of an Authorization would likely result in limited adverse effects to Pacific harbor seals (*Phoca vitulina richardii*), California sea lions (*Zalophus californianus*), Steller sea lions (eastern Distinct Population Segment, or DPS) (*Eumetopias jubatus*), northern elephant seals (*Mirounga angustirostris*), northern fur seals (*Callorhinus ursinus*), and Guadalupe fur seals (*Arctocephalus townsendi*).

The EA evaluates the affected environment and potential effects of SpaceX's proposed activities, indicating that only the sound associated with the proposed activities have the potential to affect six species of marine mammal (listed above) in a way that requires authorization under the MMPA.

The impacts of the proposed activities on marine mammals are specifically related to acoustic stimuli. To reduce the potential for disturbance from the proposed activities SpaceX would implement several monitoring and mitigation measures for marine mammals, which are outlined in the EA. Taking these measures into consideration, we expect that the responses of marine mammals from the Preferred Alternative would be limited to temporary displacement from the area and/or short-term behavioral changes, falling within the MMPA definition of "Level B harassment." We do not anticipate that take by injury (Level A harassment), serious injury, or mortality would occur, nor have we authorized take by injury, serious injury, or mortality. We expect that harassment takes would be at the lowest level practicable due to the incorporation of the proposed mitigation measures.

There is one ESA-listed species (Guadalupe fur seal) that is expected to be impacted by the proposed activities. Potential impacts to Guadalupe fur seals are expected to be limited to temporary displacement from the area and/or short-term behavioral changes; no injury or mortality of Guadalupe fur seals is expected, nor authorized. On January 26, 2016, the NMFS West Coast Region (WCR) Protected Resources Division (PRD) determined that the proposed action is not likely to adversely affect Guadalupe fur seals and therefore issued a Letter of Concurrence to the U.S. Air Force for the proposed action; on February 18, 2016, NMFS WCR PRD also determined the NMFS Office of Protected Resources proposed action of issuance of the Authorization to SpaceX is not likely to adversely affect Guadalupe fur seals.

NMFS has not designated critical habitat for any species in the area that is expected to be impacted by the proposed action.

5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: We expect that the primary impacts to the natural and physical environment would be temporary in nature and not interrelated with significant social or economic impacts. Issuance of an Authorization would not result in inequitable distributions of environmental burdens or access to environmental goods as the action is confined to university personnel and contractors.

We have determined that issuance of the Authorization would not adversely affect low-income or a minority population, as our action only affects marine mammals. Further, there would be no impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses. Therefore, we expect that no significant social or economic effects would result from our proposed issuance of an Authorization or from SpaceX's proposed activities.

6) Are the effects on the quality of the human environment likely to be highly controversial?

Response: The effects of issuing an IHA to SpaceX on the quality of the human environment are not likely to be highly controversial because: (1) there is no substantial dispute regarding the size, nature, or effect of the proposed action; (2) there is no known scientific controversy over the potential impacts of the proposed action; and (3) all comments received during the public comment period supported the issuance of the IHA.

To allow other agencies and the public the opportunity to review and comment on the action, NMFS published a notice of the proposed IHA in the *Federal Register* on March 31, 2016 (81 FR 18574). We received no public comments in response to the publication of the proposed IHA in the *Federal Register*. The Marine Mammal Commission, which provides comments on all proposed incidental take authorizations as part of their established role under the MMPA (§ 202 (a)(2)), concurred with these findings and recommended that we issue the Authorization to SpaceX, subject to inclusion of the proposed mitigation, monitoring and reporting measures.

For several years, we have assessed and authorized incidental take for similar activities (rocket launches resulting in sonic booms) and have developed relatively standard mitigation and monitoring measures, all of which have been vetted during past public comment periods. We are unaware of any party characterizing SpaceX's proposed activities as controversial and there is no substantial dispute over effects to marine mammals.

7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas?

Response: The proposed action cannot reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas because none of these are found in the project areas. Similarly, as described in the response to question 1 above, our Authorization is limited to the take of marine mammals incidental to rocket recovery activities and does not authorize the activity itself, thus it is limited to activities that do not have an effect on cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas. The natural processes in the environment are expected to fully recover from any impacts resulting from the activities.

8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: The action of issuing an IHA to SpaceX for the incidental take, by Level B harassment only, of small numbers of marine mammals is not expected to have significant effects on the human environment that would be unique or involve unknown risks because this

type of activity has been performed frequently for several years at the project location.

While NMFS' judgments on impact thresholds for marine mammals in the vicinity of the project area are based on limited data, the risks are known and would involve the temporary, minimal harassment of marine mammals. No deaths or injuries to animals have been documented due to past sonic booms resulting from rocket launch activities. The most common response to sonic boom noise is for marine mammals to alert to the noise, and possibly enter the water from a haulout location.

We have issued incidental take authorizations for similar activities or activities with similar types of marine mammal harassment, and conducted NEPA analyses on those projects. In no case have impacts to marine mammals from these past activities, as determined from monitoring reports, exceeded our analyses under the MMPA and NEPA. The activities associated with the proposed action are well planned to minimize any impacts to the biological and physical environment of the areas by implementing mitigation and monitoring protocols that ensure the least practicable adverse impact on the affected species or stocks of marine mammals. Therefore, we expect any potential effects from the proposed issuance of our Authorization to be similar to prior activities and are not likely to be highly uncertain or involve unique or unknown risks.

9) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: The proposed action is not related to other actions with individually insignificant, but cumulatively significant impacts. While the stocks of marine mammals to which the animals in the vicinity of the SpaceX project site have the potential to be impacted by other human activities within the proposed project location, as described in the cumulative impacts analysis in the EA, these activities are generally separated both geographically and temporally from the proposed action in the project site and are not occurring simultaneously within the action area.

The short-term stresses (separately and cumulatively when added to other stresses the marine mammals in the vicinity of the SpaceX project site face in the environment) resulting from the proposed action would be expected to be minimal. Thus, NMFS concluded that the impacts of issuing an IHA to SpaceX for the incidental take, by Level B harassment only, of small numbers of marine mammals are expected to be no more than minor and short-term.

The Cumulative Effects section of the EA describe the past, present, and reasonably foreseeable future actions, but concludes that the impacts of SpaceX's activities are expected to be no more than minor and short-term with no potential to contribute to cumulatively significant impacts.

10) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

Response: We have determined that our proposed action is not an undertaking with the potential to affect historic resources because our proposed action is limited to the issuance of an Authorization to harass marine mammals consistent with the MMPA definition of Level B harassment. The issuance of an IHA is not expected to adversely affect districts, sites, highways,

structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural or historical resources either because such resources do not exist within the project area or are not expected to be adversely affected. In particular, VAFB and the northern Channel Islands are not considered significant scientific, cultural or historical resources, nor are they listed in the National Register of Historic Places.

11) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: The issuance of the IHA cannot reasonably be expected to lead to the introduction or spread of any non-indigenous species into the environment because the activities associated with the proposed project would only be rocket boost-backs and landings and are limited to the area the activity is taking place.

12) Is the proposed action likely to establish a precedent for future actions with significant effects or does it represent a decision in principle about a future consideration?

Response: The issuance of an IHA is not expected to set a precedent for future actions with significant effects nor represent a decision in principle regarding future considerations. The issuance of an IHA to take marine mammals incidental to the proposed activities is a routine process under the MMPA. To ensure compliance with statutory and regulatory standards, NMFS's actions under section 101(a)(5)(D) of the MMPA must be considered individually and be based on the best available information, which is continuously evolving. Issuance of an IHA to a specific individual or organization for a given activity does not guarantee or imply that NMFS will authorize others to conduct similar activities. Subsequent requests for incidental take authorizations would be evaluated upon their own merits relative to the criteria established in the MMPA, ESA, and NMFS implementing regulations on a case-by-case basis. The project has no unique aspects that would suggest it would be a precedent for any future actions. For these reasons, the issuance of an IHA to SpaceX to conduct the proposed action would not be precedent setting.

13) Can the proposed action reasonably be expected to threaten a violation of any Federal, State, or local law or requirements imposed for the protection of the environment?

Response: The issuance of an IHA would not violate any federal, state, or local laws for environmental protection. SpaceX has fulfilled its responsibilities under MMPA for this action and the IHA currently contains language stating that the applicant is required to obtain any state and local permits necessary to carry out the action which would remain in effect upon issuance of the proposed amendment.

14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: The issuance of an IHA is not expected to result in any significant cumulative adverse effects that could have a substantial effect on target or non-target species because the minor and short-term stresses (separately and cumulatively when added to other stresses experienced by the marine mammals in the vicinity of the project location) resulting from the proposed action would be expected to be minimal.

DETERMINATION

In view of the information presented in this document, SpaceX's application, and the analysis contained in the Final EA prepared by the USAF, it is hereby determined the issuance of an IHA to SpaceX would not significantly affect the quality of the human. In addition, we have addressed all beneficial and adverse impacts of the action to reach the conclusion of no significant impacts. Accordingly, the preparation of an Environmental Impact Statement for this action is not necessary.



Donna S. Wieting
Director, Office of Protected Resources,
National Marine Fisheries Service

MAY 6 2016

Date